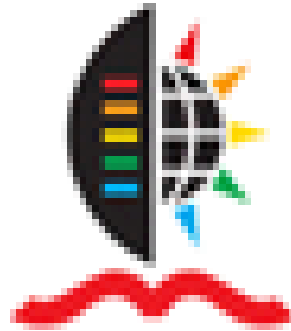


**EXPLORATION OF FACTORS THAT INFORM CURRICULUM STUDIES
STUDENTS TO USE E-RESOURCES IN CONDUCTING
MASTERS OF EDUCATION DISSERTATIONS AT A
SOUTH AFRICAN UNIVERSITY**



**UNIVERSITY OF
KWAZULU-NATAL**

**A dissertation submitted in fulfilment of the requirements for a
Doctor of Philosophy degree in Curriculum Studies**

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December 2016

SUPERVISOR'S STATEMENT

This dissertation has been submitted with my approval.

Doctor Simon Bheki Khoza

December 2016

DECLARATION

I, Ramona Budden, declare that this dissertation is original and is a product of my own work. It has not been submitted in another institution for degree purposes or for any purpose whatsoever. I have also acknowledged and explicitly referenced every sources or borrowed idea engaged in this dissertation accordingly.

Ramona Budden
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December 2016

DEDICATION

This dissertation is dedicated to the saviour and first love of my life Jesus Christ who has imbued me with immense wisdom, strength and perseverance throughout this journey. I give Him all the glory, praise and honour for truly this accomplishment can only be attributed to His grace and presence in my life. I am forever grateful.

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ABSTRACT

This study is an exploration of factors that inform Curriculum Studies students to use e-resources in conducting their Masters of Education dissertations at a South African university. With rapid developments in online learning and perpetual advancements in technology, amidst the increasing numbers of students enrolling for postgraduate studies, the study sought to gain an understanding and interpretation of the e-resources students mainly use to conduct their dissertations and the critical factors that support such practises. Establishing this invigorated a critical perspective of the e-resources employed in research in the field of curriculum. The field of curriculum is vast and ever changing due to the evolving needs of society. Coupled to this transformation is the influence of Information and Communication Technology (ICT) that enables higher education institutions to create online platforms for the culmination of e-resources that can improve students' research imperatives. To this effect the rationale for the study was to explore why certain e-resources are used above others, and how this informs students' ability to do research. This process involved understanding the factors of content, societal and personal which provided an analytical lens in exploring the premise for their choices of e-resources. Consequently, the study was guided by three research questions that framed each chapter. The first research question stated, "What are factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university?", the second, "How do Curriculum Studies students use e-resources in conducting Masters of Education dissertations at a South African university?", and the third, "Why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university?"

To answer the three research questions, the study adopted a qualitative research approach which enabled a platform for seeking detailed accounts of participants' experiences, perspectives, beliefs and opinions of using e-resources to undertake research. The qualitative research approach paralleled the use of the interpretive paradigm that allowed the study to delve into the deep, subjective meanings of participants' experiences that enhanced the epistemological and ontological assumptions thereof. This was supported by the implementation of a case study style of research in which a small group of participants from the university were targeted in order to source thick descriptions regarding their use of e-resources in research. In selecting participants, the non-probability sampling methods of purposive sampling infused with convenience sampling was

affiliated to coincide with the features of a qualitative, interpretivist case study approach to this study. This was further conditioned by the three data generation methods chosen: one-to-one semi structured interviews, document analysis and an online reflection activity. Ensuring trustworthiness of the data was analysed according to the criteria of credibility, transferability, dependability and confirmability.

To further probe, analyse and make sense of the data, the theoretical framework of the Cultural Historical Activity Theory (CHAT) was merged with the Curriculum concepts to produce the Curriculum CHAT theory. This invoked the precepts of guided analysis that provided a foundation for eliciting themes and categories to present the data. Eight themes were conceived, afforded by categories (sub-themes) that culminated patterns and trends of the factors that inform students (researchers) to use particular e-resources in research. These themes were divided into researcher; e-resources; research knowledge; accessibility; research activities; research environment and time; research targets; and assessment. The themes were additionally structured in a manner of interrogating the three research questions of the study. The findings postulated that certain e-resources were privileged in use over others, as these were driven by ideological-ware (IW) resources. E-resources were explored in the context of hard-ware (HW), soft-ware (SW) and ideological-ware (IW). This suggests that using e-resources were first informed by theories of research, paradigms and the literature (IW resources) in construction of students' dissertations. Having a firm grasp of IW resources ensured that students' were able to maintain the true goals of research by eliminating e-resources that would distort their judgement. Consequently, the research targets were achievable which indicated that they were able to successfully complete their dissertations and acquire a Master's degree.

The study recommends, firstly, that curriculum courses and programmes should be geared by potential IW resources to scaffold the implementation of HW and SW e-resources to avoid the entertainment or social media incentives that can obscure the essence of conducting research. Secondly, pinpointing factors along the corridors of content, societal and personal ingrains a process of reflection in which students can identify key concepts from the literature, theory and research design and methodology through interrogation and analyses in doing research. The third recommendation galvanised by the study is the cultivation of research activities such as supervisory meetings, cohort sessions and peer involvement that enable a platform for students to seek help and guidance into the strategic procedures of initiating research. Fourthly, universities should utilise e-resources that create better access for students to gain deeper, credible information, as some online sites are restricted. The fifth recommendation envisaged is that curriculum driven courses or

programmes should be steeped into Curriculum Spider Web concepts since these are not only foundational but universal to implementation of any curriculum, and serves as an excellent conceptual framework for making decisions on what works and does not work in a curriculum. Finally, the study recommends that further research be undertaken in other branches of curriculum as well as other levels of postgraduate studies to expand the existing body of literature and establish greater awareness as to how e-resources can be implemented without overcoming the essential goals of research.

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APPENDIX A: ETHICAL CLEARANCE APPROVAL LETTER

APPENDIX B: TURNITIN REPORT

CHAPTER ONE

MAPPING THE PREMISE FOR EXPLORING E-RESOURCES

CANDIDATE STATEMENT

This statement represents an important element of who I am and how I can contribute to society in conducting my Ph.D. in Curriculum. This statement cannot be confined to the appendices section, as this provides meaning, justification and reason as to why I embarked in a research of this nature. As an individual, a woman, and a South African, I felt compelled to undertake a study of this calibre to unearth my potential and identity in making a valuable contribution to society. Steeped in the intense apartheid history of, society has adopted new trends and ideologies of what it means to live and be educated in a democratic country. The opportunities at hand are greater than before; to an extent that I could not ignore the accessibility I had to study at this level. More so, my experiences as an undergraduate and postgraduate student through each degree I accomplished has imbued my passion for understanding curriculum. From then till presently, the resources through which I undertook my studies have changed, transformed and configured to new possibilities of understanding curriculum issues. I wanted to make sense of how students at Masters level used these prevalent e-resources to engage their research, how did they go about it, and what were the platforms that they used to inform their work. In exploring curriculum theories it has enabled me with a groundswell of information in impacting my personal and professional life. Since I am a teacher, I began to understand the myriad of changes that occur each time a new curriculum is introduced at school-based level. This fuelled my inspiration for enquiring whether these occurrences also take place at higher education since I desire to lecture there in the near future. It introduced me to the factors of content, societal, and personal that not only arose through this study, but how these factors are emanating in our behaviours and actions as human beings. Positioning these factors has allowed me to interpret curriculum concepts that are flexible to any curriculum, and hence improve my capabilities as teacher, student, and future lecturer. These factors, in consultation with the curriculum concepts, need to be recognised and conditioned for implementation of any curriculum to be successful. This has motivated me to write papers in this area that may increase knowledge and understanding of

these powerful analogies that may inform the wider academic community of curriculum, higher education institutions, lecturers/supervisors, and students.

1.1 INTRODUCTION

This chapter introduces the study which is titled, “Exploration of factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university”, and systematically provides a synopsis of the entire study and the steps taken to elicit this research. In this regard, the chapter unpacks the background to the study by seeking some imperatives from the influence of ICT on higher education practises, and the implications for research. The study then proceeds to iron out the problem and rationale for undertaking this research and the implications this may warrant to various stakeholders in the academic community of curriculum. This gives relevance to the next part of the discussion in presenting the aims, objectives and research questions directly generated from the phenomenon of factors in using e-resources. Then, significant terms that will be perpetually featured throughout the study will be addressed for clarification and fit, within the context of the arguments put forth. This is followed by the penultimate section of the chapter that briefly focuses on salient points of each chapter. Finally, the chapter closes with some concluding remarks and a snapshot of the assumptions of Chapter Two.

1.2 BACKGROUND TO THE STUDY

A profound assumption of human beings is their ability to develop knowledge and how this informs their levels of inquiry (research) as society transforms and adapts itself to new dispensations of information (Sarkar, 2012). The field of higher education has undergone immense transformation with the development of information and communication technologies (ICT) during the 21st century. This has been coined as the era of ‘knowledge revolution’; members of society from learners in the school classroom to students at universities and employees in the workplace have been impacted by the hype of electronic literacy, informatics, and communication technologies (ICT) (Tutkun, 2011). Assimilating with evolving ICT requires the relevant knowledge and skills to use these efficiently in an online environment in higher education. Online education, through the use of e-resources, can be conceptualised as the interaction between the computer and student to advanced interaction between the student and supervisor and, mediated by computer technology (Rutishauser-Chappelle, 2007). This postulates a kind of interaction that culminates at different levels to bring an unconventional approach to research when compared to traditional

methods of borrowing books in a library or purely meeting face-to-face with the lecturer or supervisor to receive knowledge. Such experiences permeate a top-down approach where students' independence in research was limited to what the supervisor could advise and, having spent an incredible amount of time in sifting through a multitude of books could have been channelled elsewhere, perhaps in field work to obtain deeper data. Curran (2004) extends this definition by suggesting the involvement of research materials through the internet or other computer networks in which students assume a primal position in developing their own knowledge by engaging in critical thinking activities that assist them in selecting the desired reading materials. Emphatically the internet, a charismatic feature of the information age, has not only catapulted technology to a greater level of accessibility, but has become cheaper and faster; fostering new pedagogies of research (Bates, Hardy & McKain, 2008). At the global frontier, governments have identified the stringent position education holds in achieving economic growth and competitiveness (Bennet, Agostinho, Lockyer & Harper, 2006). Through negotiating policies and forums, governments have become instrumental in their stance towards innovation of research strategies that encourages online instruction (Bennett et al, 2006). Without a doubt, several higher education institutions have succumbed to pedagogical changes in research by reconfiguring existing practises to embrace the advancement of online education (Yuen, 2011). Views from an international audience agree that the dispensation of ICT as a strategy for transformation has altered conducting research in higher education to increase the accessibility to a wealth of information. It is further envisioned as a cornerstone for competing globally and a symbol for the modern knowledge economy (Boezerooij, 2006; Darries, 2004).

Paving access to ICT in many countries is a national priority, enshrined in laws that envision and enact such developments. The adoption of ICT into research practises in tertiary institutions in South Africa is multifarious. Firstly, it is a broader representation of political, economic and societal melioration; and secondly, it is varied in the diverse student communities encountered by different institutions across the country. South Africa has accumulated qualities of a developing economy with formidable access to technology, research intensive universities, a developing private sector and sufficient fiscal resources as compared with other sub-Saharan African countries (Gillwald, Moyo & Stork, 2012). To this end, several higher education institutions have revisited and remodelled previous traditions of research to incorporate ones that are sensitive to the needs of an emerging techno-inclined cohort of students swarming in. In South Africa the government perceives ICT integration in

all avenues of education as a pertinent mechanism in preparing its citizens to compete globally. This is underscored by the need to improve research strategies, create better access to learning opportunities and develop a nation that can operate in the information era (DOE, 2004). To this end, online learning has become a custom in research practises in a variety of universities across South Africa. What emerged as distance learning for students who could not afford or travel to physical institutions has become a trend in current practises (Bolliger & Wasilik, 2009). Higher education institutions have infused face-to-face learning with online learning to produce a blended approach (Yuen, 2011). The establishment of such environments have imbued universities with the responsibility to create online learning programmes that can support such ventures. This has taken off rampantly with the design of e-resource tools circumspectly crafted to fit specific courses.

As technologies are perpetually developed, new e-resources emerge as a consequence, offering a more advantageous experience than its predecessors (Tutkun, 2011). Higher education institutions are then propelled to explore these creations in a bid to keep up with the demands of students, society, and escalating costs. The influx of students entering South African universities is exacerbated, forcing institutions to acclimate to such changes. The number of postgraduate students enrolling is exorbitant. These are students who are mostly involved in research driven tasks. Universities have become more research-intensive and as a result call for measures that can induce and maintain this vision (Venkataram, 2010). Therefore there is a need to explore the e-resources postgraduate students' use, particularly that of Masters level, in conducting their dissertations. The study pinpointed the field of Curriculum Studies in which to invigorate such exploration, the reasons for which are explained in the next section of rationale.

1.3 RATIONALE FOR THE STUDY

My interest in a topic of this nature for research is embedded in my experiences and perceptions regarding the use of e-resources as a strategy for conducting research on higher education. As an Honours and Masters student I was exposed to using e-resources in the discipline of Curriculum in which I conducted my studies. Some of the Honours Degree modules included elements of e-resources while others did not. This motivated me to read different studies on the use of e-resources because as a student I did not understand the reasons why we had to use e-resources for some of the modules and not for others. I passed all the modules and did not feel much difference between those that used e-resources and

those that did not, except that those with e-resources had the entertainment element over and above education.

The field of curriculum is broad and vast, subject to eminent changes as society progresses and technologies transform. Whereas previous curriculums did not contain the prospect of using e-resources, new policies are affiliated with ways of imbuing courses, programmes and disciplines with using ICT in research (Bolliger & Wasilik, 2009). This suggests that institutions of higher education are increasingly using e-resources to facilitate both blended and distance learning research. Further, transitioning from completing my Honours degree to undertaking research at Masters level, I observed several new e-resources being introduced, ranging from those that detect plagiarism, to learning forums, and other online research strategies established for students themselves to implement, of which I was not exposed to during my course of studies. I wanted to understand how these e-resources are being implemented by Master students while conducting research and what the factors indicate that drive such usage. Few of the studies that I engaged with, were centred on the use of e-resources by Masters students and how they were adapting to prevalent ways of researching. This purged my interest in comprehending the factors that support this usage, and how it affects the process of researching.

Although studies have been initiated on different types of e-resources used in teaching and learning, none of them have focussed on the factors that inform e-resource users to use them in exploring research. For example, Prensky (2001) instrumented a study on the difference between instructors' and students' usage of digital technology (e-resources). The study concluded in identifying students as digital natives because they were born in digital era and needed future content in learning; whereas the instructors were born before the digital era and identified as digital immigrants who were only familiar with legacy content. The results advocate that if education institutions are driven by the digital natives' needs, they will teach the future content but if they are driven by digital immigrants' needs they will teach the legacy content. Countering these claims Czerniewicz, Williams, and Brown (2009) conducted another study on two university students where one of them was from a rich family with advanced e-resources and the other one from poor family with only a basic mobile phone. The one from the rich family was using his e-resources mostly for entertainment and the one from the poor family was using the university internet for learning only. This study evinced that both of these students managed to pass their modules without any noticeable difference

between the usage of e-resources in learning. Cumulative to this debate, Khoza (2012 & 2013a) carried out case studies on facilitators' and students' usage of e-resources in teaching and learning. These studies concluded that e-resources promote digital awareness users (the users that use e-resources for education only) and digital coincidental users (the users that use e-resources mostly for entertainment). In another study, Amory (2010) suggests that ideology should inform the usage of e-resources in education because learning is not about technology but about ideology. However, the study does not specify which ideology leaves the users with a situation where they may apply irrelevant ideology as a factor that informs the usage of e-resources. Jones and Shao (2011) in their study, also warrant the need to establish factors in order to understand how e-resources are appropriated in research. The two want to understand whether or not what informs the usage are educational benefits, technological benefits, political benefits, power benefits, economic benefits, market benefits, social benefits, or religious benefits. In order to fill this gap this study will seek to explain some of the factors that inform students' use of e-resources in conducting their Masters dissertations.

The studies that have been conducted so far have failed to identify factors that inform the use of e-resources in learning, teaching, and conducting research, especially in the field of curriculum. It is for this reason that I decided to conduct this study in that it may help educational institutions, curriculum departments, supervisors, and students to understand whether there is a need for them to use e-resources in conducting research. Moreover, most of these studies were primarily centred on teaching and learning in undergraduate or school-based levels, with creates a niche for studies to be undertaken firstly in research, and secondly at Masters level. Bonk (2006) and Khoza (2011) contend that there are a myriad of challenges facing higher education institutions, varying from the lack of pedagogical tools and infrastructure to support the use of e-resources to the insufficient salary structures needed to pay educational technologists that are crucial to facilitating online learning. Conducting studies that identify the factors that influence the use of e-resources by Masters students may help overcome some of these challenges by pinpointing specific ways in which students research. It may provide clarity into particular e-resources utilised which can avoid additional funding spent on creating online platforms that do not serve a significant purpose. This research can also educate curriculum course coordinators and institutions in designing postgraduate programmes that are conducive to students' needs by articulating certain e-resources that are feasible and accessible, and may promote greater participation and involvement of students. Further, guiding the utilisation of e-resources is imperative in

capturing the true essence of doing research, and not the fun or entertainment attached in using them. Discovering the factors that motivate such experiences can also decrease the failure or dropout rates of students who do not fulfil their postgraduate degrees.

1.4 RESEARCH AIMS, OBJECTIVES, AND CRITICAL RESEARCH QUESTIONS

Williamson (2008) opines that research studies must enunciate clear, crisp statements of aims, objectives and research questions to facilitate the understanding, interpretation and writing of the entire study. Khoza (2013a) advocates that aims are written at the start of the research period and represent the overall intentions of the research. Simply put, the aims indicate what the research will be doing. Noddings (2007) maintains that aims go deeper in ultimately informing the methods and approaches that will direct a study. It further outlines the specific area in which the research is focused and enables the construction of the literature. To this effect the aim of this study is to explore the factors that inform Curriculum Studies students to use e-resources in conducting their Masters dissertations. Noddings (2007) also asserts that aims are broad in nature and require further analysis by breaking it down into objectives. Objectives are derived from the aims and are explicit statements of what the researcher will achieve throughout the research study (Williamson, 2008). Hussey and Smith (2002) solidify that objectives are likely to be specific statements of research directly related to a domain of knowledge or course. The study has identified the following objectives:

- Identify factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university.
- Understand ways in which Curriculum Studies students use e-resources in conducting Masters of Education dissertations at a South African university.
- Explain what informs Curriculum Studies students to use e-resources in a particular way in conducting Masters of Education dissertations at a South African university.

Aims and objectives are significant in describing the contents of a research and what can be expected throughout the study as a broad general overview, although the latter is a little more specific. Whilst aims and objectives are conceived from the premise of research intentions, research questions postulate clear statements of what the participants are expected to answer in a study (Noddings, 2007). Research questions have been established to represent a

statement of what a researcher is expected to know, understand, and be able to articulate at the end of a research. As the researcher intricately addresses each phase of the study, cognisance is placed on the research questions. Therefore this study is guided by the following research questions:

- What are factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university?
- How do Curriculum Studies students use e-resources in conducting Masters of Education dissertations at a South African university?
- Why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university?

The study has strategically developed the research questions in a manner that would frame each chapter of the study. In selecting the literature, consulting the theoretical framework, crafting the research design and methodology, and finally presenting the findings, I was consciously aware of addressing the research questions through the discussions exhibited. Inclusive in these discussions I have defined and clarified important terminologies as they arose in each section of the study. They have direct relevance to the research questions and phenomenon of factors in using e-resources.

1.5 OVERVIEW OF THE STUDY

This section elicits an overview of the entire study by delineating the core elements of each chapter. The study contains seven chapters, with this chapter being the first titled, “Mapping the premise for exploring e-resources.” It provides an outline of what can be expected in each chapter, introducing the reader to the focal points. The current chapter titled, “Mapping the premise for exploring e-resources” includes six sections, starting with the candidate statement, moving on to the background and rationale of the study with incentives placed on e-resources, ICT and curriculum, as well as drawing focus to the aims, objectives, and research questions. It further elaborates on an overview of each chapter and finally concludes the chapter.

Chapter Two titled, “The phenomenon of factors that drive the utilisation of e-resources” represents the first instalment of the literature review and deals with two of the curriculum

concepts identified in the study; factors and e-resources. It comprises five sections, the bulk of which fixated on the two concepts. The factors form the orientation point from which other principles of curriculum draw their purpose and link to contributing to learning. Factors suggest the reasons why students learn which in other words articulate factors that influence students to research. They are explored in terms of content, societal, and personal factors. E-resources are clarified as Hard-ware (HW), Soft-ware (SW), and Ideological-ware (IW) e-resources and its usefulness and relevance are interrogated as to how students apply them to research. Studies are explored from international and local perspectives. The discussion is extensive and lengthy which gave rise to the literature being divided into two.

Chapter Three, the second instalment of the literature is titled, “Curriculum concepts as a frame to explore factors” and focuses on the balance of the curriculum concepts being research targets, research knowledge, research activities/researcher role, accessibility, research environment/time, and assessment. The chapter is built by eight sections, with each critically defining its relevance to the phenomenon of the study. Purposes, objectives, and research questions are proponents of research target and are symbolic of the overall intensions of a student’s research dissertation. Research knowledge is mainly divided into the literature, theoretical framework, and research design and methodology students engage with to develop their knowledge repository. The researcher role is envisioned by all the research activities the students participate in to egress their research knowledge. This constitutes supervisory meetings, cohort sessions and peer involvement that are supplementary to researching independently. Accessibility concentrates on how researchers (students) are allocated to various trajectories such as physical, financial, and cultural access that are relevant to their studies. Research environment and time is another concept of curriculum that stipulates location from which students undertake their research. This may include studying from home, campus, or conducting field work. Time refers to the period in which students are given to complete their dissertations. Finally, assessment is divided into formative, summative, and peer assessment, and displays the different ways in which students may be assessed throughout their Masters journey. Interrogating the curriculum concepts of Chapter Two and Three have constructed a formidable conceptual framework in understanding how they related to Masters students’ use of e-resources in producing the factors that surround their usage.

Chapter Four titled, “Theorising the concepts in building theoretical disposition” incorporates six sections, and essentially describes the theoretical framework informing the study. Theories are conceptual frameworks that divulge how information is processed, received and retained during research (Wells, 2007). This reaches a person’s cognitive, emotional, and environmental ability to develop knowledge, skills, and values. The theoretical framework scaffolding this study is the Cultural Historical Activity Theory, and has been reconceptualised to merge with the curriculum concepts. This theory has been selected since it has been used in similar e-resource contexts, and further coincides with the phenomenon and research questions of the study. The chapter captures each component in the activity system to reconfigure them into principles of Curriculum CHAT theory, symbolic of the assimilation between CHAT and curriculum concepts. Each principle is interpreted and explained in the relevance it brings to the activity of identifying factors that govern the use of e-resources in research. The chapter additionally explores some key principles of CHAT such as activities as basic units of analysis, e-resource mediated action, mediated action in zone of proximal development, and internalisation and externalisation of CHAT. These key principles are foundational and imperative to any lucrative implementation of CHAT in understanding a student’s research development with the cultural, historical, and institutional setting.

Chapter Five is another extensive facet of this study and is titled, “Characterising the field into action.” It constitutes of twelve sections and primarily focuses on the research design and methodologies contracted to define how data was obtained. The first part of the chapter diagnoses the paradigm selected and what this means for how data will be interpreted. Therefore, the interpretive paradigm was selected because the study is interested in the subjective meanings iterated by participants in the research. Interpretivists understand that individual experiences are unique and may therefore produce rich, detailed data that is relevant to the study at hand. The discussion delves into lengths of projecting the interpretive field by ironing out several principles of hermeneutics crucial in developing understanding about the researcher’s approach in research, and ways to interpret the data generated from participants. The interpretive paradigm is synonymous with the qualitative research approach, which takes the study to the next section. The qualitative approach enables the study to uncover the inner feelings, experiences, and assumptions in relation to the phenomenon. As such thick descriptions allow the generation of in-depth data that can harness the quality of the study. Complementary with the interpretive paradigm and the qualitative research approach, the study proceeds to deliberate the implementation of the case study style of

research. This propelled the study to explore participants' responses in a single context, and again, unearth the meanings that arise from the interaction between the participants and myself. The next pertinent section inculcates a discussion on the methods of sampling and these pertain to purposive and convenience sampling. The study implied these non-probability sampling methods in the hope of choosing participants who were firstly able to answer the research questions of the study in having knowledge of the use of e-resources in curriculum, and secondly, in terms of their availability and access in participating in the data generation methods. This was followed by a brief biographical account of each participant in gaining some understanding about their personalities and beliefs which are crucial to an interpretivist, qualitative study. Cumulative to this, the context of the study is highlighted with particular emphasis on the features of the university and the Curriculum Studies Masters programme/course. Next, the chapter intricately describes the three data generation methods employed in the study: one-to-one semi-structured interviews; document analysis; and an online reflection activity. This is pursued by the section on data analysis, which is informed by guided analysis in analysing and interpreting the data derived from participants. The study then moves on to describe the measures of trustworthiness applied, ethical considerations, and limitations identified. Finally, the chapter concludes with a summary of the entire discussion put forth in the chapter. Each key aspect of the research design and methods have been explored in the contents of characteristics, strengths, challenges, and ways of dealing with the challenges to fully understand and implement the approaches and methods.

The sixth chapter titled, "Presenting the factors that inform Curriculum CHAT theory" is defined by three sections, with the second assuming a major portion and significant contributor to the study. This chapter singly handles the analysis and interpretation of the data using the three methods of data generation. The data is divided into eight themes with categories articulating patterns and trends that emerged in the data. Each theme begins with an introduction as to what the theme represents and how it has been informed by the literature. It then proceeds to present the direct quotations and iterations of participants in response to each category conditioning the theme. After this has been conducted the category then provides analysis and interpretation, as well as making inferences between the literature cited. Once each category has been explored, a final analysis and interpretation is convened at the end of the theme before moving on to the next. The first two themes seek to answer the first research question of the study; themes three, four, five and six, respond to the second research question; and themes seven and eight interrogate the third research question. Finally,

a summary of all the themes presented is discussed, how they contribute to the research questions respectively, and the phenomenon of factors in using e-resources. The chapter concludes with some closing remarks.

Chapter Seven is the last chapter of the study and is titled, “Utilising the factors of e-resources in making recommendations.” It constitutes five sections and simply provides a snapshot of the entire study. It further signifies the key findings of the study and illustrates a graphical representation of the Curriculum CHAT theory in accordance with the findings generated. The chapter once again briefly outlines how the three main research questions of the study have been explored and answered. To this effect, plausible recommendations have been elicited. The chapter concludes with some final statements.

1.6 CONCLUSION

This chapter, being the first, is the introductory chapter to the study which emerges by providing a candidate statement explaining the premise and personal convictions in undertaking a study of this nature. This is followed by the introduction outlining the expectations of the chapter. Thereafter, the background to the study was enabled by pinpointing what informs using e-resources in higher education. This led to the rationale of the study, which essentially blueprinted the need and reason for conducting the research. The study’s aims, objectives and research questions have been explicitly stated since these will be guiding and framing each chapter. The penultimate section presents a holistic overview of the study by briefly exploring the main facets of each chapter. Finally this section concludes the chapter. The next chapter articulates the first instalment of the literature review embraced in this study.

CHAPTER TWO

THE PHENOMENON OF FACTORS THAT DRIVE THE UTILISATION OF E-RESOURCES

2.1 INTRODUCTION

Research is envisioned as a core business activity of higher education institutions and a wealth of literature condones this perception by advocating discussions of how research can be conducted more effectively (Clare & Sivil, 2014; Khoza & Manick, 2015). Simultaneously, South Africa faces exorbitant pressure in grappling the need to massify education, student diversity, academic preparedness, and the stress of utilising more efficient resources towards postgraduate education. Against this backdrop, the context of this chapter provides a comprehensive account of the related literature concerning students' use of e-resources in institutions of higher education from both local and international perspectives that can help generate factors that can improve students' research activities. This can address some critical discourses that need to be dealt with in order to improve research in these institutions.

A literature review illustrates an evaluative account of studies related to a selected domain of knowledge (Boote & Beile, 2005). It provides a theoretical base to enable further research by identifying and articulating relationships between earlier studies and the current study at hand. Moreover, Onwuegbuzie, Leech and Collins (2008) posit that a literature review intertwines theory/concepts and practise in accordance with the phenomenon of a study, discusses main research methodologies and design, and identifies contradictions and inconsistencies that spark further interest in the field. Therefore, based on the phenomenon of the study being factors that inform the use of e-resources, this chapter will demonstrate key concepts regarding why students use these to conduct their Masters dissertations. Factors are divided into three propositions, namely, content factors, societal factors, and personal factors and these will be deliberated as the literature evolves. Other propositions such as hard-ware (HW) resources, soft-ware (SW) resources, and ideological-ware (IW) resources (Khoza, 2013a) under the concept of e-resources will be used to address the phenomenon of the study and coincide with the main curriculum conceptual framework.

A conceptual framework constitutes concepts, assumptions, theories, and beliefs that support and develop research (Miles & Huberman, 1994). It represents a network of comprehensive understanding about a phenomenon that possesses ontological, epistemological and methodological assumptions. Curriculum concepts have been chosen as a conceptual framework to position the literature. This framework has curriculum concepts such as factors and e-resources that are used to scaffold Chapter Two because factors represent the phenomenon for this study and e-resources guide the theoretical framework indicative in Chapter Four. Other significant curriculum concepts such as accessibility; targets; research knowledge; research activities/researcher role; research environment/time; and, assessment are presented in Chapter Three. It further clarifies curriculum according to the formal curriculum, operational curriculum, and learned curriculum (Thijs & van den Akker, 2009). According to Khoza (2015a) these concepts are important for successful implementation in education courses. They may also assume different terminologies but if understood in the context of the learning environment, they can be utilised successfully. Therefore, the concepts have been realigned to fit the appropriateness of this study, whilst taking into consideration the value of all curriculum concepts. The concepts of curriculum assisted in selecting appropriate studies related to students' factors of using e-resources in conducting Masters dissertations, as well as addressing the research questions and objectives of the study. It will also be helpful in making inferences between the various studies and in producing relevant themes for reviewing the literature. Table 2.1.1 presents the first two curriculum concepts that will be used to frame this chapter.

Table 2.1.1 Curriculum Concepts

Concept	Question	Proposition	Studies/Source	Gaps Identified
Factors	Why do students use e-resources to conduct their Masters dissertations?	Personal factors, Societal factors, Content factors	Khoza (2012) Khoza (2013b) Khoza (2015c) Amory (2006)	-Few studies conducted in a South African context on Masters students' use of e-resources in Masters dissertation. -Most studies use semi-structured interview, this study will use combination of data generation methods.
Resources	What e-resources do students use to conduct their Masters dissertations?	Hard-ware (HW) Soft-ware (SW) Ideological-ware (IW)/	Khoza (2015), Khoza (2013b), Khoza (2015c) Amory (2010) Czerniewicz, Ravjee, & Mlitwa, (2006). Besley (2005) Foucault (1988)	Studies use observation and semi-structured interviews. There is a need for studies to use reflective activity and focus group to further triangulate the data.

Simply put, table 2.1.1 presents a brief representation of how the literature review will be structured throughout this chapter. These concepts of curriculum have been explicitly outlined to make sense about what has been debated in the literature and the implications these have for the study at hand. Further, these concepts address issues of quality such as relevance, consistency, practicality, and sustainability that are crucial for exploring each thread of the curriculum. In this chapter only two of the concepts will be discussed due to its depth and relevance in configuring the most crucial part of the literature, since these will be used to frame the culminating literature in Chapter Three. Cohen, Manion and Morrison (2011) assert that concepts provide order and coherence in bringing reality to multiple experiences. This perception has been articulated in the work of Khoza (2015b) who used the concepts of curriculum to frame a study of six student teachers who reflected on their

experiences of teaching mathematics. This proposes that by panelling this study around the concepts of the curriculum, a copious account of the literature can be grafted.

In commencing with the discussion, a background indicating the role of Information and Communications Technologies (ICT) according to national policies have been highlighted from a broad prospective. This has been incorporated to provide some perspectives regarding the extent to which ICT has impacted the use of e-resources in higher education courses, and of particular essence is how this study can contribute to the existing body of knowledge.

2.2 BACKGROUND: SOUTH AFRICAN HIGHER EDUCATION AND E-RESOURCES

Notwithstanding the significance of theoretical and conceptual debates about what constitutes ICTs in education, this study seeks to first introduce some competing terms that are relevant to this particular research and could therefore ensure a better understanding of the discussion that unfolds. In this regard, Sakar (2012) defines ICT as a “*varied collection of technological gear and resources which are made use of to communicate. They are also made use of to generate, distribute, collect, and administer information*” (p. 32). Similarly, South Africa’s White Paper on E-Education represents ICTs as a convergence of networks, collaboration, engagement, hardware, and software devices to propagate the processing, management, and exchange of data, information, and knowledge (DOE, 2004). Other commonly used terms are e-learning or online learning to include the use of a computer, the internet, CD-ROMS and digital-ware (Czerniewicz, Ravjee & Mlitwa, 2007). Moll, Adam, Backhouse and Mhlanga (2007) describe e-learning as flexible learning using ICT resources, tools, and applications, focusing on accessing information, interaction between facilitators, and students in an e-learning environment and the production of learning materials, resources, and experiences. Online learning draws more on the use of the internet and its relationship with web-based applications as a consortium for instruction. ICT terminology in education is varied and can sometimes reflect polarised positions depending on the nature of the learning environment. Therefore, this study predominantly uses terms such as e-resources (HW, SW, and IW) which are e-learning tools used in research through a blended learning approach or distance learning. It also draws on ICT to indicate a general application of its use in higher education.

A profound characteristic of the human race is their ability to acquire knowledge and how this shapes their research as society progresses (Sarkar, 2012). Maintaining access to ICT in

institutions of higher education in many countries is a national priority, enshrined in laws that underscore such developments. The adoption of ICT into research practises in tertiary institutions in South Africa is multifarious. Firstly, it is a broader representation of political, economic, and societal melioration; and secondly, it is varied in the diverse student communities encountered by different institutions across the country. South Africa possesses qualities of a developing economy with formidable access to technology, research intensive universities, a growing private sector, and sufficient fiscal resources as compared with other sub-Saharan African countries (Gillwald, Moyo & Stork, 2012).

International perspectives concur that the dispensation of ICT as a strategy for transformation has altered conducting research in higher education to increase accessibility to a wealth of information. It is further envisioned as a cornerstone for competing globally and a symbol for the modern knowledge economy (Boezerooij, 2006; Darries, 2004). Similarly, in South Africa, the government views ICT integration in all spectrums of education as a significant driver in preparing its citizens to compete in the international arena. This is supported by the need to improve research strategies, create better access to learning opportunities and develop a nation that can operate in the information era (DOE, 2004). While all of these indicate the potential ICT in education has in general there is a need to create coherent national policies or frameworks that universities can utilise to overcome some of the challenges they face. Czerniewicz, Ravjee and Mlitwa (2006) argue that specific policies regarding ICT use in higher education has to be drawn up and enacted through a uniform approach to ensure that the needs and interests are dealt with. They contend that the discrepancies across various policy documents lead to conflicting decisions that hamper growth and reform in institutions. As a result institutions find it difficult to utilise appropriate technologies, therefore additional studies need to be conducted regarding the use of e-resources in research that can inform policies on ICT integration on both an institutional and national level.

2.3 FACTORS: IDENTIFICATION AND ANALYSIS TO INFORM RESEARCH

According to van den Akker, de Boer, Folmer, Kuiper, Letschert, Nieveen and Thijs (2009) the concept of factors refers to a basic philosophy as to why students learn. In the case of this study, it is of interest to ascertain why (factors) students use e-resources to conduct their Masters dissertation and by exploring this we can help to identify factors. The factors form the orientation point from which other principles of curriculum draw their purpose and link for contributing to learning. Factors suggest the reasons why students learn which in other

words articulate factors that influence students to research. Van den Akker et.al (2009) asserts that when establishing factors three important propositions need to be considered, namely, content, societal, and personal factors. These three frame a student's disposition when engaging their research projects as there are a myriad of information sources to choose from, and this helps a student become more selective about what brings relevance to their studies.

Van den Akker et.al (2009) posit that when considering the first factor of content, the fundamental question of "*what is the academic and cultural heritage that seems essential for learning and future development?*", needs to be asked (p. 41). In the context of this study, what it means for students conducting research, centres around whether their projects can increase their knowledge and development as teachers, students, or lecturers. The content factor is also represented by other terms such as 'profession' or 'discipline' (Khoza, 2016). Researching in the 21st century means that students and lecturers need to be equipped in how to use e-resources in the teaching and learning environment, and by students initiating their research using e-resources in their Masters dissertations suggests they are pursuing the academic heritage of the present era and the future. The introduction of the Curriculum and Assessment Policy Statement (CAPS) in South Africa, as the latest development of curriculum for school based teaching and learning, will spark various interests. Students may want to research how it is being implemented, what resources are used, how students learn with it, and how different subjects are being integrated, amidst other fields of interest. This explains that the content enforces the research environment in order to be ready for the emerging reconstruction of justified knowledge structures that students can develop through their projects for society.

Van den Akker et.al (2009) cautions that curricula can become overloaded, leading to tensions and frustrations. Therefore, when students are dealing with the content factor, they should reduce the multitude of knowledge claims to a specific subject area with specified concepts and skills pertaining to that body of knowledge. Content is also linked to the professional development a student experiences, which may be either through their years of study at university, workshops, seminars or the subject area which they teach. This may warrant a deeper understanding of their field of interest which causes them to engage with further research. For Masters students, content centres on a critical understanding of theories and principles of a field of study, immersion with research methods, techniques, and

technologies to address the research problem, and affiliation with related literature to make sound judgements based on evidence. Such a student has an interdependent relationship with their supervisor, in that they are guided on appropriate content which may be critical to their studies in accordance with the degree requirements, yet ultimately the student is mainly responsible for selecting the content that will correlate with the research purposes. This posits that the content factor of a particular or various learning fields is an important factor for students to engage their research projects.

The second proposition of societal factors relates to problems and issues that stem from social trends and needs which propel students to explore through their research projects (Van den Akker et al, 2009). In South Africa, although the advancement of ICT was dispensed through various policy revisions at all levels of education, the implementation remains scarce for many previously disadvantaged schools (Czerniewicz, Ravjee & Mlitwa, 2007). It is along these lines that Masters students feel compelled to conduct studies to create awareness of the bleak situation many learners are forced to face. Students are also tasked by their course coordinators to conduct studies that can benefit society by exploring issues that can not only bring a sense of reality but cause change (Khoza, 2011). For instance Jaffer, Ng'ambi, and Czerniewicz (2007) instrumented a study about the educational challenges South Africa encountered, relating to the large class sizes, insufficient resources, and language barriers that prevented students from satisfactorily having access to learning. In using educational technology to create better access to tertiary education, the study highlighted the need for more representation of Black South Africans, with an emphasis on female students graduating.

Khoza (2015b) evinced in a study that the first group of learners who matriculated under CAPS in 2014 experienced a low pass rate in comparison to previous groups. This could be attributed to the insufficient understanding by learners, teachers, and the Department of Education about implementation of the performance curriculum (independent subjects built on specific concepts and theories, whereas prior to CAPS subjects were grouped into learning areas). The study contends that for these issues to be addressed, a starting point would be to interrogate teachers' reflections because this may bring about change that can improve the level of education in the communities they are teaching in. Further, it highlights the need for more research to be conducted in avenues such as these. Each of these studies was initiated to demonstrate the problems with curriculum implementation and access in society, so that

awareness may bring about the much anticipated change. This illustrates that society is a critical factor in helping students to engage with research that can create awareness about crucial issues that need to be overcome.

Thirdly, personal factors centres on the elements that are critical for research which is emboldened by the educational and personal demands of the student. This can be inspired by motivation; elevating oneself out of a situation of deprivation, or the persuasion to explore research to derive meaning and explain phenomena. Schiro (2013) attests that personal meanings comprise the knowledge that are unique to each individual that have it because of the experiences and context that has instilled this. Therefore, knowledge cannot be viewed in isolation or from the outside, but rather from the habits and personal encounters that constitute meaning.

The learning environment has progressed from teacher-centred to learner-centred, galvanising the process of research as more accessible than before through the use of e-resources. Research has become more challenging and autonomous; learning approaches have fuelled the desire to gain more knowledge for students to develop themselves. Personal factors further relate to the passion a student has in the subject they are teaching to invoke appreciation in their learners, for example in the study of Khoza (2015b), one participant expressed joy in teaching Mathematics for the past six years. In addition students may pursue their research studies because they are driven by ambition for other jobs, better positions, or the need to make their loved ones proud. Ultimately, their interest is in achieving a sense of accomplishment, trust in what they are able to learn, and the ability to use this in their line of work which makes personal factors a relevant one to consider when undertaking research projects.

The studies indicated emphasise a planetary view of the factors that examine why students research, and how these can influence their teaching/learning philosophy. They were conducted on teachers' and students' experiences at school-based level, which creates a need for studies to be instrumented at higher education level, particularly in the area of Curriculum. Therefore, the current study endeavours to generate data using the propositions of content, societal, and personal factors that inform students' use of e-resources in developing research at higher education level. These factors will be used to frame the culminating literature.

2.4 E-RESOURCES

The phenomenon of a research interprets an experience or fact related by participants involved in a study by exploring their experiences in the world around them (Willis, 2007). In this study, the phenomenon relates to the factors that inform the use of e-resources and how students of Curriculum use these to conduct their Masters dissertations. E-resources also form part of the concepts of curriculum used to frame the literature review, since, when exploring the use of e-resources it cannot be interrogated in isolation but in collaboration with other issues (concepts) that influence it. The dissertations that students engage with comprise of different research resources that help them throughout the research process in completing their projects. A resource can be explained as anything used to communicate or assist research to take place (Criticos, Long, Moletsane & Mthiyane, 2005). Khoza (2012) posits that resources are divided into hard-ware (HW), soft-ware (SW) and ideological-ware (IW). The word 'ware' projects awareness of what a person is doing, thinking, or being conscious in using these three types of resources when implementing them in research.

Parallel to the work of Khoza (2012), Percival and Ellington (1988) posit that research resources, whether face-to-face or online, are divided into Technology in Education (TIE) and Technology of Education (TOE). TIE is any research resource that one can see or touch, for example a computer or overhead projector. Alternatively, TOE refers to research resources that one cannot see or touch until it is produced by TIE, like a PowerPoint presentation. To this end TIE comprises of HW and SW resources, whilst TOE includes IW resources.

The use of e-resources in research articulated by various scholars is both diverse and elaborate. Different studies connote varied experiences as to how e-resources can be implemented and suited to particular research environments. The argument put forth by Khoza (2012) is imperative in that it not only identifies the types of e-resources but also encourages a sense of awareness in using them, so that research is not about technology but ideology. This supports the culminating literature review that can generate a rich, detailed account of why e-resources are used in divergent contexts in higher education, with the aim of informing this study.

2.4.1 HARD-WARE (HW) RESOURCES

As a component of TIE, HW resources refer to any type of machine or tool implemented for research purposes (Khoza, 2013b). However, in e-learning environments they are used to access the internet, for example; laptops, desktop computers, over-head projectors, Smartboards, cellular phones and tablets (Glen, 2008). HW resources can be used in both e-learning and face-to-face contexts, depending on the nature of the learning activity. Lauricella and Kay (2010) have indicated that there is an ever increasing demand for HW resources in research at all levels of education, because without these it is not possible to utilise SW resources.

Technology is pervasive and cumulative to this is a demanding economy that requires students who are well immersed with skills and knowledge to leverage technology conclusively in the workplace. Universities have already succumbed to the growing needs of students by adapting their curricula and lecture rooms to accommodate technological devices (HW resources) that can make learning more accessible. These tertiary institutions have recognised that this is the way forward in addressing progressive education and how students of the modern era want to learn (Khoza, 2011). Lauricella and Kay (2010) affirm that most lecture venues are equipped with smart touch screens, projectors, sound systems and computers that can immediately disseminate information. Arend (2004) posited that students use computers and laptops to conduct research, write papers, compose notes, use software programmes, browse the internet, and store information. Mitra and Steffensmeier (2000) indicated in a study that most college students owned computers or laptops to enhance their learning experience and prefer choosing courses in which their devices can be utilised. The study was conducted more than 15 years ago, suggesting that in the current era more students would have better accessibility to technology, and has become a more dominant learning approach (Smith & Carouso, 2010).

Since the development of computers in 1945 and its exponential growth over the past 60 years, HW resources have grown beyond just the inclusion of laptops to a new dimension of 21st Century learning. The inception of smart mobile technologies such as tablet computers and smart phones have catapulted accessibility to e-resources to an advanced level without the constraints of time or place (Alley & Gardiner, 2012). Personal digital assistants, digital cameras, eBook readers, and portable media players are further part of the extensive range of opportunities available to students. With immense processing power and amplified

applications grounded in emerging technologies, higher education institutions face potential challenges in providing students with higher quality, sustainable e-learning environments. Institutions are cautious about investing funding towards technology that can sometimes be too costly and beyond the scope of the budget (Mazuro & Rao, 2011). Further, some institutions practises may be entrenched in traditional organisational cultures that obscure implementation of more modern methods (Maringai, Skourlas & Belsis, 2013). Nevertheless, Gosper, Malfroy and McKenzie (2013) affirm that students carry their own mobile devices and expect that universities provide the reasonable infrastructure such as Wi-Fi technology to enable these needs. The discussion outlined here affirms the concept of societal factor because the studies indicate that students want to progress by using e-resources compatible with how other students research in a modern society.

Globally, several universities have implemented smart device use in their courses at some level of interaction. At Stanford University, iPads were used to create better interaction between students and faculty so that needs, queries, and concerns can be voiced almost immediately (Keller 2011). When greater interaction can be maintained, the ability to conduct research is greater, as students are able to converse with each other as well as retrieve important documentation from the university that might be crucial to their study. Oliver and Whelan (2010) found that most students at Australian universities had their personal mobile devices which were web enabled. Another study which entailed a survey at the University of Colorado discovered that text messaging and use of the email were popular amongst college students, followed by reading the news, viewing videos, and reading books on their portable devices (Dean, 2010). This suggests that students were expanding their research knowledge at the touch of their fingertips without having to spend a substantial amount of time going to a library and manually searching for information. Therefore, this coincides with the concept of personal factor because students are enthusiastic about developing their knowledge by quick and affordable means.

In South Africa, the University of Johannesburg (UJ) introduced tablets for 1st year students in the endeavour of appropriating technological change, a precedent that will be followed thereafter (City Press, 2013). This suggests that eventually all students will have a tablet to engage with on-going communication with the university itself, supervisors, and fellow students. Similarly, the University of KwaZulu-Natal (UKZN) steamrolled the delivery of tablets to medical students with the aim of creating a better environment in accessing

software learning sites such as Moodle and other e-learning sites to assist students (UKZNDABA online, 2013). Moodle has further been adopted by UKZN teaching and learning as its primary online learning management system. It is anticipated that Moodle will phase in all undergraduate modules by 2017 and all postgraduate modules by 2018. Eventually it is hoped that all higher education teaching, learning, and research material will be available on Moodle, with the ultimate consequence being that each student will be in possession of their own laptop. This could circumvent costs for lecture notes that can be diverted towards the purchase of a laptop. Also, students are able to immerse with research at a greater level, as vast amounts of information can be stored on their devices. Each of the universities have realised that the emerging technologies are critical in helping students engage in research. When students liaise with various counterparts in their academic community, they are searching for information to contribute to their research initiatives by establishing links. Several studies are conducted within universities themselves, and often the participants involved are students at these institutions. Therefore the use of the relevant technologies makes the process of undertaking research more accessible, particularly where data generation methods have to be employed. Again, this supports the concept of content factor since the university is creating cost-effective ways for students to have laptops to maintain better interaction with supervisors and peers in retrieving information.

The introduction of smart devices at higher education level indicates the potential in mitigating communication, interaction, and learning. Young adults have become significantly dependent on smart phones as they are able to engage with social media activities, download textbooks and learning materials, as well as access their prescribed online course. However, Murphy (2011) cautions that technology should be adapted carefully since it may not guarantee enhanced learning outcomes. This is further highlighted by Kennedy, Judd, Churchwood, Gray and Krause (2011) who posit that students predominantly utilise their smart devices for entertainment purposes. Their study also elicited the concern that students do not possess the relevant literacy skills to support the use of these technologies for learning purposes.

The literature relating to the use of HW resources in higher education institutions highlight important factors that explain how these are implemented. These factors relate to content, personal, and societal. Although personal factors have not been explicitly highlighted, the concept underlies content and societal because students are driven by personal ambition and

goals to develop their knowledge and impact the society in which they live. It appears that only major universities in South Africa who are more financially sound with viable infrastructure can implement smart device use in courses, whilst other smaller colleges struggle to conform due to financial constraints and lack of expertise. Primarily, HW resources cannot be utilised effectively without a reliance on SW resources. In order for universities to create online platforms and perpetual engagement with students and staff, SW resources are appropriated to arrange such an environment. It is for this purpose that the next section deals with SW resources and how this fits into the broader spectrum of how e-resources are accessed to develop online learning environments.

2.4.2 SOFT-WARE (SW) RESOURCES

In exploring the dimensions of TIE, it has been established that these constitute HW and SW resources, since the use of computers, laptops, or smart devices alone cannot satisfy student learning needs in modern times (Darries, 2004). Therefore, it is critical to understand what SW resources are and why they unfold in the research process. SW resources assume any material that is configured for the HW resource to show information or communicate learning (Khoza, 2013b). Systematically, a merger is formed between HW and SW resources because without the HW resource it is impossible to utilise SW resources. However, whilst HW resources are the same for face-to-face or blended learning approaches, it is not the same for SW resources. Consider the use of a smart tablet or a mobile device (HW); these can be seen and touched. Yet when one uses a PowerPoint slide (SW), it can only be seen and not touched, unless it is printed out. This suggests that almost all e-learning SW resources are different from the face-to-face learning context since they can only be viewed and not touched until its produced into a hard copy. The delivery platform for SW resources is a web-based or courseware system, such as the internet, used to develop an online platform in which facilitators and students can engage instantaneously.

Undoubtedly all facets of education have been engulfed by the benefits of the internet and the World Wide Web. Increased technological change has become more available to millions of users at a faster and cheaper rate. Consequently a range of e-resource tools and programmes (SW) have been developed over the years to propagate learning as a more accessible and convenient mode of inquiry. Common e-resource tools include text, video, and audio components, discussion boards/forum, chat room, search engines, and email (Balanko, 2002; Donnelly & McSweeney, 2009). Bonk (2001) classifies e-resources into four categories:

online class tools (e.g. syllabus posting, self-testing, online lecture notes, uploading, and downloading file tools, online student evaluations, and courseware); collaboration and sharing tools (e.g. instructor collaboration, discussion forums, real-time chats, interactive feedback and annotation, student or instructor profiles, online task or activity collaboration); instructional activities (e.g. critical and creative thinking activities, data analysis, online scientific simulations); and web resources (e.g. search engines, articles and journal links, lecture notes, syllabi and online glossaries). The identification and classification of diverse e-resources reinforce the proponents of what is crucial in research in education of a modern society, therefore this is synonymous with the societal factor. In this type of society students converse with each other through e-resources and exchange information this way, as opposed to traditional means that involved borrowing textbooks from the library or other hard copy research materials.

Comparatively, a considerable amount of literature has evolved that demonstrates how e-resource tools have been integrated into particular learning environments to implement change; this change is evident from associating the web as a repository for content to a platform that enables more widespread interaction (Conole & Alevizou, 2010). The first generation of technologies included radio, email, television, and one way video conference (Kianian & Harun, 2010). The introduction of the World Wide Web (WWW), relatively known as web 1.0, was characterised by providing text or written information to recipients. It projected a one street flow of information with read only text (Jaarsveldt & Wessels, 2011). Web 1.0 was further criticised for contributing to immense computer illiteracy and slow internet connectivity.

Technology is multifaceted which entails the need to perpetually conduct studies that can inform institutions of higher education to improve research. A more recent trend in growing technologies is the advancement of web 2.0 tools that have been incorporated into learning programmes. Web 2.0 technologies embody a social interface of bridging communication between people and sharing ideas (Conole & Alevizou, 2010). Entrenched in this philosophy is a socio-constructivist approach coupled with the notion of experiential learning that invites students to become a mediator of their own development and this has become an integral part of how they desire to communicate. As such, higher education institutions have recognised that research in the current era is progressively complex, yet affording greater opportunities but also presenting new challenges. With significant enrolment of students each year, these

institutions have begun to value and integrate the benefits of web 2.0 tools into their processes of teaching, learning, research, administration, and widespread communication. Web 2.0 tools include popular sites such as wikis, Facebook, Twitter, blogs, MySpace, Flickr, and YouTube amidst a myriad of other social networking sites (Weller & Dalziel, 2007). These tools can be used to nurture new communities of inquiry and exploration whilst simultaneously enhancing existing ones. On-going communication and collective collaboration are the fundamentals, upon which institutions build to remain interactive with students, staff, the academic community, and all other stakeholders.

SW resources may be further categorised into asynchronous and synchronous learning. *Synchronous learning* involves instruction and collaboration in 'real time' through the internet and includes tools such as live chat, audio and video conferencing, joint viewing of multimedia presentations and online slide shows, and data and application sharing. *Asynchronous learning* relates to the time-delayed capabilities of the internet and employs tools like the e-mail, threaded discussion, newsgroups and bulletin boards, and file attachments (Poe & Stassen, 2002).

The use of SW resources is increasingly becoming a normalised element of academic disciplines in higher education. Since the 1970s until the first decade of the 21st century, changes in teaching, learning, and research have been radical from a global perspective, with a pressing need to culminate greater flexibility for students and institutions (Anderson, 2007). This suggests that higher education institutions are in a constant state of flux, which has propelled the next step in this discussion. This study esteemed it necessary to provide an in-depth account of how and why SW e-resources are used different contexts, from both, local and international accounts. Since there is a considerable amount of SW resources that are utilised for differing purposes, the most common ones that are currently used in blended and distance learning courses have been selected. It is believed that once an understanding about the opportunities and challenges these pose have been identified and explained, it may help in generating and analysing the data. Further, this movement towards the use of SW resources is propagated by personal and societal factors because students want to use resources that are modern, cost-effective and quick; and higher education institutions want to stay competitive with the most advanced and resourced schools in the world.

2.4.2.1 DISCUSSION FORUM

An online atmosphere for research is significantly different from a face-to-face experience, although a growing trend towards blended learning has rapidly embraced many institutions of higher education (Yuen, 2011). Blended learning is a combination of online instruction and face-to-face facilitated activities. This includes formal academic instruction, group or individual study, resource-based learning, service learning, cooperative learning, and tutoring (Boyer, 2002). E-learning environments have created a habitat in which students and supervisors can maintain regular contact and endorse collaborative activities, without the necessity of a face-to-face encounter (Harris & Sandor, 2007). This does not suggest that the latter is not equally important, although an online delivery of learning instils greater flexibility for students to study almost anywhere and at any time (Dixson, Kuhlhorst & Reiff, 2006). To this end Wang and Tang (2003) suggest that quality and quantity of interaction between a supervisor and peers are more critically crucial to the success of online courses and student satisfaction than it is in traditional learning mechanisms. It is within this rationale that online discussion forums are fast becoming an integral component of online learning for both distance learning and blended research approaches (Mazuro & Rao, 2011).

The online discussion forum refers to an asynchronous discussion space that allows the supervisor and students to exchange ideas through written text messages that can be viewed by all participants at all times (Nault, 2008). Students use this as an opportunity to inform their research studies by posting questions that anyone in the discussion forum can contribute. Discussions are thought of as *threaded*. This indicates that the relationship between a message and the responses posted in the forum is graphically represented on a screen in a manner that gives a purposeful structure to a discussion or activity. These can be recorded to allow students or the supervisor to revisit the discussions at any time. Students may even take screen grabs of the discussion to serve as evidence of the data that has been generated. Discussion or bulletin boards, as they are sometimes referred to, are mostly provided in Virtual Learning Environments (VLEs) such as Blackboard and Web CT. This can create informative discussions between the supervisor and students, by engaging with research in relation to the content of a course.

As a consequence of the unequivocal upward trend of the implementation of computer conferencing in higher education, there is a pressing need to create and disseminate innovative approaches in the medium of discussion forums that are pedagogically worthwhile

(Harris & Sandor, 2007). The premise lies in the environment for collaborative learning between the supervisor and students, thereby encouraging engagement with research material and initiatives that draw students into the online learning process (Nault, 2008). The perception of collaborative learning is synonymous with Vygotsky's Zone of Proximal Development that draws on cognitive development (Vygotsky, 1978). It articulates the idea that research is a social context which enables students to refine their thinking, construct new ideas from prior knowledge and achieve a deeper understanding (Markel, 2001). Mazuro and Rao (2011) propose that a tangible way to achieving a thorough understanding is through online collaborative learning dependent on discussion forum use. Harris and Sandor (2007) have developed an interactive model to represent the sentiments of Mazuro and Rao (2011), which indicates a visual representation of how a collaborative discussion takes place.

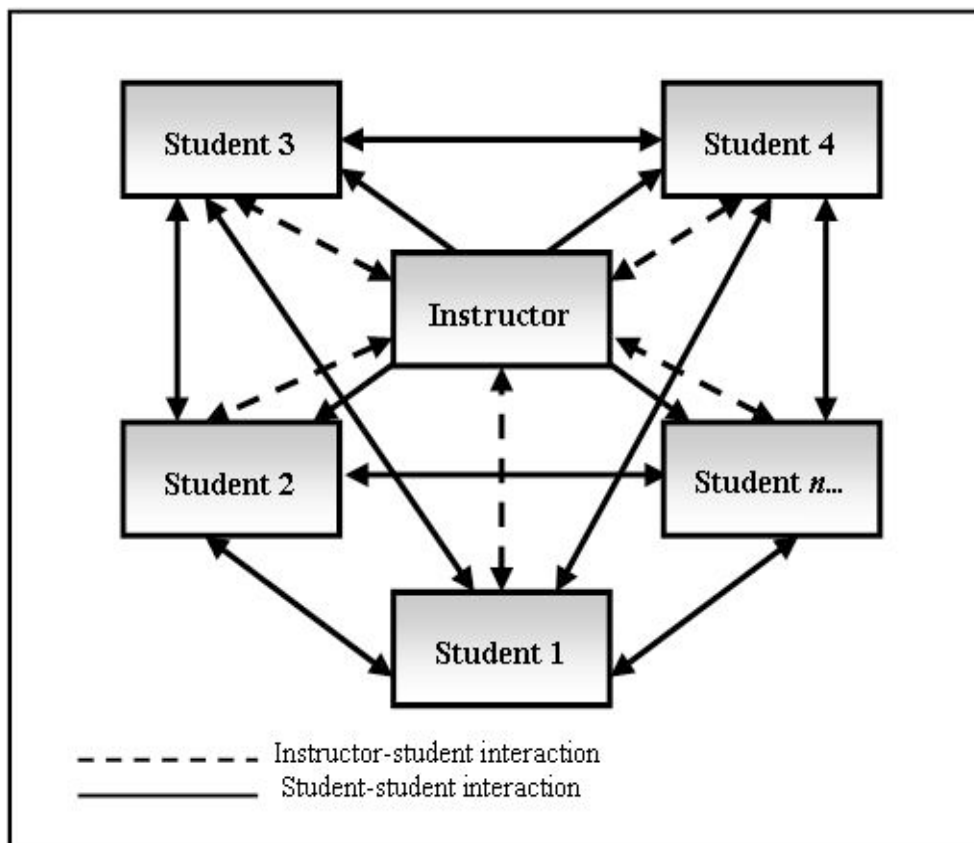


Figure 2.1: Peer Learning in Higher Education (Adapted from Harris & Sandor 2007, p. 384)

According to Harris and Sandor (2007), Figure 2.1 illustrates a didactic top-down approach with interactions between the supervisor and students that symbolise the research process as one of collaboration. Peer learning is evident throughout the process; indicative of the arrows

reaching between students. As students converse with one another they establish links that can help throughout their research journey. Since interaction assumes a major element of the process, students gain a broader cognitive understanding and improves their interpersonal and social skills; congruent with the Vygotsky's theory. The supervisor is supportive throughout the research process to each student that is supervised through constant communication via the discussion forum. This position is instrumental in ensuring that the discussion forum runs as efficiently as possible. However, a huge burden accompanies this position, as supervisors may have to be online regularly to field, guide, and stimulate questions, postings, and dialogue on course content. To be absent or offline for great lengths of time sheds a negative image of the supervisor as being unresponsive or uninterested which is detrimental to the participation of students. This has been a shortcoming and a concern in using discussion forums, leaving many supervisors and students unenthusiastic about using the e-resource (Harris & Sandor, 2007). Within this view, it then becomes a prerequisite for course supervisors to be adequately prepared and available online to maximise the full potential of the discussion forum as an e-resource. Yet Andresen (2009) contends that the responsibility of the course supervisor can be reduced by being able to answer common questions once through the discussion forum rather than having to use email to repeatedly reply to the same question from individual student queries.

In a study conducted by Yukselturk (2010), factors were identified that affect student participation in discussion forum for two primary purposes. The first was to analyse the relationship between the students' individual demographics and categories of students' participation level according to inactive, moderate, and active in a discussion forum of an online course. The second purpose was to ascertain students' perception regarding the reasons for low levels of participation in the online discussion forum. The study entailed 196 students who attended the research project on computer systems and structures. Data was generated since the commencement and end of the course using semi-structured interviews and an online survey. The results of the data analysis revealed that three factors, namely, achievement, gender, and weekly hours of internet use, demonstrated a distinct relationship with students' participation level in discussion forum in the online course. This supported the concept of personal factor because the data was related to students' motivation and their ability to achieve, as well as the time spent on the use of the internet. The data further articulated the need for careful consideration when designing online discussions to accommodate students' workload and responsibilities, as well as ensuring planned and

structured activities that can be effectively utilised in allocated time for the discussion forum. The study demonstrated that the use of discussion forum in conducting research about student participation was effective in identifying factors that support the use of the e-resource.

Participation in online discussion forums invokes an atmosphere for active research and responsibility through the expectation of regular participation (Farren, 2008). Participation in the virtual conference requires students become actively engaged with the course content whilst conversing with their peers as they negotiate the meanings of the content (Markel, 2001). Some Masters programmes are designed in a way that students undertake coursework, usually on a part-time basis, whilst simultaneously contributing to their independent research (Student Academic Affairs University of KwaZulu-Natal, 2015). The course work and independent research coincide to produce the final result for the student's Master's degree. For example, the Northern Arizona University (NAU) has implemented online discussion forums since the early 1990s (Markel, 2001). NAU uses an online discussion tool called *Screen Porch* that has been integrated into online web courses and discussion augmentations for face-to-face discussions. Screen Porch uses a graphic user interface and allows participants to use graphics and multimedia links. Weekly discussion topics are uploaded with the web course assigned readings for each week in which students are asked to respond to one or two open ended questions designed to generate a discussion about the topics that can contribute to their research. Participants have to respond to at least three other student postings which elicits a round of discussion amongst students. The on-going use of discussion forum at the NAU suggests collaboration of students working together on research projects, participation in discussions focused on course content and the ability to present group project products to other students in the class (Markel, 2001). Further, the content factor emerged strongly since students were conversing with one another to spark interest in the course readings. As students engage in this process they establish links with peers that are a source of information towards their research projects. This supports the views by Harris and Sandor (2007) and Nault (2008) regarding the value of discussion forums as a collaborative learning tool in undertaking research.

Markel (2001) argues that students construct knowledge through shared experiences that each student can achieve through the discussions. To negotiate and construct knowledge represents technology as a cognitive tool and not a one way road of communication. Cognitive tools and environments support cognitive learning strategies and critical thinking. Vygotsky's theory of

social interaction coincides with this assumption as students engage with one another, using language as a mediation tool of cognitive development (Farren, 2008). In concluding the study at NAU, Markel (2001) vaguely questions the role of culture, accountability, and the position of the socio-economic class, with no definitive answers. However, it is possible to consider these issues within the context of South Africa, given the long history of inequality and diverse heterogeneity. In South Africa, the large class sizes, and few teaching resources have forced higher education institutions to find new ways of research that can shed light on anticipated changes (Ravjee, 2007). This relates societal factor because students conduct research around these issues to create awareness about what needs to be done to progress societies. Andresen (2009) suggests that online discussion forums provide opportunities to manage the diverse cohort of students that enter tertiary education. However, literature regarding the use of discussion forums in research environments in South African higher education remains limited. It appears that the literature is dispersed across various disciplines, with a niche to conduct research in the field of Curriculum Studies. In addition, only the content factor and societal factor surfaced so it would be interesting to explore how the personal factor influences the use of discussion forum. Further, data generation tools of semi-structured interviews and online surveys have been commonly implemented, so it would be interesting to utilise a focus group interview to ascertain the kind of data that will emerge.

2.4.2.2 CHAT ROOM

The internet has brought about an important dimension for research (Bonk, 2001). Faculty and administrators must not only understand new technologies that arise, but must determine how best to implement them for students to better engage their research projects. Allowing students the opportunity to interact with each other is crucial, especially where immediate feedback and interactivity is required towards research projects (Wang, Newlin & Tucker, 2001). A programme/course that involves the element of online learning should offer as much support as possible by using resources that can assist students to achieve the objectives and complete research assessment tasks successfully (Mishra, 2001). The position of the supervisor is instrumental in the provision of resources students can use to get relevant information about the concepts and skills to be taught. Makoe (2012) suggests that it is an imperative upon institutions of higher education to conform to the 'digital language' of the young generation (p. 2). E-resource tools such as the chat room invoke an atmosphere in which social and technical information can be accessed through interaction with the computer (Paparazzi & Williams, 2000). The emergence of technological and methodological

developments paves the way for new opportunities for research and teaching focused on online dialogue, information exchange, and facilitation of learning (Bonk, 2001). Collaborative learning tools have established practical ways for supervisors and students to interact using the synchronous tool of the online chat room.

The chat tool enables students to interact by sending and receiving immediate messages (Paparazzi & Williams, 2000). The chat tool affords synchronous communication between online supervisors and students, and between students themselves. As discussed earlier, Moodle (Modular Object-Oriented Dynamic Learning Environment) represents a popular chat tool that allows students to access a section of the Moodle area where one can chat, in real time, with other students and supervisors who are in the same Moodle area at that specific time (Student Moodle Guide, 2011; Mouyabi, 2010). This can be advantageous for students since they can immediately receive feedback, particularly where they feel confused or disconnected about aspects of their research, especially for those involved in a course work Master's programme. After clicking on the chat window displayed on the Moodle screen, students can post their comments by selecting 'enter', and wait for other members to respond in the chat. As others in the chat room post their comments, everyone will be able to view these simultaneously. This has several advantages for students as they are able to collaborate with each other irrespective of wherever they may be or whether they were available at the time; on condition that they have access to Moodle (Student Moodle Guide, 2011).

Weber and Lieberman (2000) confirm that once students or supervisors upload the transcripts of a chat session to a class web page, other students who may have not been present at the time to participate in the chat may be able to view the chats that have taken place thereafter. Moodle represents a Virtual Learning Environment (VLE), and the fundamental purpose of a VLE is to promote learning and communication within the higher education community (Kear, 2007). As a consequence of the new ICT demands on flexibility, cost effectiveness, time saving, and change, Moodle has developed an e-learning plateau that articulates the social shift in education; social constructivism; the system; tools and features within the new ICT era; social networking tools; and the ability of the system to perform (Mouyabi, 2010). In using Moodle, students can determine how, what and when they access information. This supports the premise of societal and personal factors. In the first, the societal factor is emphasised because higher education institutions have made a concerted effort to embrace the social change in education in accordance with current trends of other universities. Second,

the personal factor is maintained when students take their own initiative to revisit the chat sessions to review what they have missed out on to update themselves.

Chat sessions help create a sense of virtual community by adding a personal and dynamic dimension to the course (Weber & Lieberman, 2000). Learning activities using the chat tool can be organised in a way that leads students to information about each other, even in matters beyond the context of the course. This is relevant for Master's students since part of their dissertation entails generating data from participants which signifies the need to interact with them. In Moodle, students can personalise, transform and customise on demand in response to student and environmental variables (Mouyabi, 2010). This personal investment can foster a better interest in the course, which may result in more active participation and a greater sense of community between learners (Weber & Lieberman, 2000). Interestingly, students who possess a shy or introvert personality in a 'real life' (offline) course environment may perhaps have the courage to 'speak out' in a setting where they do not have to face others – as in a chat room (Wang et al, 2001). According to Bonk (2001), the tool or system used in a learning environment must unite people for some common interest, e.g. sharing, problem solving, or collaborating. The synchronous tool of chat leads to collaborative enquiry, dialogue, debate, and personal reflection which can foster unity (Bonk, 2001). When students are able to learn on their own or with peers, this supports the philosophy of social constructivism (Mouyabi, 2010). This theory indicates that students, and not just supervisors, can contribute to their educational development. Social constructivism envisions the prominence of culture and context in understanding what occurs in society and constructing knowledge based on this understanding (Mouyabi, 2010). Again the societal factor is reinforced as students establish a community in which mutual interests towards research are expressed.

Zhang (2005) investigated the use of online chats by heritage learners in an experimental course using a blended learning approach in learning Chinese at Midwest University in the United States of America. These students had developed certain listening and speaking skills, but their reading and writing skills were too underdeveloped for them to effectively engage their research tasks. The purpose of the study was to identify the affordances of online chat perceived by heritage language students. The technological infrastructure of the course was more than sufficient and it utilised WebCT to support the online environment. Data analysis of the findings indicated that the online chat was significantly instrumental in assisting

heritage students to learn Chinese pinyin and characters, which were integral for them to undertake their research tasks. Learning outcomes of the course were achieved as a consequence of the chats that ensued. The study highlighted the factor of content because students used the online chat to develop their reading and writing skills of Chinese pinyin and characters, however further research on affordances and possibilities provided by these tools need to be conducted.

The studies thus far posit that when chat sessions are managed appropriately in a workable environment, they can sustain a valuable online experience for research to take place. Yet numerous course supervisors are not as enthusiastic to use synchronous chat and find it complex to manage (Weber & Lieberman, 2000). Paparazzi and Williams (2000) undertook a study in which they wanted to find out whether the chat room could be a viable opportunity to link undergraduate students in the field of plant nutrition with graduates to network and increase depth of knowledge. Results indicate that a chat room requires an investment of extra time on the part of supervisors. This can be particularly problematic when supervisors need to be trained in hosting a chat session. This draws on the personal factor of the supervisor, as Khoza (2011) contends that some are reluctant to depart from traditional ways of supporting a student. From the students' perspective, using the chat room was considered a waste of time. In addition only 46% of the students prepared for the chat session, whilst more than half of them could not sufficiently contribute to the chat discussion (Paparazzi & Williams, 2000). There were also unexpected problems of a technical nature which disconnected users from the chat room that could otherwise have been avoided.

Communication tools have many advantages in a higher education setting, but the problems discussed thus far have been expected. Kear (2007) contends that when students are overwhelmed by the volume of messages in a chat session, this can be confusing. This leads to low participation and disengagement by students. The study by Kear (2007) relates to the effectiveness of VLE communication tools, and it has been found that students actually find it daunting to log on to chat rooms more than once a day. Further, based on the number of students, chat room discussions can lose structure and depth. In as much as the chat room can be time consuming, it avoids the frustrating time lags of asynchronous communication tools, and therefore more suitable for group decision-making.

Positive outcomes of using an online chat tool include: immense interaction between students and course supervisors; a deeper interest in the subject material towards research projects and matters beyond the scope of the course; and exposure of students to technology (Paparazzi & Williams, 2000). Yet, even with the widespread advantages the chat tool has to offer, this cannot circumvent the areas of concern addressed in the literature that need to be reviewed. Kear (2007) suggests that supervisors must first familiarise themselves with the technical aspects and procedures for chatting online. Kear (2007) further asserts that the objectives of the chat session should be stated in advance, and supervisors should ensure students understand the expectations and goals of the chat. The allocated time for the chat period should also be maintained to avoid a monotonous or frustrating experience (Weber & Lieberman, 2000). In addition, students tend to need positive affirmation, and in this regard supervisors need to be mindful of providing encouraging comments in the chat that can support their ideas and responses (Kear, 2000). Overall the personal, content, and societal factors were identified that motivated students to use the chat room to a minor extent in deriving information that can help their research projects.

2.4.2.3 SEARCH ENGINES

The amount of information available on the web is immeasurable and with the increasing number of new users inexperienced in the plateau of web research, creates new challenges for information retrieval (Brin & Page, 1998). Due to the information explosion on the internet, extensive demands have been placed on the developers of search engines to create better access of information to users (Wen, Nie & Zhang, 2001). The term ‘search engine’ is synonymous with the internet. Search engines represent a fast and effective way of conducting research that one may need from the web. In this regard, search engines are the primary hub in which people research information and make informed decisions.

Searching electronically can be a complex, multistage process where the required information develops throughout the course of the search (Teevan, Alvarado, Ackerman & Karger, 2004). Significantly, search engines are designed to put a structure in place to handle the multitude of information available on the web, otherwise a person will be highly perplexed when confronted with the vast amount of material at a single glance. Search engine technology has had to upscale incredibly to sustain the accelerated growth of the web. In 1994 one of the first web search engines, the World Wide Webworm (WWW) had an index of 110 000 web pages and web accessible documents (Brin & Page, 1998). It is estimated that the web

contains at least a trillion web pages and counting (Sutter, 2011). This projects the search engine as a widely used e-resource that tertiary institutions have recognised and incorporated into their online learning programs to improve accessibility to learning materials that can enhance research processes. This propagates societal factors since higher education institutions are perpetually upgrading themselves to a more competitive position as with other institutions globally who already have an array of search engines available to students. This also embraces uniformity as institutions want to create a common platform that all students can use.

According to Pew Internet data (Purcell, Brenner & Rainie, 2012), in the last decade the search engine has been regarded as the most frequently used e-resource for online activities, rivalled only by email. In the United States of America, 73% of the population use search engines and statistics indicate that students of higher education are the most frequent users (Purcell et al, 2012). The education arena is the number one category for search, based on the percentage of web users generated through search engine referrals (Ingeniux Corporation, 2010). It is presumed that over 40% of all education web traffic is derived from search engines (Ingeniux Corporation, 2010). This serves as a recommendation to colleges and universities to potentially implement search engines into their learning programmes to potentially achieve better results and thus encourage conversing between students and research material.

Nguwuchukwu (2012) pioneered a study that examined how postgraduate students at the University of Nigeria used search engines to conduct research. The concern of the study was that students spend up to ten years carrying out research, to the extent that some even abandon their research. This is due to students being unable to find the relevant information because they lack the knowledge of the availability of different types of search engines. The study concluded that many of students involved did not know about the multitude of search engines available, and were mostly aware of popular ones such as Yahoo and Google. Nguwuchukwu (2012) suggested that universities should expose their students through courses to the various types of search engines because they can significantly assist them in retrieving valuable information towards the completion of their research projects. The study acclaimed that when students are aware of the various search engines and are taught how to appropriately use them, it can produce better researchers. Trivedi (2009) expressed similar concerns in a study which found that health care professionals struggled to find integral

information conducive to the medical field. The purpose of the study was to identify specific search engines that can be useful to these students and help them to overcome the issue of irrelevant information being randomly selected. Trivedi (2009) postulated that each field of study should carefully choose search engines that are applicable to them, by advising students which ones are most beneficial, as this can eradicate issues of time wastage and confusion caused by irrelevant information. The personal factor is highlighted because students have realised that the search engine can help them complete their postgraduate studies in a shorter space of time.

Chakravarty and Randhawa (2006) affirm that search engines assist researchers to sift out academic documents pertaining to their field of study in research by using electronic searching resources that are user friendly, simple, and offer search velocity and broad coverage. Given the extensive use of search engines as a tool for online learning identified thus far, one major academic search engine has been selected to further elaborate on the literature. This refers to Google Scholar. Although there is a substantial amount of search engines, some specifically customised for certain universities or courses within them, Google Scholar has been selected to provide some perspective on how students use search engines within higher education.

Amidst the myriad of search engines available on the web, Google possesses the lion's share of search traffic and is highly regarded as the foundation of any search engine marketing program (Ingeniux Corporation, 2010). Google represents a user friendly search engine based on free-text searching of the content of public web pages (Brophy & Bawden, 2005). On its own, Google is used to search for general information. However, Google is further extended into Google Scholar (access to non-copyright academic material), Google print (searching the digitised full text of printed books from publishers, book sellers, or libraries), and Google ventures (investment and growth opportunities for technology companies) (Brophy & Bawden, 2005). Amongst these, Google Scholar serves as a valuable resource for scholarly literature that is more credible with students of higher education (Chakravarty & Randhawa, 2006). Google Scholar offers the retrieval of information in many disciplines, fields of study, and sources that include peer-reviewed papers, theses, books, abstracts, and articles from professional societies, universities, academic publishers, preprint repositories, and other scholarly organisations (Chakravarty & Randhawa, 2006). Articles are ranked by weighting the full text of each article, the author and the publication in which the article appears, and

whether it has been cited by other scholarly literature. Consequently, because of the variety of information and the reliability of the sources, this is what motivates students to use Google Scholar to help their research projects. They are able to compare articles and make inferences between them in a way that builds upon research. This informs the content factor.

Users of Google are able to restrict their search to PDF files, PowerPoint files, Word documents, or Excel documents by adding a file type to the search query (Spencer, 2006). Yet users have expressed dissatisfaction with the performance of existing search engines, which frequently return several documents in response to a user query that can hamper their research (Wen et al, 2001). These search engines attempt to ‘understand’ a user’s question by suggesting similar questions that other people have asked for which the system has a correct answer (Brewer, 2005). Yet the queries outlined by users are somewhat different, both in form and intention, and these results in the user’s discontent with the search engine. A contemporary search engine deals with over 3 billion documents, involving 10TB of data, and handles approximately 150 million queries daily (Brewer, 2005). In retrospect, queries may be short, but there are more than 10 million different words in almost all languages (Brewer, 2005). The challenge then exists in tracking and ranking 10 million distinct words in 3 billion documents. Associated with this are the limited words students submit in queries and therefore thousands of hits are returned and ranking these can be challenging. The language of the target document is crucial as this depends upon whether a person can comprehend the search results (Lewandowski, 2008). Search engines consider language factors when the result sets for a certain query are the same, e.g. in the German and the English versions of Google in which the rankings may be different. Lewandowski (2008) suggests that language factors are imperative to determine the degree to which a person can be satisfied in retrieving the document anticipated. It is pertinent to consider the issue of language in this study as South African universities and colleges contain a diverse cohort of students who speak different languages (Hodgkinson-Williams, 2009), and this has an implication on their ability to successfully use a search engine.

Problems relating to the use of search engines also include ‘search engine spam’ where some web authors purposely manipulate their placement in the ranking order of various search engines, with the intention that their documents are retrieved first (Henzinger, Motwani & Silverstein, 2002). This relies on the notion that users of the web tend to analyse only the first page of search results, so usually the top 10 results are displayed on this page. Although

problems exist in the implementation of search engines as a resource tool, Martzoukou (2008) contends that overall students at tertiary level are satisfied with the performance of search engines and themselves as information seekers. Martzoukou (2008) advises that in areas where students find difficulty in using a search engine, attention needs to be focused on developing information-seeking tactics and other strategies to better assist them. This further requires a deeper analysis of the effectiveness of students' use of search engines for research, which creates a gap for this study to address.

Thus far, the literature has portrayed the use of search engines as a quick, cost saving, and efficient method for students to access information. It is for these reasons that students utilise search engines to undertake research. Moreover, the societal factor was significantly raised as a major contributor as to why students use a search engines to conduct research, with some emphasis on the content factor. It would be interesting to ascertain what personal factors will influence students to use e-resources to conduct their masters' dissertation, which creates a gap for this study to explore. With information repository such as this, one would question the extent to which technology can outperform the merits of a search engine tool. Yet Morris, Teevan and Panovich (2010) evince that users of the web have advanced to an even swifter means of gaining information in an even shorter space of time through the use of social media tools such as Facebook, MySpace, and LinkedIn (web 2.0). It is sometimes difficult for people to find what they require with keyword search via a search engine and there is always the challenge that the information might not be immediately available at the time. Therefore, when a person poses a question to an expert in a specific domain of knowledge through a social network, they can often get feedback in a timely manner.

A search engine is able to present volumes of information at a time, which is unlikely with social media tools. Weighing in the pros and cons of each, Morris et al. (2010) posit that both the search engine and social media tools can be used concurrently by being linked to each other so that questions that cannot be given the desired answers in the required space of time may be redirected to either of the two. On the notion of social media, it appears that this e-resource has taken the world by storm and catapulted communication at all levels of education to another dimension. This being said, it is interesting to explore how web 2.0 impacts higher education students' opportunity to interrogate research.

2.4.2.4 WEB 2.0

The inception of the web 2.0 as a new platform for internet technologies, in recent years, has more potential to further improve research in higher education as a consequence of the limitations imposed by previous technologies related to ineffective interaction collaboration and intervention (Melville, Allan, Crampton, Fothergill, Godfrey, Harloe, Lydon, Machell, Morss, Russell, Stanton, Stone, Strang & Wiggins, 2009). The term ‘Web 2.0’ has been coined by Tim O’ Reilly (2005) and since its creation has gained considerable momentum. Web 2.0 refers to the social use of the internet which allows people to collaborate; engage in formulating content; generate knowledge and share information online (Grosbeck, 2009). This overcomes the challenges encountered with web 1.0, but is not immune to problems within its own context. Yet web 2.0 is able to provide a new dimension for research within higher education and cannot be ignored since it has become an almost indispensable part of students’ lives.

The web 2.0 has a profound influence on behaviour; especially those of young people who have adapted quickly to its usage. They utilise web 2.0 tools with ease and have led them to develop a sense of community in which they are able to share and participate (Melville *et al*, 2009). This indicates that societal factors inform students’ use of web 2.0 tools due to the element of community and participation in what others are doing. Such tools include media sharing; instant messaging; chat and conversational arenas; online games and virtual worlds; social networking; blogging; wikis; and collaborative editing tools (Conole & Alevizou, 2010). In addition, it reveals that students have a perpetual urge to engage in communication with peers and thereby establish links that can contribute to their research.

The multiplicity of tools and mediated routes for creativity and socialisation have not only suggested the crossing of borders between professionals but has soared to new heights for information organisation, knowledge creation, and the facilitation of learning (Conole & Alevizou, 2010). Sigala (2007) points out that the invention of web 2.0 possesses a groundswell of opportunity for universities to divert traditional delivery formats to a more learner-focused atmosphere, particularly through social media sites such a blogs, Facebook, podcasts, and e-portfolios. The premise lies in the ability for web 2.0 tools to provide a free web-based opportunity to support collaboration, develop students’ learning through customisation and personalisation, and the ability to network. Since these e-resources are both free and cheap, it motivates students to interact with others by exchanging information that pertains to their research endeavours. A notable difference between web 1.0 and web 2.0

is that the latter allows users to interact with other users or to change website content that is in stark contrast with web 1.0 that inculcated the passive viewing of information (van Jaarsveldt & Wessels, 2011). Further web 1.0 elicited a text or written information to users whereas web 2.0 allowed them to enter a dimension that utilised low cost collaboration tools (van Jaarsveldt & Wessels, 2011).

Popescu (2010) suggests that there is a general belief that the current cohort of students entering universities are enthusiasts of web 2.0, however whether they are able to apply these skills in an educational environment or simply view them as entertainment tools is somewhat concerning. In this regard, O' Reilly (2003) contends that there is 'architecture of participation', a notion of cooperation, in which users of web 2.0 are able to connect what is learnt to social cognitive competences. In fact, Khoza (2012) indicates that most of the teaching and learning resources are used for entertainment and education reasons. Mateas and Lewis (1999) posit that there should not be a definitive distinction between work and play, but rather to consider them interchangeably in order to help the research process. Dalsgaard (2006) affirms that social software tools can support a social constructivist method to e-learning by giving students personal tools and by interacting with social networks that can allow them to govern their own research. The theory of social constructivism condones the negotiation and the co-construction of meaning with others (Bonk, 2006). Social constructivism embodies the concept of learning as a social process where the student is able to improve learning with the assistance of the supervisor who is at a higher level of development. Again the societal factor is reinforced by the sense of community in modelling how others research by using the same e-resource to help one's study. In the present landscape of education there is a growing tendency of constructivist ideas in learning that has encouraged many supervisors to inculcate more authentic environments that can cater for the specific needs of students (Simoës & Gouveia, 2008). This develops students as independent researchers as they take charge of their own development and subsequently invoke an attitude of being responsible to ensure research goals are reached. This touches on the personal factor as students are driven by their innate ambition to succeed.

According to Grosbeck (2009), higher education institutions are already exploring web 2.0 technologies because students can find course information quickly and are able to connect a variety of information that disseminates new knowledge for others too. In the United Kingdom (UK), web 2.0 technologies are being deployed in many universities' activities

(Melville et al, 2009). Although this has not been thoroughly infiltrated in teaching, learning, and research as desired, Melville et al. (2009) argues that there is a working base in other areas of university business such as student support, administration, advertising, and marketing. In further expanding the learning horizon within higher education, the UK has developed a blueprint (and begun the initial implementation) for the roll-out of web 2.0 technologies in its future educational initiatives. Whilst considering the UK as a more developed nation advancing at exorbitant speed to embrace a wider spectrum of web 2.0 technologies in higher education, South Africa, as a developing country, has also made significant progress towards this goal.

The South African government has capitalised on the use of ICT's in research as a major cornerstone towards the achievement of education objectives (Jaffer, Ng'ambi & Czerniewicz, 2007). In South Africa, all universities have access to ICT and have the largest information technology infrastructure on the African continent (van Jaarsveldt & Wessels, 2011). South African websites encounter highly educated users on a frequent basis, and technology has become an almost indispensable part of the daily lives for many of its citizens. Since 2007 internet usage has grown by 121% in the country with many people fully ingrained to web 2.0 tools such as YouTube, Twitter, Flickr, and Facebook (van Jaarsveldt & Wessels, 2011).

In research conducted by Hough and Neuland (2012) regarding the use of web 2.0 tools in two South African universities, namely the University of Stellenbosch (US) (full-time) and the University of South Africa (UNISA) (part-time), the findings indicate that all the undergraduate and graduate management modules, and academic programmes articulated compulsory online and web 2.0 usage. Although a variety of web 2.0 tools were accessed, it is interesting that all respondents elected to create online profiles on web 2.0 sites such as social networking and sharing sites. Students' profiles included details about their line of employment (mostly part-time students), field of study, their personal likes and dislikes, as well as photos. More than 80% of the students at UNISA exclaimed a positive attribute to the influence of web 2.0 tools on their studies, while 54% from US expressed the same sentiments (Hough & Neuland, 2012). Investigating why more students of UNISA experienced a positive inclination towards the use of web 2.0 than US does not typically answer the research questions of this study, but what is pertinent and relative are the e-resource tools that have been identified and are being used by South African universities to

impact teaching, learning, and research in more conducive ways. Further, this paves the pathway for more students to conduct research since these technological infrastructures are made increasingly available. In addition, these universities have instituted particular learning sites in which students can refer to engage with research. Relatively, the concept of societal factor is maintained as these tertiary institutions have entrenched the use of web 2.0 tools in their policies and practise.

Another important characteristic of web 2.0 on students' skills and knowledge of online assimilation is what they are able to learn for themselves from higher education to impart onto the world of work. A current trend in information technology is business-to-business collaboration where business' functionality is supported by virtual applications like the web 2.0 (Rudman & Steenkamp, 2009). Since students are already familiar with internet usage, they impart their social computing tools into the workforce environment. This advocates a better experience in handling technological advancements.

What has transpired thus far from the literature suggests a broad overview of the potential use and possible difficulties experienced with web 2.0. It is therefore imperative, for the purpose of this study, to explore specific web 2.0 tools that influence how students use these e-resources to conduct research in higher education. The use of Facebook, Twitter, and YouTube has been selected to elaborate on social networking tools that are currently used to serve online learning intentions.

2.4.2.4.1 FACEBOOK

As technologies are being continually created or upgraded to support internet services of social networking in reaching more accessible heights of speed, convenience, and cost effectiveness, higher education institutions have recognised that this can assist their educational communication and collaboration (Roblyer, McDaniel, Web, Herman & Witty, 2010). Facebook is one of the most popular examples of communications technology that has been enthusiastically adopted by students, and has the power to become a valuable resource to all fields of education (Irwin, Ball, Desbrow & Leveritt, 2012). Facebook was originally designed for college students in the United States in early 2004 for the purpose of social networking (Petrović, Petrović, Jeremić, Milenković & Cirović, 2012). Despite a heated controversy over ownership rights, Mark Zuckerberg started Facebook, and today it has become a global phenomenon that has expanded into different educational settings (Petrović

et al, 2012). This impact has fuelled the societal factor that has had a spiralling effect on the rest of the world, as millions of students want to be integrated into this realm of communication.

Immense development of ICTs has influenced pedagogical and technological processes. Social networking tools have not only become the new face of internet socialisation, but a recognised platform for educational means (Leitch, 2011). Research has shown that social network tools support educational activities by making interaction, collaboration, information sharing, active participation, and critical thinking a reality (Roblyer et al, 2010; Leitch, 2011; Irwin et al, 2012). Facebook is a website that affords users the environment to interact and collaborate within a virtual community. It has the ability to act as a web page, instant messenger, blog, email, and use third party applications for real time functionality (DiMicco & Millen, 2007). Facebook serves as an online site that enables people to create a public or private profile in order to connect and interact with others, irrespective of their geographical location (Irwin et al, 2012).

In this modern era of the 21st century, students are inclined towards authentic learning environments that can be supported by web 2.0 technologies (Petrović et al, 2012). The ideology lies in a robust research context. Hence, Facebook has become the social network of choice that tertiary education centres are quickly assimilating with. Faculty, who visualise learning as a relationship with students, may view Facebook in a business-like manner to maintain that link. Consequently many institutions of higher education have bought this idea by creating their very own Facebook pages on which students can join and become active members (Roblyer et al, 2010).

In a study conducted by Leitch (2011) relating to the use of social networking tools at tertiary level, results indicated that Deakin University in Australia had 7525 registered Facebook users, comprised of both current and past students. In a prior study carried out in 2008, undergraduate students were interested in using social soft-ware within a social sphere, but not the one proposed by the university (Leitch, 2011). In more simple terms, another version of Facebook was being projected to students. Once the Facebook webpage was introduced for Deakin University, many students came to the forefront in being a part of their online educational community. In the Faculty of Business and Law Units at the university, Facebook was used for a variety of research activities. This led to student engagement and informal

feedback. Drawing from this study at Deakin University, Leitch (2011) contends that when supervisors and students are familiar with a social network for research like Facebook, users are more likely to participate, rather than being estranged in an unfamiliar domain. Further, Leitch (2011) cautions universities in devising their own version of social networking sites that are irregular with the resources of the popular ones such as Facebook. Whilst it might be somewhat unique, the rationale for modifying a site for preference in a subject area could eradicate the confidence and convenience that students have in common social networking sites. In addition, the study did not divulge any distinct factors that can contribute to students using Facebook or the privatised one established by the university to significantly assist students in research. The overall benefits related to effective communication and to a small degree of helping with teaching activities.

The literature thus far has portrayed that students' use of Facebook is primarily for social interaction with some threads of how it can contribute to research (Leitch, 2011; Liu, 2010; Roblyer et al, 2010). Experts in the field will concur that a realistic description suggests that the social position outweighs the educational one. In fact Wise, Skues and Williams (2011) contest the educational prestige Facebook assumes as a pedagogical tool. In their study examining the use of Facebook among first year psychology students, Wise et al (2011) blatantly point out that Facebook is presumptuously a distracting influence upon students' academic engagement. The results of the study convey that students spent more time on the site for social intentions relating to communication with friends, uploading photos, and updating their 'wall'. The findings further reveal that efforts to encourage social engagement will not necessarily improve cognitive engagement congruent for research (Wise et al, 2011).

The perceptions and reactions towards the use of Facebook as a research supplement in higher education are mixed. Problems relating to privacy and anxiety when conversing with supervisors has been voiced (Muñaz & Towner, 2009). Charnigo and Barnet-Ellis (2007) echo the sentiments of Wise et al, (2011) by disregarding the academic value Facebook may hold. Supervisors too have expressed dissatisfaction with using the site, particularly when they lack the relevant skills needed to teach the ways the site can be used. Given the prevalent challenges, the stark reality is that Facebook has a growing audience (Muñaz & Towner, 2009). In appropriating a meaningful research experience using Facebook, Khoza (2011) suggests that supervisors be given more time to learn the pedagogical tools through the support of the institution which has a responsibility to train them. Lui (2010) elaborates by encouraging supervisors to understand student perceptions of social media, and thereafter

design activities to suit this preference in a meaningful way. Given the demand for education and the increasing numbers of students entering higher education, Lui (2010) suggests that social media tools can ensure a better degree of communication with them. Also, higher education should invest in training of supervisors and technical support as to how best the implementation of Facebook as an e-resource can be effective.

At this stage it is relevant to ascertain the merit of using Facebook as an e-resource and also to bear in mind the potential challenges that limit or prevent its use. Whatever the case, it has important pedagogical assumptions for the purpose of this study which involves the Curriculum Studies postgraduate programme. This may help to explore whether students are part of the social site for entertainment reasons only or perhaps have found a gateway for research initiatives. Mainly the societal factor was highlighted, as this seemed the predominant source to establish why students use Facebook.

2.4.2.4.2 YOUTUBE

Institutions of higher education have employed the use of virtual learning environments and administer e-learning into their traditional modes of delivery subsequent to a blended learning approach (Evans, 2008). In contrast to traditional mechanisms, e-learning offers the benefit of allowing students to choose when, where, and how they want to study. This entails the freedom students have to review information and acquire feedback. Innovative and engaging research in the direction of web 2.0 methodology is more than echoed by student needs in higher education (Popescu, 2010). A recent trend for developing technologies is the use of the YouTube video-sharing website which has gained importance for in-class and online learning setups (Burke & Snyder, 2008). YouTube was initially established for social entertainment assumptions. It was developed in February 2005 and launched in November the same year (Lance & Kitchin, 2007). In its stage of infancy, demand for the site grew radically in a period of 12 months, with more than a 100 million videos watched daily (Burke & Snyder, 2008). The current styles towards web 2.0 technologies indicate that video production and consumption rates are exponential (Copyright Clearance Centre, 2009). Billions of online videos are watched monthly, with more than 13 hours of video being uploaded every minute. Given the widespread attention YouTube has received globally, it has become the 4th largest website in the world (Copyright Clearance Centre, 2009).

The creative use of technology is not bound to what the mind can conceive. According to Liu (2010), YouTube is a convenient research tool that can be used in a variety of ways. Users are able to upload, view, and share video footage on www.YouTube.com and across the internet via other websites, mobile devices, email, and blogs. This has catapulted YouTube as the most highly used resource for online video (Burke & Snyder, 2008). The ability to capture, edit, and archive resources are within the capabilities of millions of people. Experts in the field of education agree that an essential component in promoting learning is when students are able to build content as an element of course requirements (Burke & Snyder, 2008). According to Burke and Snyder (2008) when students are able to create content they encompass a deeper understanding of the research material. Students further develop insight and skills, and are immersed in online communities through content creation using YouTube. Simultaneously, exposure to experiential learning takes place not only through the content but also through the technology used. While the assumptions of this research do not dramatically focus on technology in itself, it still considers the importance of its influence upon the resources used for research within colleges and universities.

The suggestion that YouTube is an efficient resource tool is less doubtful (Liu, 2010). On the condition of an internet connection, YouTube does not need a browser plug-in or a third party application to manage content, as with iTunes or podcasts. It is for this reason that YouTube is regarded as a quick research tool (Burke, Snyder & Rager, 2009). Although YouTube has been widely sought after for entertainment purposes, the educational aspects are perceived to assist supervisors with content delivery (Burke & Snyder, 2008). For instance, it can better showcase presentations on how to do research and translate video caption to a different language to increase accessibility to other language students. This language feature is an important consideration for the South African context, considering the multilingual society that students stem from.

English is a second or foreign language for many South African higher education students. In many of the African dominated schools, English, as a subject is taught, as a second language (Jaffer, Ng'ambi & Czerniewicz, 2007). Prior to 1994 African people in South Africa were marginalised which further created disparities in language. Consequently students from previously disadvantaged communities have to learn in their second or third language at a tertiary institution. Language and academic success are consistent with each other; therefore the academic language of the institution may be difficult to successfully comprehend in a

second language (Jaffer, Ng'ambi & Czerniewicz, 2007). Perhaps it is relevant to consider the implementation of YouTube in South African universities and colleges as a tool for improving language proficiency, not just in English, but in others where barriers might exist. Since the role of ICT in higher education is envisaged and supported by the South African government, this could possibly lead to better academic engagement and the improvement of students' results (Czerniewicz, Ravjee & Mlitwa, 2006). Rudman and Steenkamp (2009) affirm that all South African higher education students are connected to the internet because of ICT facilities available at all institutions. In their study Rudman and Steenkamp (2009) contend that 76% of the respondents accessed web 2.0 sites at least once a week. This suggests the probability of using YouTube in the South African higher education context is possible, if used with the required skills and support. Relatively, Burke, Snyder and Rager (2009) recommend that YouTube be used as a research imperative because it can help students who are inclined to digital learning styles. The concept of personal factor emerged because the literature posits that the general feeling of students is that they need and want to learn English to be competitively prepared for tertiary education and their fields of work, and it is through e-resource tools like YouTube that they can further develop their language proficiencies.

Thus far, the attitude towards the use of YouTube as an instructional resource is considered valuable (Lance & Kitchin, 2007). Burke and Snyder (2008) propose that it is crucial for supervisors to implement YouTube to assist students to develop content that they find meaningful and engaging. Students are able to access videos that teach them research methods, and the skills needed to ensure a successful research process. When students converse with learning tools they can identify with, they learn marketable skills for future careers. Through YouTube, links can be integrated into PowerPoint presentations or documents, and online teaching platforms (Blackboard®, Moodle®) by cutting and posting the specific video URL shown on the YouTube site (Burke, Snyder & Rager, 2009). Faculties are using video to show documentaries, feature films, television news and entertainment programmes (Copyright Clearance Centre, 2009). Supervisors are videotaping and posting lectures online through YouTube, thereby publically sharing and relating to a variety of topics within their domain of knowledge. This draws on the content factor as emphasis is placed on skills development, being able to conduct lectures, and the sharing of information.

In a study orchestrated by Lance and Kitchin (2007) at London Metropolitan University through two Marketing Management related modules (Sports Management (SM) and Events Marketing Management (EMM)), the use of YouTube was considered vital in suggesting an innovative approach to teaching concepts. Videos for the Innocent Drinks Company, McDonald's, and Citroen were used to illustrate how companies portray their ethical and sustainable business practises, and their stance on social responsibility. A Daily Mail Ski and Snowboard Show video was also used to illustrate how events incorporate features to enhance customers experience. This was used to support the EMM module. In the SM module YouTube videos were used to support historical and social contexts, and marketing communication campaigns. By introducing concepts through e-resource tools such as YouTube, Lance and Kitchin (2007) suggest that it can stimulate students' interest to conduct further research in related topics. They claim that it is an important resource to large numbers of students and that is also re-usable, can present real-life problems and bring relevance to the module. However, the study sheds light on areas of concern that could limit or hinder the use of video as a research resource. Issues of quality and availability of video clips is a prevalent one. Lecturers might find it time consuming in having to look for substitute video clips if the initial one is problematic. Hence Lance and Kitchin (2007) stress the importance that multimedia resources be more readily available in institutions of higher education. The cost factor also represents one of the fundamental reasons for institutions failing to do so. Liu (2010) gives consent to the issues raised by Lance and Kitchin (2007), and extends the discussion by pointing out that since responsibilities are divided into technical support and academic training and consultation, this expansion has curtailed huge amounts of financial and human resources.

Although there are challenges that arise to prevent or limit the use of YouTube facility as a research and learning resource, the literature thus far advocates for its potential use. The study by Lance and Kitchin (2007) not only suggest why YouTube as a resource was used, but also how it has been implemented to support students' understanding and development of marketing concepts that will be used to generate research. The Copyright Clearance Centre (2009) reveals that a range of high-quality and valuable audio-visual material are being digitised and made available online by cultural and educational institutions. Burke, Snyder and Rager (2007) maintain that YouTube as a pedagogical tool may in fact encourage synthesis of course content and sustain student engagement. Further they argue that if supervisors can be trained or skilled in using this type of technology, it can entail a more

interactive learning experience. Content and societal factors arose conclusively; with the latter having a more dominant stance as to what encourages students to use YouTube for research.

2.4.2.4.3 TWITTER

Technologies have been envisaged as the latest means to constructivism, in an effort to produce responsible students who are accountable for their own learning through research (Conole & Alevizou, 2010). Simultaneously, this leads to the development of the social dimensions of learning that cannot be ignored. It is vital to consider this since elements of constructivism have been used to influence the theoretical assumptions of this study. Dalsgaard (2006) adamantly conveys that social soft-ware tools can assist a social constructivist approach to e-learning by equipping students with personal tools and to immerse them in social networks. In this sense, web 2.0 environments inculcate an atmosphere of exploration and creativity, assuming independence for one's own learning through communication and collaboration. A more recent resource of web 2.0 technologies that has gained widespread momentum is the social networking service of Twitter. Twitter is a real-time information network that allows users to connect via micro-blogs referred to as tweets (Wagner, 2011).

The aim of Twitter is to *follow* others with also being *followed* back, and all posts are made public. The short message postings, called tweets, consist of a maximum of 140 characters in length (Leitch, 2011). A tweet is a text-based message designed for mobile application to be used anytime and anywhere, conducive to messages being sent and received (Wagner, 2011). Twitter was introduced in the year 2006 as a side project for a podcasting service called Odeo. Currently Twitter has a total number of 316 000 000 active registered users (Statista, 2015). The average number of tweets per day is 58 million. The statistics not only suggest the immense favourability the social network service has found, but according to Venable and Milligan (2012), Twitter has the potential to enhance learning and professional development through network building and new collaboration.

In South Africa, university students are the most frequent users of the internet because on the increased accessibility to computer facilities on all campuses (Rudman & Steenkamp, 2009). Wagner (2011) contends that Twitter creates a platform to connect with students outside of the classroom domain in a way that is unprecedented. The nature of web 2.0 technologies is

such that learners have easy access to the expertise of others within authentic environments, where information is disseminated to all involved, with valuable feedback (Conole & Alevizou, 2010). For instance mobile apps and desktop applications create efficient access to Twitter accounts and provide incoming news feeds on various devices such as tablets, personal computers, and smart-phones. In addition, multiple computer platforms and operating systems are responsive to Twitter technology (Venable & Milligan, 2012). This suggests that it is possible to incorporate Twitter into research activities because it is user friendly, popular amongst students, and easily accessible. Moreover many research projects involves groups of students collaborating in a unified effort, therefore Twitter enables them to support one another through real-time communication. The social platform through which Twitter exerts its competencies aligns with the social factors. Priority is placed primarily on real time communications, which students are very interested in, and have integrated the social dimension into the academic through contacts with peers and supervisors.

Twitter caters for both asynchronous discussion forums and synchronous conferencing systems, and can therefore invoke new aspirations towards transforming online course discussions. Venable and Milligan (2012) indicate the process in which Twitter can be implemented in an online learning environment. A live chat commences when all participants are online at an agreed upon date and time, using a common hash tag (#) to show that their tweets are linked to a unified discussion. The hash tag allows the Twitter stream to be filtered so that just the participants' messages are included. One can follow or join the live conversation via a Twitter platform or management tool using the assigned hash tag to each tweet. Searching and following hash tags creates an overall impression of all participants involved in the discussion. A topic is chosen beforehand with possible related questions that are posted in advance to the live chat, in order to prepare students. The chat supervisor opens the live session by "*welcoming participants, facilitating conversation and discussion, and monitoring the time*" (Venable & Milligan, 2012; p. 5).

The process described above has been articulated in the study by Leitch (2011) at Deakin University, whereby Twitter was used as a means to support postgraduate students of Masters of Information Systems, Masters of Commerce, and Masters of Business Administration. The purpose in selecting Twitter was to give students more information about current trends in research towards information security and to motivate them in reflecting upon current events, and to serve as a reminder of forth coming assignment dates. This later filtered on to the

Blackboard site (common online site for the university) to create awareness for those who wanted to be part of Twitter discussions and were initially unaware.

Venable and Milligan (2012) advise that Twitter chats are relevant for cultivating class discussions and facilitating other means of student-instructor communication. However, as with shortcomings experienced with the implementation of any resource, there is the possibility that students may experience difficulty in accessing Twitter. In the study at Deakin University, one off-campus student did not have internet connectivity at home, and due to work restrictions could not access Twitter. Therefore, the student could not be a part of the meaningful discussions that commenced. Like Facebook, the literature appears to demonstrate that Twitter is an excellent communication tool for basic messages between students, supervisors, and institutions. No crucial evidence has been posited to suggest that Twitter must be used as a pedagogical method of disseminating information. It can, however, assist in transmitting important messages in keeping up-to-date with what is happening in a course or programme. The societal factor potentially surfaced, portraying the use of Twitter primarily for communication through short messages.

At this stage the literature suggests that SW resources of discussion forum, chat room, search engines and web 2.0 technologies such as Facebook, YouTube, and Twitter are becoming increasingly available to more people through lowered costs and government intervention at higher education institutions. In South Africa, these institutions are faced with an influx of students as a consequence of post 1994 democracy which has created greater accessibility to schooling. These e-resources have made the task of dealing with volumes of students easier, as continuous communication and interaction can be maintained. This progression is interwoven with societal factors and touches on some aspects of content factors described in the literature. As technology develops with newer inventions, more students have the opportunity to make learning and research an even greater element of how they attain knowledge. A later innovation, web 3.0, explains how this advancement to the web can contribute to students' growth and progress in research.

2.4.2.5 WEB 3.0

The traditional version of the Web (1.0) began as a 'read only medium' which projected data as static for the purpose of reading only. This presented a challenge where the need to 'participate' in the information generated was critical to a students need for research.

Consequently, developments and modification of the web enhanced the process of researching information where the ability to read was now supported by the availability to write, termed as Web 2.0 (Lal & Lal, 2011). The web was used to ameliorate communication, collaboration, induce active learning, promote critical research, and propagate the delivery of distance education. This suggests that the web is in a constant state of flux as the disposition to provide more efficient avenues to access information has become significantly challenging. The latest advancement of Web 3.0 is characterised by students' cooperation in generating data whereas Web 2.0 was based on the element of participation (Harris, 2008).

The concept of Web 3.0 was initially legitimised in 1999 by Tim Berners-Lee who predicted the immense potential the web would have as an instrument of knowledge dissemination (Lal & Lal, 2011). The underlying premise of this development is the impression of a 'semantic' web. A semantic web is defined by its ability to harness a relationship whereby machines (computers, laptops, cell phones, smart devices) and people are able to understand each other. The semantic web focuses systematically on data integration. It converts 'display only' data to meaningful information by utilising metadata. Software agents locate and connect data from various sources to bring relevant information to the user. When the user selects key words in their search, the semantic web identifies and suggests the exact required data in response to the query. Previously, when a user implemented a key word search through engines like Google or Yahoo, millions of web pages would surface which only contained some relevant information with the rest being useless. However, with the semantic web, machines will entail the feature of reading web contents like a human being and therefore incline to the direction of required search. This indicates that the semantic web learns from behaviours and is able to compile complex results based on past behaviours. In this manner, users will experience more satisfaction in finding information quicker without sifting through various web pages (Hussain, 2013). This constitutes a societal factor because the web has advanced from Web 2.0 to Web 3.0 with better modifications that appeal to a tech-savvy cohort of students that are ready to acclimate to these changes. Essentially, it provides improved access and speed, as well as reduced costs of using the web, which increases the chances of greatly adopting to this approach.

Cook and Kelly (2013) posit that Web 3.0 does not represent a technical update to the web but instead relates to web pages that allow users to share work created with Web 2.0 tools. Web 2.0 emphasised active participation through social networking sites that fostered

interaction. Web 3.0 uses some of these tools with developed services to create a more open approach to research. The element of 3D social networking and systems has also been proposed, but has not yet been strategised as a research approach. However, Cook and Kelly (2013) undertook a study to ascertain how Web 3.0 tools can contribute to effective research for higher education students at California State University Channel Islands. The study focused on how students researched into the papers/articles about a former California Congressman, democrat Harold Johnson, using Apple iPads and a data-visualisation application called Popplet. The purpose of the research task was to explore how freshmen students could create 'pictures' of the political papers, instead of traditional finding aids which were labour intensive. This helped them retrieve access and describe collection in library science, which were fundamental to their research task. Graphic representations of the data helped students establish connections that could be shared amongst other students through use of the Apple iPad. The study revealed that as students researched through the use of Web 3.0, they developed a sense of ownership as pictures were manipulated in a manner that intrigued their research interest. Further, it assisted them in interpreting pieces of information in the collection through a myriad of documents. Here, the factor of content is addressed through students' use of e-resources (Web 3.0 tools) to interrogate political papers that drew on their ability to analyse and make inferences with the content they researched.

Tiropanis, Davis, Millard and Weal (2009) affirm the use of Web 3.0 tools and services critical for research imperatives. They assert that semantic technologies have the potential to contribute to course and curriculum development, delivery, and revision; group formation for collaborative work; critical thinking and argumentation with visualisations; personalised knowledge construction; and access to teaching, and learning and research materials across institutions. This accessibility is contextualised within societal and content factors, with the first having a more profound influence. Leitch (2011) recommends that tertiary institutions affiliate themselves with these types of web technologies, to accommodate the volume of tech driven students swamping campuses with this new wave of learning. Yet Amory (2010) espouses a concerning perspective when a hefty reliance is placed on predominantly utilising HW and SW resources as a teaching, learning, or research approach. This premise posits that research becomes about the technology and the true principles and theory of a course becomes obscured. To circumvent this situation Amory (2010) proposes that ideology should inform the usage of e-resources in education, since research is not about technology but rather ideology. Ideology is an IW resource that needs to be unpacked for the purpose of this

study. It will further strategise how approaches to research can parallel IW resources to inculcate a more meaningful research experience.

2.4.3 IDEOLOGICAL-WARE (IW) RESOURCES

The emerging stages of this chapter indicated that e-resources in research are divided into TIE and TOE. Thus far, the components of HW and SW (TIE) have been deliberated to explore how they are implemented by students to conduct research towards their projects. The discussion focused primarily on the tools of technology (e-resources), HW and SW, and how they are used as a modern approach in higher education institutions. A comparative analysis is required to highlight the theoretical assumptions to support the use of these resources; therefore, TOE refers to the IW of research. IW resources include research theories or methods; research findings; and experiences of students and supervisors (Khoza, 2012). In both online and off-line contexts one cannot see or touch IW resources.

Rutishauser-Chappelle (2007) argued that HW and SW resources are critical components that alter paradigm shifts in web-based environments that create educational opportunities that would be otherwise difficult to acquire. However, Khoza (2013c) challenged this perception by proposing that a paradigm shift for sound educational reasons can only occur with a combination of HW, SW, and IW, the latter being a more dominant component. This ideology is supported by Amory (2010) who cautioned against an over reliance on HW and SW resources which can produce technology dependent students who are obscured from the true learning goals. Instead IW resources need to be foundational and supportive to implementation of other resources in providing a rich, meaningful learning experience. Supervisors have a responsibility to understand and apply IW resources in order for students to research with technology and not from it. These assumptions coincide with content factors as emphasis is directed towards building on theories of learning, concepts, and knowledge paradigms that should be foundational for research to be carried out effectively.

Jaffer, Ng'ambi and Czerniewicz (2007) engaged a study that explored the impact of ICT in addressing educational needs in South African higher education. The central argument of the study proposed that educational technology is able to provide additional strategies to overcome many of the environmental and educational challenges faced by supervisors and students. However, this notion is warranted by a need to identify and conceptualise ways in which educational technology can be effectively used to contribute to student experiences in

research, curriculum, and pedagogical designs reflective of IW resources. A groundswell of information exists about IW resources and how they have been employed to different settings. Behaviourism, cognitivism, and constructivism are three extensive IW resources, or commonly called learning theories, often used to inform educational environments.

The constructivist view of learning portrays the student as central to the development of meaning-making and of what takes place, whereas behaviourist and cognitivist beliefs perceive knowledge as external to the student and the process of learning helps them to internalise knowledge. Siemens (2005) opposes this perception of how knowledge is attained because it ignores learning that occurs outside of people (learning influenced by technology). They further grapple to explain how learning takes place within organisations. These theories of learning were devised during a period of time when learning was not significantly impacted by technology. Further, they fail to explore how learning is located within technology and institutions, as well as being limited in providing valuable judgements that are crucial to knowledge-rich environments. This impacts societal factors since society is progressing with modern developments in higher education, there is a need to explain these changes, assimilations, and reactions through relevant theories of learning. Siemens (2005) conveys that learning priorities and principles should embody the underlying social atmosphere, and in current times, it is one dominated by technology that can be explained through the theory of connectivism.

2.4.3.1 CONNECTIVISM

Avenues of acquiring knowledge are etymologised from a diversity of opinions. Society is both complex and global, connected socially, and dominated by emerging developments in technology. Connectivism is characterised as a mirror image of a society that is perpetually changing (Duke, Harper & Johnston, 2013). Connectivism is based on the idea that learning can take place outside of ourselves and by connecting to specialised information sets/nodes (in an organisation or through a database/learning community) we are able to withdraw more knowledge than our current state of knowing (Siemens, 2005). Personal knowledge is comprised of a network, which is derived from higher education institutions or organisations; in turn they feed into the network and continue to provide knowledge to the student. This process of knowledge attainment allows students to keep abreast of latest developments in their field through the connections they have established. Within social networks (HW/SW resources), hubs are fully connected people who are able to extrapolate and conserve

knowledge flow. This produces a reciprocal flow of effective knowledge through interdependent students. It also suggests that connectivism is actionable knowledge because students understand where to find knowledge (research) through collaboration skills fostered by continuous engagement with e-resources. Siemens (2005) described this kind of research as messy, chaotic, collaborative, and interlinked with other activities. Therefore, connectivism is built on the principles of chaos, network, complexity, and self-organisation.

Connectivism is driven by diversity and autonomy (Elliot & Martin, 2011). Diversity relates to quantity and quality of information a hub possesses and autonomy expresses the freedom an individual has to choose what information is valuable to permeate a stronger social network. SW resources such as blogs, Facebook, Twitter, Moodle, YouTube, and other affiliated internet sites have an active discussion and sharing space that allows a group of people interested in a specific topic to come together and traverse divergent ideas from a range of sources. An on-going dialogue is generated, with emphasis on prosumers rather than consumers. This implies that students are free to add to the content (prosumers) rather than simply consume. The idea of discussing, sharing, and networking is synonymous with societal factors. Students who share similar fields of research interest begin to interact and maintain the established links throughout their educational career, thereby, forming their own communities.

Another route in which education is impacted by connectivism is through Personal Learning Environments (PLE's) (Van Harmelen, 2008). This is a system where students manage and control their own learning. PLE's have helped exorbitant amounts of students to have access to learning opportunities which traditional ways cannot satisfy. This touches on the personal factor as students assume responsibility for their own research as this fits in with their education and career goals. Moreover, the ability of assisting other students through PLEs indicates innate attitudes of compassion and peer involvement which can be replicated by fellow students. Wilson (2008) orchestrated a study that overall ascertained that PLE's are not a social network but rather a platform where students, tools, communities, and resources converse in a 'loose way'. This suggested that it is a real, quality experience as opposed to a Learning Management System (LMS). The study revealed that students used 77 tools related to instant messaging, aggregation tools, and authoring and collaboration tools. These tools were used to facilitate research and other learning activities thereby creating an ambiance of self-directed learning, synonymous of connectivism.

Bell (2009) initiated a study that expressed a connectivist understanding of educational systems in the future through an online course called *Connectivism and Connective Knowledge* (CCK08) offered by the University of Manitoba. A variety of tools were employed to explore how connection and interaction took place. These included a Wiki forum on Moodle, blogs, Elluminate (video chat and interactive board), a channel on UStream.tv, and other web resources. The study demonstrated that the course was effective in maintaining creative dialogue and strengthening links between students. Students were able to connect their thoughts and ideas and make decisions about what worked for them and what that did not. Some of the resources were translated into Spanish to accommodate diversity, and this increased participation amongst students. The study recommended connectivism as a good strategy for structuring innovation by lecturers in their practise. Societal factors coincide with this study because of students' ability to connect with each other, thereby a sense of community was formed which influenced communal decision-making.

Higher education students are usually compelled to take a course on learning theories as it provides them with a deeper understanding of how people learn and how to develop an environment as such to compensate optimal learning (Elliot & Martin, 2011). However, connectivism has been critiqued as to whether it is a learning theory or just a new way of learning in the digital age. Verhagen (2006) argues that this theory developed by Siemens and Downes does not explain any phenomena because it lacks a crucial argument to support it. Further, he affirmed that learning theories should address issues of how to assist a student at an instructional level, yet, connectivism primarily focuses on what is learned and why at the curriculum level. Kerr (2006) considered connectivism to be an extension of existing learning theories fitted with technological imperatives of what is learned, and not something entirely new brought to the table of digital learning. Duke, Harper and Johnston (2013) emphasise that it's not about whether a learning theory proves to be true or false, but rather whether it has the potential to explain or predict behaviour. Therefore, when dealing with the use of technology it should be married with connection-making as learning activities in order to progress learning theories into the digital era. Competence stems from merging connections, and for this reason Siemens (2005) proposes the theory of Connectivism (IW) to understand how students use technology (HW/SW) to undertake their research projects. Apart from the content factors that inform IW resources, personal and societal factors emerged in helping students to explain their research studies.

2.4.3.2 ACTIVITY THEORY

An activity comprises of events that culminate and the consequence of such for participants that can qualitatively change them, their goals, reasons for participation, the environment and the activity itself (Kaptelinin, 2005). Human activity is a dynamic process that includes artefacts that pose as technical tools and signs that symbolise psychological tools available in the social context (Yamagata-Lynch, 2010). This process shapes and moulds the individual's consciousness within a changing environment. The activities that take place within this atmosphere indicate an organisation of information about mediated social activities that posit interconnectedness and indistinguishable relationships within the components of an activity system (Nardi, 1996).

Learning is a process of determining connections between what is already known with new information (Darling-Hammond, Rosso, Austin, Orcutt & Martin, 2001). They make assimilations based on an inclination of what they have experienced. What takes place at home or in the community is an indication of their learning values. Thus the role of activity theory in research provides a set of perspectives on human activity and the concepts assigned for describing that activity (Robertson, 2008). Karasavvidis (2008) argues that activity theory is an ideal tool for which a researcher can embrace and conceptualise what works and what does not work in an activity.

Integral to the framework of activity theory is the principle of tool mediation that explains human activity driven towards an overall goal (object) which is mediated by the use of tools (HW, SW & IW) (Kirkup & Kirkwood, 2005). Similarly, Nardi (1996) supports this perception by advocating a strong notion of mediation in activity theory derived from human experience, influenced by the tools and systems employed to sustain teaching and learning. Further, Nardi (1996) adamantly points out the need for change and growth through the utility of activity theory, because it is designed to cater for constructivist learning environments. A central assumption of mediation is that a child can attain more with guidance and help, than what he/she can achieve on their own. The element of facilitation is located in Vygotsky's Zone of Proximal Development (ZPD) where mediation takes place (Daniels, 2001). The ZPD articulates the gap between what a student can accomplish with assistance and what he/she can gain on their own (Vygotsky, 1978). The ZPD is a conceptual tool for understanding the complexities associated with human activities, while individuals

make sense of their worlds through interaction with their surroundings (Yamagata-Lynch, 2010).

A pivotal aspect guiding CHAT or AT is the premise that all activities, whether inter- or intra-psychological, are social and cultural in nature where *actors* transform an *object*. *Objects* are regarded as cultural entities that denote communal social transformation practises and further grow during human activity (Hardman, 2008). The outcomes of any activity occur from *actors* interrogating *objects* by means of *tools* that mediate the interaction (Amory, 2006). Thus the rules mediate the relationships between *actors* and the *community*, whilst the *division of labour* mediates between the *community* and the *object*, and the *object* and the *community* between the *actors* and the *object* (Li & Bratt, 2004). Activities are captured in the image of individual and cooperative actions and the links and networks of such are affiliated with each other by the same overall *object* and motive (Kuutti, 1995). The activity system model accentuates elements of the particular context that must be considered when examining tool use within an environment e.g. the use of ICT tools in a specific higher education institution (Kirkup & Kirkwood, 2005).

Barab, Schatz and Scheckler (2004) sought the principles of activity theory as an analytical tool to explain the design and development processes of an online Socio-Technical Interaction Network (STIN) over time. They discovered that as activity theory influenced the dynamic activity of the creation of STIN, inadvertently STIN informed the dynamic nature of the activity. Through the interaction of components in the activity system they were able to better understand how STIN operates. In a similar vein, Hardman (2008) confirms that activity systems create a platform for infusing deeper knowledge as to how activities evolve and materialise in tertiary sectors of education. The activity diagram emphasises the interactions of the mediating artefacts (ICT and other physical resources) that a supervisor utilises in collaboration with the rules and conventions of the institution, the professional/local community of the supervisor, and the division of labour between the supervisor and students. These are all active in demonstrating how the activity system functions in a reciprocal process. This encapsulates a sense of what is happening in the midst of emerging conflicts. The premise underlying Hardman's (2008) study reveals that through activity theory the technologies, and the supervisor and students are changed as they converse with one another in a dynamic system. Kirkup and Kirkwood (2005) support the assumptions of Hardman's (2008) research because they too contend that from an activity theory

perspective even late adopters of ICT will inevitably be changed in the process of coping with new tools of research. This has a bearing on the entire activity system. The societal factor is impacted by this argument because the study reveals that when students engage in the activity they change as they converse with the other components. Therefore their beliefs, values, and behaviour are influenced by what they have experienced through the activity.

Various studies (Kirkup & Kirkwood, 2005; Nardi, 1996) suggest that activity theory has significant potential when it is used as a theoretical framework for investigating how e-resources are used to explain research. It possesses the characteristics to examine, analyse, and understand the challenges, experience, and advantage of using e-resources in higher education which are critical for a researcher to make sense of. In addition, activity theory serves as a platform for supervisors, students, and other stakeholders (community) to understand the relationships and purposes for each action. Research does not become about the technology but rather an aid through which information can be reciprocated (Amory, 2010).

2.4.3.3 TECHNOLOGY, PEDAGOGY, AND CONTENT KNOWLEDGE (TPACK)

Adapting and implementing emerging technologies in the learning environment can be a complex process when faced with social and contextual factors that can inhibit its relevance. Technologies are not neutral but instead possess their own propensities, affordances, and constraints presenting an even greater burden upon implementation (Koehler & Mishra, 2008). For example, the software programme of Microsoft Office Suite is designed for business environments, whilst blogs and podcast are created for communication and entertainment. Therefore, the TPACK framework has been developed on Shulman's (1986) analysis of pedagogy and content knowledge (PCK) to explain supervisors' understanding of educational technologies and the interaction thereof in producing effective teaching with technology. Through this, students can be guided into better ways of engaging research. Content knowledge is knowledge about the actual subject matter that students learn, whilst pedagogical knowledge is intense knowledge about the processes and methods of teaching and learning towards educational objectives. Pedagogical content knowledge is an alignment of teaching approaches parallel to content knowledge and how this can make research more conducive to students (Mishra & Koehler, 2006). At the outset of this theory, it is transparent that the content factor is elevated as it concentrates on how supervisors teach and what is researched by students.

TPACK rests upon an understanding of the representation of concepts using technologies, pedagogical techniques that use technologies in divergent ways to teach content, knowledge of what makes concepts more approachable to learn and how technology can be employed as a strategy to assist students to overcome some of the challenges they experience in developing knowledge (Mishra & Koehler, 2009). TPACK also utilises students' existing knowledge and theories of epistemology to establish new concepts and strengthen previous ones. Technology, pedagogy, and content are esteemed as interrelated knowledge systems. This integration allows supervisors/facilitators/teachers to bring in TPACK at any time. Each learning context may be different so no specific solution to use a specified technology may be used in every situation. Thus, teachers can be flexible in selecting the most befitting technologies in accordance with content, pedagogy, and technology to achieve the maximum learning experience.

Since changes in learning approaches are becoming even more progressive as a result of rapid developments in technology, the issue of what supervisors need to know to accommodate such advances becomes questionable. Baran, Chuang and Thompson (2011) affirm that TPACK is an effective research tool for designing and developing programmes to endow supervisors with a more interconnected knowledge of various content areas. Schmidt, Baran, Thompson, Mishra, Koehler and Shin (2009) used TPACK as a framework to guide the research design to their study by developing an instrument with the aim of measuring pre-service teachers' self-assessment of their TPACK and affiliated knowledge domain. The base reason for devising the instrument was to assess the development of TPACK in an introductory pre-service teacher technology course in a longitudinal research study. Data were generated at different stages of the project, at first during the teacher education program, after their instructional technology course through a survey, and during their practise teaching experience. The purpose of retrieving data this way was to ascertain their behaviour in the classroom in making a comparison with responses in the survey. The study concluded that TPACK has the capability to afford a new framework for developing learning experiences for future teachers. Further, based on the experiences, constructive feedback was given to both students and teacher educators. This demonstrated that TPACK has the potential to be useful research tool to provide information on how to design learning programmes through experiences. In addition, the content factor was embraced as it focuses on what concepts and

content is learned through teaching methods and technology. Also, the issue of researching with technology and not from it is addressed through this learning approach.

2.4.3.4 ENTERTAINMENT-EDUCATION THEORY (EET)

The use of e-resources are used for both entertainment and education assumptions. Against this backdrop Singhal and Rogers (2002) explain this theory as “*the intentional placement of educational content in entertainment messages...*” (p. 117). Further, they assert that media is designed in such a way that it contains underlying and transparent messages to increase knowledge about an issue, instil favourable attitudes, and evolve extreme behaviour. Mateas and Lewis (1999) posit that the distinction between play (entertainment) and work (education) needs to be obscure so that they are viewed as complimentary to the research process.

From initially building this theory on how an individual behaves and reacts to complex situations, it has developed to provide a holistic perspective on how communities function and respond to messages through entertainment such as television, the internet, telecommunication, radio, and social networking. For example, in India the dowry system of promising payment to the groom’s family through marriage was challenged by self-help groups and progressive opinion leaders, through listening to a popular year-long Entertainment-education (EE) radio soap opera (Moyer-Guse, 2008). The dowry system was an embedded cultural norm that was highly expensive, often unaffordable, for families of the bride, and this further cemented the caste system, which created, social bias. However, this practise was challenged through collective effort that would otherwise be difficult to achieve individually. Through unified effort, a sense of collective efficacy was achieved as people, in a group/community, believed they could organise and execute a course of action through the messages they heard via EE. These messages were able to influence the community to make a positive change that eased the financial burden placed on many families. This parallels societal factors as people in a group/community are influenced by the messages they receive through EE and make decisions based on what they perceive.

Moyer-Guse (2008) explains that EET has a narrative structure to spark interest in the storyline. Consequently, when students observe and listen to what is taking place, they are propelled to follow up the story to the end. In doing so, they are making judgements, justifying opinions, and reaching the extent of identifying themselves with characters or

situations. These are constructs which EET conceptualises as identification, wishful identification, parasocial interaction or liking, similarity, and transportation (Moye-Guse, 2008). Khoza (2012) brings a critical discussion as to how these are implemented in an e-resource context.

Identification occurs when a student assumes another person's position in order to learn from their perspective. Khoza (2012) espouses that students use search engines to locate academic literature to support their research projects by engaging with the work of different scholars. They begin to use scholars' beliefs, theories, and findings to build arguments and justification that encapsulates their own projects. Students may also download YouTube videos of their favourite people (artists, actors, singers) who influence their cognitive, emotional, or social attitudes. Wishful identification is when students are trying to imitate certain people but do not desire to become like them, as with identification. Similarity refers to when a person perceives he or she is similar to a character. This may be due to physical attributes, personality, values, and beliefs. Parasocial interaction or liking is articulated when students identify powerful people that can impact their studies and socialise with them. They connect with them via Facebook or Twitter and maintain communication. Transportation is evident when students are so engrossed in EE activities that they accept any source of information from experts in the same field of study, without contesting whether or not it may be valuable to their research.

These constructs are important in exploring how students research combining entertainment and education; however they are difficult to measure (Moyer-Guse, 2008). Alternatively, EET incorporates a realistic approach in that students use e-resources for work and play. A student may invite a fellow student in the same course on Facebook to establish communication. Although he/she will be able to view the other person's social activities, pictures, likes and dislikes, and find this interesting, a peer relationship is established to support each other in research projects. Again, this constitutes societal factors, by allowing others to have an impact on students' beliefs, values and choices about what is important to research and how this process can be carried out.

Each of the IW resources illustrated in this section demonstrates how students learn with technology in the present era. Learning theories are a critical component of most courses offered at university, whether old or new, it provides a fundamental perspective about how

students perceive research. Significantly, it supports the content material of a course, otherwise students become more engrossed with technology rather than the true meaning of what should be learned. At post-graduate level, Masters students are expected to engage with several IW resources to legitimise their research projects. In this way, the findings that are generated from students' research are supported by the learning theories that are implemented in their studies.

2.4.4 E-RESOURCES: WHAT'S COOKING A DIGITAL DIVIDE?

Thus far the literature has revealed that the current generation of young people have been immersed with a host of digital technologies from an early age - ranging from computers, the internet, web 2.0, social networking, and cell phones (Donnelly & McSweeney, 2009; Oblinger, 2003). It is perceived that they think, learn, and behave differently, as compared to previous generations, and this experience has led them to possess divergent expectations about learning and life (Jones & Shao, 2011). This assimilation has inculcated a dependence and expectation of various technologies that can relate information with a touch of a button (Oblinger, 2003). Consequently, this has produced a digital divide (Prensky, 2001). Drawing from these assumptions and epistemologies, several competing terms have emerged to identify, understand, and explain the current plethora of students' higher education encounters. Since the 1980's, several scholars have been prompted to distinguish between the impacts of technology upon learning across many generations. I found it relevant to discuss these as they could have important implications for the findings of this study.

In commencing, Howe and Strauss (1991) differentiate between 'Generation X' (born between 1961 and 1981) and the 'Millennial Generation' (born between 1982 and 2000). According to them, the new generation of millennial students were hopeful, able to collaborate with others, and are driven towards achieving goals by following the rules. Further, millennial students are characterised by their adaptation to new technologies, stemming from a broad historical perspective in biology and culture. Tapscott (1998) coined the term 'Net Generation' which implied that young people were groomed in a frenzy of digital media, the computer and the internet. A significant debate in Tapscott's (1998) theory believed that change in attitudes and tendencies to learning was a consequence of emerging technologies. In addition, he argued that institutions of higher education would have to somehow conform to technically advanced students which would challenge existing ways of conducting research and learning (Tapscott, 2009). This constitutes societal factors since,

with each generation of students, a certain type of technology was associated. This espouses that as the range of e-resources expanded, and became more advanced, it convinced users to neglect existing ways of researching to more convenient and accessible e-resources.

Prensky (2001) distinguished between 'Digital Natives' and 'Digital Immigrants'. This rationale contended that digital natives were unique from previous generations, called digital immigrants, those born prior to the digital communication era. He discovered that digital natives communicated through a digital language via the medium of computers and the internet. Consequently, they developed new attitudes and approaches to learning because of perpetual developments in technology (Prensky, 2001). In contrast, digital immigrants had to learn how to use the different technologies rather than viewing them as 'innate' or natural tools. Prensky (2001) identified that supervisors were digital immigrants, and this broadened the gap between their digital native students, which incurred enormous problems for higher education. Coinciding with Prensky's (2001) theory, Khoza (2011) concluded in his study that supervisors were digital immigrants because they lacked the "*pedagogical tools; ongoing monitoring; WBTL guidelines and advice structures... to ensure the successful use of WBTL technologies*" (p. 157) in a teaching and learning environment. Another important revelation of his study was that higher education institutions needed to be more supportive in terms of training students from undergraduate courses in order to overcome the shortage of Education Technology supervisors in South Africa. Again, societal factors are impacted by Prensky's differentiation between students who came from more privileged backgrounds (digital natives) from those who stemmed from less fortunate ones (digital immigrants).

'Generation Y' came about in China, and was a development on the Generation X. In a blend of the economic boom and digital phenomena, the premise surrounding Generation Y suggests that students exhibit unique generational characteristics related to these (Zhao & Liu, 2008). As a result, students in this era are able to collaborate, network, and have an appetite for change. They are able to use a host of digital devices such as personal computers, iPods, and mobile phones to communicate (Zhao & Liu, 2008).

These divergent concepts impact the ideology of digital divide because they contain issues of inclusion that imply exclusion where users of e-resources are divided according to different names (Castells, 2009). These names given to users are based on competing factors such as

the medium language of communication, which is predominantly English; accessibility to the internet; and the knowledge and skills applied to using the internet (amidst other e-resources).

Prensky (2001) argued that the new generation of students had unique ways of thinking because of their assimilation with developing technologies throughout their lives. Prensky (2001) also went to extremes by blatantly claiming that the brains of Digital Natives were physically different to those of prior generations because of the impact of evolving technologies. These controversial statements have caused Jones and Shao (2011) to question the presumptions made by Prensky (2001), by critically reflecting on the studies carried out in various countries. Jones and Shao (2011) posit that students' acclimation to technology cannot be absorbed universally because, contrary to Prensky (2001) who suggests that students learning preferences is a result of technology, other studies have indicated that students immersion to the digital field did not imply a preference for increased use of technology in educational environments. Further, they are convinced that it is difficult to generalise about the current generation of students (digital natives) due to the conflicting variations of interests, lifestyles, age, gender, socio-economic background, and academic preference (Brown & Czerniewicz, 2008; Selwyn, 2008). These are crucial in producing factors that propel students to use e-resources in conducting their Masters research projects. The premise surrounding the Net Generation and Digital Natives identifies students as advanced users of technology but Jones and Shao (2011) challenge this ideology because some students make use of them particularly due to course requirements.

The digital divide has stemmed from the competing terms that have surfaced over many years since the 1980s. This generational divide is said to have been found in education between supervisors and students (Prensky, 2001), but this claim has been disputed and holds little depth (Kennedy, Krause, Judd, Churchwood & Gray, 2008). Under intense investigation these claims about digital divide (Net Generation, Digital Immigrants, Digital Natives) have dissolved but in other avenues of financial constraints and demographic issues, digital divide have emerged. Disparities exist between the accessibility of technology across different countries. This is further exacerbated by gender, class, and ethnicity (Selwyn, 2008). Yet Jones and Shao (2008) adamantly express that the arguments surrounding the Net Generation and Digital Natives inculcating a digital divide are insufficient to support the claims thereof.

At this point it is also critical to consider the argument of Khoza (2011) who advocates that these terms are highly debatable because they conveniently overshadow the e-learning signals from the curriculum spider web in association with learning outcomes. A learning outcome is a statement of what a learner is expected to know, understand, or be able to do at the end of a learning activity/period (Donnelly & Fitzmaurice, 2005,). Khoza's (2011) theory postulates that for effective research to take place, important learning signals (learning activities) must be selected in order to avoid noise (issues or activities that hinder students from learning). It also suggests that supervisors are responsible for helping students construct learning signals to provide better opportunities for research. In order for the e-learning signals to be fully realised and applied it must be used in conjunction with hard-ware, soft-ware, and ideological-ware resources. This constitutes content factors because emphasis is placed on establishing important learning signals like IW resources so that the true goals of research can be achieved. There is a lack of evidence to contend that either students or supervisors seriously require advanced web 2.0 resources in research (Jones & Shoa, 2011), so these resources can only be included if there are specified research questions.

2.4.4.1 GLOBAL DISPOSITION OF DIGITAL DIVIDE

2.4.4.1.1 GERMANY

In a study conducted by Heinze and Schnuur (2008) regarding an I-literacy project in 2007 at the University of Augsburg, Germany, the purpose was to develop a platform to enable the teaching of information literacy skills to students. The results of the report suggested that students could use the internet optimally, but were not information literate. Students were able to use technology but could not appropriately use it for learning. This suggests that students predominantly concentrated on HW and SW resources instead of first engaging with IW resources; therefore they did not know which information was important to their learning. This is a societal factor because students used the technology since it was easy, popular, and cheap, without considering the learning signals (Khoza, 2011). Ryberg, Dirckinck-Holmfeld and Jones (2010) argue that there needs to be more intense pedagogical effort to develop students' literacy skills. Further, they assert that the young generation are well immersed with ICT skills in using social soft-ware that can be developed for formal learning purposes. The underlying dissention lies in administering the support and guidelines to initiate technical skills in an educational environment (Jones & Shao, 2011).

2.4.4.1.2 NORWAY

Traditional methods of communication via the internet have dominated the market for online technologies for many years (Brin & Page, 1998). However, in a study by Rønning and Grepperud (2006) in Norway it has emerged that the internet and email do not assume a stringent position in communication among students, and between students and supervisors outside plenary sessions. The study also revealed that although frequent use of the internet and computer was high in Norway, disparities existed in employment status. Younger, unskilled employees who worked part-time had little access to the internet at their workplaces. Also, the availability of technology did not parallel its perceived increased use (Rønning & Grepperud, 2006).

2.4.4.1.3 AUSTRIA

Nagler and Ebner (2009) examined a study in Austria that concentrated on the use of technology for learning and socialising. The evidence suggested an exorbitant use of Wikipedia, YouTube, and social networking sites, while social bookmarking, photo sharing and microblogging were not as favourable. More than 90% of the students involved in the study had internet access at their residence, while 80% had laptops and desktop PCs. Not surprising, Web 2.0 technologies were mainly used for personal interaction. Here societal and personal factors emerge, as students choose to communicate with the friends and loved ones via social media, and these appear to be the dominant reasons why they use e-resources.

2.4.4.1.4 CHILE

In Chile, Sánchez, Salinas, Contretas and Meyer (2010) described a research which explored the present relationship between students and technology. It surfaced that student' skills and abilities with technology did not correlate with the description of the 'digital natives' as portrayed in the literature by Prensky (2001). Although students used many applications simultaneously when using the computer, they were unable to multitask. In addition, ICT integration did not act as a substitute for the social activities that students were still engaged with. Significantly, face-to-face communication was highly regarded by students.

2.4.4.1.5 CHINA

Wang, Lin and Mao (2003) undertook a study at a university in China to explore students' use of computer skills and information literacy. The research indicated a discrepancy between graduate and undergraduate students' computer skills. It was found that graduate students

experienced a lower level of proficiency in this area. This was a consequence of the other universities or the rural settings students came from, where there had been less contact with computers. Despite the government's attempt to encourage students' information literacy, implementation at institutional or department level was dismal. As a result, students could not take full advantage of the available digital resources due to their own poor information literacy.

2.4.4.1.6 SOUTH AFRICA

Brown and Czerniewicz (2008) published an immense study involving 3522 students as they related their use of ICT in six tertiary environments across five South African provinces. The results evidenced that the implementation of computers in facilitating research was poor, despite the increasing developments in new technologies. ICT integration in higher education courses was not ubiquitously applied and students displayed low levels of interaction with technologies. Surprisingly, the study also revealed that students did not frequently engage with social soft-ware tools, but widely embraced instant messaging and web searching.

In this study it was relevant to discuss the overarching state of the relationship between emerging technologies and higher education in various countries. This will help discover possible similarities, trends, or disparities in the findings. In exploring the empirical studies of different countries, interesting assumptions have surfaced. Firstly, the educational context in which students' exhibit research is a predominant factor in determining the extent to which they can converse with different technologies (Jones & Shao, 2011). Although institutions of higher education have succumbed to the pressure of widespread integration of ICT, there still are alarming concerns about the rationale governing this change. Much of the tension lies in the political pressure rather than the concrete evidence to support the critical changes, such as the needs of education in proportion to the demographics of the country (Bennette, Maton & Kervin, 2008). It will be interesting to ascertain what factors arise that support students use of e-resources towards their research, stemming from the bellowing voice of government in affording better access to ICT infrastructure at all levels of education (DOE, 2004).

Jones and Shao (2011) concur that a generalisation cannot be formalised about the current generation of students, as they possess a blend of "*interests, motives, and behaviours, and that they never cohere into a single group or generation of students with common characteristics*" (p. 12). It is also worthy to state that their responses to the accessible

technologies may be different, between those, who from a young age have been ingrained with technological developments (digital natives), and others who are still ‘babes’ because they are learning to appropriately use the technologies (digital immigrants). Koutropoulos (2011) advocates that scholars need to rephrase themselves from naming any generation because it has the capability of stifling students’ personal growth and makes inconsistent assumptions that students have developed in certain areas, when in reality they have not. Instead focus has to be directed towards pedagogy and developing skills for information retrieval and information analysis in digital and analogue realms. Therefore more studies need to be done to inform the factors that connote students’ use of e-resources. In this sense, the study hopes to achieve this by exploring how students use e-resources to conduct their Masters dissertations.

2.5 CONCLUSION

At the outset of the chapter the study sought to pinpoint concepts that would frame the literature in a way that will identify factors that inform students’ use of e-resources to conduct their Masters dissertations. The literature has portrayed the use of e-resources as an agent of significant change in fuelling how current systems of knowledge want to be received for research and future development (Van den Akker, 2009). Integrating ICT infrastructure in tertiary institutions has become a national prerogative for many countries, and South Africa has been quick to jump on the bandwagon. South African educational policies propagate the use of e-resources as a benchmark for international competitiveness through increased opportunities to previously disadvantaged communities (DOE, 2004). This suggests that there is a greater influx of students entering higher education that require the use of e-resources that can be achieved through ICT integration. The South African government further envisions a nation that is capable of operating effectively in the information era which encourages the need to improve research strategies.

Pillay and Karlsson (2013) contend that the need to investigate post-graduate education research in South Africa is imminent. Not only will this eradicate threads of racism, social exclusion, and deprivation, but it will also foster personal growth, intellectual growth, and the much anticipated change of what it means to live democratically. Therefore, this study interrogated the literature to understand the factors that help students to undertake research using e-resources. The two concepts of curriculum, factors and e-resources, was used to

scaffold how the literature unfolded by selecting studies from local and international perspectives that correlate with the research questions at hand. In exploring the concept of factors, it suggests the reasons why students' research, and how it contributes to the completion of their dissertations. Three main factors were identified and within these supporting factors emerged as the literature panned out (Van den Akker et al, 2009). The first factor is content and relates to the academic and cultural heritage that a student should possess to effectively carry out research. Societal factor is the second factor and is epitomised through the problems and challenges that are derived from social imbalances and needs. This propels students to do research in order to create awareness about social ills and the need for change. Lastly, the personal factor centres on the passion a student has in achieving educational and career goals. Through motivation and perseverance a student is able to elevate themselves out of a situation of stagnation, unemployment, or poverty by completing their research tasks to fulfil the degree requirements. Against the backdrop of these three factors, the second concept of curriculum, e-resources, is put into perspective as to how these are implemented to conduct research.

It was imperative to circumspectly interrogate the concept of resources as this symbolised the phenomenon of the study. Within this context resources were categorised into HW, SW (TIE), and IW resources (TOE), with a bird's eye view of how this impacts e-resources to be integrated into the research processes of students (Khoza, 2012). In direct consultation with the research questions of the study, these resources were critically explored and consequently produced supporting factors framed within the content, societal, and personal factors. The literature postulated that HW resources such as computers, laptops, smart devices (cell phones, tablets), Smartboard, and overhead projectors were used to enable online research (Glen, 2008). Students required these HW resources because it exhibited modern society as a sign of progression (societal factor) and they realised by using this means of researching it would be quick and easy to attain volumes of information related to their dissertations (content factor). HW resources are necessary for SW resources to be engaged with.

SW e-resources include a myriad of e-resources that can be integrated into educational contexts at all levels. The study selected a few on the premise of how they specifically addressed research processes. In this regard, discussion forum, chat room, search engines, Web 2.0 (Facebook, YouTube, Twitter) and Web 3.0 e-resources were identified and reviewed. In assisting students to undertake research SW e-resources were informed by

content factors relating to the accessibility of retrieving course learning materials such as academic articles, publications; development of reading and writing skills (Zhang, 2005). Further, using SW e-resources saves time at the touch of a button, instead of spending hours at a library grappling through hard copies of books. Driven by the content factor, search engines have been developed for specific fields of study where articles can be found more easily. This increases reliability and availability of sources through Google Scholar in which students can make inferences between multiple articles by ascertaining correlation and differentiation to become critical researchers, hence, enabling skills to make decisions about what are credible, high quality academic materials (Burke, Snyder & Rager, 2007). Societal factors that propagated the use of SW e-resources create the opportunity to converse with others in the research community (lecturers, peers, writers) by exchanging ideas and communicating through synchronous tools, thus hedging relationships. The societal factor attends to issues such as poverty, insufficient resources, large class sizes, that higher education is challenged with. Implementing SW e-resources may greatly assist in overcoming these challenges. Further, instilling SW e-resources develops collaborative enquiry and dialogue skills with students. Also, it allows the prospect of maintaining uniformity through specific online sites (SW e-resources), created by universities themselves, so that students are familiarised with institution, and have the opportunity to interact with other researchers (Ravjee, 2007; Mouyabi, 2007; Hussain, 2013; Venable & Milligan, 2012). Personal factors included development of authentic learning environments which propelled students to become independent, self-motivated researchers who followed up perpetually on their courses through discussion forum, chat room and email; and, cost effective, efficient means of doing research. In using SW resources these factors were crucial in supporting students' research needs to find academic materials, which essentially refers to the IW resources critical for a Masters dissertation.

IW resources refer to the principles, theories, methods, findings, and experiences of how research should be cogently instrumented. In its very nature IW resources (TOE) are foundational to postgraduate studies and explain the reasons why studies, explorations, and investigations occur. Without this hypothetical base, using HW and SW resources independently becomes more about the technology and the true essence of research is diminished (Amory, 2010). Drawing from this understanding, the study selected a few IW resources that are used in research. These include theories of Connectivism; Activity Theory; Technology, Pedagogy and Content Knowledge Framework (TPACK); and, Entertainment-

Education Theory. Studies that have implemented these theories were used to explain how students used e-resources to research and the following factors emerged as a consequence. The content factor was immediately impacted because it is important for research strategies to be built upon concepts and knowledge paradigms to understand experiences shaped by human behaviour. In addition, the societal factor was embraced by the need to explain changes, assimilations, and reactions by different societies to modern developments in education such as emerging e-resources. Moreover, the personal factor simply touched on students individual choices about selecting specific theories relative to the phenomenon of their dissertations.

In finalising this chapter, the literature has provided an extensive, yet critical account of how e-resources are used by students to undertake research. Key factors were identified within the gamut of content, societal, and personal factors and these described the experiences and interpretations of students. Simultaneously, resources were discussed and elaborated to coincide with the factors that were deliberated. At this stage of the literature, only the two concepts of curriculum were unpacked because of its depth and length. Therefore Chapter Three addresses the other concepts of curriculum: targets (purposes, objectives, research questions); research knowledge; research activities/researcher role; accessibility; research environment/time; and, assessment.

CHAPTER THREE

CURRICULUM CONCEPTS AS A FRAME TO EXPLORE FACTORS

3.1 INTRODUCTION

The previous chapter provided a critical account of the first instalment of the literature. Two integral concepts of curriculum, factors and resources, were identified and interrogated to frame a disposition that enabled a theoretical base to implement further research for this study. The concept of factors was critical in establishing three relative propositions being content, societal, and personal factors. These circumspectly generated supporting factors through the studies that were selected. Inadvertently, these factors were crucial in exploring resources within the propositions of HW, SW, and IW e-resources that helped understand what e-resources researchers use to undertake post-graduate research. Since the current chapter primarily engages the specific research concepts which frame research projects, it identifies the student as a researcher. Therefore, the culminating literature has evolved the role of students as researchers because this is what they represent when they undertake these studies.

Van den Akker et al. (2009) posit that all concepts of curriculum should be traversed in order to make sense of how researchers use e-resources to conduct research and this can reveal inconsistencies, trends, similarities and interconnections about what drives them to pursue their studies. In addition, they argue that these concepts can inform higher education institutions to make better decisions about the challenges confronted; an issue Khoza and Manick (2015) specifically addressed in their study. Therefore, this chapter articulates an elaborate discussion on how the concepts of research targets; research knowledge; research activities/researcher role; accessibility; research environment/time; and, assessment are crucial in exploring further factors within the ambiance of content, societal, and personal factors. Khoza (2013a) asserts that these concepts are important for successful implementation of research in any education project. Consequently, when such concepts are engaged it fits the role of a researcher, who implements these, to analyse their research projects. These concepts are illustrated in Table 3.1.1.

Table 3.1.1 Curriculum Pedagogical Concepts

Concept	Question	Propositions	Studies	Gaps Identified
Research Targets	Towards which research targets do researchers conduct their Masters dissertations?	Purposes Objectives Research questions	Khoza (2013b), Kennedy, Hyland and Ryan (2006), Bloom (1975), Noddings (2007)	There is a need for more studies to be conducted using focus group to generate data. Most studies interpreting the use of goals in research are within undergraduate courses. There is a need for studies to be conducted at postgraduate level
Research Knowledge	What research do researchers use to conduct their Masters dissertations?	Title, literature review/theoretical frame, research design and methodology, data analysis and interpretation, findings and conclusion. Curriculum knowledge	Sunday (2016), Boote & Beile (2005) Hilsden & Verhoef (2004)	There is limited or no factors to suggest why students select certain aspects of knowledge to include in their projects. The factors need to be identified so that students realise it is not about fulfilling requirements but understanding and enjoying what they are researching.
Research Activities/ Researcher	What research activities do researchers use	Registration/ application documents	Moyo & Pratt (2014) Trigwell & Dunbar-	Outlining the specific research activities that

Role	to conduct their Masters dissertations?	Supervisory meetings, cohort meetings,	Goddet (2005)	inform Curriculum Masters Students of research
Accessibility	Who do they research in their Masters dissertations in Curriculum Studies with the use of e-resources?	Physical access Financial access Cultural access	Khoza (2015b) Moyo & Pratt (2014)	The impact of these types of accessibilities in influencing students to do research
Research Environment/ Time	Where and when do researchers conduct their Masters dissertations?	Online learning space face-to-face learning, blended learning, lecture venue, working from home. Hours spent conducting research.	Van den Akker, et.al (2009), Budden, (2013)	Spaces in which most research takes place for students
Assessment	How are researchers assessed throughout the research process?	Assessment for learning (Formative), Assessment of learning (Summative), Assessment in learning (Peers), e-assessment (Turnitin)	Biggs (2003) Khoza (2015a) Ison (2014) Yorke (2003) Knight (2002)	Assessment practises that dominate in research

Table 3.1.1 represents a synopsis of how the literature will be structured throughout this chapter, and further support and solidify the analysis and interpretation of the data in chapters six and seven. The guiding question related to each concept will help select studies that are appropriate to identify factors that propel researchers to utilise e-resources to inform their Masters dissertations. Propositions are effective in synthesising how each concept will be poignantly discussed by using multiple sources/studies that can inform the literature. This

will help identify gaps that can be filled through the generation of data from the current study. Jabareen (2009) evinced that concepts are a derivative of qualitative processes of theorisation and each proposition as a consequence builds consistency and support for explaining the nature of reality (Guba & Lincoln, 1994). Moreover, using curriculum concepts can assist theorising constructs, variables, and relationships from studies that can divulge significant factors critical to this study. Drawing from these perceptions the discussion moves forward by exploring the concept of goals and how this impacts researchers' projects.

3.2 RESEARCH TARGETS: PURPOSES, OBJECTIVES, AND RESEARCH

QUESTIONS IN DIRECTING STUDENTS' RESEARCH

In many higher education contexts researchers are often unclear about what is expected of them to research, and as such can invoke negative feelings about their research experience. Purposes, objectives, and research questions are proponents of targets and divulge the intentions of students' research projects (Hyland, Kennedy & Ryan, 2006). Research targets are also referred to as goals in some studies (Khoza, 2013a). Noddings (2007) argues that in an era where accountability and emphasis on assessment are crucial in research, the need for clarity in developing purposes, objectives, and research questions are eminent. This perception is cemented by Johnson's (2012) view that university research projects should be designed in a way that propels researchers to graduate towards their chosen career paths with the relevant skills, knowledge, and understanding to make informed contributions. Moreover Nusche (2008) contends that because higher education face scaling pressure to provide accountability and consumer information on the quality of research, existing ratings and rankings tend to neglect purposes, objectives, and research questions. As a result there is no viable indication whether the knowledge and skills of researchers are critically developed. Given this rationale, considerable consensus reveals that these three propositions should be clarified as an important element of educational processes that can support research initiatives (Ramsden, 1992; Schwartzman, 2010). These are substantial in drawing content, societal, and personal factors that influence researchers' ways of conducting research that can fill the gaps about how purposes, objectives, and research questions can be successfully integrated into research courses. It is necessary to unpack these concepts to strengthen the literature and build the conceptual framework guiding this study.

3.2.1 PURPOSES

Purposes are written from the perspective of researchers and may represent broad general statements of what they are expected to research (Noddings, 2007). Purposes are also referred to as aims in some studies (Khoza, 2013a). They reflect the start of a research period and the overall intentions of a research project. Purposes are thought of as universal because they symbolise the premise of higher education which filters to each course as an introductory element of what researchers should demonstrate. Corresponding purposes are derived from the main purposes in consultation with the design and implementation of the course. The purposes further inform the research strategies and the assessment tasks used to measure these. It provides the researcher with circumspect direction of appropriate research initiatives that can generate data in writing a thesis. Purposes may further include an explicit rationale for the research project that relates to why and how it holds significance, distinguishing it from other fields of knowledge. This coincides with the personal factor because purposes are generated from the researcher's prerogative as to what sparked the original interest in doing the research.

Noddings (2007) argues that when purposes are too general, they appear vague and may be difficult to attain. He uses two examples to illustrate this, "*to prepare students for democratic life,*" and "*to prepare citizens who are literate*" (p.8). Although these purposes spark interest in the development of the individual and society, they can be difficult to measure considering how times are changing with rapid evolvments in technology. It is also very general and may apply to diverse theories of knowledge. Moreover he recognises that goals should be first established through which purposes can culminate. This can help produce specific purposes that are suited to a project that can engage researchers to become critical thinkers by perpetually reflecting on what facilitates their research. For example, "*to introduce students to the uses of mathematics in a wide range of natural and social sciences; to share with students biographies of great mathematicians – particularly those whose interests have gone well beyond mathematics; to provide choices for students in selecting projects...*" (p.11). Noddings (2007) affirms that not only will this endorse mathematically literate researchers but produce other targets by which purposes can be achieved. The way in which the purpose is written clearly indicates the area of knowledge, being mathematics, and it also suggests what can be expected throughout the course. This embraces the content factor because these purposes stem from the project itself and help guide the researcher to focus on specific content areas.

Khoza (2013b) conducted a case study involving two groups of post-graduate researchers in a basic research project. The purpose of the study was to explore whether an e-learning environment could be established for all researchers to access the project by creating relevant e-learning signals that students could identify and integrate into their research strategies. The following purpose was envisaged: *“The module aims to develop your competencies as a critical reader and user of research, which should enable you to put research into practice in your own teaching... The module objectives are to develop your understanding of the research process; give you an introduction to finding research in the library; develop your skills of reading, understanding and critically engaging research reports and journal articles; further your knowledge and understanding of research genres ...”* (p. 8-9). This purpose was strategically used as a research signal to comprehend whether researchers achieved the highest levels of research as possible. The results of the study evinced that purposes in conjunction with research questions were an important indicator of demonstrating to researchers what was expected of them to research with the idea that once this was understood they could achieve the best possible results. This is influenced by the content and personal factors; because the purpose is derived from the research and researchers are motivated by this to complete their research activities in order to successfully pass.

Blake, Smith and Standish (1998) contend that the purpose of a project should include a tradition of enquiry which articulates continuities in the sets of problems, as well as in the research approaches adopted. These should further include sets of texts that are shared by practitioners of the field of knowledge as a mark of common reference. In addition they affirm that purposes should be inclusive of developing introspection and critical judgement of the objects of enquiry. These statements are pivotal in guiding Masters researchers in conducting research tasks effectively and professionally. It also endorses the seriousness in which they exemplify these approaches, by immersing themselves with credible literature, methods, and applications of conducting a thesis. The content factor is impacted here as researchers are expected to exhibit the skills and knowledge of how to mitigate effective research.

3.2.2 OBJECTIVES

Objectives are derived from the purpose and are explicit statements of what the researcher will achieve throughout the research project (Williamson, 2008). In many educational

settings purposes and objectives are considered synonymous and are therefore used interchangeably. However, Noddings (2007) argues that purposes appear vague in nature whilst objectives provide measurement. The purpose/s provides a general indication of what a researcher may research and how they may benefit from such a process. It usually does not indicate any details of how assessment could take place and whether research has been successful. In this regard, Hussey and Smith (2002), solidify that objectives are likely to be specific statements of research directly related to a domain of knowledge or course that help researchers identify how assessment takes place and the success of such. Objectives do not primarily focus on a title, content or teaching strategy, but rather an indication of what a researcher is expected to know and be able to do at the end of a research task.

Noddings (2007) proposes that objectives should be constructed in accordance with larger purposes; then a task analysis should be undertaken with identification of the relevant skills required to achieve the objective. In the context of a research project, once the main purpose has been acknowledged, specific objectives need to be conjured that articulates correlation. These may include decisions about specific research methods, data generation techniques, theoretical frameworks that can provide a disposition of reaching the objectives. For example, Khoza (2013b) evinced in his study that the objectives of the course were: “...to develop your understanding of the research process; give you an introduction to finding research in the library; develop your skills of reading, understanding and critically engaging research reports and journal articles;...” (p. 9). These objectives were also used as an e-learning signal to achieve the highest levels of research in a project and a greater understanding of curriculum knowledge in general. Objectives are influenced by the content factor because they are derived from the research and reflect what researchers are expected to exhibit about that specific knowledge. It also validates the personal factor because Khoza (2013b) suggests that objectives can be used as a research signal to show researchers which are relevant material for research so that they are motivated to achieve the highest level of learning possible.

A short-coming of purposes and objectives are that they are created according to the researcher’s intentions rather than the participants’ (Khoza, 2013b). It is reflective of a researcher-centred approach instead of a participant-centred approach, inconsistent with modern theories of how research should take place. By its very nature research activities rest on the researcher’s ability to articulate critical enquiry, this requires a sense of independent

learning as research is insightful and cannot be restricted by limitations. As such, purposes and objectives are overshadowed by research questions which are the current lingo for guiding researchers to what is expected of them (Williamson, 2008). Whereas an objective would have stated, *“To introduce students to the history and development of complex numbers,”* a learning outcome would suggest, *“By the end of this course, students should be able to outline the history and development of complex numbers”* (Williamson, 2008, p. 5). However, many research projects and higher education institutions still specify purposes, objectives, and research questions individually as stepping stones in helping researchers understand the educational process and the expectations thereof.

3.2.3 RESEARCH QUESTIONS

Purposes and objectives are useful in describing the contents of a project and what can be expected throughout as a broad general overview. However, they have been criticised as being researcher-centred, too discipline orientated and rigid, instead of problem-focused which is symbolic of international trends in education (Noddings, 2007). As a consequence, research questions have been established to represent a statement of what a researcher is expected to know, understand, and be able to demonstrate at the end of a research task. Research questions are commonly supplemented with learning outcomes in some studies; however, in the context of this study it is appropriate to articulate them as the former because research at Masters level does not have outcomes but rather research questions that explore whether the study has fulfilled its research targets. Learning outcomes reflect perceptions of what learners at school level are expected to know and may therefore be inconsistent with the assumptions of this study. Whilst purposes and objectives are written from the point of research intentions, research questions postulate clear statements of what the participants are expected to answer in a study.

Research questions parallel the competence-based curriculum as a model of educational scaffolding that connotes clear and explicit identification, statement, and assessment of research (Adam, 2004). This approach initially filtered through secondary schooling education systems and eventually at all levels of education (Ewell, 2005). In recent years the incentives of research have permeated higher education systems within the context of qualifications framework to bridge the gap between knowledge development and workplace demands (Bergan, 2007). This strategy is supported by the move to establish a broader set of qualifications amongst researchers than subjecting research to a specific discipline or

profession. Therefore, research questions have substituted learning outcomes to articulate the intentions of research at this level of education. Moreover, Nusche (2008) contends that defining curricula in retrospect of research questions is an important step in comparative assessment and measurement of research performance in a feasible way. Evidently, this draws on societal factors because higher education institutions are globally transitioning to more methods that are conducive to approaches that motivate researchers. This suggests that students want to research as their fellow students in a modern, conducive system of education.

The dispensation of research questions in higher education satisfies a broader set of expectations about what researchers should gain from their studies (Aamodt & Hovdhaugen, 2008). For society, a significant element of tertiary studies is to prepare researchers for future employment. Instituting qualifications frameworks incorporating research questions as instruments of progressive education assists governments, employers, and international labour markets to understand what researchers have learned and how this may benefit society, simultaneously advantaging the researcher with employment (Bergan, 2007). Research questions provide transparency about higher education systems and qualifications; in this endeavour various governments globally have entrenched the shift towards establishing research questions as an outcome in higher education policies and practises. The emphasis is on improving quality in education and training, thereby creating access to all.

In Europe, due to the exponential growth of knowledge through globalisation and technological advancement, increasing pressure was placed on the government to serve new methods of enquiry and learning. The European Commission spearheaded a process called the Education and Training 2010 whose emphasis was on modernising education through a learner centred education propelled by the use of research questions as indicators of growth (Adam, 2004). The European Commission developed the European credit transfer and accumulation system (ECTS) whereby credits that researchers gain from each project completed is expressed in terms of research questions answered. In much of the policy documents across European higher education, research questions hold a critical stake in measuring researchers' performance and are therefore entrenched in projects and programmes. From a South African perspective, Khoza's (2013b) study involving twenty four university researchers in a basic research project discovered that research questions can be answered when important e-learning signals are developed and maintained throughout.

These e-learning signals represent resources such as HW, SW, and IW that are crucial for effective research to take place, coinciding with current trends in higher education. Khoza (2013b) argues that when researchers are aware of the e-learning signals, it can help them answer the research questions of the course. The content factor is signified here as research questions have been incorporated in policies, practises, and project descriptions. Supervisors are embracing this by alerting their researchers as to what is expected of them by creating relevant research signals that can help them interrogate the research questions specifically. It also touches on the personal factor; when researchers are aware of the expectations surrounding their research, it manoeuvres them in the right direction towards career and educational goals.

Kennedy, Hyland and Ryan (2006) contend that the written element of research questions represent the initial phase of research, while they further extend to the perspective and thinking involved in reinforcing the phenomenon of a study. Therefore, when developing and instrumenting research questions various experts engage with Bloom's (1975) taxonomy of thinking and learning processes. Bloom identified three domains of research, namely cognitive, affective, and psycho-motor, and he proposed that within each of these domains there exists an ascending order of complexity. Most of his work primarily concentrated on the cognitive domain where various levels of thinking processes were arranged in a hierarchy. These levels were knowledge; comprehension; application; analysis; synthesis; and evaluation being the highest level of thinking. Since research is a process, a researcher would have to first start with the lowest level being knowledge and would have to complete all other levels ascending to evaluation. This being said, conducting a Masters research would entail various steps in completing the project, such as the literature review, data generation, research methodology and analysis, and interpretation; this is a process of specialisation in a particular field, mandated by higher education institutions to make their researchers more advanced in their field of specialisation. Khoza (2016) evinced that research questions are constructed according to specific observable keywords that highlight divergent levels of complexity. Using particular key words in research not only reflects the language of the study but the avenue in which the research pursues such as the paradigm and theoretical framework supporting the study. The commonly used words in research are 'explore, examine, investigate, determine, explain and analyse', amidst other key words. Words such as explore, explain, and analyse are synonymous with the interpretive paradigm, whilst 'examine, investigate, and determine' mirror the positivist paradigm. These are relevant to consider

because researchers have to write in a way that reflects the paradigm that supports the area of research they engage. Bloom (1975) suggested that researchers' thought processes should be perpetually developed through each stage in the hierarchy to successfully respond to the research questions of the study. Again, the content factor is highlighted, as the written component of learning outcomes is addressed and interpreted by students thereof. Even as a research course unfolds, beginning with basic concepts of understanding, working its way to more comprehensive methods of exploration, research questions simultaneously emerge with primary levels of understanding escalating to more intense concepts of evaluation.

Thus far, this section has intently discussed the concept of goals within the ambiance of purposes, objectives and research questions and how this facilitates the process of guiding researchers into what can be expected in a research project. All three factors were critical in supporting why these concepts were crucial to higher education practises. The content factor was profound in that specific written statements of research questions contain elements of a project description and provides a blue print of how research imperatives and assessment can culminate. The personal factor outplays through researchers' own motivation and perseverance in achieving the research targets and how it contributes to the overall success of conducting research, as well as passing the assessment requirements. Researchers are driven by the need to compete in industry and to be prepared for whatever this requires. Moreover, the societal factor impacts through global transformation in higher education, filtering down to developing countries like South Africa. This proposes that researchers behave in way that reflects a modern approach to research in which they utilise e-resources significantly to assist their explorations. The literary account in this section predominantly projected studies in undergraduate research projects. Therefore, the factors that emerged were related to those fields of study. This creates a gap for studies to be undertaken at postgraduate level, with a specific angle at masters' research projects, which represents the crux of the current study.

3.3 RESEARCH KNOWLEDGE: WHAT ARE RESEARCHERS (STUDENTS) USING TO CONDUCT THEIR PROJECTS?

Venkataram (2010) predicates that every domain or field of research knowledge is incomplete and problems are waiting to be identified and solved. New dimensions of what we think and know or presume the answer to be can predominantly be filled through scientific enquiry and rigorous research approaches (Somers, 2008). Research becomes less theoretical as the niche for exploratory studies positions researchers as more actively involved in

knowledge production by applying discipline-based research skills to generate critical answers. Waghid (2002) argues that research is not about attainment of knowledge but how it can solve community challenges. This projects the societal factor as integral in driving contemporary research. Waghid (2002) further asserts that the active element within researchers spearheading research solidifies the personal factor as it becomes crucial in completion and success of their projects. This is supported by the desire to understand what constitutes a good research project and what has to be learnt in fulfilment of the research requirements. Coincidentally the content factor is articulated interchangeably with the personal and societal factors as researchers engage with the correlated literature to frame their projects. In retrospect, this section deals with the research content researchers use for their Masters and will therefore capture how they construct their projects utilising the applicatory literature.

Drawing from the above discussion, the University of Western Cape suggests that the first step in the research process is for researchers to begin with an idea of what they would like to explore in a specific area of interest (UWC, 2016). Hilsden and Verhoef (2004) condone this statement by further suggesting that research involves asking questions that have not been addressed before in particular ways. They concur that question/s should be clearly focused and well thought out which leads to development of a research project. The research proposal is a foundation and crucial step in the thesis production as it represents the finality of what can be expected in a Masters dissertation. It is a formal description containing concepts that address each stage in the research process. This indicates the warrant of time and thought-provoking measures carefully woven through each concept in preparation for the final thesis. A researcher would have already ascertained the feasibility in terms of time, costs, resources, and ethical considerations (Hilsden & Verhoef, 2004). The issue of time is a critical factor as most institutions warrant deadlines for submission and instructions concerning length, structure, and format of a research project. Therefore, researchers are influenced by the personal factor to motivate and strive towards achieving this goal in time for graduation.

Monash University (2014) connotes that once the mechanisms of embarking on a post-graduate study have been endorsed, the next step is to critically establish the field of knowledge a researcher would like to engage. In consultation with the supervisor, a researcher is expected to generate new knowledge that can advance understanding and fill existing gaps in the current literature. Once this has been maintained, the drafting of the

research project commences using key concepts. According to Miles and Huberman (1994) a conceptual understanding reveals critical factors, constructs or variables, and identifies relationships. The research project articulates a specific theoretical orientation point and methodological approach carried through each major concept (Monash University, 2014). This process is crucial as it formalises the next step in preparing a researcher for defence of research before an academic panel. Although this can produce feelings of anxiety and fear within the researcher, this procedure must take place for the research to receive constructive feedback and guidance concerning the processes the research endeavours. The expert panel in consultation with the supervisor of the researcher, grant permission for the research to be undertaken, provided that the necessary ethical considerations are upheld. Therefore, it is imperative for researchers' to understand the concepts that frame the research project as they represent a contract between the researcher, supervisor/s, and other stakeholders such as financial funders and universities. Consequently the following section explores the concepts of title; literature review; theoretical framework; research design and methodology; data analysis and interpretation; findings and conclusion; as a way of understanding what concepts researcher use to conduct their projects.

3.3.1 TITLE

The title summarises the main idea/s of a study and are usually the first words read (Sunday, 2016). They usually consist of about twelve words and should be clear, sharp, and focused (APA 6th Edition, 2009). The title is reflected on the cover page of the research project and is followed by the full name of the student and their highest degree in parenthesis. The month and year of submission is also included at the bottom of the page. The title is descriptive in nature and should reflect what the study is about, preferably using keywords from international information retrieval systems. The title articulates the phenomenon, the participants involved, and the context. Within these, the content, societal, and personal factors can be ascertained. When a researcher contemplates an appropriate and relevant title, the phenomenon of the study is usually brought into perspective. The phenomenon conveys the primary idea of the research, the thing that interests them to explore. This assists the researcher to select key words for the title that are meaningful and captures a snapshot of what the study is about. The phenomenon aligns with the content factor because researchers have to read and comprehend the literature to inform their understanding about concepts that can help shape the title. In the current study the phenomenon is represented as factors that facilitate the use of e-resources. Consequently the phenomenon helped select which literature

studies may be valuable in exploring the e-resources researchers use to conduct their Masters projects.

Sunday (2016) evinces that when designing the title the parameters of purpose, narrative tone of research, context, and methods used should be maintained in the wording. This can engage a reader's attention with specific attention to the research problem explored. For example a study conducted by Toni, Maphosa and Wadesango (2014) entitled "*Promoting the Interplay between Teaching and Research in the University and the Role of the Academic Developer*" (p. 19) highlights the phenomenon being "*teaching*" and "*research*" whilst suggesting there is a relationship between the two through the use of the word *interplay*. The title is also clear and focused in that it specifies teaching and learning in the context of university level as opposed to school-based. Moreover the authors capitalise key words in the title to show emphasis about what the study entails, and also signifies the role of the academic developer. This can intrigue those interested in this field of knowledge by pondering how an academic developer contributes to the relationship between teaching and learning in different ways. In addition, the role of the academic developer represents participant/s in a study. Significantly, the title should represent who the participants are in a research study because from them data will be generated. The participants invoke the societal factor because their reflections, opinions and experiences will provide the sources for data generation. This being said, the emerging study identifies the participants in the title as Masters researchers. This assisted in selecting who are eligible from postgraduates with imperatives for a specific field of research. From them data will be generated regarding what e-resources they use and how they implement them to complete their projects.

The title also contains the context of the research which indicates the environment or place where the research will take place. This condones the personal factor because researchers identify particular needs in certain contexts that intrigue and lead them to explore new data. Contemplating the title of the present study reveals the context within the discipline of the Curriculum. This dawned as a consequence of the need to explore studies within this context where literature is limited about how researchers conduct their projects using e-resources. Additionally, Curriculum and educational technology (ICT) are continuously evolving and changing with new developments in higher education, therefore, more studies need to be undertaken from this perspective.

3.3.2 TABLE OF CONTENTS, ABBREVIATIONS, ACRONYMS, AND KEYWORDS

The table of contents usually comprises the main titles and subtitles in accordance with various sections and page numbering. It further includes list of figures and tables that are computer generated and listed sequentially (School of Hospitality and Tourism Kenyatta University, 2016). A research project in some cases is limited to a certain amount of words per section, so appendices may have to be kept to a minimal. This section in the project provides overall direction as to what constitutes each page and section, assisting the reader to make inferences more easily. It also symbolises structure, that the student has followed a logical sequence in exploring the depths of the study, since pursuing a Masters degree can be a complex process.

Simply, abbreviations and acronyms represent a short form of a word or words and must be included in the project to alert the reader to what they mean. Often, when certain words are commonly used, particularly names of institutions, processes or theories, they are abbreviated or substituted for an acronym which makes the process of writing for the student less tedious. This centres on the content factor because researchers are guided by the literature on how to draw up the table of contents, as well as listing the abbreviations and acronyms. Such literature may include handbooks or course material of the institution or electronic sources from other authors. Additionally, they are advised on which page these should appear, which is usually at the commencement stage of the project.

Key words divulge the main words that would be carried throughout the research (Sunday, 2016). Researchers discover this by immersing themselves with the literature and the phenomenon of the study. They are usually words that may appear commonly throughout the study and consist of about at least ten words. They should follow a particular sequence: the first should give an overview of the field of research; the second should suggest a more specific indication, with the rest being even more concentrated. Consider the study by Toni, Maphosa and Wadesango (2014) mentioned earlier, the keywords include, “*Research, Teaching, Learning, Teaching-Research nexus, and Academic development*” (p. 19). Evidently the key words begin as general words moving to specifics such as *Teaching-Research nexus* and *Academic development*. Again the content factor is highlighted because researchers derive key words by reading the literature.

3.3.3 ABSTRACT

Mather-L'Huillier (2010) explains the abstract as a brief summary of the main points of a proposal. It is a statement/s describing the purpose of a research and should not be confused as an excerpt of a passage but rather an original document coinciding with key words. The abstract enables the reader to quickly ascertain a bird's-eye view of what the research entails, including information about what the central problem question is, why it is worth studying, and how the process of research will ensue. It further encapsulates core details about the research question, theoretical framework, research design, sampling method, and data analysis procedure. This emphasises the content factor as researchers delve into the literature to write the abstract.

Some institutions like the University of Western Cape expect students to prepare a one page summary of the research project (Sunday, 2016). This is represented through the research proposal and a one page summary is submitted to the faculty Higher Degrees Committee, with the one page summary further sent to the Senate Higher Degrees Committee. The summary includes details such as student name; student number, registered degree and department; thesis title; abstract consisting of about 500 words; and 10 key terms. This taps into the societal factor as the institution requires students to submit these documents for formalising the research process. These guidelines on how to write the abstract are located on the university's website which suggests the use of e-resource as a critical tool in preparing their research proposal. This section in the construction of the research project leaves out the personal factor; it would be interesting to note what the current study can generate about this.

3.3.4 BACKGROUND AND PROBLEM STATEMENT

Background refers to the section where the researcher introduces the discipline area under exploration and the current situation regarding this (School of Hospitality and Tourism Kenyatta University, 2016). It reveals the conditions that have led the researcher to the point of research by defining the purposes and objectives in specific ways. Mather-L'Huillier (2010) posits that the background is an introduction to the crux of a study and creates the opportunity for the researcher to demonstrate that their research has not been done before and will significantly contribute to the existing body of literature. Moreover, the background sets the context of the research and can assist the reader to understand the key questions and objectives from the outset. Research projects, in general, have a limit to the number of words or pages required so it may be difficult to analyse the entire literature. However, Mather-

L’Huillier (2010) suggests that researcher select key research papers from journal articles, public policies, learned society reports, books and other theses accessible from the internet. This proposes that the internet is a powerful e-resource in helping researchers develop concepts needed for their research projects. Further, they are able to view multiple examples of research projects to ensure they follow the correct guidelines. This reveals that the content factor and societal factor influence how researchers engage their study. The content factor is evident in reviewing the literature on various constructions of proposals by other researchers, and the societal factor is significant in demonstrating how society (authors such as Mather-L’Huillier) advises researchers to use the internet as a quick and cost effective way of retrieving volumes of information. Again, the personal factor is ignored by some researchers.

The problem statement flows from the background, reinforcing that the study is crucial and why it can be useful and interesting (Monash University, 2014). This propels the student to be critical in their thinking about the value of their research. They must articulate a need or gap that needs to be addressed, fundamentally warranting the reason for their research. It explains how the study can benefit specific field/s of knowledge and influence policy and practise by resolving pertinent controversies (Hilsden & Verhoef, 2004). When considering the problem statement, sometimes called the ‘rationale’, researchers will view how other scholars have studied in the same field of knowledge and what their research has showed. Students may draw important claims, theories, perceptions and use this to build a case for their own research projects (Sunday, 2016). Here the content factor is strengthened as researchers immerse with other studies to invigorate their own research. The problem statement is also described as a gap or difficulty that needs to be solved or explored. It spearheads all the other sections by framing them as a response to the problem.

3.3.5 PURPOSE, OBJECTIVES, AND RESEARCH QUESTIONS

Purpose refers to an intention or aspiration of what a researcher wants to achieve by conducting a research study (Sunday, 2016). The term purpose in proposal writing is synonymously used with the term aims, and according to Monash University (2014) they both suggest the clear articulation of the reason for the study being undertaken. Purposes are related to the research question and emphasise an overall context of the study. It is a statement of intent and expresses what a researcher hopes to achieve at the end of a project. In formulating purposes it is useful to contemplate the theme, topic and focus of the study; there should be an overarching correlation between these concepts to bring flow and

meaning. For example, consider the purposes generated by Njiru (2014) in a study about developing self-regulated learners using ICT:

1. *“Devise a conceptual model of self-regulated learning that is relevant to ICT-rich learning environments,*
2. *Devise a series of instruments based on the conceptual model to measure different dimensions of self-regulated learning. The focus in this instrument will be students’ propensity to use self-regulation under different circumstances, rather than their base ability to use such strategies. Given the goal of constructing linear measures, each dimension of this construct will be measured using a separate scale. Together, these instruments will be used to collect data from students in Australian universities.*
3. *Correlate students’ self-regulation levels with their motivation, self-efficacy, learning strategies and metacognition levels” (p. 4).*

The above example of how purposes are written begins with the central purpose at number 1. The other two purposes are derived from purpose 1 and show progression. According to the University of Western Cape (2015), purposes can be distinguished between academic purposes and strategic purposes. An academic purpose refers to the main problem a thesis addresses based on academic developments in the literature, curbed to an academic audience. The academic purpose is usually the central purpose and usually begins with words such as explore, investigate, understand, interpret, determine, compare, evaluate, and interpret. Strategic purposes stem from your thesis and are aimed at a non-academic audience such as policy-makers, officials from departments or the government. Strategic purposes mostly involve sentiments about improving practice and cultivating developments that require attention. The ideology surrounding what purposes incorporate and how they can be written tap into the content factor. The literature suggests guidelines as to how researchers can write purposes derived from their title, coinciding with the literature.

Research objectives are a precise statement of the purpose of the research, which discern key variables and their interrelationships with the participants of a study (Hilsden & Verhoef, 2004). Sunday (2016) evinces that the objectives are a list of specific tasks that must be completed to achieve the purposes. Therefore, the objectives are derived from the purposes. They should be concisely written and interrelate with the research questions. This coincides

with the personal factor because once researchers have interrogated the literature to formulate purposes, they design objectives and are driven by this to complete their projects.

Sunday (2016) affirms that when establishing the research questions, a researcher should contemplate what is known, missing, how to look for what is missing and what methods can be used to solve this problem. The research questions correlate with purposes and objectives because they are derived from them. Hilsden and Verhoef (2004) concur that the research questions are specific and exploratory in nature. They are purposes posed in the form of questions that the literature in correspondence with the data generated will attempt to answer. Research questions usually begin with words such as ‘what, why, how, and should’. They form the basis of why the research project is crucial in answering critical questions that can develop understanding and contribute to the existing body of knowledge. The research questions and hypotheses display a harmonious relationship, in that the first asks what relationships exist, while the latter seeks to explain and predict the answer to the questions. Research questions articulate societal factors because researchers discover problems within the societies that surround them and seek to find solutions to them.

3.3.6 LITERATURE REVIEW

A literature review elicits an evaluative account of studies related to a current study under exploration (Boote & Beile, 2005). The review summarises, explains in detail and clarifies the literature that supports present claims indicative by the new study. It is regarded as the most crucial step in the research process as it identifies variables that are related to the title, recognises and supports methodologies and designs, pinpoints inconsistencies and contradictions, and diminishes unintentional replication (Boote & Beile, 2005). The literature flows from the phenomena of the study and therefore this correlation should be evident throughout the study. This emphasises the content factor because researchers examine the literature bearing these concepts in mind with the notion that they can produce themes and patterns in the new data that will be generated. Hilsden and Verhoef (2004) connote that the literature review strategically categorises the problem statement in the context of the research by discovering gaps and weaknesses in other studies that can be filled through the new study. Therefore, a researcher is expected to comprehensively read through the literature to examine whether they are adequately knowledgeable about the proposed work and if it is appropriate for the level of knowledge in the current area.

Monash University (2014) outlines in their post-graduate guide that the literature review shows the supervisor of the researcher and faculty that the researcher is cognisant of other scholars in the field and divulges which issues will be focused on in the review. In addition the researcher is expected to display critical inquiry about the issues selected that will mould the theoretical orientation point. This cements the societal factor because the faculty and supervisor influence and guide the researcher in how to write a literature review and the expectations thereof. It is imperative to consider the societal factor because some writers have argued that developing the literature review is a complex process because many authors fail to provide explicit guidelines to formally analyse and interpret selected literature (Onwuegbuzie, Leech & Collins, 2012). Therefore, the faculty and the supervisor are important stakeholders in manoeuvring the researcher in the right direction of the literature review process. Further, they prescribe the number of words and pages that review should be contained within, so that the researcher does not select unnecessary, cumbersome, literature. This factor is further sustained by the other studies that have been sought using e-resources such as Google Scholar, electronic libraries, search engines, and e-journals (Boote & Beile, 2005).

In designing the literature review the context is also intercepted to provide direction as to where the study will unfold. This upholds the personal factor, because researchers identify particular needs in certain contexts that spark exploration within them. It is a decision that they have made independently, possibly through personal experiences. It further clarifies relationships between existing literature and the current field of research (Boote & Beile, 2005). Simply put, the literature review process impacts the entire research process and has to be thoroughly interrogated using correct analyses and interpretation procedures. Although other factors arise influencing the literature review, the content factor emerges strongest as researchers are expected to critically engage in meaningful reading by accessing the work of scholars and experts in the field to justify their own research study.

3.3.7 THEORETICAL FRAMEWORK

The theoretical framework of a research study relates to the philosophical basis on which the research takes place, and forms the link between the theoretical aspects and practical component of the study conducted (Sinclair, 2007). Thus, at the point of departure to any research study, it is imperative to consider the relevant theory underpinning the knowledge base of the phenomenon to be explored. A theoretical framework also highlights the main

research question (hypothesis) of a study, line of inquiry, and methodology governing the research (Ocholla & Le Roux, 2011). Sunday (2016) describes the theoretical framework as a composition of scholarly work based on current knowledge and substantive findings, inclusive of methodological contributions to a particular research. This entrenches the content factor because researchers immerse themselves with various theoretical frameworks before selecting the most relevant one that defines their field of knowledge. It involves researchers reading and thoroughly engaging the literature first so as to inform their choice of theoretical underpinning. Researchers view how other scholars have written similar studies based on particular theories that can assist their own studies.

Consider the theoretical framework of Activity Theory, commonly used in research environments that involve the use of e-resources. Activity theory is the principle of tool mediation which describes human activity as driven towards an overall goal (object) and oriented by the use of tool (e.g. instruments or devices) (Wang, 2008). Wang (2008) confirms this ideology by way of a hierarchical structure of an activity system which includes the five major components: actors, object, tools, rules, and roles. Stetsenko (2008) poignantly expresses that an activity takes place when a human agent (actors) is motivated toward the solution of a problem or purpose (object), and is mediated by tools (artefacts) in accordance with others. Pivotal to the idea of CHAT is that all activities are social and cultural in nature, whereby actors transform an object. Objects are cultural entities that symbolise social transformational practises (Stetsenko, 2008). This suggests that activity theory informs the societal factor because it reveals interactions between the researcher and participants to successfully interrogate the research process by depending on each other. It also galvanises the personal factor because researchers are motivated towards achieving their targets (goals) by working with their peers and the supervisor in completing the activity (research project).

Another theoretical framework gaining momentum in technology-rich research contexts is the Technology, Pedagogy, and Content Knowledge (TPACK) theory (Koehler & Mishra, 2008). This theory describes how researchers understand educational technologies in producing effective research. It views researchers' knowledge from three dimensions, namely, content, pedagogy, and technology. Each of the three dimensions is intercepted to form bodies of knowledge within themselves and explains how researchers use technology to generate research. This exemplifies the content factor because the theory explores what content researchers utilise and whether these are appropriate to the research project. It also adds to the

societal factor because the theory recognises that most research environments are technology inclined which suggests that use of e-resources is rampant.

Other theories of learning include behaviourism, cognitivism and constructivism. The theory of behaviourism concentrates on the study of overt behaviours that can be measured and observed (Good & Brophy, 1990). Research in this field believes there are patterns and a sense of order that one can discover; inconsistent with the values of modern research strategies that rely on the experiences of researchers own research process. Cognitivist theory prioritises brain-based learning, articulating how the human memory works to simulate research. In a cognitivist environment, the supervisor structures the content of research activities to build on intelligence and cognitive development. Hence, research is captured in the image of a content-centred approach. Constructivist theories assert that researchers construct their own reality based upon ideas or concepts from past and present knowledge (Wells, 2007). As a result, the constructivist approach is significantly research-centred because of the freedom and opportunity researchers have in developing their own research. These theories were developed at a time when research environments were not technology-rich so access to e-resources was minimal. As societies evolve and progress with the influence of modern developments such as technology, new theories of research emerge. The personal factor is highlighted because theories culminate as a result of how participants behave and communicate their opinions and experiences. Traditional theories signify the role of the supervisor/teacher as a disseminator of research knowledge, whereas current theories such as Activity Theory and TPACK enunciate researchers as independent actors who use e-resources to find information.

The theoretical framework significantly emphasises the personal factor because theory stems from opinions and experiences of participants that build a foundation for establishing why people behave and act in certain ways. These perceptions assist researchers, scholars, and experts to explore pathways that understand human behaviour by viewing patterns, inconsistencies, and trends from participants. Consequently new avenues are paved as a benchmark for other researchers to use and justify their own studies.

3.3.8 RESEARCH DESIGN AND METHODOLOGY

While research design can be differentiated from the methodology, the two can be thought of as simultaneous (Nieuwenhuis. 2010). Research designs are plans that guide the manner of

conditions for the generation and analysis of data in ways that seek to give relevance to the research process (Creswell, 2003). Subsequently, this plan is drawn before the generation of data or analysis can start. Merriam (1998) affirms that this plan is assessable, organisable, and able to integrate information that produces a certain end product. Therefore the research design aligns to a chronological plan that specifies the manner in which research is executed in order to answer the research questions and purpose/s of a study. The researcher is responsible for developing the research design, shaped by the method, and is responsive to the context and participants (Richards, 2006). Further, the research design supports the empirical nature of the study and connects them to specific sites, persons, interpretive material, including documents and archives. The research design articulates a flexible set of guidelines that combines theoretical paradigms to strategies of inquiry and methods of collecting empirical data (Darko-Ampen, 2003). This suggests that the content factor is reinforced because paradigms emanate from the background and purpose/s of a study; therefore they coincide to provide factors that explain what content knowledge researchers' use for their projects.

Cumulative to discussing the research design, paradigms are a set of fundamental assumptions and beliefs about how the world is perceived and the cognitive framework that guides the behaviour of the researcher (Jonker & Pennink, 2010). It provides justification for understanding social phenomena that researchers must comprehend because it influences the way they interpret research. Saunders, Lewis, and Thornhill (2009) contend that when researchers engage a research project they must comprehend two main philosophical dimensions to differentiate existing research paradigms, namely, ontology and epistemology. Ontology explains how a person perceives reality. This strengthens the societal factor because researchers develop their unique understanding of research based on the data that has surfaced in a particular society they have interest in. Epistemology refers to the beliefs on methods of generating, understanding, and using knowledge that is acceptable and valid. This cultivates the content factor since researchers will have to read other studies on methods used and how they have been written to show what is acceptable. Ontology and epistemology frame how other research paradigms interpret research (Wahyuni, 2012).

Other research paradigms include positivism, post-positivism, interpretive and critical. Positivism and post-positivism express a common belief that social reality is objective and external. Epistemically, they research from a scientific approach through the use of numeric

measures to reveal acceptable knowledge (Wahyuni, 2010). This acquaints with the societal factor because this paradigm believes that understanding social realities has to be encompassed in a certain context of relevant law or dynamic structures through which phenomena can be observed.

At the far extreme of positivism, the interpretive paradigm conveys that reality is engineered by social actors and peoples' perception of it. Individuals, stemming from their own divergent backgrounds, have assumptions and experiences that add to a perpetual construction of reality in a broader social environment through social interactions (Hennink, Hutter & Bailey, 2011). Interpretivists adopt qualitative studies because they believe that knowledge is subjective to participants' experiences and therefore rich descriptions of the social constructs of studied participants are achievable. This intensifies the societal factor because narrative accounts are used to describe specifics of a participant/s social reality. Further, the researcher and participants are not isolated because both influence the generation of data in its context; the community and environment which shapes those constructs of a person. From an ontological standpoint people interpret and make their own sense about reality. Epistemically, knowledge is gained inductively to produce a theory. Although this also coincides with personal factor, its' weight bears on the societal.

In the critical paradigm the researcher endeavours not only to comprehend an account of participants' behaviours in society but to implement a change within them (Cohen, Manion & Morrison, 2007). It further incorporates that research is conducted for the emancipation of the individual and from an ontological perspective social reality is analysed from this viewpoint. The epistemological assumption attests that knowledge is produced by power and is an expression of this power rather than truth; defying the sentiments of positivism (Mack, 2010). The personal factor is cemented here as research is undertaken with the perspective of bringing change and power to participants.

Methodologies exemplify how inquiries should culminate by identifying what problems are worth exploring in particular contexts so that relevant data can be generated (Jackson, Drummond & Camara, 2007). Consequently analyses, conclusions and inferences can be made to reveal tendencies and links. Henning (2004) positions the methodology within an epistemological base of inquiry that regulates the research design to function. Henning, Van Rensburg, and Smit (2007), postulate the methodology as a collaborative stance to source

data and findings that articulate the research questions that fulfil the purpose of the research. This suggests that the methodology draws on the choice and implementation of methods concurrent to the purposes of the study. Thus, research designs merge the data generation and analysis activities with the research questions, and maintain that all research aspects are covered.

Methods describe how data is generated while methodology finds and uses the best approaches for solving the problem/s (Jackson, Drummond & Camara, 2007). These approaches may be divided into quantitative and qualitative research. Most researchers select either one or both of the methods to explain the data; this usually depends on the nature of a study. Quantitative methods often yield more objective data utilising standardised statistical techniques to measure social phenomena. The content factor is significantly emphasised because researchers generate data based on statistics and volumes. Alternatively, qualitative inquiry lends itself to subjective data by exploring human action through their experiences of the world. Qualitative research is concerned with developing explanations of social phenomena that inform understanding about the world in which we inhabit and why things exist the way they are (Hancock, 2002). Research in this field involves the opinions, experiences, and feelings of individuals, relative to the ideology of the interpretive paradigm. This affiliates with the societal and personal factors since participants' use their personal experiences to share stories (data), and it's the society in which they have developed that shapes those experiences and feelings.

Methodologies further incorporate other aspects such as the style/approach of research e.g. case study, ethnography, action research, experiments; context and sampling; data generation techniques such as interviews, observation, questionnaires and document analyses; and ethical issues (Wahyuni, 2012). These impact the content factor because students have to be aware of these issues when conducting research, as they illustrate what is acceptable and how research should be explored. Although threads of the personal and content factors have cropped up, the societal factor emanates powerfully as the research design and methodology is dependent on what techniques work best in particular societies based on their accessibility as a community.

3.3.9 RESEARCH FINDINGS AND CONCLUSION

This section in a thesis handles the interpretation and discussion of the data generated in consultation with the research question, hypotheses, literature review, theoretical framework, and research design and methodology (Kenyatta University, 2012). The primary function is to answer the questions posed in the study by explaining how the results support the answer, how it develops existing knowledge, and how the implications of the findings can provide recommendations for future research or bring about change and awareness. Therefore, researchers are expected to be thoroughly immersed with all the research procedures outlined in their study in order to reinforce what conclusions that data makes.

The literature review in a study is analysed in terms of the data generated in order to present the findings and conclusion. The researcher is able to make inferences and comparisons, whilst also pinpointing inconsistencies and gaps in the literature, which the data can fulfil. Patterns, principles, and relationships constructed by each major finding are brought into perspective to exude credibility (Boote & Beile, 2005). Here the researcher is also expected to argue conflicting explanations of the results; this adds depth to a critical discussion. This fortifies the content factor because researchers should display evidence of intense engagement with the literature to inform how they interpret and analyse the data.

The theoretical framework provides the philosophical base through which the researcher can further elucidate the findings with studies conducted from the same theory (Sinclair, 2007). This ensures that what has been explored makes sense by making distinctions between other studies and that of the student's. The theoretical frame significantly reveals the personal factor because theories evolve as a result of participants' opinions and experiences which divulge a pattern of behaviour.

The research design and methodology articulates how the findings will be presented using specific paradigm/s, style of research, and methods of generating data (Richards, 2006). The methods suggest what has been used to ascertain the data. These should correlate to contribute to the themes and patterns that have emerged. This step in the research process involves researchers directly obtaining data based on the experiences, feelings, opinions and beliefs of the participants from a particular context. Therefore, the societal factor is projected.

This section has articulated the crucial elements of research knowledge a researcher should possess in order to effectively undertake research, and engage the writing process of a thesis. Issues such as the title; table of contents, acronyms and key words; abstract; background and problem statement; purposes, objectives, and research questions; literature review; theoretical framework; research design and methodology; and, research findings and conclusion, were explored to understand what factors these produce that can help researchers invigorate their projects. These factors are important because they give understanding about the decisions they have to make when selecting what knowledge is relevant to their research. Without knowing about the factors, readers may have a limited understanding about the research and why it was conducted. It can also lead to research that is fragmented and overloaded which results in frustrations, failure, or study dropouts for researchers (Van den Akker, et.al, 2009). When researchers make sense of the factors that legitimise their studies then they may realise that it's not about fulfilling requirements of the institution (content factor) but instead that there are other elements like personal and societal factors that shape their decisions.

3.4 RESEARCH ACTIVITIES AND RESEARCHER ROLE

A Masters degree requires an extensive knowledge base of the principles and theories of a particular field/discipline and to make circumspect judgements based on the evidence of the data (Moyo & Pratt, 2014). Simultaneously, researchers are expected to present and communicate academic work on a professional level. For this to take place researchers must oblige to certain research activities prescribed by the university. This process commences with application and registration accompanied with all supporting documents to the faculty of the institution who then appoint a supervisor/s from the interested discipline of the researcher. This is a formal process as documents completion is mandatory, and the researcher can only move on once these have been attained. Documents further include ethical clearance forms that must be followed and submitted before any data can be generated. This magnifies the societal factor since researchers are expected to comply with the university requirements regarding submission of certain documentation before proceeding with any stage of the research.

Thereafter, a contractual agreement between the supervisor and the researcher is established. A mutual decision about arrangement of meetings to address the research study is formed. The supervisor is critical in providing guidance and assistance in developing the researcher's skills and knowledge to complete the research in the permitted time (The University of

Adelaide, 2016). In the inception stage of a research project, the supervisor possesses a deeper understanding of the chosen field of study, however, as time progresses and the researcher's knowledge is increased, the supervisor represents a sounding board for ideas, and to review and comment on written work. Therefore the role of the researcher indicates that he/she has to be responsible and focused in attending meetings with the supervisor to understand and formalise the research methods, techniques and resources that will be used to interrogate the study. This is an informal task because this activity relies on the supervisor and researcher making their own negotiations about how often they would meet. The societal factor is evident because researchers have to be driven by their ambitions and desire to pursue these meetings, which is also geared by negotiation with the supervisor. Trigwell and Dunbar-Goddet (2005) evinced in a study that formalised guidelines need to be in place that dictate the supervisor's obligation towards the researcher's studies in terms of minimum time allocation. This concern was raised after researchers experienced dissatisfaction in having insufficient time with their supervisors guiding their projects. As a result researchers were unable to complete their work in time, and experienced frustration and intense pressure in meeting deadlines.

Researchers also commit to other research activities such as attending cohort meetings. A panel of experienced supervisors arrange meetings with various researchers to advise them on research skills, methodologies, writing a literature review, understanding the theoretical framework, and how to present the data (The University of Adelaide, 2016). Chiappetta-Swanson & Watt (2011) convey that supervisors are crucial in urging their students to participate in such programmes as it builds their repository. Especially for novice researchers, cohorts serve as a significant platform to capacitate their research skills and knowledge. Additionally researchers are advised how to prepare for defence of the proposal before a committee who grants permission for the study to go ahead. Research activities may further incorporate researchers meeting with fellow researchers in the same or similar field to support and guide each other, share resources, and establish communication networks. This is referred to as peer involvement. Taylor and Martin (2004) elucidate that peers often assume a crucial position in reviewing others' work by making critical recommendations that invigorate understanding about the research. This suggests that peers may possess different knowledge that the student may not perceive at the time, which may be helpful in scaffolding understanding and meaning in applying research knowledge to each stage of the research. Roche, Guta and Flicker (2010) mention that peer researchers are members of a research

dissertation's target population who serve as co-researchers. Therefore, peers are trained in specific research skills to assist other students in coherently following due processes of effective research practise. Peer researchers often empower others through their insight and expertise, and additionally serve as a support structure to struggling students. Therefore the role of peers is crucial in strengthening the researcher's confidence in appropriating effective research practises that are compliant with the research targets

3.5 ACCESSIBILITY

According to Van den Akker et al. (2009) accessibility concentrates on how researchers are allocated to various research trajectories, and with whom these pathways are constructed. These trajectories are divided into physical, financial, and cultural access and explain what researchers additionally require to undertake their research projects. Physical access articulates the ease, with which researchers are able to engage their research by attending meetings/cohorts at the institution at the designated time. Many researchers are full time employees, and some stem from international countries, which can hamper access to important sessions that may be crucial to their study. Deem and Brophy (2000) contend that international and part-time researchers experience the most difficulty accessing their peers and the academic culture of the institution, since they are not physically present to work with them. These can be important incentives in adding value to researchers' studies. Moreover, physical access extends to the health and well-being of the student. Researchers who have particular disabilities may be prevented from engaging in certain activities, either because of their disability or because of their need to attend treatments. However, institutions are sensitive to this and certain privileges/pardons are extended to them. The societal factor is highlighted as researchers require these physical necessities from the institution to further their studies. The institution is a critical stakeholder in society in making these amenable to all without being discriminatory to those who have barriers.

Financial access relates to the costs a researcher will incur as a result of studying and researching, and what resources are available to meet these needs (Moyo & Pratt, 2014). According to the University of Western Cape (2015), researchers will have to consider costs for equipment such as a tape-recorder, computer, scientific equipment as well as services such as transport, internet access, the transcription of data, photocopying, binding, library loans, and the editing of the thesis. These costs can escalate and prove too expensive for researchers to bear, therefore the researcher in consultation with the supervisor will plan a

budget based on the project and submit it to the university who will make funds available through the funding threshold. Certain universities provide bursaries and scholarships that researchers can access where their full or a portion of the fees are covered. Particularly for postgraduate studies, funding is increasingly available. This motivates researchers to pursue their studies to the next level and encourages new researchers to have access. The societal factor is emboldened as researchers rely on funding from outside sources, other than their own finances, such as the university, bursaries from donors, and government provisions.

Khoza (2015b) suggests that cultural access incorporates issues such as sport, social beliefs, art, religion, and politics. This resonates with researchers' background as they use this to inform their projects. For example, a researcher in Khoza's (2015b) study taught Maths because they believed that Maths is a respected subject in society, therefore this researcher also adhered to this belief and undertook it at university. In addition, researchers want to be able to have access to different kinds of sports at university by being a part of official teams. They also form religious organisations that affirm their beliefs and value system of how they grew up. These issues cannot be separated from research because they inform the personal factor since researchers immerse their backgrounds with their educational trajectories. Moreover, accessibility defines the lengths at which researchers can persevere with their studies, since without the proper amenities it may prove difficult to complete.

3.6 RESEARCH ENVIRONMENT AND TIME

Van den Akker et al. (2009) conveys that for developments in curriculum to be consistent and balanced, various concepts of the curriculum (plan for research) need to be intercepted and maintained. These concepts include the research environment and time a researcher has and uses to undertake their research projects. The expectations of postgraduate researchers is greater than that of undergraduates as they have to manage more sources of information and display a comprehensive knowledge base of one's discipline. Additionally, transitioning to postgraduate studies involves a deeper level of independence with the demands of not just sourcing the literature for research but making comparisons, inferences, and establishing relationships. These can be tedious, particularly for researchers who are full time workers and have to take care of their dependents' needs. Therefore, the research environment and time is crucial in stabilising the research process.

The research environment is about where researchers conduct research from, e.g. libraries, home, lectures, or anywhere else. In a study conducted by Budden (2013) on the use of e-resources by postgraduate students, participants in the study revealed they were researching on campus because of the free access to computers and the internet. They also exclaimed that some of their research were done whilst at home or during spare time at work. They affirmed the use of the internet (e-resource) imperative for researchers to possess as it makes the process of engaging projects easier and less time consuming in having to drive to campus. In another study conducted by Khoza (2013b) it was opined that HW, SW, and IW e-resources were implemented in order to take research to their living rooms. This meant that students were able to study in the comfort of their own homes. Khoza (2013b) contends that this produces a good e-learning signal because students can study from anywhere and at any time. Many researchers in today's world opt for online learning because of its' many benefits discussed in Chapter Two. In this way they can study from almost anywhere, provided there is digital signal. This increases researchers' rate of completing their projects which can sometimes be a challenge if they don't have the integral e-resources. The personal factor is impacted because researchers make choices about where it is most convenient and appropriate for them to study.

Research time refers to the period in which researchers are given to complete their projects. According to Moyo and Pratt (2014), the stipulated research time for Masters studies at the Durban University of Technology is 2 years, with a maximum of three years to complete. If it is not completed within that period the Senate may refuse a continual of re-registration the following year, unless an extension of studies is applied for with the faculty board. An interruption in the study will require the researcher to follow due protocol in making possible requests for additional extension. As stated before, some researchers are preoccupied with personal and professional commitments, which resonates an additive burden on the researcher to finish their studies. This discussion admonishes the significance of planning and setting targets for completing each stage of the research process. Therefore, the supervisor and researcher may have to be in constant communication and ensure more contact sessions to enable submission of the project. This also informs the societal factor because the researcher is responsible for ensuring that they have designated time frames to adhere to in submitting their projects. It also implies a negotiation between the researcher and supervisor.

3.7 ASSESSMENT

Assessment is central to research and connotes what is researched and how this process unfolds. It involves making assumptions about what exists, and how this can be measured against certain criteria (Knight, 2002). Kennedy et al. (2006) describe assessment in terms of formative (assessment for learning), summative (assessment of learning), and peer (assessment as learning). Formative assessment is usually carried out at the beginning and duration of a project as it provides a diagnosis of how the researcher is progressing throughout the research process. It also gives developmental feedback to a researcher on their current understanding and skills. This prompts the researcher to review their progress and make necessary adjustments to enhance their performance (JISC, 2007). Moreover, formative assessment enables good communication between the supervisor and researcher since they will regularly meet for contact sessions. The contact sessions are formal, formative assessment, because the supervisor perpetually monitors the progress of the researcher's project each time they communicate. Feedback is permitted through advice and recommendations about how the project can be improved. This implicates the societal factor because the supervisor is part of the researcher's community in helping them understand and explore ways in which to undertake research. Subsequent to this, resides the influence of family and friends who offer support and motivation towards the researcher's achievement. This refers to informal, formative, assessment (Yorke, 2003). Yorke (2003) espouses that formative assessment places the researcher at the centre of research where it is about developing research knowledge that enhances understanding and analyses. It focuses on their perceptions and understandings about research, whereby they discover methods that are relevant to their research. This coincides with the personal factor because researchers first generate their own perceptions about what research entails and how this informs their practise.

Summative assessment represents the final assessment of a researcher's achievement, which entitles them to a qualification of a Masters degree (JISC, 2003). Each discipline is associated with its own dispositions, skill, and knowledge that are valued. Consequently researchers in higher education are expected to understand the relevance of the material; develop discipline-specific skills; and display evidence of strategic relevance of literary and theoretical research that procure achievement (Knight, 2002). This occurs at the end of the research period, once the data has been analysed and interpreted in printed form, ready for submission to examiners who will award a mark. The researcher's project is sent to at least two examiners before the

results can be disclosed. This mark does not only show a measure of the researcher's achievement but a description of what has been achieved (Biggs, 2003). The content factor is eminent as researchers articulate the concepts they have understood and applied to validate their research projects. Knight (2002) iterates that feedback is a performance indicator for the researcher so that they can establish their strengths and weaknesses of the research. Moreover, feedback enables higher cognitive learning because when researchers identify the shortcoming of their study, they seek to rectify these by showing evidence of improvement to the examiner. Dalziel (1998) connotes that examiners usually have a developed criteria in which to assess researchers' dissertation, and this often includes searching for the validity and reliability of the study. They also tend to view how research knowledge of the literature, theory, and methods and approaches, have been designed to flow throughout the study. Again, this reinforces the content factor as examiners seek to ascertain how researchers have adapted the research knowledge to their findings.

Assessment as learning refers to peer assessment where colleagues, friends, and fellow researchers are in some way involved in a researcher's journey through their studies (Khoza, 2015b). As discussed earlier research activities incorporate researchers' attendance in cohort sessions that seek to empower and enhance understanding of research principles and theories (The University of Adelaide, 2016). Cumulative to this process requires researchers critiquing and examining others' work and presentations. The peer assessment accelerates researchers' ideas by observing how others have conducted their studies, the stage at which they have reached in the research process, and the language style maintained. This propels researchers onto the next level through motivation and enhanced understanding of research concepts. Researchers form networks through engagement with peers, where a forum is established to enable constructive criticism and feedback on research tasks, between each other. While they may not always have the opportunity to meet physically, through the use of e-resource tools such as discussion forums and social media the networking is preserved (Farren, 2008). The personal and societal factors are both informed. The personal attests to the researcher's individual choice of acceding to an ongoing realm of communication with others, whereas the societal caters for researchers to be a part of each other's research community.

Astin (1997) convinces that enabling achievement in research, which can relate to conducting each stage of the dissertation using sound research knowledge, is related to engagement with

others. Knight (2002) recommends that engagement is not primarily about the time researchers spend on a specific task, but through their engagement in communities of practise, and their ability to become operational in networking and interchanging with others. This espouses that peer assessment, a social act, can be a good stimulus for affording a deeper understanding of research knowledge. Brown and Duguid (2000) advance that when researchers interact in communities of research and networking, it introduces them to research strategies or principles that may have not been declared in advance. This warrants the societal factor as researchers gain the expertise of peers in assisting their understanding of research. They interact, form links, and communicate through e-resources such as discussion forum, Facebook, WhatsApp and other social media sites.

E-assessment is a more recent strategy contributing to the existing rung of assessment in research. Its underlying premise is to delineate how the efforts of researchers, tools, and technical standard developers have infused dynamism from specific institutions to ameliorate understanding of what is effective practice in e-assessment (JISC, 2016). At the forefront of this endeavour is the potential of ICT in collaboration with e-resource tools' maintenance of assessment activities and recording of responses that can significantly help research establishments, institutions, supervisors, and researchers. This modern approach has been benchmarked in the United Kingdom where certain tools have been designed to assist institutions to evaluate their current procedures in preparation for immense use of e-assessment. This emerging pedagogic mechanism enables formative e-assessment virtual world scenarios for professional training and self-assessment that encapsulates collaborative activities with peers and supervisors. Web-based tools such as wikis, blogs, and e-portfolios develop skills in reflection and self-assessment (JISC, 2016). This also coincides with peer assessment. The summative assessment derivative of e-assessment can automatically curtail issues of plagiarism when students have to submit their research projects. This can also authenticate researchers' work which has been a major issue for higher education contexts. E-assessment does not seek to overshadow traditional forms of assessment but to incorporate it with modern twists of how researchers research. This influences the societal factor because e-assessment is a simultaneous development to the culminating technologies impacting how researchers conduct their projects. Therefore, newer methods of research may require assessment strategies that complement their ethos.

Parallel to the introduction of e-assessment, Turnitin is increasingly becoming a valuable e-resource that enables examiners/supervisors to prevent researchers from copying other authors' work and passing it off as their own (Ison, 2014). This was established as a reverberation of higher education's perpetual challenge of heightened plagiarism by researchers (Khoza, 2015a). Turnitin was developed by John M. Barrie and has tremendously assisted thousands of institutions counter plagiarism, as well as create policies and procedures related to such issues (Ison, 2014). Khoza (2015a) implemented a study involving six researchers who disseminated Turnitin as an assessment tool to examine their participants' work. The article concluded that although this strategy did not prevent all the participants from committing plagiarism, it did curb them from making any obvious acts of it. The study took place from the perspective of a critical action research within a context of a secondary school. It would be interesting to explore what data can be generated from undertaking a study within the interpretive paradigm that understands higher education students' experience of plagiarism with regards to their research projects. Khoza (2015a) further alerts that not all levels of education in South Africa have been exposed to the value Turnitin can add to assessment practices. Consequently more studies need to be initiated that can create awareness and bring change. Turnitin informs the societal factor since it is constitutional in some universities' policies towards ensuring authentic assessment practices that compels researchers to first submit their final projects to the e-assessment before submitting for final examination.

3.8 CONCLUSION

Stemming from the first instalment of the literature which explored the concept of e-resources and how they are used in higher education institutions for postgraduate studies, the second phase presented in this chapter critically discussed the curriculum concepts of targets; research knowledge; research activities/researcher role; accessibility; research environment/time; and, assessment. Van den Akker et al. (2009) assert that for effective research to take place the curriculum concepts should be explored. Given this rationale, these concepts were selected in direct relation to the title and research questions of the present study. The premise in exploring these concepts was to identify what factors in terms of content, societal, and personal, inform researchers to undertake projects in completing their projects/dissertations. Consequently, the following factors emerged within the context of each concept. Although some factors overlapped in supporting each concept, the salient ones were highlighted here.

The concept of targets was framed according to three propositions, purposes, objectives, and research questions. The purposes produced the content factor strongly because these are derived directly from a discipline and are statements that represent the intentions thereof. Objectives are written indications of what a researcher is expected to know about research and how to apply these in completion of their projects. This dwells on the personal factor because once objectives are understood, researchers are motivated and have a clear direction of what to do. Research questions have a powerful inclination towards the societal and content factors. The first derived from international perspectives of research impacting modern methods of higher education. The latter is integrated into higher education policy and practise and specified in course requirements.

Research knowledge describes key concepts that researchers must interrogate to frame their projects. These concepts include the title; table of contents, abbreviations, acronyms and keywords; abstract; background and problem statement; purpose, objectives and research questions; literature review; theoretical framework; research design and methodology; and research findings and conclusion. Significantly, the title conveyed all three factors. The societal factor leads to the problems or challenges researchers may experience in their particular environments, and as a result may want to conduct studies to create awareness or change. The personal factor comes from researchers' own encounters about their particular feelings and interests. The content factor surfaces as a result of researchers having to read about other studies conducted in order to impact their understanding about pertinent issues. In line with the literature review, the content factor emanates resolutely as a consequence of researchers having to vigorously engage the studies of other scholars, experts, and researchers in the field. The theoretical framework mainly portrayed the personal factor since theories are scaffolded according to participants' opinions, and experiences as a way of justifying certain behaviours. The research design and methodology reflected the societal factor since particular data generation techniques are employed based on the accessibility to participants in a certain community. At Master's level, researchers are expected to display a comprehensive understanding of the principles and content governing these concepts as they are directly addressed in their projects. The research findings and conclusion reveal's, firstly, the content factor since researchers have to immerse with the research concepts to support and discuss their findings. Secondly, the societal factor is evident through the experiences, opinions, and feelings of the participants in a specific context.

The concept of research activities and researcher role in the research process concerns the researcher being independent, responsible, and determined towards applying the research principles and theories developed to their projects. This involves submission of important documents, attending cohort sessions and preparing a research proposal for defence before an expert panel. These impact the societal factor as researchers comply with the general belief of the institution about what is relevant to assist their research journey. It also maintains the personal factor through researchers' ambitions, presence, and perseverance in completing their projects. In the context of this study, accessibility is explained in reference to physical, financial, and cultural access. Physical access and financial access are associated with the societal factor as researchers may have a need to attend cohort sessions, tap into the academic heritage of the institution, liaise with peers, or rely on bursaries or donors for funding. However, due to employment, family commitments or particular disabilities, this may hamper researchers from progressing within the designated time frame towards their research projects. Cultural access signifies the personal factor because researchers are motivated by their experiences to prioritise their studies. The research environment and time elevates the personal factor as researchers are geared by time frames to complete their projects. As such they devise a plan of how to schedule their priorities in terms of work, family, and studies. Their personal motivation and desire for what it is to be successful pushes them towards completion of their projects.

Assessment is divided into formative, summative, peer, and e-assessment. Each of these forms a crucial element in how and what researchers explore, and how these influence their achievement. Formative assessment conditions the societal factor because it explores the interaction between the supervisor and researcher in discussing research imperatives and preparation for proposal defence and submission of final dissertation. Summative assessment accords the content factor since researchers will articulate all the concepts of research in their projects which will be handed for marking to examiners who allocate a result. The peer assessment draws on the personal factor as researchers make individual decisions about working with others to communicate research concerns. E-assessment is a newer strategy and condones the societal factor due to its rapid implementation in international higher education contexts that provide less strenuous ways for detecting plagiarism. It further assists researchers to achieve better results without being downgraded for plagiarism.

This chapter conveyed the second instalment of the literature review as a result of the depth and length through which pertinent issues were discussed. Boote and Beile (2005) contend that the literature describes, evaluates, summarises and clarifies critical concepts that identifies and articulates relationships between the literature and a specific field of discipline. For the interests of this study the concepts targets; research knowledge; research activities/researcher role; accessibility; research environment/time; and, assessment were broadly defined and explained in the context of research with the premise of identifying factors that support researchers in their projects.

The literature provided a microscopic analysis of how researchers undertake their projects and why these concepts are important for them to address in their studies. The findings and divergent ideologies that emanated from international and local perspectives provided a groundswell of information to enable this study to interpret the data that will be generated. It further helped in pinpointing gaps that require exploration for the cultivation of new factors that can support research. The literature remains limited in producing studies that identify factors that inform Curriculum Master's students to conduct research using e-resources from a South African point of view. The studies identified did not explicitly represent factors in the context of content, societal, and personal. When factors are known it brings to light the challenges students face as researchers and also what motivates them to excel. This can inspire other students to undertake postgraduate studies without feeling isolated. Therefore it would be interesting to find what new knowledge this study can bring to the existing literature.

Boote and Beile (2005) contend that the literature review informs the theoretical disposition of a study. Consequently, the next chapter presents the theoretical framework that will underpin the assumptions of this study.

CHAPTER FOUR

THEORIZING THE CONCEPTS IN BUILDING THEORETICAL DISPOSITION

4.1 INTRODUCTION

The preceding chapters intensely discussed the literature regarding how postgraduate students use e-resources to conduct their research dissertations. This drew significant implications for building a conceptual framework in theorising the literature for the current chapter. The theoretical framework of a research study represents the philosophical base in which research takes place by integrating theoretical aspects and practical concepts of the literature (Sinclair, 2007). It further strategises which key concepts that influence the phenomenon of a study (Ocholla & Le Roux, 2011). Consequently, interrogating the literature revealed the concepts of e-resources that were explained and justified within the landscape of this study: targets; research knowledge; research activities/researcher role; accessibility; research environment/time; and, assessment. Although these concepts are unique to Curriculum, they have powerful consistencies with the Cultural Historical Activity Theory (CHAT). Upon engaging with various theories, CHAT proved most susceptible in hedging a framework that will generate themes and categories in presenting the data. Moreover, CHAT has been implemented in multiple studies that explore the use of e-resources in research environments. Therefore, CHAT informs the theoretical disposition of this study and will articulate critical factors that conceptualise students' use of e-resources in research.

This chapter is initiated through a brief analysis of some historical insights into CHAT that will enable a foundation for understanding its' precepts. This is followed by a discussion of the principles of CHAT: activities as basic units of analysis; e-resource mediation; mediated action in zone of proximal development; and, internalisation and externalisation. When these are understood in the context of CHAT, it is then appropriate to assimilate the Curriculum concepts. This configuration enables the study to gain perspective of theorising how students use e-resources to conduct their Masters dissertations. Consequently, the next section presents the characterisation of CHAT principles in accordance with the literature concepts of Curriculum. This includes interrogating the work of Vygotsky (1978), Engeström (1993) and Leont'Ve (1974), as well as engaging the work of other contexts that are ICT related and have employed CHAT as a theoretical tool. Thereafter, a diagram articulating the Curriculum CHAT principles culminates with relevant explanations regarding its impact on this study.

The penultimate section provides a brief critique of CHAT, followed by a concluding summation of the chapter.

4.2 EXPLORATION OF CULTURAL HISTORICAL ACTIVITY THEORY (CHAT)

4.2.1 HISTORICAL INSIGHT OF CHAT

Theories are conceptual frameworks that validate how information is processed, received, and retained during research (Wells, 2007). This reaches a person's cognitive, emotional, and environmental ability to develop knowledge, skills, and values. Greek philosophers, such as Aristotle, believed that people used senses to search for truth and knowledge beyond ourselves and that it inspired a scientific route for achieving information. Conversely, Plato held the view that knowledge and truth can be discovered by self-reflection. Socrates affirmed that specific knowledge could only be gained through reason, and believed that research is relative to a dialectic mode of discovering truth through conversations with people (Darling-Hammond, Rosso, Austin, Orcutt & Martin, 2001). In essence, theories exhibit how research methodologies and patterns have evolved and developed with the progression of society. In today's world, education is student-centred and this perception is filtered to institutions that envisage collaboration, interaction, and authenticity with and among students (Liu, 2010). The introduction and establishment of incorporating ICT has cemented this process by cultivating students who are independent and take in charge of their own development. By entrenching networks through e-resources, students have more accessibility to an avalanche of research information. Such behaviours require theories that are circumspect about explaining students' actions. Therefore, CHAT is central to rationalising how students research using key concepts from the literature.

The underpinning of Activity Theory, simultaneously referred to as CHAT, was coined by Russian Jewish scholar Lev Vygotsky who had been implored with the task of reformulating psychology from a Marxist philosophical platform, by the then Soviet Union of Russia (Hardman, 2008). The premise behind this approach can be traced to the conflicting and confusing views of other psychologists who could not reach consensus regarding the subject matter for psychological research and relevant methodologies for studying psychology as a science. Whilst the others were concerned with lab experiments, Vygotsky was interested in human behaviour and changes mediated by 'tools'. He did not agree with the mainstream trend of transforming psychology into a scientific field by treating the organism and the environment as separate entities (Yamagata-Lynch, 2010). Instead he perceived that

psychologists needed to align along a unified framework that echoed an objective study of human consciousness (Nardi, 1996). Consequently, Vygotsky positioned his psychological awareness from a Marxist perspective, to exhibit the relationship between individuals and their social environment.

Marx's political theory is central to collective exchanges and material production in examining the organism and the environment as a single unit of analysis, and this became a foothold for Vygotsky's interpretation of psychology. He believed that the relationship between a person's mental processes and their interaction with historical, cultural, and institutional settings were paramount to their psychology (Yamagata-Lynch, 2010). Thus, he introduced the concept of mediated action to iterate the semiotic process that allows human consciousness development through conversing with artefacts, tools, and others within a social context. Significantly this process evolved into what become known as a theoretically relevant discourse for examining technological environments in this present era, namely, activity theory, and further reformed into Cultural Historical Activity Theory (CHAT) (Tsai, Gaylen, Xie & LAffey, 2010).

To understand the application of CHAT to the concepts addressed in this study, certain key principles need to be initially clarified. These principles encapsulate what the brief history projects and further imply how CHAT is relevant for explaining how e-resources can be imperatives for research.

4.2.2 KEY PRINCIPLES OF CHAT

Vygotsky's stance on psychology permeates the essential relationship between a person's mental development and their assimilation with cultural, historical, and institutional settings. He attributed human consciousness to the interaction between organism and the environment in shaping one's behaviour. He believed that these evolving relationships cannot be distanced from human consciousness, but considered a reciprocal process. Vygotsky (1978) used the following principles to justify this theoretical disposition. However, these principles are briefly explored as an introduction to the critical components of CHAT that will be discussed thereafter.

4.2.2.1 ACTIVITIES AS BASIC UNITS OF ANALYSIS

An activity comprises of the events that unfold and the consequence of such for participants that can qualitatively change them, their goals, reasons for participation, the environment, and the activity itself (Kaptelinin, 2005). Human activity is a dynamic process that includes artefacts that pose as technical tools and signs that symbolise psychological tools available in the social context (Yamagata-Lynch, 2010). Human action is viewed as the unit of analysis; however, it is difficult to comprehend these actions if it is not constituted within a context (Kuuti, 1996). Each individual's immersion with the activity is not static but constantly changing to a collective process. In the perspective of this study the basic unit of analysis relates to students using e-resources to conduct their Masters dissertation. The societal factor is evident as students actions are transforming in consultation with other artefacts impacting them.

4.2.2.2 E-RESOURCE MEDIATED ACTION

The term mediated action is intercepted through the semiotic process that accredits human consciousness with artefacts, resources, and social activities that help individuals discover new meanings for the world in which they inhabit (Vygotsky, 1978). In Vygotsky's writings, tool use is emphasised, however this has been replaced with 'e-resources/resources' to coincide with the assumptions of this study. Both tools and resources are synonymous. Activities are open systems that provide a gateway for new resources to be adopted, and within this process contradictions and tensions can muster. Contradictions and tensions are viewed as instruments of change in activity system (Tay, 2010). They are not the same problems since they are historically accumulating structural tensions within and beyond the activity system. Thus, mediated action represents the interaction between the individual and the mediating resources. Through this interaction, participants are active and independent to modify and develop activities using resources to transform their experience (Nardi, 1996). This can be explained through the use of search engines in assisting students to find academic documents on Google that are pertinent to their field of study. If users are dissatisfied with the results on Google they can modify their search to specific engines that are duly dedicated to a specific field of knowledge, as with Scirus for scientific information (Chakravarty & Randhawa, 2006). The personal factor arises as students are aware of various search engines that can support their domain of knowledge by making independent choices about which e-resources work for them.

4.2.2.3 MEDIATED ACTION IN ZONE OF PROXIMAL DEVELOPMENT

Vygotsky used the term zone of proximal development (ZPD) as a metaphorical resource to explain the potential students have in collaborating with adults or peers to solve problems (Vygotsky, 1978). This refers to the IW of research, where students are aware of theories that represent their research projects. This step involved exploration of a student's intellectual development whilst attempting to solve problems. Although it was about understanding, this process contained scientific threads as students were observed in laboratories to form a synopsis about the interaction between interpersonal activities and the intrapersonal activities of individuals. Identification of the ZPD was an epic point in Vygotsky's work in social sciences, and is predominantly implemented as a pedagogical resource to establish instructional activities (Kuutti, 1996). From the angle of CHAT, the ZPD is a conceptual resource for understanding the complexities of human activity as they interact and form relationships with the environment in which they exist. This perception is pertinent for this study as it is anticipated that the data may reveal important implications for how students use e-resources to conduct their research projects. It can also generate factors that make sense about why students behave this way. Further, Khoza (2015b) posits that an IW resource, such as the ZPD, promotes critical thinking which is necessary for research to be ascertained in an effective way. This suggests that students have to develop strong IW resources in order to identify HW and SW resources so that the research can produce important principles and findings.

4.2.2.4 INTERNALISATION AND EXTERNALISATION

Activities constitute elements of internalisation and externalisation that cannot operate in isolation but reciprocally in order to bring about transformation (Kuutti, 1996). The concept of internalisation rationalises how individuals process what they have learned through mediated action to form independence through social interactions, and these are represented by the personal and societal factors. The personal factor outplays in internalisation when students create a supportive research environment using experiential and subject activities that help to construct and reconstruct research knowledge repeatedly and this consequently informs the personal meaning that shapes their identity. Internalisation is also exhibited through the societal factor as students are influenced by the opinions and knowledge received from scholars in the field, their supervisor, peers, and the institution. Externalisation represents the output process, i.e. using what has been learnt to transform oneself. Within the context of this study, students internalise concepts of what comprises a research project.

Thereafter, they are required to externalise this knowledge by writing a thesis. The content factor is upheld as students have to use the knowledge adapted from engagement with academic material to construct their projects. Therefore externalisation drives the content factor.

4.2.3 CHARACTERISING THE CONCEPTS OF CHAT

The previous section highlighted some important terminology associated with CHAT and how they unfold in an activity system. However, components such as ‘actors’ (students as researchers) and ‘tools’ (e-resources) were not explained in detail. Therefore this section seeks to present this with an emphasis on how it supports this study. Engeström (1987) conceptualised CHAT as a system constituent of components that are mediated and reciprocally transformed by each other. These are made up of actors (research students), object (research knowledge), tools (e-resources), community (accessibility/research activities), rules (assessment/research environment/time), division of labour (researcher role/research activities), and goals (research targets). A pivotal aspect guiding CHAT is the premise that all activities, whether inter- or intra-psychological, are social and cultural in nature where the researcher transforms the research knowledge into thesis (Leont’ev, 1974). Research knowledge are regarded as cultural entities that signal communal social transformation practises and further grow during human activity (Hardman, 2008). The goals of any activity occur from the researcher interrogating research knowledge by means of e-resources (tools), which mediate the interaction (Amory, 2006). Thus the assessment and research environment/time (rules) mediate the relationships between the researcher (actor) and accessibility as well as research activities (community). The researcher and research activities (division of labour) mediate between accessibility, research activities, and research knowledge. Research knowledge is further mediated between (object) accessibility and research activities (community), also between the researcher (actor) and research knowledge (object) (Li & Bratt, 2004). The multiple mediations reveal the interactive nature of the activity system, in which each principle is impacted by the others. Activities are captured in the image of individual and cooperative actions and the links and networks of such are affiliated with each other by the same overall research knowledge and motive (Kuutti, 1995). The activity system model accentuates elements of the particular context that must be considered when exploring the use of e-resources within an environment (Kirkup & Kirkwood, 2005). This overshadows studies that focus on single research variables to empower whole configuration of events, activities, and contents.

The role of CHAT in research provides a set of perspectives on human activity and the concepts assigned for describing that activity (Robertson, 2008). Research is a process of understanding connections between what is already known with new information (Darling-Hammond et al, 2001). Assimilations are based on an inclination of what has been experienced. What takes place at home or in the community is an indication of value in students' learning. Karasavvidis (2008) argues that CHAT is an ideal theory for researchers to embrace and conceptualise what works and what does not work in an activity. Further Karasavvidis (2008) describes it as a theoretical resource for underpinning conflicts or contradictions that can be confronted within the components of an activity system. This suggests that it is possible to use CHAT for this study because it can help identify what e-resources are relevant and those that merely serve as entertainment options to substitute boredom (Wise, Skues, & Williams, 2011). Engeström (2001) identifies the contradictions that linger in the activity system which can assist researchers to focus their attention on challenges that hinder students' research potential, and the remedial action to bring transformation to the system. This not only condones Karasavvidis' (2008) view but also suggests that the inconsistencies that arise must be viewed in light of exhibiting change and development. It is crucial to understand this point because possible anticipated results or expectations may deviate and this should not disappoint but assist the study in bringing about strategies that can facilitate implementation of appropriate e-resources as a pedagogic guide for prospective researchers.

These perspectives provide useful insights of how the concepts of an activity system intermingle and influence each other. The next step is to characterise each concept with establishing how they assimilate and articulate the concepts that were explored in the literature. The discussion will further entail how other studies have appropriated CHAT as a point of reference in theorising. This conceptualisation will strategise significant implications for generating themes that will interpret the data.

4.2.3.1 RESEARCHER ROLE IN CHAT

Li and Bratt (2004) contend that the researcher refers to the individual or group whose point of view becomes a reference for the unit of analysis. In some studies the researcher role is supplemented with the word 'subjects' or 'actors', however for this study it seemed appropriate to use researcher. Kain and Wardle (2008) confirm this ideology by adding that the researcher (research student) directly participates in an activity. Essentially the researcher

will communicate their particular beliefs, values and assumptions that bring a different history to the activity system, and within this spectrum it is understood how the researcher relates to other components of the activity (Thuraisingam et al, 2012). The researcher exists in an environment consisting of other individuals that share the same research knowledge. This conditions the societal factor because students liaise with other researchers and supervisors to build their knowledge towards research projects.

Barab, Schatz and Scheckler (2004) championed a study which explored an evolving structure of an Inquiry Learning Forum (ILF), a sociotechnical interaction network (STIN) designed to assist a web-based community of in-service and pre-service mathematics and science instructors with their pedagogical imperatives. They applied activity theory as an analytical lens to characterise the design and implementation of the online community. The researcher roles (actors) of the activity system initially were the university design team made up of researchers and designers (participants) who were instrumental in the formulation of the ILF. The researcher roles were mediated by all other principles, which will be discussed under relevant principles to come. The university design team assumed a critical position in impacting the entire activity system through the design and development of the ILF from its' inception stage of preparing a presentation at a conference on why the ILF could work. The study emphasised that the university design team used perseverance and passion to work on the project for successful implementation. This propagates the personal factor as the university design team were driven by their own desire and values to make the project work and bring change that would not only impact their learning but all involved. The perseverance, desire and values of the university design team are what Vygotsky (1978) described as the interpersonal plane internalised, and then externalised through the development of the STIN. The STIN modelled an activity system with its own particular cultural formations and structures, institutionalised to become a robust and enduring tool that facilitated enhanced communication for mathematics and science instructors.

Since an activity system is continuously developing, Barab et al.'s (2004) study further revealed how the researcher role evolved from the university design team to instructors, where their conceptions (object) became the focal point of the activity. Attention from the designers performing usability tests shifted to instructors' conceptions of their backgrounds and expertise in enabling the STIN. These conceptions focused on what the instructors felt about what the STIN needed, such as traditional professional models that extended to

workshops, conferences, and to scheduling onsite presentations. This sparked community-building knowledge that could inform instructors' methods of teaching science and maths. In the context of this study, Barab et al. (2004) shows how the role of the researcher may be shaped and configured throughout the research process as they interrogate various scholarly materials to impact their writing of the research project. Moreover, the personal factor comes into play as students may be consciously aware of their own perceptions and values that influence what they may decide to research.

In another study, Thuraisingam, Kaur, Yeo, Briguglio, Sanderson, Mahmud and Wallace (2012) identified the researcher role in the activity system as the transnational partner academics (lecturers). The study sought to ascertain research from an Australian Learning and Teaching Council project which focused on the assessment moderation practises between partner and parent universities in transnational partner universities. Moreover, the study wanted research regarding the challenges faced by transnational academic staff to establish whether assessment standards were comparable and uniform across the various countries who were involved, since the demands of higher education have been fuelled by transformative practises in recent years. Activity theory was used as a map to explore systemic tensions, contradictions, and ailments in the existing collaborative patterns these partner universities implement and whether there is a circumspect understanding about the roles and responsibilities of how these are afforded. Therefore, the transnational partners' academics' commonly held beliefs and assumptions were critical in providing data about assessment practises, and revealed issues about culture, language, relationships, trust, power, and control. The personal factor was illuminated because the study contended that the above aspects were substantially influential in shaping how these transnational partners were instituting assessment practises. It further clarified the role activity theory held in mediating the various components that exposed inconsistencies and tensions about how academics construct their work, activities, and social worlds. This related to insufficient training of the partner academics and an occurrence of delineation from transforming policy to practise, i.e. what had been prescribed regarding assessment moderation in the theoretical manuals had not been carried out fluidly. Engeström (1987) posits that these contradictions surface when the conditions of an activity put the researcher role in a contradictory position (lack of training on assessment practises) that can distort achievement of research knowledge.

The above discussion provides a theoretical foundation about how research students operate in an activity system. This helps conceptualise patterns and trends that characterise how they function in relation to the literature of this study. The researcher's beliefs, assumptions, and experiences become the unit of analysis. Given this rationale, the literature reveals the role of the researchers, who are students of Curriculum and are engaged in research to complete their Masters projects in fulfilment of a degree, as actors of this study. This proposes a specific notion of context, whereby the activity itself is the context (Nardi, 1996). The context is constructed through the actions of the students and engagement with e-resources (tools). The topic and phenomenon being the use of e-resources helped identify which students are selected to comprise the actor component in an activity system. These are students who have an interest or concern about curriculum issues and want to create awareness or cause change about existing perceptions in research. The researcher will use pertinent data generation methods to understand the theories and principles of research students have used to make circumspect judgements about the projects they have undertaken. In addition, participants may relate other influences that impact their progress, such as the role of the supervisor, institution, and peers. These may inform their feelings, attitudes, and beliefs about the research process. Exploring the researcher's behaviour through an analytic activity system lens allows the researcher to vicariously experience their activities. Through such an experience, the researcher can traverse critical activities that answer the research questions and understand meaning making assumptions (Yamagata-Lynch, 2010).

4.2.3.2 RESEARCH KNOWLEDGE IN CHAT

Activity theory is consumed by the disposition of rearing activities towards specific goals (Kain & Wardle, 2008). It provides a gestalt view for understanding how people in different communities evolve their actions into activities. This sense of diversity can be explained by the specific resources, knowledge, and repertoires of tasks that people use to achieve research knowledge. Research knowledge refers to the problem area in which the activity takes place because students are confronted by a volume of knowledge and the challenge lies in selecting which may be the most relevant material. This is shaped and transformed into a research project with the assistance of physical and symbolic external and internal mediating e-resources and resources (Engeström, 1993). Basically, the research knowledge is the goal of the activity. It has also been used interchangeably with the words 'motives' and 'goals' for participating in an activity, or a comparison with the material product that students attempt to achieve through an activity (Yamagata-Lynch, 2010). Primarily the research knowledge is the

reason why students opt to participate in an activity. Object-oriented activity involves mediation processes whereby students take part in the endeavour of acquiring research knowledge and utilise this in a way that directs them in implementing new resources/e-resources to make their project more robust (Yamagata-Lynch, 2010).

Activities emerge through a correlative process that transforms the researcher, research knowledge, and the relationship between the two and their environment. Leont'ev (1974) differentiated between object-oriented activity and goal-directed actions. Goal-directed actions, in essence, are not permanent and are a foreground for researchers to participate in object-oriented activities. Also, they are more individual-centred and predominantly dwell on mentalist approaches. They acquire less of a collective sequence to the community-based object-oriented activity. Leont'ev explained object-oriented activities from a psychological background because he believed that mental and observable activity intertwine to affect the researcher and the environment. These could not be considered in isolation, but as an enablement to annotate human learning as a tributary of object-oriented activities.

Reverting to Barab et al.'s (2004) study, research knowledge was represented from two instances, the designers' perspective and that of the instructors. In the initial development of the activity system in their study relating to a socio-technical in STIN designed to support a web-based community of in-service and pre-service mathematics and science instructors to improve their pedagogic methods, the activity system evolved as a consequence of the activities that took place. The first development of the activity system concentrated on the e-Inquiry Learning Forum (E-ILF) in general and propagated the societal factor as it drew a community of designers to impact the ILF. This later evolved into research knowledge containing instructors' conceptions of inquiry-based teaching and an understanding of it. The transformation of the designers' perceptions highlighted the societal factor since it manifested the experiences of the instructors in teaching maths and science. The premise governing the change comes from a need for members to not only use the STIN but also transform it by adding new information that can assist others. This indicates that even as people use the e-ILF (via workshops, email, and other tools) for personal growth, the entire STIN can be affected through which others can gain. Using CHAT, the strength of the STIN is based on the assumption that all technical structures should make sense as a derivative of the social transaction context through which they exist and shape their own experiences. This affirms that the university design team and instructors' conceptions of the inquiry-based teaching are

in continual interaction and are mediated by e-resources (STIN) to induce transformation (Leont'ev, 1974). They are co-evolutionary because they impact each other, researcher role, (university design team) and research knowledge (E-ILF) through the use of e-resources (e-ILF). The transition from the e-ILF to conceptions about inquiry-based teaching appropriates a perpetually evolving activity system that can be altered to achieve the goals of an activity.

Drawing from Barab et al.'s (2004) study reveals that the researcher is in close proximity with research knowledge mediated by e-resources. In using e-resources the researcher's knowledge can be continuously evolving by discovering new research material/articles that can build the literature and theory of the project. The societal factor is illuminated since students make decisions about which e-resources are more efficient in aiding them to find research knowledge as a result of their experiences. Students may also consider issues such as cost and convenience when selecting e-resources that can bring credible information quickly.

Concerning the study by Thuraisingam et al. (2012), research knowledge comprises achieving comparable standards in assessment for offshore students to produce the goal of improved assessment moderation practises. Maintaining comparable assessment standards may be interpreted uniquely by different lecturers in relation to how they perceive their roles in relationship to the research knowledge of the activity system. Achieving comparable assessment standards in the activity cannot be explored in isolation but in collaborative ways that address the transnational partner academics and the stakeholders. This helped the study interrogate key questions that gave understanding about the current assessment practises of the transnational partners and what was expected according to the prescribed documents. One of questions stated, "*How does the community influence how the subjects achieve the object?*" (p. 6). This question assisted the researcher to identify collaborative patterns that perpetuate between the transnational partner academics, achievement of comparable assessment standards, and the stakeholders who are part of the activity. This was maintained through mediating e-resources of communication, marking guides, exemplars, and post hoc moderation.

Contradictions and tensions also emerged as a consequence of the cogitating CHAT principles in Thuraisingam et al.'s study (2012). The responses through direct quotation of the transnational partner academic staff exposed a lack of transparent collaboration. This was attributed to a deprivation of institutional relationship that can forge links with offshore

tutors, and minimal room for communication between academic staff that requires time and goodwill of a conscientious effort. Moreover, Vygotsky's (1978) ZPD provided an analytical lens to understand inconsistencies in the social relationship between the parent and partner academic staff. The assessment moderation policies were not created in a ZPD by the parent academic staff that would allow for professional development of the partner staff. This depletes the ZPD of shared information, pooling of roles, and collaborative thinking necessary for achieving the objective. These inconsistencies, tensions, and contradictions gave rise to an important concept for their study, known as 'co-configuration'. This concept describes work as directed towards the production of intelligent, adaptive, services. It spells the mutual exchange of relationships and research from parties involved in configuring actions. Therefore, it helped the study pinpoint how the parent and partner academic staff could work together through expert input to configure anticipated assessment moderation practises. This positioned the content and the societal factors. The first attesting to the knowledge the partner academic staff held in consultation with the prescribed documents; this helped ascertain whether they used these to inform their understandings about the relevant assessment practises. The societal factor was evident in the ongoing communication enabled with the partners in determining the extent of uniformity as derivatives of a larger institution. Thuraisingam et al.'s (2012) study reflects common threads that parallel the current study. Even as the parent institution seeks to instil comparable assessment standards in the partner staff, researchers endeavour to generate relevant, specific research knowledge to complete their projects. Both the partner staff and the researcher strive towards achievement of the goal, and in so doing are transformed by the activity.

Thus far, this section has led to the establishment and vindication of the role of research knowledge in generating factors in an activity system, and its ability to mediate between other principles to justify the mediated action in the ZPD. Research knowledge holistically orients the researcher towards the completion of their project as an activity, verifying why they may select particular resources/e-resources to navigate such a process. The studies identified in the discussion support the mediation of research knowledge and explain how it is used in e-learning contexts to pinpoint contradictions, inconsistencies and tensions, and also elaborate on how they contribute to an activity. Since research knowledge is about what and why researchers interact in activities to achieve certain goals, it also exposes research concepts students have to know in order to complete their dissertations to gain a Masters degree. Students are expected to interrogate concepts such as the literature review, theoretical

framework, research design and methodology, amidst others, to stratify stages and development of a research thesis. Since knowledge is vast, these concepts become the primary research knowledge of the activity and prompt the student to completion and attainment of goals. The studies identified here promote the content and societal factors as strong indicators in shaping research knowledge.

4.2.3.3 E-RESOURCES IN CHAT

As students converse with one another to discuss their research projects, they develop and implement e-resources to facilitate their activities (Kain & Wardle, 2008). Using e-resources represents progressive education, a benchmark for research initiatives in higher education of the 21st century (Arend, 2004). Researchers utilise e-resources to expedite the research process, where a myriad of research knowledge can be gained at the touch of a button. Moreover, journal articles/archives are available electronically, and these are congruent to research knowledge. The presumption is that e-resources assist people in solving problems more effectively and a consequence of this is that it can change the activity as desired. A resource can relate to anything that is used in the transformation process, including both e-resources and resources for thinking (Kuutti, 1996). Kain and Wardle (2008) suggest that the e-resources that mediate the activity system can also include physical resources such as computer, texts, as well as non-physical resources such as language (written and oral) and skills. The principle of mediated action, discussed earlier, becomes applicable as there is interaction between the researchers and the e-resources. Kain and Wardle (2008) further assert that the first experience in using a certain e-resource is used at a level of ‘conscious action’. This means that the researcher must think about how to use the e-resource and the purpose for which it must serve. Nardi (1996) contends that within this level of conscious action, other powerful notions of intentionality, history, mediation, collaboration, and development evolve to influence decision-making in everyday practise. This does not represent a disembodied action but cognisance of a social matrix constituted of researchers and e-resources. Therefore, the societal factor emerges powerfully as researchers are sentient of conscious action that governs their choice of significant e-resources that can expedite the generation of research knowledge.

Vygotsky (1978) called the conscious mind a phenomenon because research is not about observing but discovering what the participants think and feel in response to the phenomenon. Similarly, the e-resources in an activity system does not imply some kind of

physical attribute that has no meaning, but they are invented, purchased, replaced, or discarded to convey transformation. The researchers may discover new e-resources as they proceed through multiple research activities, and the value of the e-resources may change with progression (Yamagata-Lynch, 2010). Tracing back to the two studies that were identified provides a sounding board for understanding the application of CHAT in higher education contexts, and additionally describes how the principle of e-resources relates.

Coinciding with Vygotsky's (1978) stance on the evolution and change of e-resources over time, Barab et al.'s (2004) study revealed the initial activity system e-resources/resources as NSF funds, technology, team member expertise, related literature, external experts and online discussions. At this point in the activity system the function of e-resources/resources was to primarily build the ILF and required various compositions within the e-resources/resources to make this possible. The e-resources/resources mediated between the instructors and the conceptions of the e-ILF to produce this. The purpose of developing the ILF relied on the creation of a website that fosters a community of science and maths instructors that would be in constant interaction to improve and expedite pedagogical practises. Therefore, the e-resources/resources required the university design team's knowledge and expertise in construction of the website to form the ILF. Moreover, other principles of the activity were leveraged to make the entire project mobile. The community were affiliated through their connections and commitments.

The study elicited perpetual change and transformation at each stage of development. The principle of e-resources/resources evolved from accompanying various elements to centrally constituting the e-ILF (Barab et al, 2004). At this stage the e-ILF (e-resource) was developed and implemented to ascertain the instructors (researcher role) understanding about the inquiry-based teaching (research knowledge). Other principles were mediated as well to contribute to the overall functioning of the activity. The societal factor is heightened as the e-resource/resource is predominantly informed by constant interaction with the instructors and the discussion forum current conception of inquiry based teaching to reach the goal. This forms the triad, researcher role-e-resource-research knowledge, were other principles are still influential to cause an interactive, significant impact upon the activity.

With reference to Thuraisingam et al.'s (2012) study, the e-resources/resources in the activity system of achieving comparable assessment standards comprised moderation policies,

practises, workshops, rubrics, exemplars, types and standards of assessment and processes, assessment protocols, communications, language, culture, and other resources. These e-resources/resources carried the historical and cultural meaning to act upon achieving comparable assessment standards for offshore students to produce the goal of improved assessment moderation practises. The e-resources/resources mediated between the transnational partner academics and comparable assessment standards were used to uncover contradictions faced by transnational parent and partner academics in assessment practises. This mediation fuelled a more subjective understanding about their views and experiences in revelation of contradictions, such as a lack of collaboration. The study traversed Vygotsky's (1978) notions of internalising the interpersonal plane, then manoeuvring through the intrapersonal plane to externalise these principles in future social activity. This social dynamism was isolated from the relationship between the parent and partner academic staff which led to misinterpretations about using the e-resources/resource. The e-resources/resources symbolise the cultures of the partner staff, articulating their own representations of rubrics, marking guides, and other moderation policies. While these can inform and bring new knowledge, they also cause tensions when applied to novel contexts that find difficulty in applying these. The personal factor is conditioned because the views and experiences of the transnational partner staff were ascertained to articulate the progress of assessment moderation practises, coincidentally affording the societal factor through liaison with the parent staff.

Analysing and interpreting the above studies, in accordance with Vygotsky's writings, is a typology for relating the literature review presented in this study. The concepts that have been catalysed in chapters two and three, extends the concept of e-resources assuming the role of tools in the activity system of this study. Joyes (2006) contends that e-resources such as email, online video presentation, and discussion forums comprise tools in an activity system and contributes understandings and analyses for how these are used in research by Masters students. Therefore, by engaging with pertinent literature and embracing studies that have theorised CHAT in explaining online research contexts has assisted in conceptualising e-resources as tools that mediate between other principles to support students in their research projects. E-resources are divided into HW, SW, and IW, each containing their own constituencies that define and elaborate how and why they are used. The debate regarding the three propositions of e-resources relate to cost, effectiveness, speed, and utility in using resources that fit the research needs of the current generation (Darries, 2004). The societal

factor arises since e-resources are social and historic in nature, and affects what students use to ascertain research.

4.2.3.4 RESEARCHER ROLE, ACCESSIBILITY, AND RESEARCH ACTIVITIES INFORMING RESEARCH DISSERTATIONS

Students acquire their needs by working and researching with others to attain their specific goals (Kain & Wardle, 2008). Studies relating to activity theory are propelled beyond the scope of individual actions (Kain & Wardle, 2008). Activity theory rests on how students work together, how they use e-resources to achieve goals and how this involves a sense of 'community'. Community in this study refers to researcher role, accessibility, and research activities because these concepts stem from the literature and include all the stakeholders such as the institution, other research students (peers), the supervisor/s, and the research cohort who are influences on a student's research journey. Thus far, the principles of researchers, e-resources and research knowledge have been debated and established to inform other principles that project their interactivity, transformation, and contradictions in an activity system. Engeström (1996) posits all human activity is contextualised within an interdependent system. According to Joyes (2006), within the principles of researcher role, accessibility, and research activities in the activity system, the researcher engages with others to develop research knowledge that reflect the theories and concepts of research. The researcher is an extension of a larger community joined by the work they have in common (Yamagata-Lynch, 2010). The accessibility and research activities' interests give purpose to the activity by dividing the workload into specific duties within reach of maintaining research knowledge (Kain & Wardle, 2008). As discussed in Chapter Three, accessibility refers to the physical, financial, and cultural capital students have access to, and how the key stakeholders within these provide support for the research. Research activities involve attendance to cohort meetings, research sessions with the supervisor, and engagement with peers to develop their research knowledge. The researcher role refers to the student who undertakes a research project, and is an extension of accessibility and research activities. Joyes (2006) argues that within accessibility and research activities of an activity system a researcher should consider the nature of the research platform, explore the researcher's expectations in relation to others, and establish how their roles can be supported. In conjunction with a research tool designed to sustain the research project, the principles of the activity system must be aligned accordingly to mediate a progressive research experience (Joyes, 2006).

Analysing Barab et al.'s (2004) study, the researcher role, accessibility, and research activities in the activity system before the transformations, consisted of other designers and the Indiana math and science instructors. Here the concerns of the stakeholders were about whether, and how, the ILF could be built. These were raised after low participation by stakeholders countered the original anticipation of what would occur. As these tensions were cumulating, accessibility, and research activities evolved to additionally include the local school educational department. The new addition of pre-service teachers and designers of the e-ILF published more work on forging online communities so that the research and design efforts of other groups could be determined. Simultaneously, the advisory board and research advisory board contributed valuable feedback and reflection on operating the e-ILF. Stakeholders participated in workshops and online discussion boards (e-resource) to develop understanding and recommend ways in which greater participation can be motivated and achieved. Each of the stakeholders was significant in building the STIN to form a community where science and maths pedagogics can be exchanged to improve current practises. This form of negotiation enforces the societal factor as the designers and Indiana maths and science instructors collaborated to influence the activity of the STIN. The STIN became operational and effective in creating a community of expertise knowledge in the fields of maths and science.

Accessibility and research activities in an activity system incorporate the researcher and other stakeholders who are unified by the research project (Engeström, 1993). Through interaction and mediation of principles, the researcher is part of the larger community. People who participate in an activity may possess their own diversities, different from others, or perhaps they may be separated by distance, but if they act with a common purpose, they form a community where accessibility and research activities are avenues where research knowledge can be supported. In the study by Thuraisingam et al. (2012) the researcher role, accessibility, and research activities (community) consisted of the academic staff of the parent institution and the academic staff of both the Australian and partner institution. Within this activity the transnational partner academics existed and worked with other members to achieve comparable standards in assessment for offshore students to improve their current assessment practises. At the outset the interaction between transnational partner academics in achieving comparable assessment standards in negotiation with the Australian parent institution are evident but not complete without the mediating e-resources/resources that cause the principles to converse and impact the activity. Thuraisingam et al. (2012) posit that the

transnational partner academics and the Australian parent institution displayed their own set of norms, the explicitly or implicitly stated roles for each of its stakeholders. Hence, the role of the researcher mediates the relationship between accessibility, research activities, and research knowledge.

These studies dispense critical assumptions of how principles of researcher role, accessibility, and research activities function in an activity system and it can be conceived for the justification of this study. Researcher role, accessibility, and research activities perform its actions in consultation with all those involved, and do not exist as an isolated entity. Consequently, relationships culminate that administer logical reasoning for why interactions take place to exonerate the research project. Due to the dynamism and interaction of CHAT, the researcher can be multifaceted to mediate between different roles, as highlighted by Thuraisingam et al. (2012). The research activities involve all stakeholders who are part of the researcher's journey of completing their projects, and therefore include peers, other supervisors who inform the expert panel at cohort meetings, the supervisor of the student and the institution. These comprise community stakeholders who impact the activity of completion of a Masters project for the student. Accessibility is part of the community because this provides certain resources that the student needs in order to do their research, for example, financial access refers to the donors/funders that give financial support to further their projects. Researcher role, accessibility, and research activities in the activity system administers the societal factor because these are the constituents that gratify the understanding and development of the student's knowledge and progress in achieving the goal of attaining a Masters degree.

4.2.3.5 DISTRIBUTION OF TASKS AND RESPONSIBILITIES INFLUENCING THE RESEARCHER AND RESEARCH ACTIVITIES

CHAT represents a paradigm that affords the complexity of an activity system to be analysed in the context of its socio-cultural and historical resources that mingle with the various principles (Engeström, 1996). The symbolic interaction between agency and structure between the micro and macro levels highlights the changes, challenges, and transformations that take place in an activity system (Thuraisingam et al, 2012). Kain and Wardle (2008) identify this process as “*dialectically structured*” (p.2). The term ‘dialectic’ describes a relationship in which aspects of a process, transaction, or system are mutually dependent. Consequently activity theory helps a researcher concentrate on the dynamic interrelationships

between the many principles of an activity system. Each principle assumes its own responsibilities for carrying out its function, yet in consultation and mediation between the other principles. This is known as division of labour, where the tasks and responsibilities are distributed to articulate a unified approach.

The cumulative discussions thus far enable a platform to conceptualise the literature concepts in this study in retrospect of the distribution of tasks and responsibilities. Therefore, the distribution of tasks and responsibilities embraces the concept of researcher role and researcher activities and will therefore assume this principle because of the nature of this study. Although the researcher role and researcher activities have been simultaneously used in the previous section, their performance and function were analysed in terms of community, in other words, being able to harmonise and work together. In this section, the researcher role and research activities are explored in relevance to the distribution of tasks between each principle. Each of these has a duty and responsibility to fulfil, for example, the supervisor has the task of guiding the student in the right avenue of research principles and theories that may inform their research projects. The researcher role and research activities also coincide with the concept of accessibility as this relates to what or whom students have access to. The societal factor is strengthened through the mediation of researcher role and research activities as it is composed of various stakeholders who divulge their perceptions, beliefs, and support in helping the student in completion of their project.

The researcher role and research activities explain the distribution of tasks and roles between stakeholders and the division of power and status (Murphy & Rodriguez-Manzanares, 2008). Hardman (2008) affirms this ideology by further alerting to a vertical and horizontal negotiation of responsibilities and power within the context of the activity. The horizontal aspect describes how tasks are divided between stakeholders and the vertical aspires to division amongst power and status (Li and Bratt, 2004). Amory (2006) elaborates the relationship of the researcher role and research activities to accessibility as one of unison. The premise is that these principles are an implicit or explicit organisation of a community instrumental in rearing the transformation process of the research knowledge attained into a completed project. It is important to comprehend these assumptions and characteristics of what constitutes the researcher role and research activities in an activity, so that each stakeholder understands and performs their tasks towards the expected goal (Wang, 2008).

This propagates the societal factor as each stakeholder is aware of their differentiated tasks, but performs it in a unified approach to reach the objectives.

Distribution of tasks and responsibilities (researcher role and research activity) is further cemented through Vygotsky's original triad of actor-tool-object (researcher-e-resources-research knowledge) to a second generation of CHAT expanded by Leont'Ve (1981) to incorporate the component of division of labour (researcher role and research activity). The focus on the researcher role and research activities stem from the historical processes in development of higher cognitive functions and the hierarchical structure of the activity that implies that individual action is goal oriented while the collective activity is object oriented. Activities are spearheaded by object orientated activities since activities are social in nature and actions are conscious.

In Barab et al.'s (2004) study the researcher role and research activities contained expertise that each could bring to the activity system. These were stakeholders of the community who built connections with each other through accessibility to develop the ILF at the beginning. The research activities evolved during the second stage of the project to incorporate new stakeholders who discovered the value of the project. Each stakeholder had their specific roles allocated to contribute to the overall construction of the STIN. For example, graduates and faculty worked together to create professional development, the research team developed data collection instruments, and Indiana maths and science instructors contributed their skills and expertise to the ILF. Further, the teacher advisory board and research advisory board conducted meetings that instrumented significant change through reflection and feedback. The research design team also began to work on a paper to present at a conference. All of these roles played by different stakeholders held one thing in common, to develop and promote the ILF through the STIN in order to enhance participation of maths and science instructors to habituate pedagogical practises in these research domains. This study contends that the principles of researcher role, research activities, and accessibility are in closer interaction and represent an overlap of roles to assist other principles in the activity.

Thuraisingam et al.'s (2012) study interrogated the aspects of horizontal and vertical approach to the researcher role and research activities to explore the transnational educational setting. The horizontal symbolised negotiation of task and responsibilities, whilst the vertical encapsulated power relations and authority. Within this architecture, researcher role

constitutes the parent partner (Australian institution) who disseminates the prescribed curriculum, assessment tasks, course material, research strategies, and working guides (research activities). This hierarchy emboldens the vertical aspect. The horizontal aspect is evident through the assimilations and implementations conditioned by the parent partner (Australian institution) to transnational partners who devise roles and responsibilities within this landscape. This exposes contradictions and tensions within the triad of transnational partner academics-Australian parent institution-comparable assessment standards as it focuses on how tasks are divided between stakeholders to achieve the goal of improved assessment standards. It further declares triadic evaluations of how the stakeholders perceive their roles in the distribution of tasks and responsibilities. Stakeholders in the study expressed tensions over the translation of theoretical manuals into practise. It did not formalise the job description and other crucial documentation. The transnational partner staff were not trained due to the ambiguity of roles, which resulted in misappropriation of assessment practises. The study validated the critical roles in mediating the transnational partner staff towards the achievement of comparable assessment standards. A misunderstanding or detour within the roles can produce contradictions that can misdirect the activity, for instance when the partner staff were not correctly implementing the training manual.

4.2.3.6 RULES OF ASSESSMENT, RESEARCH TIME, AND ENVIRONMENT

Vygotsky's central assumption of CHAT is that actors are mediated by e-resources/resources towards the research knowledge, creating a process of perpetual interaction (Vygotsky, 1978). Interactions are influenced by the rules that regulate actions within an activity system (Li & Bratt, 2004). The component of rules is crucial to mediation. Rules are explicit and implicit norms that stimulate actions and interactions within an activity system (Engeström, 1993). Explicit demonstration of rules are reflective, directly pointing out roles, responsibilities and guidelines of what is expected to be done through written statements that inform those concerned. Implicit implies what the participants know to be done in the activity without being told. Rules are further categorised into formal and informal which participants apply to govern their actions. Barab, Barnett, Yamagata-Lynch, Squire and Keating (2002) imply formal rules as systematic, general or expected; and informal to mean idiosyncratic adaptation; and technical as mandated and written. Kain and Wardle (2008) concur that rules symbolise a mutual agreement about how an activity materialises in enabling progression in an objective direction.

Evaluation of the literature concepts in this study associates assessment, research time, and environment with the principle of rules. Assessment is divided into formative, summative, and peer assessment and may generate rules about how projects will be assessed according to certain criteria. For instance, the summative involves submission of the student's final thesis, and will imply how many copies need to be printed for examination by internal and external sources. Research time and environment relates to the timeframes students are given to complete their projects, and the contextual issues that affect this process. Interrogating these concepts can help generate specific rules that help students to facilitate each stage in their research project until completion. The content factor is implicated in the analysis of assessment, research time, and environment because they spawn from the institution or discipline that depicts guidelines in explicit or implicit ways of what and how an activity should take place.

Barab et al.'s (2004) study suggested that assessment, research time, and environment in the activity system comprised of design principles. This was the first year of the project so the design principles were evolving and primarily concentrated on the demands of building the ILF, particularly that the team had not worked on a project of this magnitude. However, the design team were expected to comply with emerging documents to manage the design process of the website. The design principles transformed as the project work intensified to include community-defined norms and also the admonition of instructors not critiquing each other. This arose as a consequence of instructors being able to view each other's lesson preparations, reflective commentary, and descriptions of pedagogical practise. The aim of the study was to build a network through the e-ILF of maths and science instructors who could contribute valuable insights to inform pedagogical practises and provide support to new instructors joining the site. The design principles were established to maintain this without any instructor feeling inadequate or critiqued for their work. The study conveyed that the design principles are not rigid but can develop as the activity mediates between other principles. Moreover, the study demonstrated that even if the design principles are not explicit enough for the transnational partner academics and the Australian parent institution to engage with, they can be implicitly implemented as in the case where the design principles were considered in the first year of the project.

Thuraisingam et al. (2012) concur that norms, conventions, social traditions, and assumptions are embedded in rules that propagate what decisions guide actions in activity system. This

perception emerged as a consequence of the rules decreed by the parent institution indicating how the community should navigate towards achieving comparable assessment standards. These rules included the Australian institution's policies, philosophies, and interests that should be embodied by the transnational partners, but could also be negotiated in terms of situation and power relations within their confinements. The rules symbolised mediation of the right direction of the assessment standards. The data exposed that these were followed at a basic level; they implemented similar types of rubrics, marking guides, assessment practises, and moderation policies of the Australian parent institution but configured these to suit their contexts. This produced tensions and inconsistencies as the configuration of assessment, research time, and environment meant that Asian countries had to immerse with a new method of assessment being the introduction of assignments, and developing rubrics and criteria to facilitate this countered what the parent institution initially envisaged. Cumulative to the contradictions are the issues of interpretation and level of evaluation by the supervisors in the partner institution. Participants exclaimed that Chinese supervisors have a different understanding of criteria which impacted how they assessed exams. Further, what they might interpret as loose referencing is considered plagiarism by the Australian parent institution.

Thuraisingam et al.'s (2012) study increases understanding about assessment, research time, and environment in an activity system and how they change in specific contexts. The study asserts that roles and responsibilities are crucial elements as to how these are perceived and put into action. A deviation from expected interpretations about these can result in a misfit between the principles in an activity system. However, this misfit can result in a deeper understanding about cultures and histories that affect how rules are interpreted. Thuraisingam et al. (2012) bring interesting notions about the assessment, research environment, and time evolving and configured to specific settings. This suggests that for the present study the researcher may have to be aware of what assessment strategies, research environment, and the allocated time drive students to complete their research projects and how these may transform as their studies progress. CHAT assists in identifying collaborative patterns, as well as tensions and inconsistencies that culminate as students iterate their particular histories and experiences to inform their projects.

4.2.3.7 RESEARCH TARGETS IN CHAT

Research can be viewed beyond the abstract of mental analysis from a personal experience to research as a cultural practise based on the tenets of activity theory (Bernard & Enyedy, 1999). Students manoeuvre through activities as they develop from partial involvement to fully immersed participants who use cultural resources/e-resources of narrative practise (Bernard & Enyedy, 1999). Individual actions are almost considered absurd when understood in isolation but thought of as meaningful within a context as a unit of analysis. An activity always carries artefacts such as procedures, signs, instruments, laws, and methods that are created, developed, and manipulated to exhibit actions that cultivate research knowledge (Uden, 2007). These are unequivocally driven towards achieving a goal. The goals represent the intended purpose of the activity and motivate the other principles to harmonise with this endeavour (Joyes, 2006).

Given this rich description, allows the principle of goals to be assimilated with the literature concept of research targets identified in Chapter Three of this study. Research targets constitute the purposes, objectives, and research questions of a student's project. These form the crux of a study and direct each stage such as the literature review, theoretical framework, and research design and methodology. Students have to be continuously aware of the research targets in order to critically engage their study at Masters level. The content factor is implicated as a result of purposes and research questions being derived from students' projects. The personal factor is attributed through students' awareness of the objectives; and this personally motivates and inspires them to proceed. When students are cognisant of the research targets in their projects, they can appropriately implement the theories, principles, and concepts of research that must be integrated to frame their study from an academic position. This awards them with a Masters degree after it has been sent for examination and has been passed, which is the ultimate goal for the student, both personally and professionally.

As emphasised throughout this chapter, an activity system involves a reciprocal process. The research targets include research knowledge of the activity and are ongoing (Kain & Wardle, 2008). The researcher uses e-resources/resources to inform their research knowledge and reach the desired research targets based on their interpretation of the whole process. They are motivated to implement e-resources because they want to achieve something and the e-resources facilitate this process. The research knowledge of an activity is very closely

associated with the research targets, and therefore many scholars have used the two interchangeably. de Souza and Redmiles (2003) advocate that activities are synonymous with research knowledge interchangeably accustomed as research targets. Kaptelinin (2005) argues that the research knowledge and research targets of an activity are often confused and advise that they should be distinguished in their own spheres. Engeström (1987) defines research knowledge (object) as the ‘raw material’ or ‘problem space’ at which the activity is centred and then transformed into research targets (goals) with the aid of physical and symbolic mediating resources/e-resources. In working towards developing research knowledge the research target is transformed over time. Therefore, what was initially envisaged mentally has been externalised in the form of research targets (Tsai et al, 2010).

According to Barab et al.’s (2004) study, the activity system first incorporated the research target of establishing a useful resource. At this stage the primary goal of the activity was to build a network, a virtual internet space where each instructor could possess their own space and share ideas about pedagogical practises of maths and science. The Indiana maths and science instructors and Apple technology members worked with the stakeholders to provide design expertise on the website. As a result, norms and rules surfaced to inform the e-ILF in dealing with the project demands. Consequently, the research target evolved to include better notion of inquiry-based lessons, with closer connections to other instructors that could reciprocate better practise. These related to members of the ILF engaging in conversations about current pedagogic practises that gave rise to parents’ concern about potential SAT scores if didactic methods were not used to help students with the facts needed to do well in standardised tests. The ambition of creating and maintaining a dynamic ILF through the STIN was operationalised with the various components interacting and mediating between each other to achieve better notion of inquiry-based lessons related to maths and science. The contradictions and tensions that were exposed culminated because activity theory was employed as an analytical lens to overcome such issues with a view of improving the ILF.

Thuraisingam et al.’s (2012) evinced that contradictions are likely to prevail in a collective activity. The research target of the activity system in their study was to effectuate improved assessment moderation standards with the transnational partners in comparison with the parent institution. This coincided with the purpose of the study in uncovering hidden contradictions faced by the partners. The mediating e-resources of communication, marking guides, exemplars and post hoc moderation highlighted the inconsistencies. These were

attributed to a lack of institutional relationships where the transnational partners felt somewhat alienated from collegiality between the Australian parent staff and themselves. Consequently, the assessment practises were misappropriated and the affordances of a communal interdependence were blurred. However, using CHAT as a collaborative resource helped identify the tensions and redirect the actions of both the parent and transnational partner institutions towards the overall research target of improving assessment moderation. By interrogating the research target, both teams of academics made themselves accessible to the zone of proximal development where negotiation for further ‘co-configuration’ of comparable assessment standards can be made possible. This affirms that an activity system is robust and requires the participation of other principles to meet the research target. The mediating e-resources provide the mechanism, whilst the tensions in assessment standards give purpose and direction. The transnational partner academics and the Australian parent institution harmonise to dispense preliminary tasks that define comparable assessment standards. The transnational partner academics, in collaboration with the Australian parent institution, are key role players who strive to achieve improved assessment standards, in the process being transformed.

The principle of research targets in an activity system significantly influences the societal factor. The very nature of CHAT is social since no principle acts in isolation but in collaborative, interactive ways that require the assistance of other mediating principles. Drawing from the above studies suggests that the achievement of research targets stems from the interdependency between each principle and how they function independently, yet adding to the greater vision of the activity as a unified system. The societal factor is further encompassed through the researcher role, research activities, accessibility, research environment, and time using e-resources to achieve the research targets. Simultaneously, relationships are built and collaborative patterns culminate through mutual exchanges of experiences and histories that each principle carries.

4.3 EMPLOYMENT OF CHAT IN ICT-RELATED CONTEXTS

Thus far the discussion has entailed an elaborate exploration of the components of CHAT and how it has been employed in e-learning contexts as a theoretical platform and an analytical tool for identifying contradictions and tensions. Two major studies in consultation with the work of Vygotsky (1978), Engeström (1993), and Leont’ve (1974) were interrogated as a frame for enabling CHAT in theorising the literature concepts addressed in this study. Those

studies were prioritised in reference to each specific principle addressed. Therefore a study of this nature requires further analysis of CHAT in ICT contexts to enhance understanding about the use of e-resources and how they are monopolised in research projects. In examining the use of CHAT in online contexts reveals important values and elements that can inform the perceptions of this study and further attribute to the assumptions that will be drawn.

Morrison (2003) initiated a study where activity theory was selected as a conceptual framework through which an issues analysis project (IAP) reflected a constructivist online learning environment. The purpose of the project was to evaluate the extent to which activity theory and computer-supported learning environment (CSLE) could enunciate rich threads of constructivism in the design of online environments for an agricultural leadership programme. The aim of the programme was to invoke leadership skills within participants, create awareness about agricultural issues, and transmit this knowledge with others. The study wanted to research whether these participants, when divided in teams of between 3-5 members, could work collaboratively within an asynchronous computer conference environment. Activity theory was implemented to enhance participants' (actors- IAP members) understanding of the role of leadership and their contribution to Canadian agriculture with the object being the IAP activity with all discussions occurring via computer conference. The mediating tools to facilitate this process included the FirstClass network and its' associated synchronous and asynchronous communication tools. The rules incorporated individuals taking responsibility for peer facilitation of ongoing discussions and maintaining progress on the project until the final report of the IAP.

Using activity theory as an analytical lens exposed the element of constructivism as socially embedded within an activity as human efforts are socially distributed. Through the interactive discussions participants influenced the nature of the entire system by not only evaluating the connections they have with each other but how this translates and transforms a range of information resources collectively (Morrison, 2003). Participants gained experience in using the computer conferencing tools, including the synchronous chat tool (mediating tools) to explore various topics and issues related to Canadian agriculture. This fostered a sense of community whilst simultaneously reinforcing constructivism. Constructivist approaches encapsulates research as a social process that forges community building where the members collectively negotiate the phenomena. Moreover the concept of authentic learning tasks were also established by interrogating various principles that analysed how participants shared

ideas and represented issues to overcome the confines of the limited individual perspectives on the topic. Morrison's (2003) study revealed that activity theory can comprise other theoretical concepts such as constructivism and authentic learning tasks. As the participants interacted through the CSLE to explore topics and issues that could inform Canadian agriculture this produced dynamism, exchange transformation, and collaboration, which are the very nature of CHAT. The societal factor is propagated through these exchanges and extended through perpetual support for collective engagement envisioned through the IAP. The essence of the project was to evaluate what ideas can be generated as a consequence of community participation through communication tools and this engulfed a sense of society between the members.

Tsai, Gaylen, Xie, and Laffey (2010) uncovered a study involving the merger of two theories, activity theory and social ability, to interpret the findings of the data generated in an online environment. These theories were used in conjunction to analyse the development of new knowledge about social interaction online. The subject in the activity system comprised the students, the mediating tools were the online discussion board and chat, the object included the students communicating their understanding via the mediating tools to seek help in solving a problem, and the division of labour, community and rules convened this process. Activity theory assisted the study to explicate the social nature of online learning by underscoring its relevance to a community of higher education students as they commune towards the objective of completing their online projects through the mediating tools and artefacts. Using this frame exposed the multiple and conflicting motivations students possess in performing their tasks.

The regular interaction between students showed that social activity is influenced by rules, expectations and language that is not constant but transforms over time. This introduced the social ability theory that posits a construct to represent how efficient participants are in using an online system to achieve the objective in a specific context. Social ability explores the relationships between people in a community and how they exhibit perceptions and experiences. This is moulded by internal attributes of the individual and external features of the environment and tasks. Social presence invokes an atmosphere of community and presence, and such students tend to have a more positive social interaction online. The mutual exchange of resources and perspectives that capacitates student's thinking and participation is invigorated through using mediating tools such as email, instant message tool and discussion

boards. Activity theory then produces a lens to understand how motives shape actions in a context of social rules, expectations, and collective action, influenced by tools. Integrating activity theory and social ability allowed the study to affirm that task requirements of the project can only be fulfilled by considering student biographies such as prior experience and awareness of student's work and family priorities. These are positive aspects to social learning and impacts students' success. The societal factor is highlighted through Tsai et al.'s (2010) study, as the essence of community, collaboration, and joint effort were propagated in the establishment of the online tasks. It further maintains the e-resource tools that are pivotal in social interaction online and preserves the feeling of community through utilisation of these tools. The study further iterated how activity theory can be intertwined with another theory such as social ability to provide deeper analysis and understanding about tool use online and to improving project design.

The above discussions have encapsulated further circumspect judgement about how CHAT is mobilised in ICT contexts for understanding how the principles interact and manoeuvre to achieve the goals of the activity. Moreover, social interaction is highlighted as a significant element in rearing activities and contributes to the functioning of each component. Exploring these studies helps to solidify the next step of devising a CHAT diagram (Figure 4.1) illustrating how the components can be related to the concepts addressed in the current study.

4.4 REFLECTION OF CHAT PRINCIPLES IN CURRICULUM

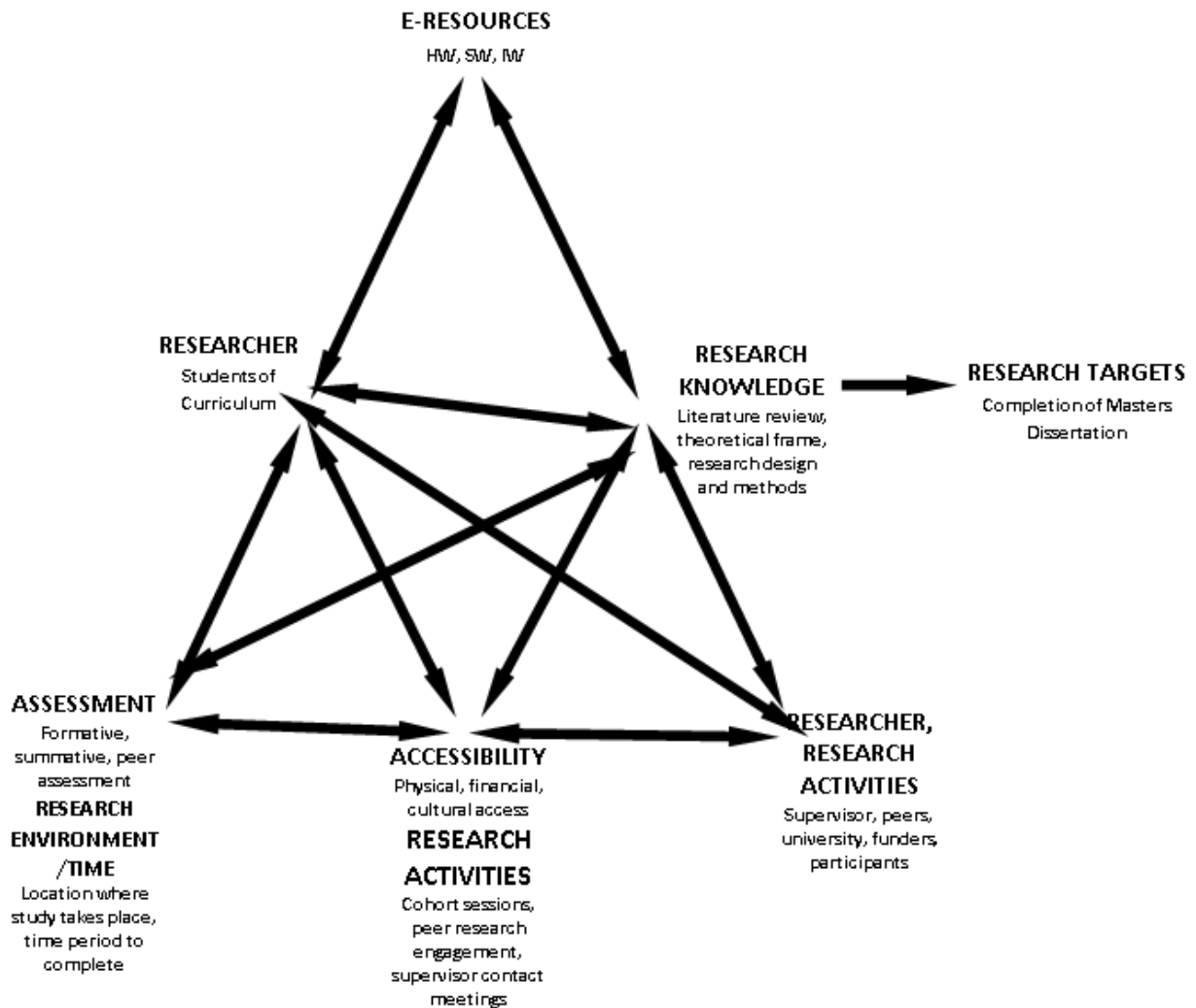


Figure 4.1 Curriculum Chat Diagram

Figure 4.1 represents curriculum concepts that have been conceptualised into CHAT principles as a theoretical disposition for interpreting and analysing the assumptions of this study. These concepts have been interrogated in the literature from a gestalt position of identifying and explaining how they inform students' use of e-resources in engaging their Masters' dissertations. Marrying the curriculum concepts with the CHAT principles conveys how students process, receive, and interpret research they will generate from traversing research knowledge and conducting field work (Wells, 2007). Additionally, by employing CHAT will exhibit patterns, trends, tensions, inconsistencies, and relationships between the various components and how they ultimately contribute to the overall attainment of the

research target. Moreover, characterising CHAT in correlation with curriculum concepts will help produce categories and themes in relation to the phenomenon of the study.

Observing Figure 4.1 reveals that the arrows represent an inter-connection between the various components as they harmonise to support each other. There is a strong notion of dependency as each component relies on the entire activity system to carry out its' tasks and responsibilities. For instance, in order to acquire research knowledge (literature, theories, research design, and methods) students will have to immerse with the relevant e-resources to filter their search. Students may not consider a multitude of e-resources but specific ones that can address their concerns, for example a search engine that predominantly finds scholarly articles related to a particular field of thought (Purcell, Brenner & Rainie, 2012). Simultaneously, the e-resources are implemented by the researcher who is influenced by the assessment requirements and research activities that have directed the student in selecting the most appropriate information (research knowledge) for their research project, while also geared by accessibility in affording the needed resources that make the research process conducive. The content factor emanates as students are aware of the assessment imperatives mandated by the university which serves as a guide of how to construct their projects and how they should immerse with the integral research knowledge.

Karasavvidis (2008) affirms that the conceptualisation of CHAT theorises what works and what does not work in an activity. This suggests that students may have to be constantly aware of research knowledge directly linked to HW, SW, and IW resources because certain SW e-resources are predominantly used for entertainment purposes, like Facebook. This may also produce a tension as students may be distracted from their research by entertainment e-resources which can slow down the research process. The societal factor is accentuated through this as students are overcome by others' activities on Facebook, which unrelated to their research, merely sparked their interests of what is occurring in their social circles. Research knowledge is closely associated with the research target, since the latter can only be achieved when students have developed sound knowledge of research concepts that can frame and inform their projects. Further, research knowledge significantly depends on the distribution of tasks and responsibilities represented by the researcher and research activities in Figure 4.1. Within this component, tasks and responsibilities are differentiated, yet contribute to the overall research target of completing the Masters dissertation. The supervisor is crucial in providing guidance to the student as to how to conduct the writing and field work of the research process. Peers, who are other research students, are crucial in

giving support and providing assistance by discussing their own projects through making comparisons and inferences. They may also be part of the online communities established by their discipline and as such constitute a forum of research students. Participants refer to the people whose experiences, perceptions, values, and beliefs are the subject of data generation. They are critical in advocating their views and this task becomes the focal point of making analysis and interpretation for the researcher to explain in their project. Funders also constitute accessibility and overlap with the research activities in providing donation and finance so that students may complete their study as well as maintain the necessary steps of the research process. Again, the societal factor is eminent as students' converse with various stakeholders who are part of their community and contribute towards the implementation of the research journey.

The activity system further displays an interaction between accessibility, the research environment, and time. This influences from where and when the student conducts research, depending on which stage of the process they are at. Since Masters students are of postgraduate level, they can study anywhere at any time, provided they have the relevant e-resources/resources. Accessibility also articulates access to resources such as funding, appropriate venue, beliefs, and attitudes that impact where and when students research. For example, an institution will have to be structured in such a way that it is conducive to students with physical disabilities. Moreover, if students are limited by funding they may have limited internet access at home and rely on the availability at the institution. These issues are important to consider as they inform how students engage their projects and further strengthen the societal factor.

The above Figure 4.1 models an activity system that is reciprocal, suggesting that each component is mediated by other components involved in the activity. These represent connections and inter-connections that each cannot function optimally without the other. Assessment is directly connected to research knowledge. This posits that for a student to adequately prepare for the assessment of submitting their research dissertation they would have to display coherent evidence of engagement with the relevant research knowledge throughout the thesis production. Consequently, an inter-connection between assessment and e-resources culminates since, in order to acquire research knowledge, the student would have embraced e-resources as a tool to find information. Cumulative to this process emerges the research activities as an extension of the community and a representative of the distribution

of tasks and responsibilities. Peers comprise part of the community in the research activity system; however they are also directly connected to assessment because other research students conduct peer assessment. This can be done through the online discussion forum where students upload their research tasks or articles they have written to be critiqued by other students as a form of peer assessment. The societal factor is once again reinforced through a sense of research community established via the online forum. Although students critique each other's research tasks, they give advice, make recommendations, and enable support so that other students do not feel isolated in their research experience.

Thus far the discussion represents the Curriculum CHAT activity system as dynamic, evolving, and mediated by interactive e-resources (tools/artefacts). E-resources constitute particular cultures and histories that influence the entire activity oriented towards specific research targets. In this process the research knowledge derived may develop as the activity culminates, reinforcing the notions of change and transformation. Research students are perpetually developing new knowledge through immersion with various scholarly and academic articles. This suggests that research is a process that is not static but constantly evolving to mould the student's research knowledge. What may be evinced by one scholar can be challenged by another, placing the student in a critical position to make choices about what engulfs crucial knowledge for their research projects.

4.5 CRITIQUE OF CHAT

In attempting to explore possible criticisms of CHAT, the literature remains limited to just a few studies in this regard. The studies that were sought to build the theoretical framework throughout this chapter did not contain any weaknesses of adopting CHAT as a conceptual tool. Therefore this section offers only what the available debates on the criticisms of CHAT entails.

Miettinen (2006) analysed the work of education philosopher Jim Garrison who challenged the assumptions of CHAT by assimilating the nature of CHAT with Dewey's concept of transactional functional coordination as a theory for human activity. Garrison (2001) countered how action was referred to in CHAT by questioning its relevance and quality in how it is approached and analysed. He believed that it could be explained from the point of self-action, inter-action and trans-action, indicating that the term 'action' used in CHAT is fluid. In addressing Garrison's (2001) concern, Nardi (1996) contends that in CHAT the unit

of analysis is the activity mediated by action composed of actors, object, tools/artefacts, community, division of labour, and tools. In this sense actions are not loosely framed but goal-oriented in attainment of the object. In this process, different actions may be instantiated to ascertain the object. The action is a consequence of the context that gives meaning and purpose to the activity. The goals, actions, and operations may change, evolve, and transform throughout the activity, however the object remains constant, maintaining the core essence of the activity. In the context of this study the word 'action' refers to that which is conducted by the researcher to build their Master's dissertation. The researcher's action involves engaging pertinent research concepts and theories, implementing field work by generating data, attending meetings with the supervisor and participating in the cohort sessions. These actions coincide with the Curriculum CHAT principles, advocating the reciprocal nature of the activity system (Morrison, 2003). Similarly, Miettinen (2006) agrees with this perception by affirming that mediated activity implies the idea of a transaction or reciprocal causal interaction between the principles of CHAT. He attests that this should not be confused as an alternative theory of human activity, but rather an analysis between the two traditions of Dewey's pragmatist approach and CHAT as complementary yet different.

In another study, Toomela (2000) critiqued CHAT for being too concentrated on observable activities and argued that it lacked depth in considering the cognitive processes of the individual. Cognition refers to the mental processes by which internal or external input is transformed, reduced, stored, elaborated, and implemented. The nature of cognitive processes involves the emergence of internal representations that may be operative independently or in consultation with others at different stages of processing (Neisser, 1967). Contributing to this, Wang and Ruhe (2007) contend that decision making is pivotal to basic cognitive processes of human behaviour by which a selected action or course of actions are elected from alternatives. The very essence of CHAT resonates with principles of internal and external and how this can be transformed into an action. In CHAT, internal is commonly referenced as internalisation and external as externalisation, which represent similar ideology of cognitive processes. Internalisation rationalises what individuals have learnt through mediated action, thereby building the cognitive domain (Vygotsky, 1978). Externalisation culminates through the output step of exhibiting what has been learnt to transform oneself. Toomela's (2000) convictions about CHAT are too critical, since in the context of this study students have to first internalise research concepts to frame their cognitive disposition to make substantive

judgements, interpretations, and analysis of the data that will be externalised through their projects.

This study is firmly convinced that employing CHAT as a theoretical tool is considerably significant. Various studies that are ICT related have implemented CHAT to support their convictions and findings, which resonates with the perceptions of the present study. Moreover, CHAT is a current theory embedded with modern ways of research, which is crucial in providing factors that explains how research takes place in the 21st century.

4.6 CONCLUSION

At the outset of this chapter, the study embarked in briefly accounting for some historical perspectives on the developments of CHAT. Lev Vygotsky instilled a foundation of the thoughts and writings as to how this theory emerged, and its impact on the key principles of CHAT. Exploring the foundational principles of activities as basic units of analysis, e-resource mediated action, mediated action in a zone of proximal development, internalisation and externalisation, were basal in initiating the curriculum CHAT principles. Once the former were analysed and interpreted it was possible to conceptualise the CHAT principles in synchronisation with the Curriculum concepts established in the literature. This produced flow and coherence in formulating the theorised CHAT principles of researcher role; research knowledge; e-resources; researcher role; accessibility; research activities; division of labour; rules of assessment; research time and environment; and research targets. These principles were explored independently within a broader perspective of how they would function reciprocally in a unified effort towards the research target. Consequently other studies were sourced to give evidence and support of how these principles are implemented in contexts where students use e-resources to engage research with a view of interpreting how the content, societal, and personal factors impact and outplay (Barab et al, 2004; Thuraisingam et al, 2012). When explored within these factors, the studies conveyed that activity systems are significant in revealing tensions, inconsistencies, contradictions, relationships and links that exist and culminate between each principle

Research is a process of comprehending what is known with developing and new information that students need to acquire in order to undertake a Master's dissertation. Interrogating these principles within their own constituents helped produce the Curriculum CHAT diagram indicated by Figure 4.1. This diagram revealed multiple connections and interconnections

between each principle and how they function reciprocally towards building research knowledge in achievement of the research target. In addition, a critique of CHAT was afforded, with little depth to weaken its' underlying and fundamental assumptions. CHAT is about rationalising how students process what they have developed in research and how this can be externalised through their projects. In this manner they are also transformed through the various experiences encountered. Finally, this study is convinced that CHAT is a powerful theoretical tool for generating themes and patterns to frame the data that will be delivered. The next chapter, being the fifth in this study, focuses on the research design and methodology employed to generate the data.

CHAPTER FIVE

CHARACTERISING THE FIELD INTO ACTION

5.1 INTRODUCTION

The previous chapter elucidated an extensive account of conceptualising the literature concepts of Curriculum into theoretical CHAT principles. In gaining a thorough perspective of how these principles can be used to categorise patterns and themes in the data generation, this chapter embarks on strategically focusing on the research design and methodology to coincide with the Curriculum CHAT principles. Emphatically, it interrogates specific research approaches that are most suitable in generating data that maintains the phenomenon of the study being the use of e-resources by Masters students in completing their dissertations. Therefore specific research design and methods have been incorporated to justify the underpinning of the data. Research is based on underlying philosophical assumption about what signifies valid research and which methods are relevant for embracing new knowledge in a study. In order for effective research to be carried out and maintained, it is crucial to underscore what these assumptions are.

This chapter emerges with an introduction as to what constitutes research design and methods as a background into the specifics that have been selected. Next, an exclusive discussion on the interpretive paradigm entails representing the nature of this study and how it assimilates with this paradigm. This is followed by the research approach indicative of a case study style, since this study is interested in qualitative data. The section thereafter involves reference to the sampling methods chosen, being convenience and purposive. The methods of data generation employed include semi-structured interviews comprised of individual and focus group, a reflection activity, and document analysis to enable the triangulation of data. The data analysis procedure will also be discussed shortly with guided analysis seeming most unique to the assumptions of this study. Ethical considerations will ensue by exploring the concepts of non-maleficence, beneficence, autonomy, and justice. Finally the chapter contains a discussion of the issues of trustworthiness, validity, credibility, transferability, confirmability, and dependability. Empirical research constitutes implicit or explicit research design that is integral to address the phenomenon and research questions of this study. Therefore, these data generation techniques are relative and important to explore in characterising the field work undertaken.

5.2 FOUNDATIONS OF RESEARCH DESIGN AND METHODOLOGY

Human beings have an innate attribution for wanting to understand the context in which they exist, and the reasons that inform this existence (Cohen, Manion & Morrison, 2007). Endeavouring to search for truth is enabled through research approaches. On a more formal level, research is conducted using specific designs and methods to illustrate the data from an educational perspective, i.e. a student researching via an institution as part of their academic tasks. Therefore, this propagates the content factor as higher education informs disciplines to follow due processes of conducting research. The research design can be differentiated from the methodology, although the two can be thought of as simultaneous (Nieuwenhuis. 2010). Research designs are plans that guide the manner of conditions for the generation and analysis of data in ways that seek to give relevance to the research process (Creswell, 2003). Subsequently, this plan is envisaged before the generation of data or analysis can commence. According to Merriam (1998), this plan is assessable, organisable and able to integrate information that produces a certain end product. Therefore, the research design aligns to a chronological plan that specifies the way in which research is executed in order to answer the research questions. The researcher is responsible for developing the research design, shaped by the method, and is responsive to the context and participants (Richards, 2006). Further, the research design supports the empirical nature of the study and connects them to specific sites, persons, and interpretive material, including documents and archives. Cohen, Manion, and Morrison (2000) contend that the establishment of research requires the harmonisation of the planned possibilities in a coherent practise that resolves the differences between idealism and realism.

Alternatively, methodologies divulge how inquiries move forward by singling out what problems are legible for investigation; how to frame enquiries so that exploration is possible; how to create specific data generation; and how to make inferences between the problem, data generation, analysis, and conclusions (Jackson, Drummond, & Camara, 2007). Simply stated, Henning (2004) positions the methodology within an epistemological base of inquiry that regulates the research design to function. Henning, Van Rensburg and Smit (2007) postulate the methodology as a collaborative stance to source data and findings that articulate the research questions that fulfil the purpose of the research. This suggests that the methodology draws on the choice and implementation of methods concurrent to the rationale of the study. Consequently, this study being aware of the phenomenon of students' use of e-resources was able to pinpoint selective methods such as the semi-structured interview,

document analysis, and reflection activity to explore how these are being used to conduct their dissertations. Thus research designs merge the data generation and analysis activities with the research questions, and maintain that all research aspects are covered.

Simply put, the research design and methodology are different, yet somewhat interdependent. Neiuwenhuis (2010) explains this by conveying that the research design focuses on the end product while the research methodology concentrates on the process of acquiring research and the instruments and methods to be used in ascertaining this. This suggests that although they have distinguishable tasks, they are still relatively bound by the research process. In addition, the research design not only addresses the phenomenon and research questions, but the theoretical and conceptual framework, population and sampling, time plan and budget, while at the same time, the methodology emulates the approach to generating the relevant data (Cohen et al, 2000). A foundational step in instituting the research design is to establish the research paradigm, and in this study the interpretive paradigm has been underpinned.

5.3 WHAT'S IN A PARADIGM?

One of the most crucial aspects of a human social setting is to comprehend the context in which they inhabit (Krauss, 2005). Society is representative of culture, understandings, norms, social reality, beliefs, stereotypes, and worldviews as a prerogative to individuals' construction of meaning (Lofland & Lofland, 1996). A paradigm is envisioned as a set of basic beliefs that symbolise a worldview that explains, for its holder, the nature of the world and their place within it, and considers their relationships to that world and its components (Guba & Lincoln, 1994). Miskon, Bandara and Fieft (2015) postulate that all sound research emerge with a conception of a research paradigm as an umbrella for analysis and interpretation of the data. This propagates that the content factor foundationally emanates as various experts in the field of research design and methodology concur that effective research is consummated by identifying and implementing the appropriate paradigm to a specific study.

The concept paradigm was derived from the Greek word 'paradeigma' which indicates pattern and was first used by Kuhn (1962) to imply a conceptual framework used by a group of scientists to explain the study of problems with aim of unearthing solutions. Kuhn (1962), a founding expert in the field of paradigms, defines it as an integrated cluster of substantive concepts, problems, and variables assimilated with relative methodological tools and

approaches. Hartley and Davies (1978) postulate that a paradigm represents a more thorough conceptualisation of an idea or theory involving definitions, statements, and an interconnectedness between these statements. A paradigm may warrant an expression through words, numbers, or some type of visual display. Christiansen et al (2010) propose that within a paradigm it is relevant to determine the research questions as a prerequisite. This will then lead to what can be observed and investigated, how data will be generated, and how the findings will be interpreted. This can further inculcate a broader perspective on the nature of reality in the field of study.

Research paradigms, in essence, reflect the multiple views, perceptions, and assumptions about how the world is understood and perceived. These are different, diverse, and unique to specific contexts that shape reality for individuals. Consequently, divergent research paradigms exist to represent varying philosophical foundations and beliefs about reality. Mack (2010) identified the commonly used research paradigms as positivist, critical, and interpretive. Positivist researchers incline their thinking with scientific reasoning and utilise statistical analysis and generalisable findings as key approaches to define their stance of research. In this paradigm knowledge is viewed as objective and only deemed credible through engagement with observation and experiment, and is therefore primarily implemented in scientific related fields. The critical theory is built on the precept that research should enable the emancipation of individuals in an egalitarian society. The researcher operating in this field of thought seeks to understand and explain the behaviour of participants with a central aim of causing change and transformation to these behaviours. They perceive schools as an avenue for challenging issues of power and inequalities that culminate in society. It is envisioned that change and the breaking down of barriers can be reciprocated through knowledge construction in these institutions. Finally, the interpretive paradigm is concerned with phenomena which articulate the relevance in understanding human beings' subjective experiences and reality. Knowledge is treated as subjective and qualitative to individual interpretation and actions are regarded as distinctive. Contemplating the three paradigms reveals the interpretive as the most apt to coincide with the assumptions underpinning this study. This study is interested in students' in-depth experiences of using e-resources to conduct their Masters dissertations; therefore the interpretive paradigm benchmarks the arena for understanding and exploring their beliefs, opinions, and thoughts in this regard.

Before pursuing an intense discussion on the worth of the interpretive paradigm informing this study, two main philosophical dimensions being ontology and epistemology, need to be unpacked, as these distinguish a research paradigm from others. Methodology is the third assumption but this has already been explained. Ontology relates to how one perceives reality. Its basic tenet is that reality is dependent on social actors and concurs that individuals contribute to social phenomena (Saunders, Lewis & Thornhill, 2009). Mack (2010) posits that ontology is the orientation point for establishing the theoretical framework. It further resonates claims about the nature of social reality, about what exists, how it is made up, and how these components interact with each other. This perception assimilates with the Curriculum CHAT theory developed in the previous chapter which contends that an activity system comprises of various principles that mediate between each other to achieve the research target. In the context of this study, students engage with e-resources, research activities, and the research community in order to achieve their research goal which is to complete their Master's dissertation. The second philosophical dimension is epistemology and this centres on ways to generate, understand, and implement knowledge that is acceptable and valid (Wahyuni, 2012). Epistemology is strengthened in theoretical perspectives and methodological approaches and simply validates how knowledge can be attained. Mack (2010) advocates that these philosophical underpinnings are critical to the researcher's intentions and goals of the research they engage with. For effective research to be maintained these assumptions must be understood in the context of a research as they impact the research questions and methodology. These constructs of social reality presents ways in which relationships can be explored in regard to the phenomena and social behaviour, as well as afford the researcher a platform for evaluating their own work and the work of others. The ontological assumptions inform the epistemological, in turn creating methods to generate data. TerreBlanche and Durrheim (1999) convey that the research paradigm is a groundswell of interrelated thinking and practise that define the nature of enquiry along the three assumptions. These perceptions sustain the content factor as they represent clearly defined ways of how research should be carried out. Moreover these philosophical assumptions will be interrogated further in the exploration of the interpretive paradigm, with implications for this study.

5.3.1 THE INTERPRETIVE PARADIGM

The very nature of the interpretive paradigm is to enunciate the value of subjective meanings and symbolic action in the process of how individuals construct and reconstruct their reality

(Morgan, 1983). This tradition does not wish to pre-empt that social structure, culture or relations are static or unproblematic, but seeks to understand how and why human beings behave in particular ways through their interactions and socialisations. The strength in deriving meanings is significant because they expose the individual's thoughts and sense-making which can be correlated with external behaviour. Meanings, assumptions, and experiences are somewhat taken for granted in the positivist paradigm because science and experimentation support the claims thereof; however; in the interpretive realm these actions are understood as historically and contextually situated (de Villiers, 2005). Therefore, the underlying feature of the interpretive paradigm dwells on the meanings created as a consequence of individual actions, and these meanings are in negotiation as they are modified through the interpretive journey.

Walsham (1995) describes interpretivists as anti-foundationalists, who ascertain that knowledge is not constituted through a single or particular avenue; instead it is explored through multiple realities. As such no incorrect or correct theory underscores such praxis, rather the in-depth reasoning as a basis for human action becomes the cornerstone for research. Interpretive researchers build their constructs by conducting detailed exploration of individual's experiences regarding the phenomenon of the research. Since knowledge and meaning are acts of interpretation, knowledge is seen as subjective rather than objective. Subjective findings condone that inquiry is value-related, as it allows for the study of complex human behaviour, shared meanings, documents, and other artefacts. This correlates with the theoretical framework underpinning this study, Curriculum CHAT, since it also involves observing and understanding how students use particular e-resources (artefacts/tools) to conduct their Masters research. Such a process is not static but involves the interaction between various principles in order to generate meaning. Moreover, the content, personal, and societal factors emerge strongly from these perceptions. The content factor is evident through the works of scholars in the field of distinguishing paradigms, and how their expertise can guide and inform research processes. The personal factor arises through individual meaning and experience as the unit of analysis. In this study the experiences, meaning, and knowledge shared by students of Curriculum in traversing their research projects are the unit of analysis. The societal factor is outplayed through family, friends, and peers who help shape this reality for the individual through the adoption of beliefs and values. These reflect a tradition embedded in the social sciences that fundamentally rely on observations attained in an individual's natural settings, whereby the

researcher interacts with them in their own language and according to their own terms. As a result, I have immersed with the relevant documentation and requirement regarding the Curriculum discipline through which Masters students conduct their dissertations to understand the language of the students and how they embark in their research journey. It was important to initiate this process because interpretivist ideology centres around the researcher being the primary data-generation instrument, using carefully constructed approaches to make sense of the data. In so doing, I was continuously aware of the phenomenon of the study to guide the data generation process.

Comprehending the social process of individuals indicates that the researcher must delve deep into the feelings, attitudes, behaviour, and experiences of the participants involved. This feature of the interpretive paradigm suggests that research in this field does not operate by universal standards, but rather by the specific behaviour of a group or culture. This deflects the assumptions of the positivist paradigm which assert that there is only one correct answer. In direct contrast the interpretive researcher acknowledges that multiple perspectives are valuable, thus making it more inclusive. This coincides with the ontological assumptions of interpretivist research, which can be further extended to incorporate that events are distinctive and not generalisable, unless applied to a similar context (Mack, 2010). Further, causation in social realities is a culmination of interpreted meanings and symbols. The notion of epistemology is gained through inductive reasoning to establish a theory. In this sense, knowledge stems from specific situations and is not reducible to a simplistic interpretation. Personal experiences of participants remain the unit of analysis to inform the epistemic concerns. From an ontological perspective, this study values the experiences of students in conducting their Masters dissertations that will be used to justify the data procedure. This study wants to understand what e-resources were used and how they were implemented. In addition, an understanding is maintained through exploring how students interacted with others such as the supervisor, peers, and the institution in assisting their studies. The study is aware that each student's experience may differ from the others, and will use this to elaborate on subjective meaning, as envisaged by the interpretive paradigm. This grasps the epistemological assumptions, by iterating that knowledge is gained uniquely and circumspect to individual interpretation of events.

5.3.2 CONFIGURING HERMENEUTICS AND PHENOMENOLOGY IN CURRICULUM CHAT

Thus far, it has emerged that the interpretive paradigm is a significant strand in generating knowledge about understanding how Curriculum students use e-resources to conduct their Masters dissertation. This field of thought assists in understanding students' thoughts and experiences in the social and organisational context they stem from by producing profound insights into the principles of research they apply to corroborate their studies. However, some clarity is required for describing how research should be implemented and how its quality can be assessed in the interpretive paradigm (Klein & Myers, 1999). Advancing a set of principles may appear to some readers as an encroachment on the very nature of interpretive ideology since this paradigm involves the unique experiences of individuals who are free and open to express their thoughts, undefined by a presupposed agenda. Moreover it does not subscribe to predefined criteria to understand perceptions. Instead these principles are consistent with the philosophical foundations of interpretivist approaches and seeks to improve its' current stance on maintaining quality as a paradigm. In retrospect, the absence of clearly articulated criteria/principles may increase the risk of inappropriate judgement in interpretive studies (Klein & Meyers, 1999). Although these principles were derived in the context of information systems research, its underlying foundations are hermeneutics and phenomenology, which are unique to social science research. These principles should not be viewed as static rules but fundamental ideas that can provide useful insight from already existing contributions to interpretivist knowledge. Orlikowski and Baroudi (1991) contend that studies which explore relationships between the use of e-resources, students, and institutions can be enriched if a range of research principles in a particular paradigm can be harnessed. Therefore, considering and applying these principles to the current study can add value and depth to the assumptions ascertained.

The philosophical underpinning of interpretive research is geared by hermeneutics and phenomenology. The interpretive premise extends to a large family of diverse paradigms and consequently needs unravelling to give insight to its true relevance in ICT contexts (Burrell & Morgan, 1979). Major proponents of hermeneutics are Gadamer and Ricoeur whom primarily focused on this in the late 19th century. Due to the vastness of interpretivism, hermeneutics is a significant contender, and has been benchmarked as a philosophical tool and specific mode of analysis. Philosophically it has been used as bedrock for interpretivism on how human beings understand their worlds. As a mode of analysis, it incorporates a manner of

understanding meaning or trying to establish textual data which may contain obscurity (Klein & Meyers, 1999). In light of phenomenology, it represents methodically studying consciousness in an effort to understand the value of experience. The essence lies in describing the interaction between the researcher and participants in the context of the research and to generate exploration and assumptions about their world (Boland, 1985). Phenomenology is the study of phenomena that describes the meaning of lived experiences in regard to a specific phenomenon. This study is interested in the experiences of Masters students in using e-resources to conduct their dissertations. Phenomenological studies incorporate the generation of rich detail, which allows the researcher to delve into deep meaning of the participant's experience. Dwelling on the perceptions of hermeneutics and phenomenology expose the content factor being highlighted, since these philosophical peculiarities are comprised from the existing ideology of the interpretive paradigm. Further, Klein and Meyers (1999) admonish that using this paradigm requires extensive consultation with hermeneutics as a supportive structure to the principles applied. The seven principles of conducting and evaluating interpretive research will be discussed next as an extension of this section.

The first and most formidable principle is that of the hermeneutic circle. This principal is foundational and considered a meta-principal upon which the other six are built upon (Miskon, Bandara & Fielt, 2015). The premise of the hermeneutic circle indicates that understanding can be developed when a complex whole is considered in correlation with its parts. This derives meaning about the interrelationships that exist and culminate as they reciprocate. Moreover, sense is made by delineating the parts and understanding them from the valuable contribution they make to the whole. This represents a cyclical relationship that seeks to understand human beings in their social context. The societal factor emerges through this perception as participants' behaviour in a study is investigated in relation to the social aspects that have guided their experiences. Gadamer (1976) opines that the terms 'parts' and 'whole' should be treated liberally as they are historical and contextual in nature. Gadamer (1976) further elicits that parts can include the researcher's and participants' understandings in the study, whilst the whole assumes the shared meanings that stem from the interaction between the two. In the ambience of this study, the interaction between the students of Curriculum Studies and I will help produce meaning about how students use e-resources for their dissertations. In another study instituted by Lee (1994) and conditioned by Klein and Meyers (1999), an example of the email as an e-resource was used to evince the hermeneutic

circle. Lee's (1994) study concentrated on information richness in email communication whereby the separate messages of participants represented parts and the whole was cultivated through the global context that underscored the full meanings of the messages exchange. Although this analogy did produce some contradictions, Klein and Meyer's (1999) analysis of this concludes that use of emails can contribute to social constructions. Contemplating Lee's (1994) study may help to comprehend how students use e-resources such as discussion forum, emails, chat, and others to exchange messages about their dissertations that contribute to the overall whole of completing their studies. Again, the societal factor is eminent because these e-resources maintain how people interact and socialise to exchange information. Through this process, relationships are formed to embrace a deeper learning experience (Darries, 2004).

The second principle of contextualisation proceeds from Gadamer's (1976) acumen that there is an abounding difference between the interpreter and the author of a text that is sustained through the historical space between them. The hermeneutics prevalence in this relies on not feeding the tension between the text and reality, but rather to consciously furnish it (Klein & Meyers, 1999). In essence, what this espouses to is the context in which research takes place and the kind of story the researcher wants to tell. Certain truths may be privileged over others and in this way the power base extends to the researcher who can manipulate salient stories over others. In response to this, the principle of contextualisation requires that the research evolves in its social and historical environment so that the intended audience can view how the current situation under exploration culminates.

Interpretive researchers propagate that any observable organisational patterns are in a state of flux because relationships between human beings, the organisation, and technology are perpetually interacting and transforming, and cannot be perceived as stagnant. This assimilates with the Curriculum CHAT theory that posits that students, e-resources, the community made up of the institution, peers, and the supervisor, are continually reciprocating to achieve the research target. Again, the societal factor surfaces since the interpretive researcher seeks to understand how these principals interact with each other through various stages of research. Klein and Meyers (1999) contend that when field work is conducted, the results impact the history of the institution and the research itself becomes part of the institution's future history. As such, the participants involved in the study should not be restricted as products of the history, but producers of this knowledge, which should be

correlated through the write up of the research. The personal factor also prevails in the principle of contextualisation because students reflect their experiences and opinions that inform the data which constitutes the research write up. This principle is further elucidated in Budden's (2013) study where students used e-resources in an Honours Curriculum course. Although the students used discussion forum, chat room, and email to communicate and exchange information that could help their studies, they significantly relied on the historical concepts of Curriculum to foundationally support their assignment tasks. Despite new developments in technology the IW resources must be established first to support the use of HW and SW e-resources (Khoza. 2012).

The third principle extends to the interaction between the researcher and the subject. The previous principle situated the object of the study in context; this principle aligns the researcher and the subjects (participants) within the historical perspectives (Klein & Meyers, 1999). The procedure of generating data is not envisaged as a mere collection of evidence waiting to be picked up; instead it encompasses a reciprocal relationship between the researcher and participants as they immerse themselves with the phenomena of a study (Orlikowski & Baroudi, 1999). In this sense, researchers must acknowledge that participants are also interpreters and analysts in their own right. Nicholson (1984) argues that people have the liberty to make choices and behave in a meaningful way and that their personal project and practical activities make perceptions interpretive. Participants are regarded as interpreters because they have the ability to assimilate with concepts that diversify their cognitive processes. Consequently, this impacts their actions because their perceptions have been shaped by new ways of thinking that allow them to become analysts. The interpretive paradigm signifies this process as crucial in developing truth in the data generation procedure. In this study I am aware that the participants involved are researchers themselves since a Masters dissertation requires field work and exploration of research principles that must be applied. Therefore, their ability as interpreters and analysts may be evident in the way that they convey their responses to the research questions. I understand that conversing with participants while being aware of their interpretation and analysis ability, can improve the knowledge generated in using e-resources at their level. In the study by Barab et.al (2004), discussed in the previous chapter, this principle was evident when the researchers acknowledged that it was not about asking the maths and science instructors about what can be done to improve participation in the ILF on their own, instead how they (researchers) in partnership with the instructors could work together to build the project. The ILF was an

online project aimed at developing pedagogical practises of maths and science instructors, and the initial stages were aimed at generating perceptions of the instructors on how this could be enhanced. However, after the first set of data generated, the researchers realised it was a community-building project that required the efforts of both the instructors and research team. The instructors suggested ways in which the ILF could be developed by identifying current challenges and ways that these could be circumvented. Clearly the principle of researcher and subject was applied, as the researchers understood that participants were interpreters and analysts, and they worked harmoniously to establish an interactive online forum for maths and science instructors. The societal factor is propagated through these experiences because the researchers' knowledge of the ILF were supported and shaped by the instructors' perceptions. Their interaction in building the ILF also strengthened this factor. This further disclosed the social construction of data, thereby deducing that close interaction is critical between the researcher and subjects in the interpretive paradigm.

Abstraction and generalisation constitute the fourth principle and is embedded in the works of Heidegger (1962) and Husserl (1970). These interpretive philosophers concur that research in this field be related to ideas and concepts in multiple realities (Klein & Meyer, 1999). Interpretive studies have been criticised for lacking generalisation of the findings, which in turn attempts to reduce the credibility of a study. Therefore, this principle emerged as a response to further elucidate that theoretical abstraction and generalisation can be systematically assimilated with specific details derived in a study that can be experienced by the researcher (Klein & Meyer, 1999). This allows readers to follow how the researcher's theoretical insights were informed. The assertion of Walsham's (1995) claims are also brought into the fold, arguing that maintenance of validity through making inferences from one case to another is not reliant on the representativeness in a statistical sense, but considering the issues of plausibility and cogency in logical reasoning used to describe the results. Walsham (1995) attests to four kinds of generalisations from interpretive case studies: the development of concepts, the generation of theory, the drawing of specific implications, and the contribution of rich insight. These generalisations are paramount in affording the content factor, because they emerge from studies already conducted and serve as a gateway for countering criticism directed at issues of generalisation that can surface in the current study. Walsham (1995) also posits that contextualising these generalisations contributes to theory used in a study, and not a strengthening of anecdotes. Interpretive research theory is

viewed as a mechanism for understanding and being sensitive to world views while realistically presenting the data.

As data emerges through the research process, the fifth principal of dialogical reasoning becomes transparent. This principle allows the researcher to encounter his or her preconceptions (prejudices) that guided the initial research design with the developing data (Klein & Meyers, 1999). These preconceptions may be modified as the research develops. The cardinal point of this step is to enable the researcher to emphasise the historical intellectual basis of the research as diaphanous as possible to the reader. In embarking on this process the researcher should specify what type of interpretivism is preferred, identify its philosophical foundations, and chronicle the particular strengths and weaknesses of this to the intentions of the research. The intellectual basis of the research design incorporates the lenses through which field data are derived, documented, and organised. Inadvertently, the data may not correspond with the preconceptions. Therefore, I have to be consciously aware of possible contradictions between the theoretical preconceptions facilitating the research and the design and actual findings (Srivastava & Teo, 2005). According to the principle of hermeneutics prejudice, prejudgement or prior knowledge holds a significant element in understanding. In the positivist paradigm prejudice is viewed as a source of hindrance to true knowledge. Conversely, hermeneutics identifies that prejudice as the point of departure from which understanding is warranted about participants' experience of their world. In this regard, hermeneutics can be explained as a distinction paralleled with true prejudices that can be understood against false prejudices that are misunderstood. This does not emanate abandonment of prejudices, rather an awareness of historicity as researchers (Klein & Meyers, 1999). An application of this principle can be seen in the study by Miskon, Bandara and Fieft (2005) where the results of the literature review and pilot case study highlighted the need to redefine the research questions and research context which brought more focus to the study and enabled the researcher to confront any preconceptions. This coincides with the content and societal factors. The content factor is evident through the reconfiguration of the research questions after engaging with the literature review. The researcher's knowledge was impacted by reading how other studies articulated shared services in Malaysian higher education with regards to ICT, and this influenced modifying the research questions. The societal factor arose through the researcher redefining the context after conducting a pilot case study. This meant that the researcher's preconceptions were unparalleled to the participants' conceptions.

The sixth principle in the hermeneutic field is called the principle of multiple interpretations. This principle encourages the researcher to explore the influences that the social context has upon the actions under scrutiny by pursuing and documenting multiple view points and the dialectics supporting these (Klein & Meyers, 1999). This postulates the personal factor because participants give in-depth reasoning that stems from their own experiences and this may be different and unique compared to other participants' responses. This principle seeks to diversify the nature of the interpretive paradigm whereby multiple sources of data can be accessed. In the interpretive field the unit of analysis pertains to participants' experiences, beliefs, and opinions, and this allows the researcher to analyse responses in terms of what leads to issues of power, economics or values. In the current study, I aim to establish the principles (literature, theories, design, methods) that research students apply to conduct their dissertations using current ways of researching, such as the use of e-resources. Instrumenting such a study can enable me to understand the values, opinions, or influences students articulate in the data generation process. This may produce possible inherent conflicts or contradictions in their responses, which the study should embrace to mould and shape understanding. In this manner the principle of dialogical reasoning is intertwined except that it is not a confrontation of my preconceptions but rather those of the participants'. Ultimately, the dominant revision occurs in my preconceptions. Khoza (2015a) undertook a critical action research that sought to establish whether the e-resource, Turnitin – as a Learning Management System (LMS) – could be used to prevent students from committing plagiarism. The varied responses from participants elicited conflicting views as some participants expressed that they were able to prevent their students from plagiarism whilst others conveyed that they were not able to prevent copying. Moreover, the study proclaimed that Turnitin was primarily used for societal factors because it was a new technology that was embraced and as such created intrigue and excitement about using it. Consequently, this was not supported by IW resources which resulted in the LMS not being appropriately implemented which led to the dismay of some participants. Understanding these contradictory experiences informed the participants in Khoza's (2015a) study on how to successfully implement Turnitin in the future to avoid challenges with plagiarism. Therefore, applying the principle of multiple interpretations is crucial to developing understanding about challenges that may occur when using e-resources.

The final principle of suspicion is adapted from Ricoer (1976) who contends there is an element of false preconceptions. Ricoer (1976) evinces that in certain situations there is a

level of paucity where false consciousness can be contained. Srivastava and Teo (2005) argue that interpretive researchers have to make sense of potential biases and distortions that exist in the narrative accounts of the participants. This indicates that the researcher has to be aware of the social world which the participants inhabit and how this influences their vested interests, power structures, and motivation. The principle of suspicion extends beyond understanding the data because it directs the researcher to traverse the social world and not merely rely on the words of the participant. Application of this principle can be seen in Robey and Newman's (1996) paper on sequential patterns in information system development. In each phase they depend upon each participant's opinion to comprehend what went wrong. The study aimed at communicating this element in the understanding of the participant who may contend another set of reasons for failure at each stage. This analysis suggests that the principle of suspicion is crucial in decoding conspicuous perceptions of participants which may inadvertently shed new light on a study and inculcate further exploration and understanding. Moreover, the process of triangulation enables the corroboration of data which may expose any possible biases or distortions. The societal factor is positioned in this assumption because it allows the researcher to discover social influences that impact the participants' experiences in relation to the phenomena of a study.

These seven principles were critically interrogated for the purpose of understanding hermeneutics and how it can be integrated as a sense-making process for the data. The principles do not require a mechanical implementation because each yields its own interdependence that can be qualitatively applied to specific settings. In this study these principles are considered in the sphere of understanding and exploring students' experiences, opinions, beliefs, and values of using e-resources to undertake their Masters' dissertation. I am interested in applying the overarching principle of hermeneutics, which informs the other six, to understand the research knowledge students immerse with in order to reach the research targets. Further, it may inaugurate plausible and convincing arguments in representing the data using a qualitative approach, which would have alternatively encountered additional criticism. In exploring the principle it also revealed how the content, societal, and personal factors were attributed interdependently and cohesively in particular accounts. These factors need to be understood in the context of this research, as it informs how e-resources are interpreted by Masters students.

5.3.3 THE INTERPRETIVE PARADIGM AND RELATED STUDIES

The previous section provided a scope and understanding of the interpretive paradigm principles. These were crucial in establishing some criteria for evaluating and conducting research that seeks to understand and explain human behaviour in relation to specific phenomena. The current section explores other studies that have applied the interpretive paradigm as a lens to generate meaning about how humans perceive the world in which they inhabit. These studies are important because it can guide the present study on how to apply the interpretive paradigm to the phenomenon on the use of e-resources by students. In the positivist paradigm research is carried out through experimentation and tests that can justify the claims made thereof. An objective perception invigorates this process which counters the assumption of the interpretive paradigm. In the latter, reality is viewed from a subjective point of view, where experiences are unique; consequently this holds value to the arguments put forth. Hypotheses may not be tested using instruments and scientific gadgets but requires an understanding of how humans function in their related settings. Therefore, contemplating these studies can provide evidence and document the use of the interpretive paradigm so this may support and sustain the claims that emerge in this study.

Khoza (2015b) initiated a study involving 22 postgraduate students of Curriculum Studies whose reflections of the Curriculum and Assessment Policy Statement (CAPS) were the unit of analysis. The interpretive paradigm was used to understand these reflections in terms of whether the students (participants) were aware of the learning theories that underpinned CAPS and if these theories were implemented. The study used a qualitative approach confined to a case study style which engaged students' reflections. Having an interpretive perspective allowed the study to make sense of the unique experiences of students in teaching Mathematics. One participant iterated passion for teaching the subject and was perpetually aware of the rationale of the subject which was implemented in the teaching strategy. This impacted the personal factor because the student used passion to inspire the way Mathematics was delivered. Another participant expressed that teaching Mathematics stemmed from mandates envisioned by the Department of Education (DOE) and was primarily following the CAPS documents as a guide to pedagogic approaches. The content factor was upheld through this participant's perception as the teaching of the subject was informed by what the DOE dictated. The interpretive paradigm was significant in enabling the study to understand the varied perceptions of participants in teaching Mathematics which revealed inconsistencies between what they learnt at university and what had culminated in their teaching. The study

concluded that the participants were not aware of the theories that underscored their teaching of CAPS because they did not operationalise the Curriculum issues addressed at university. This suggests that students lacked the IW resources that are crucial for effective teaching, learning, and research to take place. When IW resources are absent then the true essence of knowledge generation becomes obscured.

Another study elicited by Canney (2012) pertained to the resiliency of higher education in America. The interpretive paradigm was employed to understand how the shifting markets of students, tumultuous economic conditions, government regulations, and demands for increased service, and delivery modes impacted higher education. The participants in the study included students, staff, faculty, and administrators at the Olympic University in the Midwest region of the United States of America (USA). Although the study appropriated an interpretive paradigm operating a case study approach, the study culminated as a need to support institutions of higher education in America; therefore the participants' accounts were valuable in making a greater contribution. The study utilised interviews, observation, and document and website review as a means to inform the data process. The researcher sought to understand how one university could remain resilient in times of immense pressure and many participants conveyed perseverance as a deciding factor between making it work and succumbing to failure. Moreover, in addressing one of the sub-themes of the research, being stories of visionary leaders, participants exclaimed the essence of pride, willingness, and commitment in ensuring that the university maintained its position. The societal factor arose through participants' conveyance of their stories as they were aware of the past leaders and how they influenced the university with a positive ethos. These participants were impacted by the particular histories of the institution and as such embraced this ethos through turbulent times. Canney's (2012) study is relative because it attends to issues that are prevalent in South Africa which affects students' access to e-resources/resources that are crucial to their dissertations. The curriculum concept of accessibility is addressed here because without these e-resources it may be difficult for students to effectively engage their dissertations.

Berntsen, Sampson and Østerlie (2004) employed the interpretive paradigm to analyse empirical investigations in software development process. In understanding the tools, techniques, and technologies used in software engineering it can enhance practise and also contribute to the limited amount of literature that use interpretive paradigm. The field of software engineering is dominated by studies that are of a quantitative spectrum, so to engage

a study of this nature can increase knowledge about qualitative experiences of research. Activity theory was used to interpret the social attributions of the study. As a result, the study concluded that interpretive research can assist computer scientists to understand thought and action in social and organisational contexts. In addition, it produces deep insight into the management of information systems and software engineering. Although this study may not be as related to the present study, the researcher sought to gain varied experiences of implementing the interpretive paradigms not just in higher education practises but in the employment of ICT, with software development being a significant branch. This increases the richness of adopting interpretive perspectives that can be used to observe different angles from which participants relate their stories.

Khoza and Manick (2015d) undertook a study that required the interpretive paradigm to understand the digital technology experiences of postgraduate students involved in research at a South African university. Data generation included students' handwritten and email correspondence, and their verbal and digital articulations. Participants (students) voiced concerns over being forced to adapt to digital technology which was part of the university's acclimation to transformative practises. These students did not possess their own personal computers or private access to the internet which was crucial in writing and submitting their assignments. Cumulative to this were their inexperience and lack of skills in how to use a laptop. Participants further iterated dissatisfaction in not immediately developing the necessary digital technology skills and the stress of having to worry other students to assist them. Using the interpretive paradigm to understand participants' feelings allowed the researchers to determine that the lack of digital technology skills negatively contributed to students' self-concept and ability to transition easily to this 'new' way of researching. This presents the juxtaposition between scholars such as Howe and Strauss (1991) who assert that students belong to the millennial generation. When making such claims, context and accessibility are important issues that must be critically interrogated. Khoza and Manick's (2015d) study further elaborates on the pertinent challenges facing higher education in South Africa where more studies need to be instrumented that can generate increased awareness and calls for change. Their study predominantly implied the personal factor because students' in-depth experiences in sharing their struggles with acclimating to digital technology became the focal point of analysis. Also, their study highlighted the importance of the curriculum concept of accessibility discussed in Chapter Three. Accessibility is necessary for students to have all the e-resources/resources needed to engage their Masters dissertation. In current times with

the pressure of higher education it's almost mandatory for students to possess a laptop/computer with internet access (Darries, 2004).

The above studies were sourced from local and international perspectives with a view to explore how the interpretive paradigm could provide qualitative understanding regarding how humans make sense of their surroundings. These studies also identified data generation methods synonymous with this field and could therefore impart conceptualisation as to how these could also be used in the current study. The content, societal, and personal factors were emboldened through the varied contexts and as such allow this study to comprehend ways as to whether they may be applicable in similar situations that may arise. Stemming from these discussions, the next section probes the strengths and weaknesses of adopting the interpretive paradigm.

5.3.4 STRENGTHS AND CHALLENGES OF THE INTERPRETIVE PARADIGM

The discussions so far have deliberated on the characteristics and principles of the interpretive paradigm. Various studies were sought to view how the interpretivist perspective has been implemented in specific contexts. This section explores the potential strengths and possible disadvantages of using this paradigm as an umbrella for understanding and making sense of the data generated. The study will also attempt to deal with the challenges in light of applying an interpretive lens to justify the understanding of participants' responses towards how they use e-resources in conducting their Masters dissertation.

5.3.4.1 STRENGTHS OF THE INTERPRETIVE PARADIGM

Opposing the premise of the positivist paradigm, which predominantly accepts only one finalisation of the truth, the interpretive stance is far more inclusive to accept multiple perceptions from varied individuals (Thanh & Thanh, 2015). This can be beneficial in achieving profound knowledge through the process of exploring participants' accounts of events. When multiple realities are understood within the plethora of in-depth reasoning it can provide deep insight about the phenomena. For instance, in the study by de Villiers (2005) regarding research in information systems, the interpretive paradigm was used to describe and interpret phenomena about domain processes, performances, and innovations of information systems research. This contributed to deep insight towards the management and development of information systems with reference to human thought and action in social or organisational contexts.

The relationships between human beings, organisations and technology are not static but perpetually evolving. Interpretive research seeks to understand this interaction and iterates the meaning thereof (Klein & Meyers, 1999). Participants are envisaged as producers rather than products which imply that they are not treated as instruments but rather as key stakeholders in the data generation process. Subsequent to this, the role of the researcher is influenced by the history of the context; the researcher becomes immersed and an autonomous relationship with participants develops. Such an environment is critical to ensuring that participants feel comfortable and open to express their points of view. When participants experience liberty in conveying their responses it leads to a process of reflection (Pedro, 2005). Reflection invokes self-reflection, verbal reflection, and written reflection crucial to critical thinkers. Critical thinking is necessary for effective research to be undertaken and applied to practise. The societal factor is reinforced through this negotiation as the researcher becomes a part of the participant's community and *vice versa* in knowledge creation. This study sought to tap into participants' inner feelings towards the phenomenon of e-resources. Establishing their version of the varied research processes allowed them to reflect on their current practises as students, teachers, peers, and researchers. The various roles assumed in their lives warrants them to search deeper and explore the myriad of opportunities to improve their research initiatives, not just in completing their dissertations but to enable future endeavours.

The element of close involvement postulated by Walsham (2006) between the researcher and participants not only provides immediate access to human beings, issues, and data, but enables data generation methods such as observation or participation in action. Rather than primarily requiring participants' opinions through interviews, the researcher can implement these methods to physically view how participants behave in relation to the phenomena. This invokes a reciprocal connection because the participants are also able to observe how the researcher has made a valid contribution to the physical context itself by immersing with the environment. This dispels any mechanical procedure which would result in just taking away the data for the sole purpose of writing up the literature. In this study I have observed how participants interact online, through the discussion forum as a member. In this way I was able to view how participants communicate and the ideas and issues that are discussed regarding their research dissertations.

5.3.4.2 CHALLENGES OF THE INTERPRETIVE PARADIGM

Bernstein (1974) contended strong criticisms towards the underlying assumptions of the interpretive paradigm. Whilst scholars such as Walsham (1995) and Klein and Meyers (1999) postulate that discovery of knowledge cannot be attributed through a single or narrow version of details, but rather through a representation of multiple realities that explore in-depth reasoning, Bernstein (1974) challenges these perceptions. Bernstein (1974) poignantly conveys that subjective interpretation may be incomplete or misleading and often questions how meanings are negotiated. An important distinction in such situations is the power of others to impose their beliefs and assumptions upon participants. Cohen, Manion and Morrison (2011) in their book on research methods explain that, “*There is a risk in interpretive approaches that they become hermetically sealed from the world outside the participants’ theatre of activity – they put artificial boundaries around subjects’ behaviour*” (p. 21). This suggests that data exposed by participants is limited to their experiences and the researcher’s interpretation is confined to these accounts. Moreover, in conjunction with this, Bernstein (1974) denotes that the lack of scientific approaches dilutes the projection of the data.

Another criticism, and probably the most commonly held one, is that interpretive studies lack scientific procedures and as a result the findings cannot be generalised (Mack, 2010). Cumulative to this belief is the perception of subjective reasoning which opposes positivist assumptions within an objective stance. These suggest that data that emerges from research within a specific context cannot be related to other contexts and can create doubt about its authenticity. Walsham (2006) posits that as much as the element of close involvement between the researcher and participants has significant benefits, the potential disadvantage is that it may be time consuming and costly in ethnographic or action-based research studies. Further, due to the close involvement, the participants may not be as open or honest with the researcher if it is perceived that he/she has vested interest. The implications of this can pertain to important data hindered or left out that compromise the authenticity of the study. Another concern is that the researcher may become too socialised with the views expressed by participants in the field, that they may lack the opportunity to have a circumspect view of the situation. Therefore, I was careful in the manner in which I engaged with participants.

5.3.4.3 DEALING WITH THE CHALLENGES OF THE INTERPRETIVE PARADIGM

With regards to Bernstein's (1974) argument, Morehouse (2011) advocates that multiple realities in interpretivist approaches leads to a more detailed understanding of a particular situation. Interpretive nature is such that it allows for deep exploration of the phenomena of a study. In essence, a researcher within this field wants to develop as much reasoning as possible about how participants relate to the phenomena. In this study I sought to discover the research processes students engage with through the use of e-resources in completing their dissertations. I am fully aware that this can be achieved by gaining multiple views from participants. Further, the embrace of multiple realities is significant for this study because it generates personal and societal factors. When participants express their opinions and experiences they provide a sense of history (societal) that supported their ambitions and desires (personal) of pursuing their research studies. Such factors cannot be ignored or denounced as insufficient, because these are what drive students towards specific goals (research targets). In terms of what Bernstein (1974) questioned in the lack of empirical scientific evidence in interpretive studies, Smith (1993) affirms that there is no correct or incorrect avenue to knowledge acquisition, or unique method that automatically justifies intellectual progress. Interpretivists hardly adopt a set of standards that require mandatory observance; instead they use principles or criteria unique to a group or culture that sustain the research process.

In relation to the expostulation put forth by Mack (2010), the principle of abstraction and generalisation by Klein and Meyers (1999) absolves this claim. This principle, embedded in the works of Heidegger (1962) and Husserl (1970), argues that the validity of the inferences derived from one case is not reliant on the representativeness of cases in statistical means, but is instead dependent on plausible and logical understanding through discussing the findings and making conclusions from those discussions. Additionally, Walsham (1995) solidifies this perception by stating that interpretive studies connote four types of generalisations, namely, the development of concepts; the generation of theory; the drawing of specific implications; and the contribution of rich insight. The emphasis is that theory is significant to interpretive research and is differentiated from anecdotes (Klein & Meyers, 1999). Researchers are not interested in falsifying theories but employ it as a sensitising tool to understand social contexts in particular ways.

With reference to the claims divulged in Walsham's (2006) study, Klein and Meyers (1999) propose the principle of interaction between the researcher and participants. Due to the historical nature of interpretivist environments, it is accepted that facts culminate as a consequence of the interaction between the researcher and participants. To ignore the researcher's preconceptions would appear untrue, as these may be modified or abandoned throughout the research process. The principle of dialogical reasoning impedes as these preconceptions produce possible biases, prejudices, or prejudgement which Klein and Meyers (1999) claim to be the orientation point of understanding. In this evolution of events it is not a neglect of the researcher's specific pre-knowledge, but an awareness of historicity that transcends into new knowledge relative to the phenomena. The societal factor is invigorated through this interaction as the researcher's previous knowledge is configured to what has been learned from engaging with participants. This has shaped their history into adopting new knowledge crucial for understanding and interpretation.

Thus far this chapter has provided a landscape into the perspectives of what constitutes an interpretive paradigm. Various principles were identified to guide how interpretive research can be instituted. These principles are not mandatory but serve as frame for conducting interpretive research. Studies were also explored to facilitate understanding about the implications these could have in informing the perceptions of this study. The strengths of this paradigm outweigh the potential challenges that can be experienced; therefore the researcher deemed it necessary to include a discussion of how they will be addressed. Researchers assert that the interpretive field primarily uses qualitative methods (Nind & Todd, 2012; Willis, 2007). Qualitative approaches usually incorporate rich, detailed reports that are relevant for interpretivists to fully understand a particular setting. The next section is capacitated by a strong account of qualitative research approaches to strengthen the arguments gleaned from this study.

5.4 CONCEPTUALISING THE QUALITATIVE RESEARCH APPROACH

ICT (e-resources) research methods are under revision as new questions and concerns emerge (Savenye & Robinson, 2004). A point of departure in regulating the generation of information for research intentions is based on two approaches: quantitative and qualitative research. The first seeks to observe and measure things objectively (Jackson II, Drummond & Camara, 2007). However, this process proved to be inadequate in the study of human behaviour and the social world; which gave rise to new ways of answering research questions

and thus the inception of qualitative research (Hancock, 2002). Since then qualitative research has achieved widespread momentum as a mode of inquiry. The qualitative field emerges with assumptions through world views, and the study of research problems related to the meaning individuals or groups attach to experiences in their social environment (Creswell, 2003). The philosophical assumption rests in understanding how people make sense of their worlds and the interactions that occur in their natural settings (Cohen et al, 2007). While these assumptions provide some definition about the concept of qualitative research, Denzin and Lincoln (2005) summarise it as follows: “*Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them*” (p. 3). The definition illustrated here presents a crisp account of what the qualitative research approach entails, as it underlies the paradigm, data methods, and explanation of what this process involves.

Other scholars have also iterated their versions of qualitative approaches, of which contain threads of what Denzin and Lincoln (2005) have already elaborated on. Researchers such as Holloway and Wheeler (1996), and Miles and Huberman (1994), have articulated key aspects of methodology as defining characteristics of the qualitative approach. These aspects tenure around issues such as the general perspective and significance of participants’ frames of reference; the flexible nature of the research design; the volume and deep insight of qualitative data; and the specific approaches to analysis and interpretation. Further, distinguished data methods have been associated with qualitative research such as observation, in-depth interviewing, focus group discussions and document analysis. These definitions are unique to the content factor because they outline succinctly the characteristics of the qualitative approach and have been defined by various researchers who have already explored the field. In addition, the definitions pinpoint distinctive processes that follow the qualitative approach such as certain data generation methods which resonate with the procedures implemented in this study. Therefore, guided by this philosophy of what it means to conduct a qualitative study I sought to use the specific methods highlighted by these scholars. In using multiple methods such as questionnaires, observation, interviews, and

journals, a researcher is able to attain greater depth in the data which inclines the researcher to derive more meaning. This may further produce deeper understanding into the phenomenon of e-resources since the researcher is physically present at the actual site where actions and behaviours can be observed. This presents first-hand information, overcoming any preconceptions that might have obscured judgement.

5.4.1 HISTORICAL INSIGHTS OF QUALITATIVE RESEARCH

This section seeks to provide a brief historical account of qualitative research by exploring its emergence and relativity to modern times. One of the earlier writers of the 16th century, Descartes, believed that researchers should strive to absolve themselves of any influences that could hinder their analytical capacity (Ritchie & Lewis, 2003). In the 17th century scholars such as Isaac Newton and Francis Bacon concurred that more knowledge about the world we inhabit could be acquired through direct observation than deduced from abstract propositions. In a similar vein David Hume, who founded empirical research, esteemed that all knowledge about our social habitats is cultivated through our experiences and how our senses relate to these. These perceptions, which inspired qualitative research, represent a springboard for more influential writers in this field such as Immanuel Kant who in the 17th century contested that knowing about the world exceeds the notions of observation. Kant countered Hume's premise on use of the senses by advocating that the senses are subject to human interpretation. Moreover, Kant believed that our knowledge of the world is based on our understanding which stems from our thoughts about what happens to us, not simply from experiencing bad situations (Ritchie & Lewis, 2003). Consequently, the interpretive paradigm is embedded in qualitative traditions, and the assumptions of what constitutes qualitative research supports the discussions that have emerged prior to this section. Discovering the roots of qualitative research reveals the particular histories participants contain and embrace through their actions.

An additional contributor to the interpretive, qualitative thought is Wilhelm Dilthey who in the 18th century emphasised the study of human beings 'lived experiences' which occur in a particular environment. He contested that self-determination and human creativity were potential patrons to human action. In light of this, Dilthey recommended that social research should explore lived experiences to expose the interrelations between the social, cultural, and historical aspects that influence people in their particular contexts. This assimilates with the Curriculum CHAT theory where the social, cultural, and historical principles are critical in

understanding the interaction between the research student, e-resources, and the community of peers, the institution, cohort, and the supervisor. All these sectors and individuals are part and parcel of the student's journey towards achievement of their research target. Max Weber also conditioned the sentiments of Dilthey but extended his postulations to include a merger between positivist and interpretivist traditions. He contended that there are two kinds of understanding, direct observational understanding and explanatory or motivational understanding. Complementary to this he posited that social actions must be understood in the context of the material conditions in which people live.

Due to the challenges experienced in implementing the positivist paradigm, such as the rationale for using experiments to understand human behaviour, the interpretive gained serious momentum in the late 19th and 20th centuries as a mechanism for overcoming the limitations associated with the scientific methods. This emerged with studies of an ethnographic nature in America and Britain, with strong elements of oral history, symbolic interaction and life stories. Within this period feminist researchers argued that there was a distortion of power in the way research was structured and conducted and this called for equality between the researcher and participants (Roberts, 1981). This constant evolution of the qualitative research approach meant that the researcher was also instrumental in iterating their own stories and by the turn of the 20th century the use of narrative and biographical methods had gained serious popularity. These methods were engrained in understanding phenomena in the sphere of human beings' personal stories related to their development and associated histories. In the last decade of the 20th century the qualitative approach was more widely used than ever, particularly in psychology where at one stage this field was significantly reliant on scientific methods (Richardson, 1996).

The discussion portrayed in this section chronicles briefly the development and evolution of qualitative research. Peeking into its foundational influences strengthens the justification for employing qualitative research as an approach for this study, particularly since the interest here is to gain an understanding of how students use e-resources to conduct their dissertations. The unique histories and experiences students (participants) connote are impressionable and this will not only inform the data but any preconceptions I have.

5.4.2 CHARACTERISTICS OF THE QUALITATIVE RESEARCH APPROACH

The qualitative field has common characteristics that suit the interests of the present study. Firstly, qualitative research is dependent on the generation of the data before the development of the theoretical framework. Researchers seek a specific group of people, usually small in qualitative studies, to ascertain detailed information about their experiences in regard to the phenomenon. The interaction between the researcher and participants provides a basis for theorising and establishing concepts (Denzin & Lincoln, 1989). This indicates that the research design cannot be pre-empted but has to uncover new theoretical insights by unearthing the phenomena. This approach supports inductive reasoning where the researcher manoeuvres from the specifics to the general, from data to theory. Such a process requires the researcher to allow participants to be liberal in their accounts without imposing any kind of bias or presumptions upon them (Ospina, 2004). Similarly, Denzin and Lincoln (2012) characterise this as the usage of multiple voices and textual forms. The different voices of multiple participants lead to an evolution of meaning and this increases the worth of qualitative data. Textual data encompasses photographs, charts, diagrams and text that researchers may incorporate to advance depth in the data and this adds rigour and trustworthiness to the study (Creswell, 2009). This impacts the societal factor as the researcher interacts with the participant to produce data. A relationship between the two is formed and in this manner knowledge is transmitted in a reciprocal process. In this study, after the literature review was interrogated and presented, the data generation process was implemented which consequently produced the Curriculum CHAT theory. Participants' responses were analysed as a means to identify themes, patterns, and concepts that would be relative to this theory as the best way of understanding and presenting it.

The second characteristic refers to contextualisation which requires the researcher to be sensitive of the environment from which participants emerge (Richie & Lewis, 2003). The context of participants' personal lives and their work environments influences their behaviour, which implicates the researcher in being sensitive towards their associated histories. Generating data is not an isolated process of ascertaining evidence about the phenomena only, but taking into consideration the entire context of the participants. This means issues such as locality, time, and history are significant in this step. Qualitative research suggests that actions should be understood as they occur in everyday, real-life, settings. Therefore, the study will be sensitive to the context and culture to enable my understanding about participants' actions, perceptions and meanings they communicate. This

underlies the societal factor because the context is constituted of elements such as work, history, and time that influence participants' experiences. This study is aware that all of the participants are full time workers and also have family responsibilities, and will therefore be sensitised to their unique situations in generating data.

The third characteristic relates to the researcher's immersion with the research setting. Qualitative researchers employ the strategies of observing, listening, and questioning to gain deep knowledge from participants (Baxter & Jack, 2008). This can expose a particular culture that exists in the research setting (Hammersley & Atkinson, 1995). Researchers are able to perceive the conversing between participants and how they configure and change rules to particular situations. Thus, the researcher is able to trace development and progress over time. Due to the nature of qualitative studies it exhibits the researcher as jointly active with participants in the context, their judgements can sometimes be obscured as a result of becoming too immersed. Therefore, researchers should not hold the truths as promising, but question their own assumptions and assume the role of a stranger. This does not disregard the interaction between the researcher and participants; instead it seeks to prevent any misconceptions that may arise. The researcher is able to immerse with the setting by liaising with similar settings, reading documents, or observing interactions in the setting. Researchers desire to find patterns of interactions about a culture or group, and this is not confined to a physical setting but the unique ideologies, values, and thinking participants hold. As a result, the researcher has to take cognisance of these to become immersed in a way that benefits the research. The literature review culminated in this study has allowed this research to explore similar studies that informed documenting and viewing the interactions between participants via the online discussion forum. I became aware of the issues they discussed and the ideas exchanged that could assist their dissertations.

Harris (1976) refers to the next characteristic as the emic perspective which conveys that researchers are able to uncover participants' inner most experiences, feelings, and views without endorsing their own preconceptions that might hinder the potential in participants' responses. This lends itself to uncovering patterns and trends in the data which the researcher attempts to identify, without predominantly depending on subjective accounts. Participants express themselves in their own words as a result of personal experiences and this articulates their behaviour and actions in accordance with their own definition of reality. Researchers may not be able to completely rely on these accounts but can absorb them in the data as

underlying meanings. Again, this encourages the researcher to understand that these perspectives are shaped by the participant's personal journey and should be understood in this context. Moreover, participants' unique and varied accounts do not represent a mediocre response to questions but symbolise a voice and guide to the study. It may also disclose other important information that the researcher may have not considered and this can cause the researcher to probe even further. This strengthens the relationship between the researcher and participant as he/she feels comfortable enough to reveal additional information that could inculcate crucial implications for the findings. In as much as the study may be invigorated through these discoveries, the researcher's preconceptions are also dealt with and transformed into new and prevalent knowledge. Taking into consideration this study, I realise that each participant has their own particular histories and culture that impact the way their responses may be delivered. Being sensitive to this will allow me to dispel any preconceptions that may stifle the data generation process. The study is also open to accept that students may divulge inherent beliefs or new epistemologies they might have experienced in conducting their research dissertations. The personal factor is emboldened through this discussion as dominance is placed over participants' private experiences that are brought to light in connection with the phenomenon. As the study probes beyond the predetermined questions, the participant searches deeper into their thought processes and experiences to provide a profound exaltation of responses.

The term 'thick description' is commonly used to characterise qualitative research and develops from the context and data (Denzin & Lincoln, 1998). This involves attaining detailed reports of participants' experiences, describing the location and the people who are part of this, presenting visual pictures of the setting and events, and divulging verbatim narratives of individual accounts. The situation (as a consequence of the phenomenon and research questions) should be documented in a way that provides an explicit revelation of the relationships, the context, and emotions that initiated behaviour and actions. This does not primarily inspire a factual representation but is inclusive of analytical and theoretical descriptions. Succinct articulation of the context, culture, and data generation of the research will enable the reader to follow the pathway of the research process and a conceptualisation of reality comes into being in the reader's mind. The reader is able to perceive what he/she would have experienced if confronted with the same context as participants. This cements the principle of abstraction and generalisation addressed by Klein and Meyers (1999) which affirmed that qualitative interpretive studies can be generalised if the same or similar context

is experienced. Further, this counters the criticisms raised in this area earlier in the chapter. The content factor arises through characterisation of thick description because this is a term usually associated with in qualitative studies. Thick description is grounded and implemented in various studies to describe copious accounts of the data and enable researchers with knowledge of how to appropriately record the research report.

Another salient characteristic of qualitative studies is the research relationship between the researcher and participants. This ideology was also envisioned in the interpretive paradigm as the third principle of hermeneutics but required understanding here as not all qualitative research may be specifically inclined to interpretivist perspective. Therefore, the research relationship is reinforced when the researcher develops a non-judgemental approach towards the true feelings and thoughts of the participants. This relationship is not ingrained in intimacy or friendship, but rather a negotiation and sharing of ideas that can enable a good rapport. In an interview, the listener becomes the learner and the participant is the teacher who goes through a process of reflection. The researcher should be open to honestly answering questions about the research and the participant should feel free enough to probe this. This challenges what Walsham (2006) contested by implying that closeness between the researcher and participants may distort the true evidence of the data. However, according to this characteristic the relationship between the two can actually provide rich, detailed, accounts. Additionally, researchers themselves have particular experiences of their own and when participants understand this they are more free to express their thoughts and actions. In getting to know the participants of this study I was cautious to maintain a plausible yet cordial relationship with participants to enable an atmosphere of liberty with them. I iterated my own experiences without trying to impose any preconceptions. This added a human touch to the data process, without an office-like approach to engaging participants. Again, the personal factor was afforded since the participants and I are able to convey experiences without deviating from the core research questions.

Creswell (2009) further outlines foundational characteristics of qualitative approaches. He affirms, firstly, that engaging qualitative research involves a rigorous process constitutive of multiple data generation procedures. This suggests that the researcher does not set out to achieve numerical data as a quantitative researcher, but instead use a variety of qualitative approaches such as interviews, observation, document analysis, reflection activities, journals, and photographs to increase understanding about the data. Creswell (2009) then identifies

that there are several features that are synonymous with qualitative studies and this relates to case study, biography, phenomenology, and ethnography. This makes the qualitative framework desirable as researchers are afforded the opportunity to choose which qualitative style best support the research process. The next characteristic allows the researcher to concentrate on a single phenomenon. Focusing on a specific phenomenon gives the researcher a clear direction on what the problem area is. Creswell (2009) then espouses the characteristic of including a basis for measuring trustworthiness in research. This can be conferred by interrogating the issues of transferability, dependability, and conformability. Verisimilitude comprises the next characteristic and this is required if readers are to become a part of the study or able to relate to the findings. Creswell (2009) affirms that the nature of data analysis is a characteristic which indicates that data should be categorised into different layers and these layers should be intertwined to invoke a deeper understanding of the phenomenon. The final characteristic articulated by Creswell (2009) suggests that when the reader engages the study they are confronted with particular insights into the study with intricate details of the phenomenon and in so doing trustworthiness should be maintained. Threads of the personal and societal factor can be obtained in these characteristics but the content factor emerges strongly as they provide a framework in which qualitative research should be conducted. They serve as a set of guidelines or assumptions to direct this study into the issues that must be considered when undertaking a qualitative study.

In concluding the various characteristics of qualitative research that exist, Roller and Lavrakas (2015) discuss the potential of e-resources. Although technology may be evasively used in quantitative studies to enhance data analysis, in current times it has also impacted qualitative research. Participants have better opportunities and flexible space to participate in the research and may even answer pertinent questions without meeting face-to-face. Qualitative research can be instrumented on social media sites like Twitter, Facebook, Whatsapp, YouTube, and Google. Researchers also implement technology to record, transcribe, and analyse the data, to amplify the research, and increase the trustworthiness of the data. This characteristic is particularly relevant for the current study because I am interested to explore how students use e-resources to search, receive, store, and analyse research material applicable to their dissertations. The study also used e-resources to arrange meetings and provide feedback after interviews were conducted.

Having discussed some salient characteristics of qualitative research, a few things stand out and have implications for this study. Firstly, the qualitative approach is a rigorous one and requires a circumspect view of the phenomenon to iterate the diverse and complex relationships that culminate between participants and their environments. Next, in qualitative research it is possible that the researcher and the participant can maintain a close involvement to an extent without becoming too familiar in that judgement may be obscure. Cumulative to this process is the issue of the researcher's preconceptions which he/she should not try to impose on the participant. The researcher must accept that experiences are unique and he/she must develop a non-judgemental approach during the data collection process. At the same token, data can be accessed using various instruments such as interviews, observations, document analysis, reflections (online or journals) because they inculcate volumes of information that can be crucial to the study. Moreover, they invigorate the process of triangulation and trustworthiness. Becoming aware of these approaches I have implemented semi-structured interviews, online reflection, and document analysis as research tools to generate data which will be addressed in detail at a later stage. Apart from being non-judgemental, the qualitative field envisages a researcher who is sensitive and understanding to participants' particular histories, background, actions, and interactions. Maintaining this kind of stance will allow the participant to feel more free and open to express pertinent details, many of which may be crucial to the study.

Postulated throughout this section, qualitative research aims to inculcate, rich, thick descriptions of data that inform the reader's, participants', and my understanding of the study. As stated before the qualitative framework is such that the researcher has a choice with particular methods, approaches, and styles to choose from that would best justify the intentions of their study. Given this rationale, this study has selected the case study style as this approach would enable the research to gain in-depth data about participants' use of e-resources. The case study approach usually involves small groups of people which are central to the four participants who are engaged in this study. Utilising this approach will increase understanding about how this study has arrived at its assumptions. The next section presents a discussion on the case study style of research.

5.5 CASE STUDY APPROACH

In commencing with this section it is necessary to first explore some historical aspects that have shaped and influenced the case study methodology in the endeavour of identifying some

suitable definitions as to what this constitutes. Bronwyn, Patrick, Karen, Carla, Steve, Jon, Debbie, Carol, and Mike (2012) trace the inception of case study to Robert Park who devised the term 'depth' in reporting on events in society as an ex-investigative journalist. He was of the belief that the concept of case study was embedded in anthropology and sociology, crucial elements that captured human experience and societal influence. Through these perceptions Park urged his students to avoid traversing books in the library but rather to go out and observe or explore human experiences. By the 1930s case studies were overshadowed by the immense accreditation the positivist paradigm received for its ability to prove generalisable evidence of inquiry. Case studies were critiqued for its lack of scientific procedures and regarded as a contravention of universal, generalisable laws which were warranted in quantitative mechanisms. Social sciences thrived on quantitative procedures enhancing the need for statistical and positivist thoughts. However, this spell did not last too long with case studies gaining considerable momentum in the late 1950s when it was pedagogically employed in Harvard University. Armisted (1984) posits that the alternation to the case study approach was positioned as a primary method of teaching in courses and classrooms. This equipped students with the skills to examine, analyse, and bring into perspective different cases where problems were explored. Students were actively constructing meanings and recognising key players and agendas related to a specific context. The evolvement of the case study approach in Harvard symbolised that students' potential were not limited to receiving knowledge but viewed as meaning makers through construction of their own theories and perceptions.

Tellis (1997) contends that from the period of 1960-1990 there was an explosive interest in authenticating the case study approach by merging the gap between hermeneutics and positivism. Sociology researchers continued to conduct studies in this area to cement the imperatives of this approach, including immense utilisation by the Chicago School of Sociology. Yin (1984) has also been a major proponent of this field by advocating experimental logic conducted within the natural setting. Other researchers have further built upon these foundations in areas of pragmatism and eclecticism and related fields. In recent years, an emergence of the case study approach has fuelled research in education. Drawing from these discussions it is now possible to provide some definitions of what the case study approach entails.

Given the brief foundational truths of the case study approach, more than three decades ago, studies surfaced regulating the awareness of using this qualitative research method which can be used to explore development and implementation of ICT related contexts (Benbasat, Goldstein & Mead, 1987). Therefore, the case study style will be best suited to the nature of this study, since the phenomenon focuses on drawing factors about the use of e-resources. A case study is one of several ways of conducting research, since it seeks to understand human beings in a social context by interpreting their actions as a single group, community, or event (Gerring, 2004). From an interpretive perspective case studies aim towards a deeper understanding of how participants relate and interact with each other in a context-specific situation and the meaning that arises from the phenomena under study (Maree, 2007). Yin (2009) asserts that case study questions begin with ‘how’ and ‘why’ and are an attempt to respond to the phenomena of a study. Probing such questions, allows a study to peruse through document and survey analysis, and interviews. Moreover, the use of questions enables the researcher to gain answers about the phenomena, and the participant goes through a process of reflection. Phenomena suggests, “*a way of describing something that exists as part of the world in which we live*” (Hancock, 2002. p.8). The case study method caters for close exploration of the phenomenon within a particular context. In usual occurrences this method selects a small geographical area with a limited amount of individuals as participants in the study (Zainul, 2007). Gerring (2004) supports this assumption by attributing this approach as an intensive study of a single unit for the purpose of understanding a larger class of similar units. In a similar vein Baxter and Jack (2008) convinces that the qualitative case study ensures an exploration of a phenomenon within its context using a variety of data sources. This indicates that the issue under scrutiny is not tackled through a singular lens, but rather a variety of lenses which cater for multiple facets of the phenomenon to be viewed and understood.

Yin’s (2003) definition is quaint yet essential in covering the underlying ethos of a case study and puts it as “*an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident*” (p.13). This suggests that the study is able to capture moments as they are in the natural setting by exploring current issues such as the use of e-resources by Masters students. Although the phenomenon is predefined it does not convey explicit control or manipulation of variables, as the focus is on the phenomenon in its context. Fidel (1984) posits that when case studies are used as a research method it seeks to discover findings

beyond the individual cases. It can be further appropriated when there are no foundational laws to explain which factors and relationships are important. This implies relevance for this study; since its inception, I sought to identify the factors that propel students to use e-resources in their dissertations and within these factors to explore the constituencies that navigate these factors. Inadvertently, the societal factor is brought into the fold as the study can view the participant's actions by physically visiting the context. In this study the participants are students of the Masters programme on a part-time basis. This means that students independently study without attending predetermined lectures. Therefore, I had to arrange with participants to meet on specific days to explore how they undertook research while at the university.

According to Stake (1995), the case study method incorporates exploration and analysis of a single or collective case, prioritised for encapsulating the complexity of the object (phenomenon) of a study. In the same spirit, Becker (1970) defines it as a microscopic analysis of an individual case assuming that a person “...*can properly acquire knowledge of the phenomenon from intensive exploration of a single case*” (p. 75). In these definitions the focus is on attaining rich, thick detail from one particular context. This counters the inferences made in quantitative research where the premise is to explore multiple contexts with the aim of producing numerical or statistical data that might obviate wholesome discoveries of deep meaning. Smith (1978) also sustains these arguments by extending that a case represents a bounded system and by this it suggests there are boundaries, indicative of a single case. Miles and Huberman (1994) further endorse the ideology of bounded systems by articulating a graphical representation of a circle with a heart in the middle. The heart mirrors the focus of the case while the circle displays what will not be studied. Following these sentiments Merriam (1998) espouses that if the phenomenon is not intrinsically bound it is not a case. In maintaining the boundedness of the phenomenon the researcher should contemplate how finite the data generation is, and whether there is a limit to the number of people who would be interviewed or observed. This conditions the content factor because various researchers agree on the concept of bounded systems which implies that there should be a limitation on the number of participants immersed in the study. In accordance with this rationale, this study only has four participants and therefore the case study was selected as the best style of research approach. This will further enhance the process of generating in-depth and circumspect data.

5.5.1 CHARACTERISTICS OF CASE STUDY APPROACH

The discussions thus far, describe the nature and characteristics of a case study research approach. Therefore this section may contain threads that have already been highlighted but specifically elaborated here. Stake (1995) posits that researchers who want to use the case study method should establish what is common or particular about a case. This may warrant careful knowledge of the nature of the case, historical foundations, physical setting, and institutional or political influences. Identifying the characteristics of the case study approach distinguishes it from others, thereby influencing its uniqueness and mobility in future studies that can assimilate with its assumptions. Cohen, Manion and Morrison (2011) render six characteristics that are foundational to case studies. The first, and underlying characteristic of such an approach, is that it exhibits thick and detailed explanation or description of the phenomena because the aim is to invoke qualitative analysis. This then seeks to answer what Yin (2009) proposed as the 'how' and 'why' questions of the research. It increases understanding and justifies why certain behaviours or actions occur as a consequence of the phenomena. This characteristic is synonymous with the aims of this study as the study embarked on understanding how curriculum studies students use e-resources in conducting their Masters dissertation, which exposed the next question of why they use these in particular ways.

The second characteristic elicits a narrative about the phenomenon explaining every core detail and how these are interlaced to provide in-depth understanding about the particular situation. In conducting the relevant data procedures in this study the researcher was able to ascertain information that was particularly interesting about the journeys participants experienced in conducting their dissertations. They iterated stories of struggle, pain, joy, and happiness which were mixed emotions that had an impact on the completion of their studies. These will be elaborated on in the next chapter. Digging deep into these stories provided a holistic account of the factors that influenced participants' studies. This positioned the societal factor through participants' accounts because they reflected on all the events and situations that occurred in the midst of their research.

The third characteristic, pinpointed by Cohen, Manion and Morrison (2011), indicates an extension beyond the process of interrogating the phenomena to systematically analysing it piece by piece. Not only will this uncover details about the phenomena but critically analyse these in the endeavour of trying to solve the potential problems or generate a theory in

relation to the objectives of the study. In cognisance of this study I purposed to unearth details about why students use particular e-resources in their dissertations with particular emphasis on developing a theory that would explain these actions. In this regard, the Curriculum CHAT theory was established and proposed to provide an understanding of the various principles, other than the phenomenon of e-resources which were influential in the student's achievement of the research target.

The fourth characteristic pertains to the case study targeting a specific unit, in the form of an individual, group of people, community, school or any level of education, with the intention of understanding their feelings, thoughts, beliefs, and world views about the phenomena. The underlying premise is to gain this knowledge to either contribute to the existing body of knowledge or cause change about the relevance of initiating such a research. In this study I specifically aimed at selecting students of Curriculum with a view to understanding how e-resources impact their research. In doing so the study sought not only to add to the existing literature but improve understanding about the influence of e-resources. This procedure highlighted the societal factor because participants' (students) opinions and experiences were used to inform this understanding.

Fifthly, the case study approach diagnoses certain issues that are unique to the phenomena and explore it even further to understand why it culminates in particular ways. This propels the researcher to search deeper, to uncover hidden truths, and divulge these experiences to portray that human behaviour is unique and specific to a context. Since the phenomenon of this study is the use of e-resources I had to formulate additional questions in this regard to probe participants as to why they predominantly used specific e-resources. This paved my understanding in a way that warranted comparison with the literature. The study wanted to explore whether any new knowledge was conceived by inferences to what the literature had stated. In so doing, the study discovered that although the use of e-resources may be the same or similar in other studies, the context in which students research differ, and thus produces new knowledge and awareness.

The final characteristic outlined by Cohen, Manion and Morrison (2011) is that role of the researcher symbolises a crucial position in the study. The researcher's interest must be sparked in the topic before exploration of the phenomena can begin. The researcher possesses a character that has an inquiring mind, a passion for educational issues, and a desire to

administer research. This will allow him/her to scrutinise every aspect of the data incurred and hence provide justifiable meaning. In this study I had a particular interest in the phenomenon since once being a Masters student of curriculum a few years ago. The field of curriculum is vast with perpetual changes occurring, and this inspired me to explore what is new in the way students research and what are the factors that support such behaviour.

In broadening the scope of characteristics, Rowley (2002) contends that case studies use evidence from varied sources such as documents, artefacts, interviews, and observation. Agreeing with this perception, Stake (1998) exhorts that the selection of methods is directed by the researcher and case intuition, and utilises these naturally occurring sources of knowledge. The use of multiple data generation methods are integrated to develop, sustain and understand the case, moulded by the environment and incoming data. Swanborn (2010) condones this by explaining that the researcher must be guided by the research questions and the data, while being observant of unexpected events. This process also entails allowing participants to check the data that has been captured to ensure that what has been documented represents what they actually said. Bearing in mind these advances, the study used multiple methods of ascertaining data through document analysis, online reflection, and semi-structured interviews. In selecting these, the content and societal factors were immersed. The first was articulated through the perceptions informed by research expertise such as Cohen, Manion, Morrison (2011), Merriam (1998) and Stake (1998) among others, whom advised that these should be accessed to engage a qualitative case study. The societal emerged through negotiating the context and deciding which data methods would be best applicable to discover rich, detailed evidence.

These characteristics are crucial in clearly defining certain procedures that should be followed when implementing the case study approach. Being aware of these, I have taken careful consideration to follow the characteristics according to the suitability of the participants and context. The data measures selected were as a result of consultation between the phenomenon, context, and participants as well. The study purposed to select these as the most formidable ways of achieving in-depth, uncompromised details that could add to the richness of the study. The next section focuses on the types of case studies that abide, and the specific one that fits the beliefs of this study.

5.5.2 TYPES OF CASE STUDY

Now that the case study style has been firmly rooted in the research approach, the next step is to find out the type of case study as this will have implications on how the data will be interpreted. In establishing the type of case study, the researcher must contemplate the boundaries of the case, the paradigm underpinned and the context of the study (Baxter & Jack, 2008). Some case studies are more predominantly used than others, because they are universally known, and researchers tend to isolate the more complicated ones. Yin (2003) categorises three case studies as the explanatory, descriptive, and exploratory. These three are among the most popular as they have been evidenced in multiple studies. Yin (2003) posits that the explanatory case study is useful when the researcher seeks answers to questions beginning with 'how' and 'why'. These questions explain the presumed causal relations between the participants, context, and phenomena in natural settings, that survey or experimental strategies may find challenging. This entails exploring the data at a closer range, both at surface and grass-root level. In this endeavour the researcher can acquire detailed information in order to explain the relationships to the phenomena. Searching intricately in the data will allow the researcher to establish a theory and test it simultaneously (Zainul, 2007).

Yin (2009) offers several characteristics that comply with the explanatory case study. For a long period in research history the case study approach has been condemned for lacking generalisability. To this end, Yin (2009) argues that case studies if replicated or analytically understood can be generalisable. Each case can be viewed as a single experiment where the researcher uses sampling to select individual cases and then group them to comprise the case which constitutes the study. This will strengthen the generalisability of the study. Another characteristic of the explanatory type is that the framework of the research should be articulately explained with an imperative of providing consistency and alignment with the research questions. Compounded with this step is the next characteristic of maintaining discovery and flexibility. Although the study may have incurred a potential framework before data generation, it should be open enough to cater for emerging ideas through sampling, grafting and testing of the hypotheses. The process of triangulation further characterises the explanatory case study by using multiple data methods such as interviews, observation, document analysis, reflective journals, pictures and other sources that would capture the true essence of the phenomena.

Yin (2003) contends that the descriptive case study is used to describe phenomena in the real-life setting in which it occurred. This suggests that as events take place the researcher is able to document the actions of participants by being present. McDonough and McDonough (1997) opine that descriptive case studies can be articulated in the narrative form, which indicates that the researcher tells a story about the phenomena in first being informed by the descriptive theory. If the researcher does not succeed in presenting the descriptive analysis in this manner, there is the risk that the description will lack rigour and may induce problems during the research (Zainul, 2007). In addition, the descriptive case study has the ability to uncover abstract concepts that build meaningful interpretations from the data. Discovering the fundamental propositions of the case will increase rigor in the findings generated.

Concerning the exploratory case study, Yin (2003) asserts that this is useful when the situation in which the intervention is evaluated has no predefined set of outcomes. The study is explored in a way which sparks the interest of the researcher and thus he/she is able to derive an understanding that produces a theory. Hardman (2005) attests that an exploratory case study rests on multiple methods of data generation such as interviews, group discussions, images, observation, reflective activities, and document analysis amidst others. This is particularly relevant in educational research where there exists the need for the researcher to accustom himself/herself with the phenomena to unveil new insight about it. In the interpretive paradigm the researcher is expected to unearth participants' feelings, beliefs, opinions, and experiences to produce the rich desirable data needed to inform understanding. In order to do this the researcher has to first immerse with the phenomenon to have a foundational perspective in probing participants' response (Mack, 2010). Yin (2011) elaborates that researchers use case studies in divergent ways; some opt for full scale research to explore complicated cases whilst others consider it as a pilot study to undertake larger cases and hence produce sub units. In a case where the researcher employs the exploratory avenue for the assumption of theory development, the case should be considered as a whole to invigorate the analytical generalisation and trustworthiness of the theory. Andrade (2009) asserts that within the interpretive paradigm, theory is cultivated from the data.

Weighing the alternatives of the three prominent types of case study, this research study assimilates best with the exploratory. Given the characteristics, this study too was first enabled through developing a foundational understanding of e-resources by engaging thoroughly with the literature. Comparing and contrasting the various literary accounts of

how the use of e-resources is utilised in diverse contexts, allowed the study to discover certain gaps that needed to be filled. Upon this assumption the study was urged to identify the particular context of Curriculum Studies and select the Masters programme in which students undertake their research dissertations. The study wanted to understand how students go about their research projects using specific e-resources, and what the potential strengths and challenges in using them would be. The exploratory type is effective in allowing the study to go beyond the surface data into a deeper probing and analysis of the data. As such, this study discovered other Curriculum principles that were influential in the participants' interaction, such as the principle of accessibility among others, which defined all the things students needed as a result of their research. Synchronising what Yin (2011) and Andrade (2009) postulated, upon data generation and liaison with the literature, the study developed the Curriculum CHAT theory which poignantly identified unique principles relative to students' use of e-resources. Therefore, this study adopts an exploratory case study because it enabled the theory to materialise once the data was ascertained. Following this, the study was able to explore participants' innermost experiences and opinions that not only posited their use of e-resources but the unique occurrences that culminated throughout the research period. The three factors were explicitly engaged in this process. The content factor evolved through the traversing, reading, and studying of the literature to reveal significant concepts that informed the data. The societal factor was embraced as a consequence of participants' accounts in the context of social influences such as the family, and peers, and the institution that were underlying influences upon the students research initiative. The personal factor was illuminated through participants' in-depth and uncovered explanations of their experiences.

Stake (1995) pinpointed other types of case studies. An intrinsic case study is instituted when the researcher wants to understand a particular case. This arises when the researcher wants to have a better understanding of the case. It does not prioritise relevance to other cases, but simply strives to dig deep into the particularities of the case. Then, an instrumental case study is conditioned when the researcher has devised specific research questions as a consequence of interest, and seeks to develop insight about the phenomena. In such a case study the primary goal is not to understand a particular environment but assume a facilitative role in assisting the researcher to attain an external interest of the study. A collective case study refers to an extension of an instrumental study to a variety of other cases. It is often equated with the style of multiple-case studies. A multiple or collective case study requires the researcher to analyse within each setting or across settings (Baxter & Jack, 2008). Several

case studies are selected for the purpose of making inferences and identifying similarities and contradictions between the multiple cases. A single case study orchestrates the analysis of one unique case (Yin, 2003). All the attention is directed towards generating meaning about a specific phenomenon. This study adopts a single case study method as the focus is particularly on students' use of e-resources in their Masters dissertation. Cumulative to this approach, is the decision to embark on an exploratory method of case study, since the quest is to derive knowledge about the specific factors of e-resources.

5.5.3 STRENGTHS AND CHALLENGES OF CASE STUDY

Analysing the strengths of the case study approach enables the current study to employ it. The strengths evince the benefits or advantages of using this approach and thereby highlight the contribution it has for this study. Moreover, the strengths symbolise the potentials of a case study where the phenomenon can be located, and further distinguishes the reasons why it is more suitable than others. In iterating the potential challenges, it positions the study in a neutral stance, in having become aware of lurking setbacks that could diminish the essence of utilising the case study style. Challenges relate to the disadvantages or limitations that can be experienced when using a case study. Taking cognisance of this, the study is alert to employing measures that can curtail these possible pitfalls.

5.5.3.1 STRENGTHS OF CASE STUDY

There are several strengths of implementing the case study approach. Firstly, undertaking the case study method creates an opportunity for the researcher to acquire a deep holistic perspective of the problem and this facilitates describing, understanding, and analysing a research problem in its context (Tellis, 1997; Denzin & Lincoln, 2011). Qualitative researchers believe that social reality is constructed through human beings' experiences, opinions, beliefs and values, and these should be studied in the specific context they stem. When data is generated from such behaviour and actions, it allows the weaving together of interpretations and meaning, hence divulging intricate, rich details.

Another trait advantaging the case study approach is the analysis of data which often occurs within the context it is ascertained (Yin, 1984). The researcher can directly observe and document behaviour as it takes place, and this can inform the phenomenon under exploration. In approaches that rely on scientific or experimental studies this is not possible since the phenomenon is isolated from its surrounding and the focus is on a limited number of

variables. This makes the case study potentially worthwhile as the study pursues engineering qualitative data from a small group of people in the specific context of Curriculum Studies. A hallmark of case studies is the ability to access multiple sources of data which can advantageously increase the credibility of the study (Yin, 2003). Amazingly, within this approach, it is possible to generate and integrate quantitative survey data, which produces a holistic understanding of the phenomenon under study (Baxter & Jack, 2008). Each data source represents one piece of the puzzle in the greater endeavour of imbuing the researcher with a wholesome understanding as each piece comes together.

In further strengthening the case study research style, Denzin and Lincoln (2011) espouse the level of artistic license accompanying qualitative researchers which fuels creativity, innovation and reflexivity. Conversing with the research paradigm and theoretical framework allows the researcher to embrace these qualities that can distinguish the case study from others. In this study it was innovative to explore the participants' engagement with peers, supervisor, and others in the research community via the online discussion forum. The discussion forum was designed as an interactive e-resource for students to converse in certain ways. The study was able to interpret and make various assumptions based on their interactions. This activity nurtured the societal factor as I was present during the discussion forum as a member, and was able to understand the interactions as a consequence of the other members who were part of the participants' community. Each of these members were instrumental in knowledge sharing, which symbolised important details about conducting research for participants to make sense of in their studies.

5.5.3.2 CHALLENGES OF CASE STUDY

Baxter and Jack (2008) argue that in as much as achieving vast amounts of data through multiple methods can be gratifying to the study, it can be time consuming and difficult to manage. Moreover analysing each piece of data can be monotonous. Darke, Shanks and Broadbent (1998) confirm this perception and elaborate further by suggesting that the willingness of organisations in participating in the research is not always well received. They assert that the reporting of case study findings may prove difficult and justifying its validity is sometimes challenging to establish. Therefore case study research has been considered to lack rigour, as postulated by various scholars (Yin, 1994; Darke, Shanks & Broadbent, 1998; Baškarada, 2014).

The next challenge relates to the reporting of case study data. Baxter and Jack (2008) affirm that this can be a tedious task due to the complex nature of the phenomenon and requires the report to be concisely structured so that it is easily understood by the reader. The main premise of the report is to capture the essence of the phenomenon in such a way that the reader's imagination is catapulted to the context of the research as if they were there. Particularly novice researchers may be victims to this challenge.

A common thread amongst concerns of utilising the case study approach is the issue of generalisability critiqued by various positivist advocates (Merriam, 2009). Central to this challenge is that the findings of a case cannot be generalised or scientifically proven, and in this regard the case study lacks reliability and rigour. Piekkari, Welch and Paavilainen (2009) posit that the case study has been unnecessarily devalued by making comparisons with statistical methods of the positivist paradigm. To this end it is esteemed as the weaker member when put against other approaches that explicitly portray rigour.

Another challenge posed against case studies leads to the bias of the researcher (Darke, Shanks & Broadbent, 1998). The researcher's personal beliefs, values, and assumptions may have an effect on the data process as he/she intentionally or unintentionally manipulates the findings to suit a particular interest. Walsham (1995) maintains that biases arising from the researcher's perception are difficult to avoid because the researcher shares concepts and interpretation with participants at the research site.

5.5.3.3 DEALING WITH THE CHALLENGES OF CASE STUDY

In response to Baxter and Jack's (2008) assertion that managing and analysing case study data can be cumbersome, Zainul (2007) argues that this detailed, rich knowledge gained from the data assists in describing real-life experiences, relevant to this study. It further helps to identify and explaining the complexities of these experiences that are difficult to encapsulate in experimental or survey research. As such the researcher is not confronted with a situation of having insufficient data to strengthen the assumptions of the study; instead he/she has a volume of incredibly deep knowledge that can elevate the study to new heights of exploring the findings. In terms of case studies lacking rigour, argued by many scholars in the field, Merriam (1998) contends that since a case study occurs within a bounded system, contemplating critical issues that subscribe to design and implementation contribute to its rigour. This involves identifying propositions, applying a conceptual framework,

development of research questions, logically relating the propositions with the data, and appropriating criteria for interpreting the findings. Given this rationale, this study has already begun the process of increasing rigour by pinpointing propositions in the form of using a conceptual framework which identified the principles of curriculum in the literature and merged this with the theoretical aspects of CHAT to produce the Curriculum CHAT principles. In doing so, the study was constantly aware of the research questions when searching through the literature in establishing these principles, which reciprocally produced a criterion for interpreting and analysing the findings.

Concerning the issue of writing an effective report of the case study, Yin (2003) suggests six methods for reporting a case study and these include following a linear, comparative, chronological, theory building, suspense, or sequenced procedure. Baxter and Jack (2008) enunciate that there is no correct or incorrect way of reporting the case study; it primarily involves telling a story through a chronological avenue or by addressing each proposition. In this study I will address this concern by reporting the data through specific methods that reflect on each principle (proposition). Addressing the principles in this manner will ensure that the report reflects the true data achieved from Master students in a focused and concise approach reflective of the research questions.

Case studies have been critiqued for showing little achievement towards maintaining generalisations; however, Yin (2009) argues that generalisations cannot be confined to statistics, numbers or population as this would limit its potential to explain what they represent or mean. As a result of these recurring speculations, Yin (2009) postulates that generalisation within the qualitative case study approach stems from theory which is indicative of analytical generalisation. This type of generalisation makes inferences from previously established theory and then compared with empirical findings from the case study. Alternatively Stake (1978) opines that case studies assimilate well with naturalistic generalisations that are dependent on experiential transformation of tacit knowledge into explicit knowledge. Naturalistic generalisations are expanded by pinpointing similarities of objects and issues within a context and by pegging the natural co-variations of occurrences. In whichever way, the nature of case studies are grounded in extensive descriptions of complex phenomena, and the current study aims to strategically analyse and present the data in view of students' use of e-resources in their Masters dissertation.

Reverting to the limitations of biases in case study research highlighted by Darke, Shanks and Broadbent (1998) and Walsham (1995), Klein and Meyers (1999) propose the principle of dialogical reasoning to counter these claims. In as much as participants articulate their particular histories in their accounts, researchers too have certain preconceptions that may impose a sense of bias on the research. However, Klein and Meyers contend that these preconceptions are confronted during the first steps of the research design and as the study develops the preconceptions are eliminated through reconfiguration of concepts and emergence in understanding. Crucial to this, the researcher should chronicle the process of interpretivism, recognise its philosophical roots, and reflect its pertinent strengths and weaknesses.

In summarising this section, the case study approach has been defined and elaborated to explain how it can be implemented to guide this study. The study began by briefly looking into some historical aspects and then moved on to clearly defining its basic foundations. Exploring the characteristics assisted the study in further understanding why this approach is circumspect for this study. In sifting through the types of case study research, the study was able to categorically locate the case study within an exploratory frame. The next part related to channelling the strengths of a case study to the current research, with relevance placed on the potential contribution it has on the findings. Identifying the challenges of implementing a case study was to create awareness and avoid any hindrances that may occur. The final part of dealing with the challenges conveyed the study's response in handling any that may arise. In a nutshell, this is an exploratory case study, the case being four Masters students of Curriculum Studies at a university in KwaZulu-Natal, whose experiences, opinions, values, and assumptions regarding the use of e-resources in their dissertations informs the crux of this study. The study chose a case study approach because of the desire to gain deep, intricate data that would enable analysis and interpretation. The study does not seek to generalise the findings to contexts where statistics, numbers, or experiments are important, but to cases where the boundaries, CHAT principles and final assumptions of the study can be implied or replicated.

5.6 SAMPLING OF THE PARTICIPANTS

In any research, people, places, or things come under the microscope for being studied, explored, or understood (Latham, 2007). The likelihood of studying each of these constituents is an endeavour that most researchers do not have the time or money to facilitate.

Therefore, researchers opt to select a representative amount within these constituents, called the sample, to reflect how data has been generated. In defining sampling in research Frey, Botan and Kreps (2000) put it simply as a sub-group of the population or a sampled unit representing the characteristics of a known number of units in the population. Qualifying research does not only depend on the appropriateness of the methodology and instrumentation, but also assents to the sampling strategy that has been adopted (Cohen, Manion & Morrison, 2007). Along these lines of thought Lathan (2007) defines that all fields of study undertake research using sampling of the population as a method, and agree on these universal assumptions of what constitutes sampling. Cohen, Manion and Morrison (2007) contend that the decision of sampling is taken during the initial stages of the research planning and recognise that the subgroup or subset chosen to represent the population is called the sample. Researchers approach possible groups which they believe will maximise the potential of acquiring data which propels them to obtain further data once they have maintained the sample (Glaser, 1978). Marshall (1996) sees sampling as preconceiving the optimum number critical to establish inferences to be made about the population. He further elaborates that the larger the sample size, the smaller the opportunity of a random sampling error. However due to the sampling error being inversely proportional to the square root of the sample size, there is not much that can be achieved from studying large samples. The gilt-edge sample is reliant on the parameters of the phenomenon, the research questions, objectives of the study, and the methods of data employed to expedite the receiving and processing of knowledge. Given these crowning definitions, it is clear that sampling is all about describing who is going to inform the particular group of people as a representative of the entire group. Simultaneously, these definitions also bring out the content factor as Onwuegbuzie and Collins (2007) argue that sampling is an important step in any research design since the trustworthiness of the findings revealed in a study is dependent on who the data was accessed from.

Coyne (1997) conveys that sampling procedures in qualitative research are not so clearly outlined as in quantitative studies. Similarly, Morse (1991) indicates that there are no distinctive guidelines on principles for choosing a sample. To this end, Curtis, Gesler, Smith and Washburn (2000) propose some key features of qualitative samples. Firstly, in qualitative studies the method of drawing samples is not governed by statistical probability of selection, but on purposive or theoretical criteria. Secondly, and significantly, samples are small, intricately studied, and each one produces a copious account. Thirdly, the selection of

samples is sequential, and not entirely pre-determined. Next, this process is geared by the theoretical framework derived from the research question. Fifthly, since qualitative researcher is contained by reflexive and explicit rationale for the case, theoretical and ethical implications may influence choices which are made to include particular cases over others. Finally, qualitative samples allow for analytical generalisations in which understanding is developed as a consequence of new or existing theory about the phenomenon. Also, careful exploration of the case will cultivate the emergence of reformulated theory. These principles are not binding as that would defy the underlying assumptions of qualitative studies; instead they model general guidelines that can be used to increase rigour and credibility of research (Curtis et al, 2000).

In the same spirit of Curtis et al. (2000), Miles and Huberman (1994) also devised six attributes that inform criteria in evaluating sampling. Firstly, they opine that the sampling strategy should be relevant to the conceptual framework and research questions of the study. Next the sample should acquire rich information on the type of phenomena to be studied. Thirdly, the sample should intensify the generalisations of the findings. Following this criteria, is the idea of the sample producing believable descriptions. The fifth criteria suggest that the sample strategy should maintain ethical procedures. The last criteria posited by Miles and Huberman (1994) relate to the feasibility the researcher must consider in terms of costs, accessibility, and the researcher's work plan. These criteria informed by Curtis et al. (2000) and Miles and Huberman (1994) have implications for guiding how I appropriate the method of sampling in this study. Considering the criterion helps the study follow due processes that will ensure the desired sampling method invigorates the data generation step. In choosing the method of sampling, the study was sensitive to the phenomenon of e-resources and the research design and methodology. In narrowing down this process it is first essential to discuss the types of sampling methods that coincide with the imperatives of this study.

5.6.1 VARIED SAMPLING PROCEDURES

Emanating from the previous discussion, Latham (2007) categorises sampling according to two standards, namely, probability and non-probability sampling. The choice of using either one depends on the nature and goals of the research. Probability samples are sometimes referred to as random samples. They enunciate the most accurate of all sampling methods and the purpose of employing such a method rests in its ability to generalise the findings drawn from the sample to the whole population. It stands to reason that each member in the

population has a known or non-zero chance of opportunity of being included in the sample. Frey, et al. (2000) admonish that probability sampling is particularly known for allowing the researcher to calculate specific bias and error in the data generation. This is significantly advantageous because any research that arouses any kind of biases is able to make generalisations to the greater population and inadvertently enhance the credibility of the study. There are four types of probability sampling, simple random sampling; systematic random sampling; stratified random sampling; and cluster sampling (Latham, 2007). These approaches to sampling are unique to quantitative research approaches, and therefore cannot be contemplated for the parameters of the current study (Teddlie, 2007).

Non-probability sampling approaches are commonly used in qualitative studies and by this given rationale the sample is selected to provide illumination into the thoughts and behaviours of participants (Marshall, 1996). Cohen, Manion and Morrison (2007) allude that the sample size is influenced by the style of research. As such, in qualitative research the sample size is usually small and if this increases it will lead to additional biases and error in the study (Marshall, 1996). Marshall (1996) continues by maintaining that an adequate sample size in qualitative studies is one that answers the research questions. In non-probability sampling the researcher does not aim to generalise the findings, because the interest lies in stimulating rich, detailed explanations from a small sample which can produce understanding of the phenomenon of the study. There are four major types of non-probability sampling, namely, purposive sampling, convenient sampling, quota sampling and snowball sampling. Teddlie (2007) posits that purposive sampling involves selecting units, groups, or individuals for the specific purpose of answering the research questions of a study. Convenience sampling refers to participants who are readily available or easily accessible and want to participate in a study (Latham, 2007). The non-probability sampling of quota sampling is defined by the division of the population into sub-groups. Based on the proportion of the sub-groups needed for the final sample, interviewers are given the number of units from each sub-group to select for the interview. This method can be used non-randomly to select groups on the criteria of gender, age, race, and ethnicity (Latham, 2007). Limitations can be experienced with regards to selecting the sub-groups, particularly in being accurate about who is chosen. Frey et al, (2000) associate snowball sampling with network sampling. These methods are synonymous and are implemented when the researcher has envisioned a specific group of people who cannot be explicitly identified, and relies on someone who is able to get in touch with this group because of the particular characteristics

and experiences they hold. Previously identified group members may also be sworn into this process by using networking to source these specific participants who have desirable characteristics as the selected group. The disadvantage of using this approach is that it ignores people who are isolated and it introduces an extent of biases in the research. The current research is located within the qualitative research field and non-probability sampling appears to be best matched to the interpretive paradigm, case study style, research questions, and phenomenon of e-resources. Drawing from the pool of non-probability sampling, purposive sampling and convenience sampling have been chosen to underpin the assumptions of this study. Marrying the two has enabled the study to select participants who can provide in-depth accounts of their experiences.

5.6.2 PURPOSIVE AND CONVENIENCE SAMPLING

Maxwell (1997) defines purposive sampling as the “*particular settings, persons, or events [that] are deliberately selected for the important information they can provide that cannot be gotten as well from other choices*” (p. 87). This suggests that the researcher is in full view of the specific participants desired for the study. Morse (1991) condones this perception by affirming that the researcher chooses to interview the participant with an expansive general knowledge of the phenomenon or those who have already undergone the experience and this experience is considered typical. As the study proceeds, the descriptions are amplified through the iterations of participants, in providing rich insight about the phenomenon. This enables the researcher to have multiple iterations of the experiences to increase the breadth of the phenomenon to be understood.

Multiple accounts allow the researcher to generate variation in terms of the unique phenomenon. Examples of variations could relate to race, age, culture, gender, or any other personal characteristics (Coyne, 1996). Bernard (2002) states that data generation is an important step in research as the data are supposed to strengthen understanding of the theoretical framework. This places an impetuous upon the researcher to use sound judgement in selecting participants from which data will be obtained. In essence, the researcher predetermines what needs to be known and sets out to pinpoint individuals who are willing to extend their knowledge to the study. Inadvertently, the participants are expected to willingly comply with the questions the researcher will propose during the data process and they should be articulate, expressive, and reflective in their response. This goes on to acknowledge that the researcher does not have to waste time on probability sampling methods in which

participants may be ignorant of certain issues and thus unable to comment on issues of interest to the researcher (Cohen, Manion & Morrison, 2007). In purposive sampling it is already known who the participants are that possess the kind of knowledge envisaged by the phenomenon. Patton (1990) advocates that purposive sampling has the power to penetrate the core knowledge, histories, opinions, and experiences of participants. This enables the researcher to learn significant issues of central importance to the purpose of the research.

Convenience sampling, also called accidental or opportunity sampling is a process that concerns choosing the closest individuals as participants, and continuing this process until the required sample size has been established (Cohen, Manion & Morrison, 2007). Frey et al, (2000) indicate that participants in this non-probability sampling are readily available and agree to participate in the study. Latham (2007) posits that participants in convenience studies are sometimes chosen because the researcher may have experienced difficulty in initially seeking participants. Cohen, Manion and Morrison (2007) impart that this type of sampling is used in case studies and therefore does not seek to generalise beyond the wider population. These assumptions, related to convenience sampling, suggest that it is an easy way of acquiring participants in a study who are aware of the phenomenon and can advocate their experiences based on this. Selecting such participants may avoid ethical issues of forcing others to take part in a study. Moreover, their willingness articulates that they may be free and open to share their stories, and in so doing produce rich, meaningful data.

Defining and exploring the purposive and convenience sampling methods have propelled this study to amalgamate the two in affording the study to maintain the best assumptions in selecting the participants. The purposive sampling method prioritises obtaining a comprehensive understanding of the phenomenon by participants, whilst the convenience sampling approach ensures that knowledge gained is generalisable to the population from which the sample was drawn (Etikan, Musa & Alkassim, 2016). The purposive sampling allowed the study to use the research questions, methods of data generation, and qualitative research approach to select students who had knowledge of using e-resources. After several visits to the university through which students studied to attain their Masters degree, which is also the research site from where the data procedures were instrumented, I was able to make a decision on who the participants were. I realised that these were students who expressed diversity in terms of age, culture, beliefs, values, and other personal traits, who were able to relate their experiences on the use of e-resources. Therefore, purposive sampling was

adequate as it coincided with the criteria that I had already developed about potential participants. Then, the convenience sampling method was favourable in that it allowed the study to make sense of which participants from Curriculum Studies would be most accessible and easy to conduct data generation with. Although there were many students of Curriculum Studies, not all were willing or able to participate, despite making substantial requests for participation. Besides physically approaching students at the university to participate, others were telephonically contacted and rejected the opportunity due to various, understandable, reasons. Some of the reasons given were due to prioritisation of family matters; others were full-time workers and had busy work schedules. Therefore, the study was only able to acquire the participation of four Curriculum Studies students. These four students possessed valuable knowledge and experiences around the use of e-resources in their Masters dissertation, as such the study was able to undertake in-depth exploration of these pertinent issues that inevitably create a rich analysis of the data. The content and societal factors were engaged through this process of selecting these non-probability sampling methods. In the first, the study was informed by the concepts of purposive sampling and convenience, and what it means and further entails. The societal was evident through my visitation of the research site in establishing the students who used e-resources in Curriculum Studies, and hence approached them to participate in the study.

5.6.3 STRENGTHS OF PURPOSIVE AND CONVENIENCE SAMPLING

Using purposive sampling enables the researcher to be more selective about who is chosen to participate in the study. Essentially these would be participants who have widespread knowledge and encounters with the phenomenon of the study and therefore a considerable amount of data can be obtained. Marshall (1996) connotes that convenience sampling is least costly in terms of time and money. The researcher does not have to waste time searching for participants, as those who are most accessible are selected. It is also inexpensive in that the researcher does not have to splurge on transport, airtime, or data costs as the participants are readily available. In this study since I was already aware of the participants, time and money was saved from scouting for participants who could assimilate and understand the phenomenon of e-resources. Since the participants are hand-selected, the study is sure that rich, meaningful data will be obtained because these are participants who have knowledge of the use of e-resources and can divulge their experiences. Another strength of selecting purposive sampling is that it makes possible analytical or theoretical generalisation which is significant in qualitative studies (Klein & Meyers, 1999).

5.6.4 CHALLENGES OF PURPOSIVE AND CONVENIENCE SAMPLING

Cohen, Manion and Morrison (2007) assert that it can be time-consuming analysing and reporting on non-probability sampling procedures as data is incorporative of detailed, lengthy information. Marshall (1996) argues that convenience sampling lacks intellectual credibility and may result in poor quality data. To this end it is also believed that using this approach may influence the researcher to become sloppy in just choosing anyone who merely fits the characteristics of the kind of participant envisaged by the researcher. Cohen et al, (2011) evince another challenge relating to possible bias the researcher may effuse in selecting participants. Since the researcher is primarily responsible for judging who will be included in the study, they (the researcher) may ignore others who also possess the relevant knowledge of the phenomenon.

5.6.5 DEALING WITH THE CHALLENGES OF PURPOSIVE AND CONVENIENCE SAMPLING

The challenge of processing data as a consequence of non-probability sampling is dealt with through the researcher's awareness of traits of qualitative research. He/she understands at the inception stage of the research that this field warrants volumes of information and may prepare for such an endeavour. In this study I embraced the idea of generating holistic, rich detail from varies participants, hence contributing to the understanding of e-resources. In countering the criticisms of convenience sampling, this study has already addressed these by being cautious about the participants who were selected by arranging prior meetings before the formal data process could be engaged, to establish their level of understanding about the phenomenon and overall assumptions of the study. In addition, the interview questions were emailed to participants before the interview could take place so that they were already aware of what the discussion would entail. Moreover, the purposive sampling method has been coupled with convenience sampling to strengthen each other in generating the best possible data. In terms of dealing with potential biases that can incur when selecting participants, the researcher was sure to give as many students possible from the Curriculum Studies field the opportunity to participate. However, some students expressed a lack of time in being available as they were preoccupied with further postgraduate studies. Others, being full-time educators, indicated they were involved in extra-mural activities at school, and were already finding it difficult to juggle work, studies, and family commitments. Despite these challenges, I was able to maintain participation from the four participants who willing came forward to participate in the study.

5.6.6 PARTICIPANT BIOGRAPHIES

This section seeks to provide a brief background into the particular histories of the four participants without compromising their identity, yet ensuring ethics whilst discussing these. The study selected the participants based on the purposive sampling and convenience sampling methods, described above. Students were chosen on the premise of their availability and convenience amidst their full-time teaching jobs and other commitments. It was arranged during the initial discussion in setting up the interviews that I would meet students at the university at the agreed date and time. This was advantageous for me as this involved close contact that permitted first-hand experience and understanding. The participants in the study consisted of four students who undertook their Masters degree at a university in KwaZulu-Natal in the field or discipline of Curriculum Studies. The participants' names have been obviated from this study to protect their identity, and have therefore been substituted with titles such as Participant 1 (P1), Participant 2 (P2), Participant (3), and Participant (4). Coyne (1996) and Cohen et al. (2007) contend that participants in a study disseminate particular histories that come from variations such as age, culture, religion, class, race, and gender. These inform their understanding and experiences contributing to the unique values, beliefs, and assumptions they possess regarding the phenomenon in a study. Therefore, these need to be explored as a background into understanding the factors that culminate as consequence of their engagement with e-resources in their dissertations. These biographies inculcate the personal factor since before the formal interview questions could begin, participants were asked to share their background and educational journey. The social factor also arose through this step because participants recounted the people or things that were influential in supporting their studies.

5.6.6.1 PARTICIPANT 1 (P1)

P1 is a full-time educator at local secondary school in KwaZulu-Natal and teaches the subject of Mathematics. P1 is female, in her forties and is married, has three children and prioritises her family by ensuring that all their needs were taken care of while she was busy with her studies. She hales originally from Pietermaritzburg and moved to Durban in mid-1990s to pursue her tertiary education. Her responses were cheerful as she reminisced about this journey and transition in her life, particularly meeting her husband at college which made her chuckle. After obtaining a diploma in teaching at first, it was difficult for her to get a job. At that period in time, South Africa was transitioning from apartheid to democracy, so finding her way as an African female into the employment world was difficult. She then took a job as

a waitress at a convention centre to supplement her income. The long hours she endured and the little income she received helped her appreciate what she has achieved thus far, and also implies deep gratitude to the job of waitressing whenever she goes to a restaurant. Being a Christian, P1 further attributes her gratefulness to her faith in God for her accomplishments in life. She pursued her Honours degree and Masters degree at the university involved in this study.

5.6.6.2 PARTICIPANT 2 (P2)

Like P1, P2 is an African female in her forties, and is married with three children. She has a teaching history of 18 years and is currently employed at a secondary school in a township area in KwaZulu-Natal. Her speciality teaching subjects are English, Economics, and Business Studies. She enjoys playing netball as a method of de-stressing and an alternative to the hustle and bustle of work life. Being a Christian she accredits her achievements to her many prayers that have been answered. P2 is inspired to learn more and empower herself through new knowledge. Her tertiary experience began with a diploma in Business Administration at a technology university. After discovering that opportunities were scarce with a diploma, she pursued a B.Tech degree in Business Administration. Perceiving that even this was insufficient she obtained a Post-graduate Certificate in Education to expand her horizons of employment. With a renewed interest in furthering her education, she then strove to attain an Honours degree in Social Justice at university where the study has been undertaken. This propelled her to the next step of accomplishing her Masters degree in Curriculum Studies at the same university. She explains that studying and taking care of family is not easy but is still possible. Her children are of great importance; ensuring that they are excelling in school while also holistically managing sports and other recreational activities. Arising from an environment as a child where all their needs and wants were difficult to meet, P1 is determined to change that fate for her family through intense learning and studying.

5.6.6.3 PARTICIPANT 3 (P3)

P3 stems from an educated family background, where her parents were both professionals, the mother being a nurse, and father a teacher. They had motivated her to study and pursue her degrees. To them education was a basic need that required refuelling as society progressed into the modern era. Now at the age of fifty, she has three children and one grandchild. Her employment history began in 1987 as a teacher and was promoted as Head of

Department in 2001 in the current secondary school where she has been teaching for almost 15 years. P3 pursued her Masters degree to empower herself and learn new knowledge that could inform her practises as an educator in teaching Mathematical Literacy in her school. She is also Christian and believes that as much as studying is important to self-development, taking care of her family and ensuring that her children are doing well in school is also a firm priority.

5.6.6.4 PARTICIPANT 4 (P4)

P4 is male, thirty four years of age, and originally grew up in northern KwaZulu-Natal. Experiencing poverty and other disadvantages in family life, only strengthened P4's attitude, beliefs and values in recognising that education was the key to overcoming these issues. In 2002 his tertiary education journey began at a neighbouring university to KwaZulu-Natal in which he acquired a teaching diploma. Soon after he began teaching at a secondary school in the surrounding areas of KwaZulu-Natal. His specialist teaching subject was Physical Science. In 2008 he furthered his diploma by doing a Postgraduate Certificate in Education through a distance learning institution. Unsatisfied with having only this degree, he completed his Honours in Management at a university in the province of Gauteng, South Africa. Eventually he was led back to the university in KwaZulu-Natal where attained his Masters degree in Curriculum Studies. In 2013 he was promoted as a principle in a rural high school. His passion for learning and attitude towards not accepting mediocrity has contributed to his accolades and experience as a teacher, to the point where he wants to become a lecturer. P4 articulates a passion for exploring research concepts and this intrigued his desire to undertake his Masters' dissertation.

Exploring participants' backgrounds provides an overall indication about their values, beliefs, and current activities. All four participants held the belief that education was indeed the key to success, and having arrived at this stage in their tertiary studies meant that more opportunities in terms of their knowledge acquisition, development, and growth in their careers was a result of this. P1, P2, and P3 arose from impoverished families as children, and they did want to repeat the cycle of poverty as they were becoming adults and parents. This impacted the societal factor because not only were their families' deficient of basic necessities, the community and surrounding neighbourhoods were in a similar situation as well. Pursuing their Masters degree in Curriculum Studies stemmed from perceptions of their current practises as educators. Children in their schools were experiencing particular learning

problems, and their research was related to uncovering the underlying issues that fuel this. P3 highlighted the importance of parental influence upon a child's education. Although this does not represent the focus of this study, it does however conceptualise the participant's background as to what prompted her in furthering her education. The personal factor was also propagated through the varied accounts participants conveyed, particularly how they felt about growing up and reflecting on their current practises as professionals in their fields of education. This made them feel proud and value education. These four participants conveyed the desire for attaining further knowledge; they did not want to stop at Masters level. They expressed feelings of enjoyment and satisfaction in doing research, which led all of them to attribute doctoral studies as the next step in their plan for further research.

5.6.7 THE CONTEXT

The philosophical assumption of a qualitative study abides in an understanding of how people make sense of their worlds and the interactions that evolve in their natural setting (Cohen et al, 2007). Therefore it is imperative to bring into perspective the context of the research to frame this study. Jackson II, Drummond and Camara (2007) contend that qualitative studies dig deep into the 'specifics' by articulating a thick description into the realistic experiences encountered. This qualitative case study focused on a certain discipline, Curriculum Studies, at a specific university in Durban, KwaZulu-Natal. It is a research design concentrating on a singular case – the implementation of e-resources as a tool for research by students in the attainment of a Masters degree. As this point it is vital to provide a profile of the research context of the university, since this represents the research site where the data generation was undertaken.

5.6.7.1 THE UNIVERSITY

The study presumed it integral to distinguish the context of the university first, before providing a description of what Curriculum Studies entail. This is not to separate the two, but to indicate the background to exemplify the relationship from where the discipline hales. The university is one of five others affiliated to each other, yet each is defined by their own distinctive characters and by the courses, programmes, and specialisations offered. This particular university, where the research took place, is a primary domain for teacher education and home to the university's School of Education.

The university provides sophisticated and attractive facilities to an increasing number of Education students and is central to all major amenities. In recent years it has extended its infrastructure to accommodate the immense volume of students interested in Education courses. New buildings emerged, with spacious lecture theatres, including new computer facilities introduced to meet the growing needs of its students. The Wi-Fi facility further enables students to access internet connectivity from their personal laptops and other portable devices. The lecture venues are conducive to implementation of e-resources through provision of projectors, whiteboards, and laptops. Sufficient seating arrangements have been well planned to accommodate large numbers of students at a time with access to students who are disabled. The modern well-equipped buildings are surrounded by enormous grounds and playing fields to host a variety of sporting activities and events, with a sports centre designated for study in this field.

The university provides initial and in-service teacher education and offers higher degrees in a range of specialism in education, including Curriculum Studies. Students can pursue diplomas, undergraduate degrees, postgraduate certificates, Honours, Masters, and Doctoral study programmes. Consequently students interested in the area of Curriculum can attain an Honours, Masters, or Doctoral degree qualification in this specialisation. The School of Education has a good-standing reputation for instituting teacher education programmes, adult education, higher education, and workplace learning.

The School of Education, in the context of the university, has a responsibility to address the imbalances of the past by responding to inequality and injustice through teaching, learning, research, and community engagement. This is poignantly relevant as the Curriculum Studies discipline tackles issues related to these, especially considering that it was the various curriculums imposed by the then government that fuelled the apartheid regimes. Exploring various avenues in Curriculum Studies allows students to trace the progress that has been made in an emerging democratic country. Symbolically the School envisions itself as located within an African context which is socially inclusive. The student population is composed of Africans, Indians, Whites, Coloureds and Asians which is reflective of the diverse rainbow nation of South Africa. The multi-cultural ethos of the university is host to both local and international students. Also, a considerable amount of the student population arises from surrounding African countries such as Zambia, Zimbabwe, Botswana, Lesotho, and Nigeria amidst others from Asian countries.

Given the rampant influence of science and technology infiltrating higher education policy and practise, the university has developed a strong approach to operating within – and to managing – the widening tensions governed through the advance of these areas of and for growth and development. The university also contributes and participates in international conferences, hosts international visitors, and regularly publishes in international journals. All of these practises are embedded in the university’s strong culture of research. Lectures and students are encouraged to engage in research that will contribute to the existing body of knowledge and promote new ways of thinking. Research has become a cornerstone for undergraduate and postgraduate education, which has catapulted the student intake numbers to the point where expansion was on top of the priority list.

It was important to explore these characteristics about the university, as it represents the context for this study. These accomplishments suggest that this is a thriving and well-resourced university whose imperatives centre on research. Moreover, it incorporates e-resources into all of its programmes as a contemporary method for 21st century research. Unpacking the university profile needed to be conditioned because it addressed the Curriculum CHAT principle of research accessibility, around which interview questions were devised. This will be elaborated on and presented in the next chapter. Moreover, analysing the context of the university invigorated the content and societal factors. The first was instituted through the university’s policies regarding research and how these should be followed and implemented. It further attested to the various disciplines and modules offered, as well as degrees that students can acquire. Also, the content material prescribed for each course or discipline is approved and mandated by the university, although research students are at liberty to select their topics of interest, as guided by a supervisor.

5.6.7.2 CURRICULUM STUDIES

Curriculum Studies is a significant field in curriculum with multiple issues that can be explored. At Honours level it is divided into modules in which students attend designated lectures per week. The modules are split over two years, into two semesters per year. At Masters level students have the option to undertake Curriculum studies either on a full-time or part-time basis, each attesting to two years of study. The part-time basis means that students will have to undergo course work which suggests they will have to attend lectures for the first six months. These lectures entail the process of research, teaching the student how to conduct an independent research. They learn about the various stages of research,

starting from the literature review, theoretical framework, research design and methodology, and how to present the findings that emerge from research. Thereafter students embark on independent research where they implement what they have learnt through the course work into the field. Full-time students do not participate in coursework or attend any predefined lectures, but engage in independent research from the commencement of their studies. For both part-time and full-time Masters student, the discipline organises cohort meetings where students can liaise with peers and other supervisors in Curriculum Studies. Networks are established through this process, where students assist each other and share knowledge. This facilitates a blended approach as students meet face-to-face with their supervisors and online via the discussion forum and through contact over emails. Some of the topics addressed through the cohort sessions or lectures are:

- Perspectives of curriculum
- Curriculum in development
- Curriculum design theories
- Online curriculum design theories
- Assessment of online curriculum
- Proposal development to curriculum topics
- Online teaching with learner-centred approach in a curriculum context
- Historical development of curriculum change in South Africa
- Educator competency

These topics are only an overview of some of the issues the lectures and contact sessions engage. Other topics relate to students current teaching practises and implementation of the Curriculum and Assessment Policy Statement (CAPS). The topics are interrogated because many students experience challenges in implementing them, and therefore spark students' interest in undertaking research. It is briefly accounting for the topics constituting the Curriculum Studies field was imperative, since the participants' research dissertations may be foundational to the challenges they have identified in their respective schools. As a result, they have selected Curriculum Studies to convene their dissertations, as this field allowed them to explore the current issues that plague implementation of the respective subjects they teach.

5.7 METHODS OF DATA GENERATION

Cohen et al (2011) emphasise that generating data involves a process of gathering or accumulating information from participants with a purpose of understanding, analysing, and interpreting their behaviour and experiences in relation to the research questions of a study. Rajasekar, Philominathan and Chinnathambi (2013) distinguish between research methods and methodology by attesting that the first comprises procedure and schemes of obtaining samples and data. The latter permeates how researchers go about their tasks of describing, explaining, and predicting phenomena according to the work plan of the research. Kaplan (1964) outlines the methods of data generation as tools, techniques, or procedures for acquiring responses from participants whilst the methodology incorporates the body of knowledge or discipline that uses these methods. Methodologies indicate how inquiries move forward by singling out what problems are legible for investigation; how to frame enquiries so that exploration is possible; how to create specific methods of data generation; and how to make inferences between the problem, data generation, analysis, and conclusions (Jackson, Drummond, & Camara, 2007). Simply stated, Henning (2004) positions the methodology within an epistemological base of inquiry that regulates the research design to function. Henning, Van Rensburg and Smit (2007) postulate the methodology as a collaborative stance to source data and findings that articulate the research questions that fulfil the purpose of the research. This suggests that the methodology draws on the choice and implementation of methods concurrent to the rationale of the study. Thus, research designs merge the data generation and analysis activities with the research questions, and maintain that all research aspects are covered. It can therefore be established that the data generation is a crucial part of the research, for without it, the research is incomplete as the researcher has no evidence to impart significant claims.

Savenye and Robinson (2004) convey that in qualitative research the researcher initially chooses the methods of data in relations to the research questions; however these may be modified or changed as the researcher's conceptions evolve throughout the study. This study is qualitative in nature and employs a case study methodology. A stark feature of case studies is the use of multiple sources of data, a strategy used to increase credibility and trustworthiness of the findings (Yin, 2003). Data sources may include document analysis, observation, interviews, artefacts, images, diagrams, reflections, and online tasks (Baxter & Jack, 2008). Multiple sources invoke a holistic understanding of the phenomenon by obtaining detailed information from participants. This study employed three different data

generation techniques: document analysis, semi-structured interviews, and an online reflection activity. These instruments were used to answer the three primary research questions of this study: the first, “What are the factors that inform Curriculum Studies students to use e-resources in conducting their Masters of Education dissertations at a South African university?”; secondly, “How do Curriculum Studies students use e-resources in conducting Masters of Education dissertations at a South African university?”; and thirdly, “Why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university?”. The next section consequently discusses how each of these three methods has been used to obtain and underpin the data.

5.7.1 SEMI-STRUCTURED INTERVIEWS

An interview is a form of communication in which the researcher seeks to gain an in-depth account of the participant’s experience with regard to the phenomenon under study. This is done by addressing pre-established research goals and questions (Savenye & Robinson, 2004). Kajornboon (2005) describe interviews as a systematic manner of talking and listening to people, simultaneously achieving data whilst conversing. The researcher is regarded typically as the interviewer who spends time in the research context establishing when and where the interview will take place with participants known as the interviewees. Wahyuni (2012) evinces the main feature of an interview as a facilitation of the participants to share their stories, experiences, and points of view in reference to the phenomena being explored by the researcher. The participants who are the practitioners in the field will divulge their assumptions through conversations during the interview. Harrell and Bradley (2009) contend that researchers use interviews for a range of purposes such as data generation, gathering information from past and present behaviours, acquire background knowledge or receive expert knowledge from an individual on the basis of their experience. In this study, the one-to-one semi structured interview has been selected as an approach to obtain data from participants in Curriculum Studies regarding the use of e-resources in their Masters dissertation. These definitions and perceptions regarding the features of an interview stimulate the content factor because they concur as to how this should take place. It defines the role of the interviewer (researcher) as the one asking the questions and the position of the interviewee (participants) as the one giving the responses. This represents a two way flow of communication, hence producing greater interaction between the researcher and participant in building knowledge about the phenomena (Kajornboon, 2005). The interview is not just

about collecting information about a topic, but serves as a platform for participants to truly express their emotions and feelings, researchers should be sensitive to this as it could lead to a deeper understanding of the study.

Lincoln and Guba (1985) propose a few stages in preparing for a semi-structured one-to-one interview. Firstly, it must be decided who will participate in the interview, and this is formalised by selecting participants that have knowledge of the phenomenon. The next step involves preparing for the interview by arranging a venue and time, and most of all preparing an interview schedule containing the research questions. Thereafter, it must be ascertained how to start the interview, which usually begins with general talk or enquiry about the participant's background, rather than rushing off straight in to the questions. Following this, the interviewer (researcher) should know how to pace the interview and keep it productive. This means that the researcher must be able to generate the desired responses to questions, and the interview should be interesting enough to keep the participants alert enough to answer. He or she should not feel bored or distracted. The last stage incorporates finalising the interview in a reasonable way, by also acknowledging the participant's contribution through thanking them for their participation. Kajornboon (2005) asserts that researchers should have certain skills and abilities before embarking on the interview. These include having an ability to listen to participants' responses with an ear for pertinent details; an ability to be non-judgemental or uncritical to responses especially if it appears extraordinary to the research; having a good memory to be able to reflect at a later stage on the interview; and, an ability to think off the cuff.

Kajornboon (2005) illustrates that there are different types of interviews including structured interviews; semi-structured interviews; unstructured interviews; and, non-directive interviews. A structured interview, in some situations termed standardised interview, is where the same questions are asked to all the participants (Corbetta, 2003). It follows a logical wording and sequence structure to ascertain an aggregated reply within all of the participants. Structured interviews are regarded as rigid because the element of probing is absent; therefore participants may lack clarity in understanding certain questions and may be unable to answer them. Alternatively, semi-structured interviews are non-standardised and are commonly used in qualitative research (Savenye & Robinson, 2004). In instrumenting a study of this nature the researcher does not search for hypotheses, instead embraces themes, patterns, issues, and questions centred on attaining deep insight about the phenomenon.

Interviewing in a semi-structured way indicates that the researcher does not follow a predefined order of questions, as these can be modified or changed at any stage during the interview (Corbetta, 2003). The element of probing is administered which suggests that the researcher may consider additional questions to clarify important information. In this type of interview the researcher is at liberty to pose questions, without the constraints of rigidly applying a structured set of questions. Such freedom encompasses the sifting out of thick descriptions by participants, enabling the researcher to gain qualitative data. An unstructured interview connotes casualness and flexibility in the way participants are expected to respond. The researcher does not follow an interview guide, allowing the participants to speak freely with as much detail as possible. This method can be problematic as researchers may be clueless in looking for pertinent details and as such may not be able to attain relevant data prescriptive to the study. The fourth type of interview is the non-directive interviews where there is no aforementioned topic to engage. Juxtaposing the previous types of interview, in the non-directive interview the interviewer listens whilst the participant leads the conversation. The participant elaborates freely during the interview while the interviewer delineates unclear points. Such an interview suggests that there is lack of direction followed and this could be a hindrance in decoding and analysing the data.

Exploring each of these varied interviews propelled the study to adopt the one-to-one semi-structured interview method. Its' distinct characteristics approximated well with the assumptions of obtaining rich, in-depth knowledge through creating an atmosphere of freedom and openness afforded by the propensity of the semi-structured interview. Carrying out interviews in this manner allows the study to develop a clear plan of the interview with minimum control over how participants answer. This elucidates that they have flexibility and personal prerogative in answering the interview questions. The conversation can rally in any direction, with the ability to pose additional questions when requiring further explanation. This invigorates deep reasoning behind participants' responses. Mathers, Fox and Hunn (2002) affirm that the semi-structured interview works well in exploratory studies and is therefore applicable to this study.

5.7.1.1 THE PROCESS OF CONDUCTING SEMI-STRUCTURED INTERVIEWS

Taking into consideration the above discussion outlining how semi-structured interviews should be geared, the study also enveloped Creswell's (2012) steps towards this method by circumspectly advancing that if these are cogitated, it would produce rich, meaningful data

that can increase trustworthiness and enhance analytical generalisation. The first step involves the identification of a clear plan in selecting participants that can contribute to the kind of data envisaged, bearing in mind that this should enhance the trustworthiness and depth of the data. The study used the non-probability sampling techniques of purposive to specifically select Masters students of Curriculum Studies as they possessed knowledge and experiences in being able to relate to the use of e-resources in their dissertations which centred on curriculum issues. Cumulative to this, the convenience sampling method was also employed as it allowed the most accessible students to be chosen to participate in the study. This meant that I did not have to waste time in searching for participants who may have not possessed knowledge related to the theme of this study. Once it was established who the possible participants were I began the activity of approaching these Curriculum Studies students to request participation. Prior to this, I engaged in a meeting with the coordinator/supervisor of the discipline to firstly acquire permission to talk to the students, and then to seek advice on potential participants. Initially I was under the impression that all the students had finalised their dissertations and were either awaiting submission or response from the examiners about their results. However, due to some setbacks some students had not completed their research dissertations; therefore it was difficult for them to participate in the study. Eventually, I was left with seven students, who at that stage were just tentative participants. The cell phone numbers of the participants were acquired to enable contact with them and invite their participation in the study. Out of the seven, only four participants responded and agreed to participate. The others did not answer after at least two attempts of phoning them. The societal factor emerged through this process as I became aware of the influences such as work commitments, family responsibility, and personal preferences such as sport that prevented other students from participating.

Another step Creswell (2012) admonishes is locating a suitable space for the interviews to take place. The study needs a quiet and comfortable space where the two-way conversation can proceed without any disturbance. Additionally, in order for the recording device to function optimally, it requires a conducive environment. This is a sensitive device, so any additive noise may distort my ability to transcribe the data. I conducted the interviews at the university in the supervisor's additional office on three occasions for P1, P2, and P3. Interviews took place only once for each participant, as Wahyuni (2012) posits that semi-structured interviews require at least one in-depth interview to develop rich, credible data. The office was located in a quiet wing of the top floor, which was usually the quietest and

this enabled the participant to feel at ease in iterating their responses, without interference from anyone. The three interviews that were conducted here took place in the afternoons, after 15:30, which meant that the university was exceptionally quiet, as it was also exam period for undergraduate students so they were seldom seen on campus. The interview with P4 was instrumented in another office on the same floor at the university. Initially the interview was scheduled three days prior to actual interview. Due to unexpected events P4 could not attend the interview; however a later date was agreed upon. Finally the interview with P4 was arranged for 8:30 in the morning on the established date, but only started at 8:40, as I experienced an unexpected traffic delay. However, this did not cause any discomfort to the participant as he was also preoccupied with some work. The office space was quiet and convenient to elicit the interview and record it simultaneously. Recording the actual interview is a crucial step that enables the process of transcribing the data. Although a video recorder is also advised, I did not opt for this method due to the concerns of participants, since the data will be stored for a period of time and might compromise their identity. I used an audio recorder to evidence the responses, this was of good quality with excellent clarity. I ensured it was functional before each interview, and as such all interviews were successfully recorded.

Creswell (2012) conveys that an important step in semi-structured interviews is taking brief notes during the interview. This serves as an alternative plan if the recording device ceases to function. Being aware of this strategy, I took brief notes throughout each interview as it helped ascertain important trajectories. I was able to probe as a result of this, which engaged the participant to be more open in their responses. The participants were also informed about the purpose of writing brief notes to denounce any misconceptions they may have had. In analysing the data, I found it particularly helpful in referring to the brief notes, as it unearthed certain details.

The next step described by Creswell (2012) is gaining informed consent from participants for the interview to take place. This covers issues of confidentiality, anonymity, and voluntary participation maintained by the study (Wahyuni, 2012). I prepared the participants for the interview before its inception; this involved alerting them about the kind of questions that can be expected and, importantly, gaining their approval of participation through verbal permission and the signing a letter of consent. These participants were well aware of this procedure, by virtue that they are researchers through their Masters dissertation. Participants were also informed that they were allowed to view the transcriptions of data and read this

study once it was complete. This positioned the content factor as research practises must be guided by ethical procedures, further conditioned by the university. Devising an interview guide is another important thing Creswell (2012) pinpoints. In the broader spectrum of the main research questions, the interview guide is composed of open-ended questions about the phenomena of a study. The interview guide should be flexible enough to give the participant freedom in responding, and should propagate the step of probing. Although the interview guide is crucial to follow, I had to be cognisant of time constraints. Therefore each interview took approximately one hour; 10 minutes for exchange of greetings and allowing the participant to get comfortable, and 50 minutes for the interview itself. The study had eight primary questions on the interview guide, consolidated by sub-questions. In using the sub-questions it clarified elements about the primary questions, and this gave the participants a holistic understanding of how they could go about responding. In so doing, this evoked deep insight regarding the use of e-resources.

The penultimate step proposed by Creswell (2012) is the use of probing in obtaining more data. Barriball and While (1994) suggest that the use of probing can be an invaluable tool for ensuring reliability of the data. In the same spirit, Mathers, Fox and Hunn (2012) acknowledge the liberty the researcher has in using probes to harness elaboration on original responses of the participant, hence providing clarity and evincing thick descriptions of the phenomenon. As the interviewer conveyed each primary question during the interview, probing was used to facilitate the sub-questions. I probed even beyond the sub-questions, allowing for deeper exploration in search for more articulate information. Probing took longer than asking the primary question, as I used cues and prompts to encourage further explanation. Participants gave meaningful responses relating to their journey of conducting their dissertations. The final step mentioned by Creswell (2012) is the professional behaviour the researcher exerts. The researcher must be courteous and understanding towards the participants' responses and behaviour throughout the interview. The participant must be thanked for participation and assured that confidentiality and anonymity will be maintained. Coinciding with these perspectives I gave participants the necessary assurances that their identities would be protected throughout the process. Moreover, each participant was thanked.

5.7.1.2 STRENGTHS OF SEMI-STRUCTURED INTERVIEWS

Barriball and While (1994) convey that semi-structured interviews are excellent for studies dealing with exploration of participants perceptions and opinions, as it unearths sensitive, complex, and critical information integral to the phenomenon. Following this trait, the current study has adopted this style of interview because it enabled me to ascertain in-depth responses regarding the use of e-resources. Participants were very free and clear in their responses, contributing to the kind of data the study anticipated. Another strength put forth by Wahyuni (2012) is that the use of open-ended, probing, questions, produces themes, concepts, and ideas that ensure that the data is presented in an effective and meaningful way. Semi-structured interviews inculcate an atmosphere for respondents to feel free to express their views on their own terms so that they can provide reliable, comparable qualitative data (Cohen, 2006). Since the interviewer is not restricted by an interview guide, questions posed allowed the participants to convey their stories, current issues, and other details that influenced their research dissertations. This invokes a democratic atmosphere in the interview, as conversing is not a one-way stream, but rather a process of communication between two people who learn off each other. Baškarada (2014) opines that semi-structured interviews work well in the case study style, and since this study is located in an exploratory case study approach, I was able to attain wholesome qualitative data that developed understanding of the use of e-resources. In recognising the strengths of semi-structured interviews it positioned the personal factor through participants' accounts because it triggered their thoughts and actions which they drew from conducting research for their dissertations.

5.7.1.3 CHALLENGES OF SEMI-STRUCTURED INTERVIEWS

Mathers, Fox and Hunn (2002) advise that acquiring data from open-ended responses can be problematic to analyse, as responses are diverse and require time and effort in making sense of the data. Interviews are a consequence of self-reported data which suggests that the interviewees reflect on their beliefs (Christiansen et al, 2010). Therefore, I had to be mindful that respondents could provide information that might not actually respond to what the interview relates to. Also responses could be jeopardised in that participants could seek to please the study, rather than account for actual events that might have taken place. This propels the personal factor because participants iterate their own experiences from their personal understanding in describing incidents that may be true or untrue.

5.7.1.4 DEALING WITH THE CHALLENGES OF SEMI-STRUCTURED INTERVIEWS

In dealing with the first challenge of appropriating the semi-structured interview, I did not experience any major confrontations with analysing or interpreting the open-ended responses, as there were only four participants. The societal factor emerged by negotiating the time limit of the interview with the participant, which meant that I did not impede on this, thereby curtailing any possible frustration the participants may have experienced if this was extended. Moreover, using multiple methods of data generation allowed the study to corroborate and clarify the findings. Considering the argument addressed by Cohen et al. (2010), qualitative studies engage the process of triangulation, whereby more than one method of generating data is used to corroborate the findings. This study utilised three methods of obtaining data and this qualified the study to analyse and compare the findings. Such a process circumvents any misconceptions or concealment of data, thus enhancing credibility and trustworthiness in the findings. Such a process was guided by the societal factor as the study selected methods that would best suit the purpose of generating knowledge about e-resources, and that could also obviate any biases or misconceptions.

5.7.2 DOCUMENT ANALYSIS

The data generation method of document analysis may be defined as “*a systematic procedure for reviewing or evaluating documents - both printed and electronic (computer-based and Internet-transmitted) material*” (Bowen, 2009: p.27). Document analysis is valuable for obtaining qualitative data as the researcher engages in reading which produces meaning and interpretation (Blundell, 1998). Cohen, Manion and Morrison (2007) argue that documents are an integral source of information to a research. It aligns to various procedures involved in analysing and interpreting data generated from the exploration of documents and records relevant to a particular research. This method warrants the activity of reading volumes of written material for the purpose of deriving or contributing to themes, patterns, or underscoring assumptions. Moreover, it elicits meaning, improves understanding, and nurtures empirical knowledge (Corbin & Strauss, 2008). A document is a readable material which relates to some aspect of the social world in which the study culminates. Henning et al, (2007) contend that documents and other artefacts are rich sources of data generation. Whether it is old or new, it can offer value to a study as it is regarded as an integral source of information. Documents contain words or texts and images that have been recorded without the influence of the researcher, but have relevant worth that can enhance a study (Bowen,

2009). Grix (2001) posits that documents have been written with specific goals and are foundational to certain conjectures. In this regard an impetuosity is placed on researchers to be fully alert of its origin, purpose, and intended audience when presuming assumptions. This suggests that not all information located in documents could be relative to a study, the onus is upon the researcher to extract critical information by first reading and understanding the context of the document. From these defining characteristics of document analysis as a data generation method the content factor is heightened. This conclusion is based on the process of engaging in meaningful reading to establish the assumptions that might impact a research. In this study, document analysis is utilised as a tool for obtaining data from participants' theses and the research material they have sought to infiltrate the research process. This has contributed to producing themes and categories discussed in the next chapter. The data derived from this approach will be used simultaneously with the semi-structured interview and online reflection activity to provide a holistic understanding and interpretation of the data.

Cohen, Manion and Morrison (2007) adduce document analysis as a primary data source as it is authenticated to the phenomenon under study. Primary data sources include charters, manuscripts, laws, files, biography, official publication, catalogues, newspapers, magazines, research reports/projects/thesis, and transcriptions, amidst others. Savenye and Robinson (2004) expand on this by incorporating instructional materials, textbooks, media materials, emails and personal logs. In this same stance, Bowen (2009) advances the use of agendas, advertisements, background papers, books, diaries or journals, institutional reports, and survey data, amongst others. Cumulative to this perception, Bowen (2009) asserts that researchers commonly review existing literature as part of their studies and assimilate this into the write up of the report, thesis, or research. It further stretches on to the use of excerpts, quotations, or entire passages that are used to inform categories or themes through content analysis. All of these, whether intentional or unintentional, endeavour to provide the researcher with first-hand account of an activity, behaviour or event, as primary sources of data. The qualitative researcher is envisioned as having drawn from these sources to corroborate and sustain the findings through the use of different methods of acquiring data (Yin, 1994). This invigorates the process of triangulation because document analysis is used in conjunction with semi-structured interviews and an online reflection activity in this study to enhance the credibility of the findings. Further, the researcher is equipped to substantiate the findings across data sets and consequently minimise the impact of emerging biases. This

helps refute claims that the study's disposition is based on a single method approach constitutive of the researcher's bias.

5.7.2.1 THE PROCESS OF DOCUMENT ANALYSIS: FUNCTIONS AND ANALYSES

Bowen (2009) ratifies five functions or purposes of using document analysis in research and these will be used to explain how document analysis was applied to this study. The content factor is applicable to this process, as the researcher was guided by the scholar's expertise in implementing document analysis. Firstly, documents emphasise data on the context within which participants operate and it also helps to contextualise data received from interviews. In this sense the study sought documents elaborating on the physical context of the university. This was achieved through the university's online site, as well as in the coursework/Masters programme material of the Curriculum Studies discipline. It was important to ascertain such information because it touched on the Curriculum Chat principles of 'research accessibility and e-resources' which connoted the resources and e-resources students were able to use at the university, whilst also having access to basic physical attributes such as ramps, seating, and work space environment, amidst others. Also I contextualised how students answered the research questions during the interview, with what they had expressed in their dissertations. The second function of document analysis relates to the information comprised within, that require pertinent questions to be asked and situations that need to be viewed as an element of the research. After interviewing one of the participants, I noticed the submission date was later than that of the other participants which meant that the dissertation was not completed within the two years. Following up through the reflection activity, the participant explained that a personal issue had arisen placing the study on hold for a few months. This inculcated the personal factor that influenced the student's progress, and at that stage hindered submission and completion of the dissertation.

The third function, Bowen (2009) postulates, is that documents provide supplementary research data. The knowledge acquired through reading and understanding various texts can make an invaluable contribution to the knowledge base of a study. Researchers are advised to sift through library sources and archives for further analysis. During the semi-structured interviews, two participants responded that they had dominantly used e-resources for their research and did not visit the library at all. However, the other two participants conveyed that although they used search engines to find scholarly articles, some of the books or journal articles they required could not be located online, and if they were they had access

restrictions attached which meant they had to pay for the material which was quite expensive. Therefore, they ventured to the library to source such information. I endeavoured to explore these books, articles, and theses they had obtained from the library. After reading the documents, I perceived that they were incredibly valuable information about research practises. The documents emphasised methods and procedures of conducting research, which students needed to inform the writing of their dissertations. Also, the library contained certain theses that were unique to their studies, and students used these to have an idea about how to write and traverse certain concepts and theories. Fourthly, documents enable a strategy of tracking change and development. The researcher can pinpoint changes by making inferences between the draft and final copy of a document (Bowen, 2009). Underlying changes in a project can also be detected through draft copies. In observing one of the participant's research proposals, I was able to identify certain subtle changes that were incurred in the final write up of the thesis. Concepts used to platform the conceptual framework were configured as a result of the student having engaged in further reading after constructing the research proposal. These changes were not radical but salient in interrogating the emerged concepts.

The fifth and final purpose/function Bowen (2009) outlines is the ability for documents to be analysed in a manner to verify the data and corroborate this with other sources. Convergence of the findings from other data sources increases confidence in the trustworthiness of the research. I was able to corroborate the interview recordings and transcriptions, with readings from documents such as students' theses, research proposals, and the Curriculum Studies discipline reading materials to understand how the research concepts, theories, and methods were applied to their dissertations. Moreover, supporting the process of triangulation, I utilised the online reflection activity to additionally enhance the trustworthiness of the findings. Bowen (2009) advises that the document analysis method is contained within the qualitative case study approach, as the premise is to identify and understand participants' meanings behind their experiences. Exploring these functions has developed my understanding of how document analysis should be appropriated and warranted as a qualitative tool for data generation. It allowed the study to overcome any prevailing biases and ask relevant questions that required clarity in interpreting the data.

Handling document sources is another critical issue that requires unpacking. Qualitative studies are often critiqued for lacking rigour and credibility, therefore analysis and control of documents need some criteria to strengthen qualitative case study research (Cohen et al,

2007). Scott (1990) has devised four quality control criteria for handling document sources, namely, authenticity, credibility, representativeness, and meaning. Authenticity embraces the reliability and origin of the document. The researcher is liable to ensure that the document reviewed is genuine and maintains integrity. Authenticity is crucial to analysis; the researcher must be convinced that the document is not falsely purported. In going through participants' theses, I was sure that these documents were authentic because they applied principles, theories, and concepts of research condoned by experts in the field or curriculum. The semi-structured interviews also cemented this perception, as participants echoed these research practises in their iterations. Participants also followed due ethical procedures in carrying out their dissertations by applying to the relevant bodies for permission to conduct their studies such as the university, participants involved in their study, and the schools (context) from which data was obtained. Moreover, students are mandated to submit their theses before submission to examiners to the e-resource of Turnitin that detects copying or plagiarism. Other documents such as journals and books that students used were authenticated by publishing houses, which resulted in the study being sure that they were not falsely or fraudulently written. Credibility means whether the document is free from error or distortion. Before students forward their dissertations for final examination, they send it for editing, a process used to identify any errors or misconceptions in the writing. Therefore, the study was convinced that the arguments and assumptions put forth through students' work were enforced by the literature review they constructed through scholarly evidence.

The third criterion conditioned by Scott (1990) is representativeness. Representativeness means whether the evidence is typical of its kind, and if it is not, whether it can be discovered. All four participants used research principles, theories, and methods that are known, because they were informed by popular scholars who are known to write in such areas. They used these to justify the evidence that arose from undertaking their research. Meaning is the fourth criterion and refers to whether the evidence is clear and understandable. Traversing through participants' theses provided the study with an in-depth understanding of how they applied the research knowledge, the use of e-resources to illustrate their data, and ultimately a conclusion of their findings. In exploring the proposal documents, only one participant used the e-resources of PowerPoint and search engines to do a presentation. The others predominantly relied on search engines. In exploring these four criteria in handling documents, the content factor arose as the researcher engaged with students' theses, books, journals, and other sources they used to inform understanding of their

dissertations. This was co-ordinated to ensure that they followed due processes of engaging with academic material, as proposed in the interviews, to influence the writing and assumptions of their own research.

Analysing documents is an important step in generating data, as it assists the researcher in making careful selections in corroborating the data and supporting the claims of a study (Savenye & Robinson, 1994; Scott, 1990). Bowen (2009) postulates that analysing documents involves skimming, reading, and interpretation, and can be categorised as content analysis and thematic analysis. Content analysis is the activity of organising information into categories in line with the primary research question/s of a study. It involves document review in which passages of text are identified and analysed in the broader context of a study. Thematic analysis is a form of pattern recognition within the data, with evolving themes assuming the category for analysis. This process inclines to a more in-depth re-reading and review of the data. The researcher has a bird's eye view of the data in an attempt to configure coding and category construction, dependent on the characteristics of the data in producing themes relevant to the phenomenon. Thematic analysis is appropriate for this study as I have developed categories and themes of the Curriculum CHAT principles in relation to the phenomenon of factors in using e-resources. These themes have been conjured as a consequence of employing different generation methods, which enabled the data to be categorised in this way.

5.7.2.2 STRENGTHS OF DOCUMENT ANALYSIS

Enabling the analysis of documents refutes or minimises prevailing biases in a study, as this approach is often used as a method of triangulation, hence improving the trustworthiness and credibility of the findings (Mogalakwe, 2006). Corbetta (2003) posits that it is a cost-effective method as the information needed is already produced. The researcher can save on costs and channel it elsewhere in the research. This enhances the content factor because the material/content is already established by the authors of the text and cannot be negotiated any further and this saves on the researcher's time. Bowen (2009) mentions several advantages of using document analysis as a data generation method. Firstly, it saves time as it involves data selection instead of data collection. In terms of availability, documents are within the holds of public domain and can be easily accessed, especially through the advancement of the internet. This impedes on the societal factor because the study can access public sources and e-resources to gather documents which is within easy reach. Another thing Bowen (2009)

mentions is that using documents is unobtrusive which indicates that people do not have to be disturbed to participate in providing information. The details required by the study is written and contained in the form of books, journals, and theses in this study. Documents allow the information to be reviewed multiple times without seeming intrusive. Further, documents serve as a good source of background information, allowing the study to analyse the foundational roots of assumptions. Yin (1994) elucidates that documents incline to broad coverage of an event, setting, or purpose. Students' theses had in-depth coverage of particular phenomenon related to their individual studies by corroborating it using different data generation methods. In addition, the books and articles that the study analysed covered a myriad of issues in those specific research topics. Yin (1994) also suggests that documents allow the researcher to make inferences as a result of the exact references iterated at the end of the material. Documents can be analysed without being transcribed because they are already in the form of words and print (Creswell, 2008). Therefore, reliability can be checked several times. In this process I sought to maintain confidentiality regarding the treatment of documents by ensuring that the name of the university and that of participants have not been compromised. Thus names have been changed or removed.

5.7.2.3 CHALLENGES OF DOCUMENT ANALYSIS

Bowen (2009) argues that in some instances documents may not contain all the desired information, burdening the researcher to travail through other sources that can be time consuming. Yin (1994) contends that certain documents are private and intentionally blocked from access. Only special affiliations have warranted access, making it difficult for the researcher to retrieve important detail. Creswell (2004) cautions that some documents may be irrelevant to a study and if applied may not justify the assumptions thereof.

5.7.2.4 DEALING WITH THE CHALLENGES OF DOCUMENT ANALYSIS

In clarifying the first challenge, the study did not experience a situation where the document did not contain the anticipated information. In this study document analysis was used to corroborate the finding, and understand whether the research knowledge students expressed in the interviews matched what was written in their dissertations. The content factor was mitigated through this process as the phenomenon in consultation with research questions outlined which documents needed to be reviewed, and therefore did not require a myriad of documents to be analysed. Concerning the notion put forth by Yin (1994), I had access to the theses with the participants' permission. Their theses are also available at the university

library and collated on the university website. Having access to the theses was not difficult. This meant that the societal factor was present because I used social avenues such as the university library and website to gain entry into the relevant documents. Also acquiring the necessary books and journals was reasonably easy, provided an access card was presented at the university library. Responding to Creswell's (2008) assertion, the study was careful to select prescriptive documents that were relevant and applicable to this study. This involved selecting the participants' theses and research proposals, books, journals, Curriculum Studies profile and other related academic material that were relative to students' use of e-resources in their Masters dissertation.

5.7.3 REFLECTION ACTIVITY

Characterised as the father of the 20th century progressive movement, John Dewey's work has been critically acclaimed for defining and explaining the relationships between experience, reflection, and research (Stevens & Cooper, 2009). This belief emerged after an impetuous was placed on students by tertiary institutions to comprehend knowledge within a specific discipline and reflect on the discipline readings and field experiences of research. Such a process is driven by the content factor; as the institutions practises are in a state of reformation to include approaches to research that require students to reflect within a certain domain of knowledge. Atkins and Murphy (1994) define reflection as a process of consciously reviewing and thinking about the experiences, actions, feelings, and responses, and then simultaneously interpreting and analysing them to understand what has been achieved. It involves considering something deep by asking relevant questions about what has been done, how it has been done, and what has been learnt from doing it. Moon (1999) describes reflection as a practise that is active, dynamic, action-based, and requires an ethical set of skills which a student should possess in order to deal with real, complex, and challenging situations. In this regard, Dewey (1933) identified that individuals primarily reflect when there is a problem or sense of difficulty, and proposed three steps of reflection. Firstly, the problem should be clearly defined; secondly; analysis of the problem needs to take place; and finally, the central issue should be generalised to gain some perspective. Drawing from these basic tenets, Dewey (1993) explains reflection as the "*active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends*" (p. 9). This suggests that reflection is an independent active process that causes students to evaluate previous beliefs and how these have implications on current actions. The personal factor arises through this

step as it elucidates a self-awareness process in which one pauses and thinks after an action has occurred. Students are placed in a position of thinking about their own thoughts, actions, values, and beliefs that have influenced their behaviour or decisions.

As a research method, reflection has been synonymously used with journal writing, in which qualitative researchers' view how participants write down their experiences, beliefs, actions, and behaviour (Janesick, 1998). Cui (2012) asserts that the act of writing or expressing thoughts onto paper caters for the process of reflection in extending ideas to expand the research from which it was possible to make conclusions. This requires certain skills that enable a participant to take a step back, pause to listen, and reflect. Such skills are related to critical thinking which relates to participants unpacking what they have focused on, and not casually accepting what they have read or seen at face value. Adler (1991) maintains that critical thinking is a function of critical reflection where participants practise in-depth reflections on activities that are important in the current situation. In the same spirit, Lamb (2013) contends that learning about research from recording experiences has the power to initiate research skills of not only critical thinking, but creativity and analysis. This suggests that reflection as a data generation method is not primarily dependent on recording experiences, beliefs, and assumptions in journals, but in any way that promotes critical thinking, creativity, and analysis. In this study, the process of reflection was convened through an online activity to understand the experiences, thoughts, and assumptions of students in using e-resources to conduct their Masters dissertation.

5.7.3.1 THE PROCESS OF ADMINISTERING THE REFLECTION ACTIVITY

In qualitative studies, the researcher uses the process of triangulation to strengthen the findings derived. Triangulation is the use of two or more methods of data generation in researching some aspect of human behaviour (Cohen et al, 2007). The current study employed the reflection activity as a data method to triangulate the evidence generated. This warrants that the data obtained from the semi-structured interview and document analysis can be clarified, confirmed, and justified by administering the third method of reflection activity. Triangular techniques, such as the reflection activity, seek to iron out and elaborate more closely the richness and complexity of human behaviour by exploring it from more than one angle. I issued the reflection activity through participants' emails as this seemed most convenient. Initially I aspired to issue the reflection activity via the discussion forum but since this is an open access site to all the curriculum students, I did not want to contravene

any ethical concerns. Moreover, at the stage of data generation for this study, the participants were not constantly operative on the discussion forum, so the use of the email appeared viable. Once the semi-structured interviews and document analysis were conducted, I set out to email the reflection activity to participants individually. The reflection activity contained similar questions from the semi-structured interviews to clarify certain issues that needed unearthing.

Street (1990) posits that using reflections allow the researcher to access rich sources of raw data as participants' feelings and emotions are contained within. In addition, the action of having participants write down their accounts includes making invisible actions and thoughts visible so that it can be evaluated more closely. During the writing phase participants can readily evaluate their experiences, and even stop for a moment to observe these might be related to other experiences which allows them to create new meaning. Street (1990) goes on to affirm that when this act of writing or recording is married with other data methods, participants can recognise their own actions, practises, values, and feelings which develops new information upon which subsequent action can be based. This activity enables the researcher and participants to discover new ways of acting on the knowledge built through this process of reflection. I particularly anticipated the responses via the reflection activity because it meant that participants could have more time to iterate their experiences and thoughts, than through the semi-structured interviews. Although their responses did not reflect anything significantly new, they did provide an elaboration of what they said in the interview.

Dewey (1933) deduces that reflection is complex, rigorous, and emotional and if incorrectly understood, it can impose an inherent risk of painting an unclear picture of the actual response to the phenomena. He proposed four criteria in which reflection could be understood, interpreted, evaluated, and analysed. These will be briefly described in the context of using reflective activity as a data generation method. The first criterion pinpointed by Dewey (1993) is reflection as a meaning making process. This envisages the participant manoeuvring from one experience to the next with embedded meaning of its relationships and links with other experiences and ideas. Such an activity enables the participant to encounter interactions, freedom, and social relationships. Experience is shaped by interaction with the world and this invigorates the research process. The societal factor is uplifted through this perception as it considers how students research in consultation with other

influences. In this study, participants' reflections portrayed the presence of peers, the supervisor, and the institution as positive influences in encouraging understandings of research concepts. Without successfully making sense of these concepts, participants admitted that they would have not been able to understand their research. The next criterion exhorts that reflection is systematic, rigorous, and a disciplined way of thinking with its roots in scientific inquiry. This means that there is a particular way of thinking associated with reflection, and certain fields of thought such as stream of consciousness; invention; and belief that cement this process. These thoughts inadvertently produce questions that reflection seeks to answer. Such thoughts position the participant in a state of disharmony whereby they are almost forced to reflect and in doing so bridge one experience to another. The method of instituting the reflective activity caused participants to write more, hence expanding their original responses in the interviews, since whilst reflecting, they recounted other experiences that were relative to the phenomenon of e-resources. The study was able to achieve the rich detail complementary to qualitative case studies.

Dewey (1933) connotes the third criterion as reflection needs to happen in community by interacting with others. Dewey (1933) believed that reflection allows the identification of strengths and weaknesses of a person's thinking by communicating it to others who can give sound advice. A reflective community instils a forum where the individual can relate their thoughts or experiences. This perception has been extended to suggest that the participant, whilst being equipped to function interdependently, also needs the guidance of the community. The study was interested in finding out how participants related to the cohort (other students doing their Masters dissertation and supervisors), and what they had learned in order to assist their adoption of research concepts. Their involvement in the discussion forum was also crucial to explaining how they contributed their own assumptions of research to others who needed it, and whether these were indeed valuable to those students. The fourth criterion admonished by Dewey (1933) is that reflection needs attitudes that value the personal and intellectual growth of oneself and others. He believed that the attitudes a participant articulated as a result of reflection could either open the way to learning or prevent it. As a consequence of the reflection activity, many participants came to acknowledge certain factors that were intertwined with curriculum. They embraced absorbing these factors because they all reflected a desire to learn more after completing their Masters dissertation. Through the interview they admitted to having a lack of knowledge of these factors, but in the reflection activity there were some indications that they have adapted it.

The four criteria of reflection relates to the reflection activity of this study, as it has been employed as a data technique to gain the raw experiences of participants as they peruse through their inner thoughts to provide detailed information. The reflection activity can be used to inform how students use e-resources in the completing their research dissertations. Moreover, there is more sense of freedom as participants are answering in their own space of comfort, without me being physically present. This adduces that they responded even deeper to the questions posed. The study was provided with a greater understanding of the phenomenon, thereby interpreting the data more closely from an angle beyond semi-structured interviews and document analysis, to include the reflection activity.

5.7.3.2 STRENGTHS OF THE REFLECTION ACTIVITY

A significant potential of the reflective activity is that it helps participants understand why they do certain things in particular ways, and this assists them in identify strengths and weaknesses (Lamb, 2013). The participants of this study realised that they were not aware of specific curriculum factors until they went through a mode of reflection and through the questions asked in the activity. This heightened the personal factor as participants dug deep into their experiences and thoughts to inform the data. Another strength of using the online reflection activity was that I could not only send all the reflections at once to the participants through email, but also employ it as a cost effective way of generating data. Cumulative to this, I did not find any time wasted in implementing this data method. The participants also found it convenient in receiving the reflection activity online because they did not have to drive to meet me and were able to answer the questions in their own space. This conditions the societal factor, as participants were not limited by time as with the semi-structured interviews. They were given a week in which to submit their reflections because in the time that data was generated two participants were preoccupied with setting exam papers for the subjects they taught at their respective schools. Imel (1992) advances that streaming through a process of reflection can positively affect the professional growth of participants, create self-awareness, and develop new knowledge and skills. When participants reflected their experiences of doing their Masters research, all of them professed the desire to learn more and persist to the next level of qualification, being doctoral studies. Lamb (2013) opines that the process of reflection enables the participant to cultivate other skills of critical thinking, creativity, and analysis. As this develops the participant's knowledge, the study too benefits in obtaining rich, meaningful, data synonymous with qualitative approaches. The study is able to gather first-hand information which can help to increase rigour and credibility of the

study. Furthermore, the online reflection activity was contracted to initiate the process of triangulation, and this enhances the trustworthiness and validity of the research. Phelps (2005) recommends that reflection can be a significant tool for not only researching, but developing and stimulating it. This means that more studies need to be conducted using reflective activity as a research method for generating data.

5.7.3.3 CHALLENGES OF THE REFLECTION ACTIVITY

Fenwick (2001) asserts that reflection writing can infringe on ethical issues, particularly if the researcher displays information that is too personal to the participant. This connotes the content factor as the study has to consider the ethical implications before making any decisions about what to reveal in the data. Cui (2012) posits that reflection lacks objectivity and this impacts the generalisability of the findings. Such approaches serve to quantify results and knowledge gained is a representative of the wider population. Participants may also consider it challenging to answer the questions of the reflective activity, since it's the third method of obtaining data, and this might irritate or prevent them from doing it or sufficiently completing each question.

5.7.3.4 DEALING WITH THE CHALLENGES OF THE REFLECTION ACTIVITY

In countering the challenge put forth by Fenwick (2001), I assured participants that confidentiality and anonymity of their identity will be maintained with strict measures. They were also alerted prior to the reflection activity that the responses to the questions posed as a result will be used for understanding and interpretation of this study. I reported the facts, opinions, and experiences as they are, without trying to impose any preconceptions. My previous judgements regarding what I initially perceived as to how students used e-resources have been overshadowed as the research culminated, to introduce new concepts and perceptions that emerged (Klein & Meyers, 1999). Responding to Cui's (2012) concern, this study is not interested in understanding and explaining objective findings, as that is unique to the quantitative approach, typifying the positivist paradigm. This study is interested in qualitative, subjective knowledge from an interpretivist perspective that aims to inculcate thick descriptions of the use of e-resources. Considering the challenge of whether participants may have been annoyed in completing the reflection activity, this was not the case in this study. Having done research through their Masters dissertation and also conducting methods of data generation, these participants were understanding and gave their full support. I experienced a minor challenge in requesting P4's participation in the reflection activity, as he

initially did not respond to the telephone calls and messages sent. However, he finally responded, and agreed to participate. This indicates that participants were aware of the societal factor, because they used their opinions and experiences of the data generation process, in giving their full support in participating in the study. They realised some of challenges that can be experienced when trying to obtain participants for a study, and used this knowledge to assist with the study.

5.8 DATA ANALYSIS

Qualitative research centres on the exploration of human behaviour and social life as they occur in their natural settings (Miles & Hubberman, 1994). Its uniqueness and depth indicate that there are varied means of analysing social actions, intermingled with multiple perspectives and practises in the analysis of qualitative data. Marshall and Rossman (1999) define data analysis as “...*bringing order, structure, and interpretation to the mass of collected data... It is the search for general statements about relationships among categories of data... it is the search among data to identify content*” (p. 150). Cohen, Manion and Morrison (2007) explain qualitative data analysis involving organising; accounting for, and making sense of the data in relation to how participants understood and explained the phenomenon; and observing patterns, themes, categories, and regularities. Lacey and Luff (2009) see data analysis as the mass of words captured through data methods that should be described and summarised, enabling the researcher to establish relationships between various themes that have emerged. They go on to add that implications for policy or practise may be warranted through the data generation, and also allows for the generation of theory using advanced analytical techniques. These definitions divulge that data analysis is about making sense of the data using certain procedures that provided inductive or deductive reasoning regarding participants’ assimilation with the phenomenon of a study. Moreover the content factor arises through these perceptions of data analysis as they clearly define specific ways that need to be instituted in affording qualitative analysis such as interpreting, summarising, describing, categorising, and organising, amidst others. This suggests that qualitative data analysis is not imbued with alignment of a linear fashion but does involve a different kind of logic in interpreting and explaining the findings.

Ritchie and Spencer (1994) postulate that qualitative data analysis seeks to define concepts, map the phenomena, frame typologies, maintain associations within the data, and provide in-depth explanations and articulate strategies. In analysing the data, the study will be cognisant

to the area of focus that has produced the themes and the research questions of the study. In this study I have defined the concepts in the context of Curriculum Studies whilst simultaneously addressing the phenomenon and research questions of the study in this explanation. Whilst quantitative procedures are concerned with numerical or statistical representation of the data, qualitative analysis seeks to find the meaning of particular events through participants' views and opinions of situations. Therefore the study sought to understand and analyse the participants' beliefs, assumptions, and views about using e-resources in their Masters dissertation. The study entrusted that the analysis of the data will produce themes and patterns that could not only inform the discipline of Curriculum Studies, but contribute to the existing body of knowledge. This also entailed the use of words, phrases, quotes, and statements to reflect participants' account of their experiences (Marshall & Rossman, 1999). A theme captures information about the data in correspondence with the research questions, and represents a patterned response or meaning within the derived data (Braun & Clarke, 2006).

Watling and James (2012) attest that the process of qualitative data analysis consists of six stages. In identifying these stages the content factor emerges, because certain guidelines are established to enable qualitative analysis to take place. The first stage denotes defining and identifying the data. The data should be understood in the broader spectrum of the research questions and aims. Contemplating the current study, I initiated this stage by first engaging the research questions and objectives inclined towards understanding the what, how, and why students use resources in undertaking their Masters dissertation. Thinking about this, the study set out to obtain data in this frame. The second stage incorporates generating and storing the data. The study generated data specifically from Masters students of Curriculum Studies, and stored the data using the three approaches. For the semi-structured interviews, the data was stored through recording and transcriptions. The document analysis which included the theses and research proposals of participants, books, journals and other academic sources are easily attainable either from the university library or the university website. The reflection activity responses', after completion by participants, were submitted back to me and stored on my laptop. The third stage is data reduction and sampling and envisages sorting irrelevant data from the relevant. Cohen, Manion and Morrison (2007) convey that qualitative data can be voluminous which implies that the researcher should make a selection of data concurrent with the intended purpose of the study. I was careful to choose data that answered the research questions and provided a response to the phenomenon. Such data aided the

process of categorising themes and patterns that revealed similarities, inconsistencies, and trends.

The fourth stage refers to structuring and coding data. The data is divided into codes/categories/patterns/trends to relate to analytical themes that develop. For the purpose of this study the data has been divided into themes and categories that emerged from the literature review on the use of e-resources, which essentially are concepts. These concepts have been configured with the theoretical framework to produce themes. Watling and James (2012) position the fifth stage as theory building and testing. This espouses that the purpose of research is to formulate new knowledge. The behaviour and reactions of participants helps to test a theory and hence provide crucial insight about the phenomenon. The study focused on the inception of the Curriculum CHAT theory when appropriating the data generation methods to explore participants' experiences and reaction to the phenomenon and test whether this theory is plausible. The sixth and final stage of qualitative data analysis is reporting and writing up the research. This rests on my understanding of the research in writing a report on the construction of arguments based on the findings of what has been undertaken in the research. The conclusions should articulate newness of knowledge and uplift the current existence of knowledge in a specific field. In spearheading this study, I sought to provide credible assumptions of the data with the primary purpose of understanding the implications for the existing body of knowledge, and to increase awareness about the factors that produced participants' experiences in using e-resources.

Scott and Usher (2011) opine that typical qualitative analysis includes several aspects. The first aspect is coding or classifying field notes, interviews, or any data method where words are evaluated in terms of what is significant or commonly repeated, and these are selected to establish a pattern or trend. In this study I triangulated the interview transcripts, with the document analysis of participants' theses and the reflection activity to identify trends and themes from what they said verbally or demonstrated through words. The next aspect relates to the relationships that can be pinpointed in participants' responses. The researcher clasps on to prior knowledge to understand these relationships so they have credibility (Scott & Usher, 2011). I recounted participants' previous knowledge of the phenomenon which they engaged through their Honours degree, and used this to understand current experiences of how they conducted their dissertations. The third aspect pinpointed by Scott and Usher (2011) is the ability of the researcher to make explicit the patterns and themes that arose through

theoretical construct. I merged the CHAT theory with the Curriculum concepts to create the Curriculum CHAT theory to explain how participants embraced the phenomenon of e-resources. The fourth aspect is generalising the analysis of relationships. This study maintains that the findings can be generalised to similar contexts that apply the same research procedures instrumented here. The final aspect is the notion of formalising theoretical constructs and making inferences from them to other cases. The theoretical constructs developed in this study will be used to make comparisons and contrasts with studies from the literature.

Miles and Huberman (1994) recognise the various techniques in administering analysis of qualitative data. This belief stems from the idea that there are different questions to be asked for different accounts of social reality. These include content analysis, grounded theory, grounded analysis, guided analysis and discourse analysis, amongst others. These divergent techniques are connected in some way or the other, and are often interconnected, overlapping, or mutually exclusive. However, they each saliently articulate unique perspectives of analysing reality. Considering the phenomenon, research questions and theoretical framework applied, this study has opted for guided analysis as an approach for analysing the data obtained from participants.

5.8.1 GUIDED ANALYSIS

Guided analysis, or sometimes commonly referred to as thematic analysis, is used to analyse classifications and present themes from the data (Ibrahim, 2012). Guided analysis is appropriate for studies that aim to discover using interpretations as a platform. This indicates that such a researcher, stemming from the interpretivist paradigm, is interested in exploring and presenting data that is rich with information from participants. Such information invokes the attitudes, feelings, emotions, experiences, opinions and beliefs of participants which they relate to the researcher through a first-hand account. This means that the data is in its raw state and requires analysis. Through guided analysis units of analysis will arise from both the theory and the data. The content factor is projected through these assumptions of guided analysis, as it represents a specific data analysis approach that can be used for qualitative studies located within an interpretive paradigm. Moreover it serves to distinguish how this type of analysis should be appropriated towards the data. This approach is relevant in relating theories from the literature to important issues that arise from the data generated through varied methods (Kohlbacher, 2006). Concepts can then be grouped, related, and categorised

(Rice & Ezzy, 2000). Themes that emerge from the data and theory may then be identified and related to the literature. This kind of analysis enables the achievement of accuracy and intricacy, and empowers the researcher's holistic meaning of the data (Ibrahim, 2012). The researcher is able to almost precisely explore the relationships between concepts and compare them with replicated data, for instance from the literature review. Participants' opinions and reasons are then compared with those from other studies that are relative.

Braun and Clarke (2006) propose six phases of analysing data, and concur that these are not rigid or static, but should be applied with flexibility to coincide with the research questions and data. Of the same perception, Cohen, Manion and Morrison (2007) protest that there is no single avenue of analysing and presenting data, and a researcher should consider the issue of fitness for purpose. The means that applying guided analysis allows the researcher to be flexible in selecting particular ways of analysing and articulating the data as per interpretation and cognisance of the research questions and phenomenon. Further, this attests that the societal factor emanates, as there is no correct route to follow in conducting data analysis, but is dependent on the nature of a study. This being said, the first phase, according to Braun and Clarke (2006) relies on the researcher getting familiarised with the data. The researcher should immerse with data to get in touch the extent of the content. Such an activity can overcome any prior analytical interests or preconceptions. It involves repeated reading to identify patterns and trends that can enable coding and construction of themes. In this study, I read the interview transcripts, responses of the reflection activity, and the traversed document analysis to gain a clear picture of potential patterns relating to how students use e-resources. The second phase lends itself to generating initial codes/categories. Categories pinpoint features of the data in its raw state and usually surface during the first stages of reading the data. They are symbolic of interesting ideas that the researcher finds unique to the phenomenon of the study. Categories additionally entail classifying these ideas into groups (themes). Once I read the participants' responses, I began to classify ideas into particular categories using the main research questions of the study and the related questions posed through the data generation methods. This was also facilitated using the phenomenon of e-resources to guide this step. Miles and Huberman (1994) calls this phase data reduction where conclusions and verifications through simplifying and transforming the data into categories that the researcher uses to single out its most significant meaning.

The third phase administered by Braun and Clarke (2006) is searching for themes. Since the data has been sorted into categories in phase two, the current phase involves classifying the categories into possible themes. The researcher contemplates the relationships between the categories and themes and different levels of themes, such as sub-themes and main themes. It may be also plausible to create miscellaneous themes where random categories may seem to fit. After the step of categorising, I classified them into themes informed by the theoretical framework of Curriculum CHAT devised by this study. I matched the categories as they appeared particularly relevant to each theme. Reviewing the themes constitutes the fourth phase. At this level, the researcher may begin to realise that some themes are not actually themes because there is not enough data to support its constituent. Therefore, themes may overlap with each other, or if they are too complex, they can be broken down into sub-themes or emerge into a new theme. In establishing the themes of this study, I found that some of the themes did indeed overlap with each other, since the categories were intertwined in more than one theme. This was not viewed as an inconsistency but a justification to the theoretical framework created.

The fifth phase connoted by Braun and Clarke (2006) leads to defining and naming the themes. This encompasses identifying the main essence of the theme and then redefining the theme to present for analysis. Each theme should tell a 'story' divulging what it is about, whilst simultaneously harmonising with the other themes in the broader frame of the phenomenon. Sub-themes also arise out of this process. As stated before, the main themes in this study stemmed from the Curriculum CHAT theory; after careful exploration categories were constructed to provide a deeper analysis of the use of e-resources. The last phase requires producing a report which is the final analysis of all the identified themes in a study. The researcher narrates the story of the research in way that articulates the merit and validity of the analysis comprised. The analysis should embrace a concise, coherent, and non-repetitive account of the data represented through the specific themes. The researcher should choose vivid examples or extracts from the data to capture the essence of the themes. In this study I attempted to follow a logical progression of presenting the themes, while also being observant that they overlapped and coincided with each other. Moreover, I presented the analysis in way that enveloped the true meaning of the data without trying to seem complex or misguided.

The above discussion illustrating the various phases of guided analysis, accounts for the steps I took in presenting the data analysis. Using guided analysis assisted the study in identifying categories in the form of patterns and trends, and being able to classify these categories into themes obtained from the Curriculum CHAT theory. Engaging a process of this character presents the data in a meaningful way, responding to the research questions and phenomenon of e-resources. Relating participants' experiences through their iterations of opinions, stories, beliefs, and assumptions in accounting for how they use e-resources in their Masters dissertation, can be read and experienced in a coherent fashion using guided analysis. Essentially, whilst commencing such a process I was mindful of the interpretive case study employed and qualitative approach governing the entire study.

5.9 TRUSTWORTHINESS

Qualitative research seeks to produce valid knowledge of interpretations and understandings within a specific environment (Wahyuni, 2012). However, the concepts of 'validity' and 'reliability', often used to increase the credibility of a study, have been critiqued for lacking value, quality, and sustainability in the evidence of qualitative data (Ritchie & Lewis, 2003). Golafshani (2003) argues that these concepts are misleading since qualitative studies rely on achieving an understanding of the phenomenon, and this is difficult to measure. Sinkovics and Alfoldi (2012) define trustworthiness as a process of maintaining soundness of the findings, and soundness of the arguments that culminates. The ideology behind soundness resonates a perception of good judgement or competency that can be acquired when instrumenting particular steps. Lincoln and Guba (1985) propose certain measures that must be taken to ensure a degree of trustworthiness in research. These include adopting the criteria of credibility, transferability, dependability, and confirmability.

Credibility concerns itself with the accuracy of the data in the context of social phenomena under investigation (Wahyuni, 2012). This indicates that there is truth that can be found in the research findings, and whether correlation can be seen between the participants' direct responses and interpretation of the data. Anney (2014) espouses that a researcher can adopt rigour in a study by embracing the following credibility strategies of prolonged engagement, time sampling, reflexivity (field journal), triangulation, member checking, and peer debriefing/examination. Onwuegbuzie and Leech (2007) assert that prolonged engagement refers to the period of time the researcher spends in the field to immerse with participants and getting in touch with their social world. I was sure to spend enough time at the university to

not only generate ample data, but to converse with their surroundings to eradicate any possible biases or preconceptions that might have hindered the data. The time spent at the university enabled me to identify which participants would be apt for responding to the phenomenon of e-resources. Simultaneously, all these steps were recorded briefly in my field journal. Peer debriefing occurs when the researcher seeks advice or support from other professionals in improving the quality of the findings. In this regard I sought assistance from other researchers who have already conducted research similar to the nature of this study. This helped in articulating the findings using relevant research techniques. Triangulation refers to the use of multiple methods of generating data for the primary purpose of mapping out the richness and complexity of human behaviour (Cohen, Manion and Morrison, 2007). This step assists the researcher in reducing biases by cross-examining participants' integrity through their responses. I utilised three methods of data triangulation to ensure credibility of findings: semi-structured interviews, document analysis, and online reflection. The issue of member checks imply continued testing and checks of the data. Member checks is central to credibility, therefore researchers must use the voices of participants in the analysis and interpretation of the data. This produces corroboration and coherence of the data. The data is sent to the participants to check and confirm how it has been analysed and interpreted. I ensured that these due processes included implementation; analysis; and interpretation of the data which included direct quotation and phrases from participants in order to enhance the credibility of the findings.

Transferability or generalisability represents the degree to which the results of the findings can be transferred to other contexts with other participants (Wahyuni, 2012). In qualitative studies the findings are applicable to a small number of people within a uniquely defined situation or environment. As such, the findings can be generalised to groups or contexts that possess similar characteristics (Shenton, 2004). Generalisation of the findings in qualitative studies have often been criticised, however transferability aims to counter this challenge in providing analytical generalisations. Maintaining transferability, according to Bitsch (2005), requires the use of thick description and purposive sampling. Thick description involves the researcher giving in-depth reasoning about the whole research process, from the research design and methodology, to the final report of the study. Thick descriptions of the detail allow the study to be replicated by other researchers in similar contexts (Anney, 2014). Purposive sampling underscores transferability by enabling the researcher to focus on selecting key participants who have knowledge of the phenomenon and can answer the

research questions of the study. In this study, transferability was sanctioned through incorporating thick descriptions of pertinent processes that elucidated deep meaning about the phenomenon of e-resources. I went into great detail about the data generation processes, the research design, and the final report of the findings. Moreover, purposive sampling has been used to choose the most suitable participants with key knowledge regarding the use of e-resources in research. These two measures were positioned in this study to gratify the step of transferability, in that if similar settings could apply as the mechanisms coordinated here, a similar degree of results could be traced to the findings in this research.

Lincoln and Guba (1985) profess that another way of achieving trustworthiness is through a measure of dependability. Dependability inclines to participants checking the findings, interpretations, and recommendations to ensure they correlate with what was actually said and given to mean in accordance with the phenomenon of a study. This criteria cements dependability using an audit trail, triangulation, and peer examination. The last two have already been discussed, with an audit trail given to mean the documents that should be kept such as interview transcripts, raw documents, field notes, and others for the purpose of an audit. I have ensured that these forms of evidence have been stored and secured, available for auditing if necessary. Tentative to this process, a critical reader not involved in this study was used for this process amongst others.

Confirmability means the extent to which researchers can confirm the results of a study, in order to ensure that it reflects the understandings of the participants, rather than the possible biases of the researcher (Cohen et al, 2007). Bowen (2009) warrants that confirmability of qualitative inquiry can be maintained through triangulation, audit trail, and a reflexive journal. The researcher is required to keep a reflective journal recording all the happenings that culminated in the field, both personal reflections and perceptions of the study. The triangulation and audit trail have already been deliberated. I also sought the assistance of two colleagues who have checked the findings in correlation with the research questions and phenomenon of the study. To this end, I applied these three approaches to confirmability to enhance the trustworthiness of the study.

Ensuring trustworthiness in any qualitative research is critical, as it mandates the findings as valuable and worthwhile. The criteria adopted here, primarily from the insight of Lincoln and Guba (1985), are conceivable, and have been strategically implemented to enhance the

rigour, validity, and reliability of the study. Stemming from an interpretivist perspective, this study endeavoured to understand and interpret the convergent ways students use e-resources in their dissertations. In this regard, I was cognisant of potential biases and used these criteria to dismantle any that I may have had. The content factor runs through these perceptions because various scholars agree on particular ways of how trustworthiness can be applied to research. The issue of trustworthiness cannot be isolated as a single step towards enhancing rigour in a study; it would also need the fundamental process of compliance with ethical procedures. The next section handles the ethical principles that were duly followed throughout the study.

5.10 ETHICAL PROCEDURES

The issue of ethics is prevalent in any kind of research. Tensions culminate between the aims of the research in making generalisations for the benefit of others, and in the maintaining the rights of participants to ensuring privacy, safety, and their wellbeing (Orb, Eisenhauer & Wynaden, 2001). In this regard Orb, Eisenhauer and Wynaden (2001) define ethics as doing good and avoiding harm. Research in education, whether from a qualitative or quantitative platform, should seek to invigorate, build upon, and cement the foundation for further developments in education. Ethics in research are of paramount importance, particularly when it involves humans and animals (Christiansen et al, 2010). The consequence of such research inadvertently has a profound effect on the manner in which it is applied, and the implications thereof. The content factor arises through these postulations because higher education institutions have clearly defined policies articulating how ethics should be ascertained in any research undertaking. Researchers are expected to follow and abide by due protocol, in ensuring ethics is maintained with the highest level of integrity. Given the very nature of qualitative, interpretive studies, the fieldwork positions the researcher in close contact with the participants, and as such ethics have to be fervently adhered to. Hence, I had to be particularly cautious and decisive regarding what to record and how best to deal with conflicting and confidential responses. In this sense, it is crucial that all research studies are guided by ethical principles (Orb, Eisenhauer & Wynaden, 2001). Contemplating these principles guided me as to how best ethics should be applied. Wassenaar (2008) pinpointed four key principles that endorse ethical values. These include non-maleficence, beneficence, autonomy, and justice.

Non-Maleficence suggests that the research should not cause any harm, intentional injury, or emotional offense. Throughout the research process I ensured that participants were in a safe environment when conducting interviews. Cohen, Manion, and Morrison (2007) assert that initiating an interview means interpersonal interaction between the researcher and participants. The researcher should be mindful in making the participant feel protected and safe. Further, outside of the lecture venues campus security was always visible to prevent any possible threat or danger. Also, I checked and maintained participants' comfort throughout the process.

Beneficence indicates that the study should benefit other researchers or society at large (Christiansen et al, 2010). I was fully aware of other curriculum courses offered at the university and at other institutions, and believe this present study could have a positive influence on their pedagogic endeavours. This study could further be supportive towards other specialisations and context that are similar in nature (Lincoln & Guba, 1985). Orb, Eisenhauer and Wynaden (2001) contend that beneficence entitles the researcher to take cognisance of the potential consequences in revealing participants' identities. This is a moral obligation and the researcher must use pseudonyms in place of participants' names. Therefore in this study participants' names have not been disclosed in any way; their real names have been replaced with P1, P2, P3, and P4. Careful consideration has been applied to the data analysis in that the direct quotations and other data have not comprised the true identity of the participants.

Autonomy explains that every participant's thoughts, actions and rights must be upheld and respected (Wassenaar, 2008). Therefore I gained consent from the Dean of the university, coordinator of Curriculum Studies, and the participants. It was also communicated to participants that they were free to withdraw their participation at any time in the study. This negotiation of trust was maintained throughout each stage of the research process.

Justice was preserved in that every person involved in the study had access to it by requesting the researcher view the study in its completed form. People of diverse backgrounds, including age, gender, culture, and religion were incorporated into the study to accommodate the spirit of democracy in South Africa. Orb, Eisenhauer and Wynaden (2001) extend the meaning of justice in research to incorporate the avoidance of exploitation and abuse of participants. I

valued the contributions and vulnerability of participants in the study by treating them with respect and responding to their iterations with a spirit of humility and gratitude.

According to Section 9(3) of the Bill of Rights (Devenish, 1999), no person may be discriminated against, therefore I will have ensured that the rights of participants will not be violated throughout the research process. The primary concern in reporting the current study was to maintain privacy, anonymity, and confidentiality. On the basis of ethics I was careful not to jeopardise the participants' enrolment at the university or anywhere else. I implemented a variety of ethical measures in this study. The initial stages led me to obtain permission from the Dean of the university to use the premises and the Curriculum Studies course as the research site. Once this was approved, the co-ordinator of Curriculum Studies was approached and positive consent was received. Next, I sought to arrange a meeting with the supervisor/coordinator of the course in which to negotiate a possible meeting with the students to gain prospective participants. It was agreed, and all students concurred that they would be part of the study, of which only four came forth to take part in the one-to-one semi-structured interviews. Participant letters of consent were issued with positive feedback to participate in the research. In this way the participants understood that their participation was purely voluntary and their refusal or withdrawal at any stage in the data generation process will be condoned. I also made it clear at the very outset of the research that relevant data gathering procedures will be carried out. Participants took heed that I would be the one to conduct the interviews, administer a reflective activity through email, and conduct document analyses. It was also made transparent that documents such as students' Masters theses and academic sources they engaged would be retrieved for the purpose of this study. Participants acknowledged and agreed. The consent issued to all participants included assurance and protection of anonymity and confidentiality of all involved. This meant that the participants will not be identifiable to anyone reading the final report. Finally, I upheld the necessary ethical principles and procedures with integrity as no harm, risk, or any form of victimisation was conditioned on any of the participants. Moreover, anonymity, privacy, and confidentiality will be maintained at all costs.

5.11 LIMITATIONS OF THE STUDY

In every study, despite how well constructed and presented, it may experience limitations in the research design and methods employed, and how it relates to the data generated (Wiersma, 2000). The imperative thing to do is acknowledging the shortcomings by openly declaring

them. Price and Murnan (2004) imply limitations as the characteristics of the research design and methodology that may have potentially affected the interpretation of the findings. Such constraints include issues of generalisability, applicability to practises, and measures of achieving trustworthiness. In this study, the case study style of research was employed within the confines of the purposive and convenience sampling methods; this meant that only four participants were chosen and the findings do not represent the entire group of students of Curriculum Studies. Therefore, generalisations were limited to analytical assumptions. In addition, I may have exhibited possible biases as I was fully aware of who these participants were since purposive sampling involves hand-picking participants. To curb this concern, ethical principles were appropriated, by ensuring participants' confidentiality and anonymity throughout the research process. Wiersma (2000) contends that the other related limitation of qualitative studies is ability to achieve validity and reliability. I abided by the criteria of trustworthiness as stipulated by Lincoln and Guba (1985). Incorporating issues such as credibility, transferability, confirmability, and dependability, sought to enhance the trustworthiness of the research, however I acknowledge that this can only be applied to a certain extent.

5.12 CONCLUSION

This chapter endeavoured to present the research design and methodology, composed of twelve sections. At the outset, the study commenced in providing a brief introduction into the value and prevalence of including various strategies pertained to design and methods associated with enabling an effective research. The next step involved identifying the interpretive paradigm with its lucrative potential to inform the perceptions of the study. The interpretive paradigm was incredibly estimable for allowing the researcher to attain rich, detailed responses in regard to the phenomenon of e-resources. I was able to dig deep into the meanings behind participants' experiences and consequently understand the factors that influenced the use of e-resources in the construction of their Masters dissertation. Exploring the principles of the interpretive paradigm led to the following section of discussing the qualitative research approach. Synonymous with the interpretive perspective, qualitative strategies centre around producing in-depth accounts of participants' responses, and this helps me to theorise these into concepts. I immersed with the setting of the research in order to understand how its constituents interplay, thus enabling the interpretation of holistic experiences. A feature of qualitative studies is the use of the case studies and this informed the discussion thereafter. Case studies usually involve a small number of people, specifically,

this study that has four participants. The study selected an exploratory case study to get in touch with the innermost feelings and attitudes of participants. As a spinoff to this section, the study moved on to deliberating on the sampling methods adopted. Purposive and convenience sampling were implemented since it enabled me to select participants who had knowledge of the use of e-resources and were most accessible in providing relevant data in generating factors.

The study then moved on to explain the biographies of the participants and their context with the assumption that this would provide the reader with some background on the participants without compromising their identities. The data generation through semi-structured interviews, document analysis, and an online reflection activity were then embraced to provide a discussion as to how these culminated. This reciprocated the next step of elucidating how the data was to be analysed, and this was warranted through the guided analysis approach. To overcome any potential biases and concerns, the study proceeded to include issues of trustworthiness, by specifically interrogating concepts of credibility, autonomy, dependability, and confirmability. Coinciding with this step, ethical issues were unearthed to highlight the relevant protocol that was followed in instrumenting this research. Finally, the study identified some possible limitations, with the last stage being a synopsis of the entire study. In each of the sections articulated in this chapter the content, societal, and personal factors were pinpointed and elaborated. The next chapter represents a crucial analysis of the actual data that was generated from participants.

CHAPTER SIX

PRESENTING THE FACTORS THAT INFORM CURRICULUM CHAT THEORY

6.1 INTRODUCTION

The previous chapter presented a coherent and logical account of the research design and methodology. The qualitative research approach was selected and framed within the interpretive paradigm. This enabled the study to operate the case study style of research, using the purposive and convenience sampling methods to identify the most suitable participants that provided rich, in-depth reports of their assimilation with e-resources in writing their Masters dissertations. Subsequently, the three data generation methods of semi-structured interviews, document analysis and an online reflection activity became apparent through mitigating a qualitative study. This study focuses on exploring the factors that inform Curriculum Studies students to use e-resources in conducting their Masters of Education dissertations at a South African university. Having this mind, three research questions were formulated to provide direction and relevance to the study. The first question represented the main, overarching question from which the last two were derived, and stated: what are the factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university? The second question was: how do Curriculum Studies students use e-resources in conducting Masters of Education dissertations at a South African university? The third question being: why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university? This chapter articulates the data analysis through participants' response to these three research questions.

Miles and Huberman (1994) assert that social phenomena does not only perpetuate in the mind, but in the objective world, and in this can be discovered some lawful, reasonably stable relationships. The lawfulness stems from the “*sequences and the regularities that link phenomena together*” (p. 429), and these anticipate the constructs that account for social reality. As a forefront to these perceptions, Miles and Huberman (1994) attest that data analysis in qualitative research seeks to describe and explain a pattern or meaning of relationships that culminate in making sense of the study only through establishing a set of analytical categories. In this pursuit the study sought guided analysis as an approach to coordinate order, incorporate a structure, and provide understanding, interpretation, and

meaning to the phenomenon of factors that inform the use of e-resources (Marshall & Rossman, 1999). Antonius (2003) poignantly affirms that data generation incurs systematic procedures to be organised and recorded in a way that enables the reader to interpret the information. This suggests that data analysis requires some form of logic to analyse and interpret the responses correctly. This does not subscribe to a linear approach, but as Miles and Huberman (1994) emphasise an uncovering of inductive analytical procedures. Analytical procedures are congruent to qualitative research, this study uses guided analysis to present and interpret the findings ascertained from the data generation. Kohlbacher (2006) avows that guided analysis is pertinent in using concepts from the literature merged with theoretical imprints to map out the data obtained through methods of data generation. Rice and Ezzy (2000) in the same spirit contend that concepts are grouped, related and categorised into major themes. Subsequently, themes produce categories/patterns/trends that subscribe to it and reveal how participants related their responses in specific ways. Ibrahim (2012) posits that guided analysis enables accuracy, intricacy, and a holistic understanding of the data. Signifying the use of themes highlights the relationships that exist between the participants and the purpose of the study; inferences can be made with the literature by exploring their experiences in comparison with that of other studies' findings. To this effect, this study has eight major themes, compounded with various categories weaved together to provide understanding and interpretation of the findings under each theme. The eight themes informed by the categories were framed by the three research questions which guided the presentation of the findings and the discussions thereof. Table 6.1 provides an illustration of the how the data analysis is structured.

Table 6.1: Analysis of Themes and Categories Generated from the Data

RESEARCH QUESTION	THEMES	CATEGORIES
1. What are the factors that inform Curriculum Studies students to use e-resources in conducting their Masters of Education dissertations at a South African university?	THEME 1: RESEARCHER	Content Factors Societal Factors Personal Factors
	THEME 2: E-RESOURCES	Hard-ware Resources Soft-ware Resources Ideological-ware Resources
2. How do Curriculum Studies students use e-resources in conducting their Masters of Education dissertations at a South African university?	THEME 3: RESEARCH KNOWLEDGE	Literature Review Theoretical Framework Research Design/Methods
	THEME 4: ACCESSIBILITY	Physical Access Financial Access Cultural Access
	THEME 5: RESEARCH ACTIVITIES	Supervisory Meetings Cohort Sessions Peer Involvement
	THEME 6: RESEARCH ENVIRONMENT / TIME	Location Duration/Hours of Research
3. Why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university?	THEME 7: RESEARCH TARGETS	Purpose Objectives Research Questions
	THEME 8: ASSESSMENT	Formative Assessment Summative Assessment Peer Assessment

Table 6.1 describes how the data analysis will be structured. Themes and categories that emerged from the data have been pitched against the three research questions of the study. Each research question will be answered by means of associated themes. The findings will be presented under each theme and category by virtue of direct quotations and substantiated with discussions to re-contextualise them with the relevant literature and theory constructed (Patton, 1990; Tsai et al. 2010). Interpretation of participants' responses will be immediately provided for each category in a theme, with a final holistic interpretation presented at the end of the theme. This will further encompass a discussion on how the theme is interpreted in the Curriculum CHAT theory. This will be maintained and coherently followed through in each of the eight themes. In some cases the themes overlap to answer more than one research question; however such a process is warranted due to the interactive nature of the Curriculum CHAT theory and the flexibility of the qualitative research approach (Uden, 2007).

6.2 DATA PRESENTATION

Ritchie and Spencer (1994) convey that qualitative data analysis seeks to define concepts, map the phenomena, frame typologies, maintain associations within the data, and provide in-depth explanations and articulate strategies. Drawing from this and the above representation of how the data analysis is structured, this section commences with discussing each theme in great detail. Inferences will be made between the literature, theory and the data ascertained. The data articulated has been obtained through three data generation methods. Participants' responses from the semi-structured interview will be corroborated with document analysis and the reflection activity as a mechanism for verifying and establishing what has been reported.

6.2.1 THEME ONE: RESEARCHER

The researcher/s is an individual or group whose perspective assumes a point of reference for the unit of analysis in a study (Li and Bratt, 2004). In certain situations the researcher is referred to as 'subject' or 'actor', depending on the nature of the context. In this study the term 'researcher' implies the students who by virtue are participants in this study. They are called researchers because the Masters dissertations they engaged with required them to research, applying specific research knowledge to facilitate their actions. These researchers (participants) are interested in curriculum issues, urging them to dig deeper in causing change or creating awareness through their research dissertations. Kain and Wardle (2008) opine that a researcher directly participates in an activity, communicating their beliefs, values and experiences that connote a different history to the activity system. In relating the literature and the theoretical frame of this study, the role of the research in the Curriculum CHAT activity system is one mediated by various other principles, suggesting that the researcher does not operate in isolation but in communion with other mediating research entities (principles). This study seeks to understand how the researcher interacts with other research principles, one of which being the use of e-resources, and the factors that propagate such behaviour. Van den Akker et al. (2009) posit that the concept of factors must be explored to understand why students research in the field of curriculum. The factors symbolise the orientation point from which other Curriculum CHAT principles gain their purpose and connection for elucidating research. This indicates that participants (researchers) need to be aware of these factors in order to effectively conduct research in curriculum issues. These factors include the content factor, societal factor, and personal factor. Van den Akker et al. (2009) espouse that the curriculum tends to get overloaded and consequently produces

fragments that lead to failure and frustrations of how it is perceived and implemented. In order to establish a coherent, more conceivable curriculum the three factors need to be considered by those implementing it. In contemplating Van den Akker et al.'s (2009) view, the study sought to gain participants' understanding about the three factors in the preliminary stage of the data generation. The data methods posed questions related to participants' concept of the three factors and how these impacted their choice of doing their dissertations in curriculum.

6.2.1.1 CONTENT FACTOR

The content factor articulates the cultural and academic heritage that students should evoke in their research. The constituents of their research should centre on a critical understanding of research theories, methods and literature to make sound judgements about current issues in curriculum. This requires students to use e-resources/resources that are contemporary and viable in researching relevant information pertaining to their studies. The content factor also influences the professional development the student experiences, as they are endowed with research skills to uncover prevalent issues, which persuades them to broaden their careers, thus increasing their knowledge base. In a nutshell, the content factor includes the actual academic knowledge students should have to do research, the professional skills they're equipped with and the ability to use significant e-resources/resources to activate research.

All four participants have been teaching for more than ten years, with P1, P2, and P3 having recently accomplished more than fifteen years. Therefore, these participants have a wealth of experience in propagating the different variations of school curriculum including the administration of the recently developed CAPS in their classrooms through utilising just the basic e-resources. During the semi-structured interviews and reflection activity participants iterated the following as a response to how the content factor influenced their practises:

P1 said: *"I was not aware of content factors using e-resources initially because I wasn't fully aware of Curriculum Studies. I was more interested in research in Mathematics. I heard of curriculum field whilst registering for Masters. I did not go into curriculum but because I registered late there was no space in Maths education field.... so then I go for Curriculum Studies. Theorising and evaluating curriculum in the Masters helped me understand content factors in Maths I was teaching at school."*

Then P2 had this to say: *“As I have indicated that I have been teaching for the past eighteen years in the subjects of Business Studies, English, and Economics, in the school that I am working in I teach English. While teaching English for so many years I’ve noticed so many learners having a problem when they have to do orals, sometimes they have funny reason, sometimes they run away.....they will just do it for the sake of doing it. I wanted to get more information of what causes them to have this so called bad behaviour, anxiety or whatever you can call it towards oral assessment.....We as African people we are doing English as a first additional language which is also a problem.....like a foreign language to them. I wanted deep information what really causes them to have this kind of behaviour toward oral assessment..... I chose this as a topic for my Masters research.....I am aware of the three factors, the content can be defined as the rationale for the curriculum, what does it expect from the teacher in using e-resources. The CAPS is there to inform the teacher what activities, how many activities, assessment, how to calculate marks, which rubric do you use.....different rubrics to dialogue in oral and different in presentation for instance, the content is basically based on the curriculum per say... We use these different types of e-resources to compute marks but in the past we manually recorded them”*

P3 shared this perception: *“I started working in 1987 and I never left education since then, in 2001 I was promoted as H.O.D (Head of Department) at the school I am currently teaching at for the past fifteen years....I was interested in getting a deeper knowledge of the subject, I needed to know more on Mathematical Literacy, particularly the concepts that are challenging to the teachers, learners...I needed to see how other teachers use strategies to teach those concepts, whether those strategies enable them to achieve in conveying the concepts to the learners or not....I wanted to compare the strategies so that I could use them to improve on what I am using already.....specifically strategies on mathematical concept of ‘measurement.’ I was not aware of the factors as such, until doing the Curriculum Studies course work. I then realised that the content factor was always there, the department gave us the content to teach. They envisioned e-learning but we hardly used all the e-resources, basically computers, hardly any internet access.”*

P4 stated: *“I was not aware of the three factors, and I didn’t know the categories although they may have always been there. There used to be some figures released by the Department (DOE) and I didn’t know that they were content based. There were reports indicating about how performance was taking place and how we should improve by following CAPS document. This was the content rationale for me to do my research, because I could compare the results from the other schools.....
The survey research conducted by the DOE showing the decrease of pass rate in Physical Science national also triggered me to do my research. In a subject like this we need relevant e-resources because we need to show students diagrams, figures, calculations, and experiments. All we had was a computer; I had to use my own internet.”*

From the findings regarding the participants’ relation to the content factor, all four participants were initially unaware of the concept of content factor, although they were practising it. After registering for the Curriculum Studies Masters programme they soon became aware of it and began to understand how it impacted firstly their teaching, and the use of e-resources in research for their dissertations. In their teaching, participants pinpointed the content factor through how they interpreted the CAPS document pertained to the different subjects they taught. They had access to e-resources but to a minimal extent, only what their schools could provide. Van den Akker et al. (2009) emphasises that addressing the content factor should enable professional development and knowledge construction in the jobs students perform and in their research. For P1 discovering the content factor helped her to make sense of the Mathematics subject she was teaching. Previously she would just administer the content to keep up with the requirements of the DOE, but now she wants to use her knowledge of the factors to impart better understanding upon her students. Therefore in her dissertation she used certain e-resources to help her understand more about the concepts of Mathematics. According to P2 the content factor became more distinct when she transitioned from teaching Business Studies and Economics to English. She purposed to explore the reasons why her English students were avoiding oral assessment. They were either bunking or not performing the task. After interrogating the content requirements of the subject, she noticed that there were too many tasks, which accumulated to the ongoing problem second language speakers of English were experiencing. Moreover, she perceived the content factor as a rationale for the curriculum which constantly required her to immerse with the CAPS document in guiding her teaching efforts. Consequently, she incorporated this

as a foundation to investigate the problem as why students were increasingly abandoning oral assessments. In her research, she discovered that e-resources could provide some answers to the challenges that occurred in oral assessment, by generating strategies that could inform her recommendations in her final chapter.

P3 was moved by the content factor in gaining a deeper knowledge of the subject she taught, being Mathematics Literacy. In coming to terms with the content of Mathematics Literacy, mandated by the DOE, P3 realised that certain concepts that were taught were challenging to teachers and students because they were not introduced to certain e-resources envisioned by CAPS. In this endeavour she aspired to unearth the strategies that other teachers were using that helped their learners to achieve better understanding of the subject. She wanted to compare the strategies in her research as to how the content was taught so that it could help her improve her own teaching by learning about new e-resources. Like the others, P4 was not overtly cognisant of the factors. Once registered for the Masters dissertation, the course work assisted his understanding of how the factors play a crucial role in how research is undertaken. Simultaneously, he began to perceive how the content factor had already culminated in his teaching because he began to learn about using e-resources that could enhance his practises. The statistics and reports submitted by the DOE articulated how performance should be carried out by following the CAPS document and this informed his content rationale for doing research on why the pass rate in Physical Science had begun to deteriorate.

6.2.1.2 SOCIETAL FACTOR

The societal factor incorporates all the issues and problems that culminate as a result of social trends and needs (Van den Akker et al, 2009). The student identifies these challenges with a purpose to unearth its depths and cause change and awareness through their research dissertations. The student also confronts the societal influences that have shaped their perceptions into the understanding and experiences they exert. In South Africa some of these issues relate to large class sizes, adaptation to a new curriculum such as CAPS, language barriers to learning and insufficient resources in education. In regard to their knowledge and impact of the societal factor, participants communicated the following:

P1: *“When I registered for Masters they told us to choose an issue we had concern about, a*

topic that we were interested in and I am a Maths teacher, and you know the curriculum now in South Africa has changed, I was interested in doing research in Maths since we are now working with CAPS, I've noticed that they bring back geometry as a second paper while in NCS (National Curriculum Statement – previous curriculum) it was a third paper. And they were now complaining about the results of the learners....the learners they fail because they don't understand geometry now. In all the schools they are complaining. Then I thought why don't I conduct a study in geometry because it seems as if they are not producing the intended results. And also we are not using e-resources as we supposed to. Societal nothing affected me. Fortunately I got more support from a lot of people, you know, support from family and colleagues. My sisters looked after my children during the holidays that makes my life easier to push harder during the holidays (in her studies). Although my children missed the time we spent during the holidays”

P2: *“The societal is related to the personal. When you teach in different schools with different cultures, you teach based on what that community expects from the teacher, what that community needs from the teacher, when you teach based on societal reasons, you must check the environment where your school is located....that is very important. A teacher who is teaching at an urban school won't have the same societal reasons with a teacher who is teaching in a deep rural area, like for instance people who are teaching from deep rural areas, the example they can use are totally different from the examples used by the teacher who is teaching at an urban area..... he or she who is teaching in the deep rural cannot use an example of DSTV because how many people have electricity in rural areas. When you pick some examples from activities like DSTV you are putting them (learners) in a tight corner, they won't be able to understand a thing..... so societal reasons are based on what the community expects the teacher needs to be vigilant on the examples used.....the examples must be the way the community expects from the teacher. Also the global society is changing, they are more advanced now, using different types of e-resources, we only know a few, what can be afforded.”*

P3 responded through the interview: *“I recognised that learners were, let's say, very challenged in Maths Literacy with measurement. It is difficult for the learners to understand because we teach in English and it's a second language to them. I have*

heard that even first language speakers complain about problems with Maths, that is for their learners.”

P4 commented: *“The reason being I was a teacher at a rural school teaching Physical Science, so from my experience I discovered that from those schools in rural areas, some were performing better whilst some were not doing good. So that raised a lot of questions to me, as a result I decided to do the research on physical science per say..... This is what drove me to do my Masters..... Learners from the same society but from different schools have inconsistent pass rate in Physics, thus I wanted to address these issues in the surrounding schools. Perhaps I thought that they are using e-resources like computers and the internet to develop better strategies.”*

Concerning the societal factors and how participants immersed with this, P1 considered the introduction of geometry in Mathematics as a third paper a social issue because students in many schools were complaining that it was even more difficult. Therefore, she was prompted to undertake research that would enable results explaining why schools were not producing the intended result in Mathematics. She admitted that producing such research was not easy because she had to attend lectures whilst simultaneously writing her research report. P1 is grateful that her family and colleagues who are part of her social world were very helpful through this period. She attributes her studying particularly to the help she received from her sister in taking care of her children while she studies. To her this is a societal factor because without this support it would have been difficult to finalise her dissertation. P2 asserts that there is a close gap between distinguishing between the personal and societal factors. However she finds with the societal factor that teaching must come from what the society you teach in expects from you. She believes that the societal reasons are very vital because a teacher needs to embrace and understand the environment where the school is located. This stems from how you perceive teaching in an urban area as compared to a rural. The examples you use when you teach will differ greatly because students must be able to assimilate with them. In addition the language barrier between mother tongue and English was also considered a challenge in teaching the subject of English. Drawing from this, P2 feels that the societal factors cannot be ignored even when you are doing research because you need to take into consideration the history and context the participants of a study stem from.

In P3's response she viewed the societal factor as one that highlights the challenges learners experience when they learn a subject in a second language. Her learners were native to the African language of isiZulu which meant that to teach a subject that was already difficult to first language speakers, was potentially challenging for them. In the community she taught in, this was a conflicting situation for many of the learners who could not afford extra tuition in Mathematics. Therefore this prompted her to engage a study that could uncover the depths of such issues. For P4, identifying the societal issues that plagued learners from a rural community persuaded him to conduct research on why some students from the same community performed better than others in the Physical Science subject. As a result he was influenced to choose participants from that community to establish the rationale for his dissertation. P1, P2, and P4 distinctly believed in the potential e-resources have in gaining access to a variety of knowledge and information because they were able to achieve this through their research, and thus envisioned it as a necessity for the different schools they taught in. They perceived it as not just another social trend, but an emblem for how society was progressing in the current era.

6.2.1.3 PERSONAL FACTOR

The personal factor attests to the educational needs and personal interests of the student. This is driven by motivation to uplift oneself out of a situation of deprivation, where the student is internally geared to achieve more. They recognise difficulties in the classroom which sparks a confrontation of their own experiences, thereby legitimising the need for research into issues that can infuse change and awareness. In this motion students are constantly shaping their individual identities (Ngubane-Mokiwa & Khoza, 2016). Shiro (2013) convinces that personal meanings cannot be ignored from the research process because it manifests the knowledge unique to each person, impacted by a uniquely defined context and experience. Also the personal factor adds to the reasons why participants chose to use certain e-resources to conduct their research, due to their own preferences and experiences.

P1: *"I am the kind of who likes to develop themselves, when I was doing my honours...I was encouraged to learn more, I wanted knowledge, the desire to learn and empower myself. I did not want to have a lack of things, because you know it was hard growing up. My children, I want to give them better, more, the things I didn't have for them to have. If learn and know more, there are better opportunities. I don't want to stop at Masters I want to do my Ph.D. Before I could get a job teaching, I worked as a waitress it*

was hard working those long hours and those shifts, earning R87,50 a day. It wasn't enough, that's why now I appreciate what I have..... At school I did not fear any challenge, I try my best to get along with the curriculum field..... nothing hinders me in doing my study. I put 100% of time to finish my study. I've learned that in this day and age you have to have internet access, that is what I needed to do my studies."

P2 commented this: *"I could say it's your enthusiasm, your dedication, it's what pushes you as a teacher to the subject you are teaching..... In my case I was taught by a second language speaker of English, and I want to see my learners communicating in a language that is used by the entire world, global language, or if I can say it, an employment language because if they can't speak English very well, chances of them getting employed are very slim.... or getting into university.....at university they do an interview before enrolling you because there are many learners who have applied for the same course, remember they have to take the best so if you can't communicate properly it becomes a problem..... If your matric certificate has a, let's say 35% pass for English, if you can't communicate what is in your hands chances of getting a job are slim or minimised if I can put it that way. I think that there are many opportunities for people to improve their learning, because now we have these e-resources, the internet, and people have phones and computers, it teaches them how to communicate, spell, and talk properly."*

P3: *"I come from a family of learned people, my mum was a nurse and my dad was a teacher, my dad is actually the one who motivated me to study further, he studied and he registered (himself)....always had something to do so he motivated me to the possibility that even if you are working it is possible to still study. I did it at college and high school, I wanted to see what was different from then till now in mathematical literacy, and by difference I mean, have they started to use ICT? We should have computers in the classroom, teachers and pupils should be researching. This is the digital age. We have these things in our homes because I used them when I was doing my research."*

P4 mentioned: *"My personal rationale played a big role because it started with me, after I*

have observed that some learners do pass physics but some do fail from the same context. I had a desire, you could say, to address this, to want to help them. Because I came from a community that was underprivileged and we were poor. I had to work hard to get where I am and so do the students. They first have to do well. When I began to research for my Masters, I had to use e-resources, it was available freely at the campus, and this is how it should be at all institutions.”

From these responses, it is clear that the personal factor was a strong contender in eliciting students towards doing their Masters research. P1 seemed ambitious and motivated towards postgraduate studies because of her personal upbringing when she was younger. After having worked as a waitress earning an insufficient income taught her the value of being educated and striving towards a better life. She displays resilience and denounces fear, utilising her every opportunity to maximise her knowledge development through using e-resources. For P2 she was driven by enthusiasm and dedication in her career. She used these as a backbone to impart to her learners the value of English in getting a job locally and internationally. As a child she learnt the benefits of English and used this personal testimony to help her learners acknowledge the opportunities that can arise from learning in such a language through emerging online tutorials that are developed to help struggling students. P3 recognised the contribution her parents made to her academic excellence and passion for studying further. She accredited her father’s constant motivation as a powerful influence to her postgraduate studies. Studying Mathematics Literacy at college when she was much younger as an undergraduate student, fuelled her desire to do research in the same field to understand what has changed and how it could benefit learners. Her personal experience was consequently influential in her choice to do her Masters dissertation in Curriculum. She realised that the resources she used when she was an undergraduate many years ago, has changed to e-resources, creating better opportunities for accessing volumes of information at a time. P4 was encouraged by his personal circumstances as a child from arising out of an underprivileged home, to achieve better not just for him but to help his learners and the community. He valued education and hard work and esteemed that it pays off in living a better life. Reflecting on his upbringing has instilled a desire to stimulate his learners in receiving the correct knowledge of learning Physical Science, thus uncovering the reasons for failure to finding strategies than can enhance improvement in the subject. In doing his

research, he acknowledged that if the same access to e-resources can be available in all institutions, it would harness a better culture of learning.

6.2.1.4 INTERPRETING THE ROLE OF THE RESEARCHER

Thus far, some interpretation has been provided under each category, while this section provides a holistic impression of how participants related the factors to their roles as researchers in using e-resources. In the context of this study the researcher refers to students who undertake a research project with the purpose of discovering new knowledge in curriculum utilising different e-resources. Understanding this role requires the exploration of the factors that have prompted them to conduct studies of this nature. Khoza (2016) conveys that factors produce curriculum visions that help teachers reflect on their teaching to improve on their practise by using methods that are current and practical, like the use of e-resources. The participants in this study are teachers who have reflected on their practises in the classroom and have identified related challenges that require attention through their research dissertations. The findings suggest that they only became aware of the factors after having been introduced to the Curriculum Studies discipline. This means that all along they were teaching without being observant to these factors. Foucault (2007) argues that without considering these crucial elements in teaching, it could result in a lack of critical thinking which is fundamental to enhanced teaching practises. Further, due to the myriad of information sources and the multitude of issues to be unearthed, the factors assist the students in being more decisive and selective about what to research and how to go about it using different e-resources. Moreover, it leads them to critically interrogate issues that need attention, like the challenges they experienced in successfully ensuring all the learners passed or understood their respective subjects.

In terms of the content factor, participants mostly related this to the instructions they received from the D.O.E concerning the material they should use to teach their subjects. These materials and information documents were from the new CAPS that were disseminated to basic education in South Africa. From the beginning they have been teaching using basic resources/e-resources, but since their research began they have been exposed to newer e-resources. With regards to CAPS, it proposed that teachers follow a set plan of the content to be taught in each subject. In administering this, participants discovered there were loopholes as to how learners perceived the information. P1, P3, and P4 explained that the pass rates in their respective subjects had given way to a high failure rates by students, whilst P4 had

concerns as to why students were avoiding the oral assessment in English. This prompted the participants to understand the meaning behind the dismal results through research. Therefore, when they enrolled for the Masters dissertation they wanted to know more about knowledge in a specific domain of curriculum, being in their respective subjects they taught. In addressing the content factor, participants were undergoing professional development as they learnt new perspectives and knowledge about curriculum through the course work they first encountered before commencing their actual dissertations. This was a simultaneous experience since while they were developing their content knowledge; they were also contributing to the research knowledge they needed. Van den Akker et al. (2009) confirms that these actions of students warrant a deeper understanding of the field of interest which causes them to want to research even more. For instance P1 exclaimed that she wants to do her doctoral studies to allow her to research more because she has a desire for more knowledge. The others had also expressed similar sentiments, with a yearning ambition to know more about the field of curriculum. Van den Akker et al. (2009) cautions that the curriculum can become overloaded, leading to tensions and frustrations. Therefore, students need to be aware of the content factor in reducing the knowledge claims to a circumspect domain of knowledge with specific concepts. In this regard, document analysis of participants' theses helped establish that their dissertations were clearly focused on the specified subjects they taught and identified challenges within, by using e-resources to assist their search for knowledge specific to their studies.

The societal factor was evident through participants' iterations of the problems or challenges they found in their classrooms and surrounding communities that were reflective in their studies. In South Africa, various dispensations and policies have been passed and regulated towards advancement of education in all areas with improved resources and infrastructure; however, this continues to remain a scarce reality for many schools (Czerniewicz, Ravjee & Mlitwa, 2007). Although the advancement of ICT has been streamlined, teachers continue to adopt traditional methods of teaching or have only the very basics such as computers. Students are tasked by their course co-ordinators to explore issues that are relative to this, since they may unfold the reality of what really occurs or cause the much anticipated change the research may bring. Cumulative to this, students observe the happenings in their communities or work environments that urge them to explore deeper. P1 and P3 primarily concentrated on the challenges they were confronted with in their particular subjects and how the results were not promising as expected. They were urged to explore the reasons that led to

poor performance, as compared to previous results. They wanted to find mechanisms as to how to teach certain concepts in Mathematics and Mathematics Literacy that would enhance their own pedagogies as well as improve learners' understanding by employing the use of e-resources. P2 and P4 societal factors were influenced beyond the classroom by holistically taking into perspective the surrounding communities their learners emerged from. They realised that the problem of learners understanding their respective subjects was rooted in the environments they surfaced from. For P2 the social issue of language barriers proved a significant one in African language speakers doing orals in a second language of English. Document analysis of P2's thesis revealed that she had to understand this situation before judging that they were weak learners. This navigated her ability to do research that would generate new meaning as to why students tried to hide from oral assessment in English. P4 spotted the social challenge of disadvantage households in terms of income and resources that people had to mitigate their standard of living. He commented that learners came from poor income homes and as a result needed to be able to learn more in Physical Science by firstly passing the subject. When P4 recognised that this was a challenge for learners to successfully pass, it persuaded him to research further as to what were the underlying problems that led to these results. He used e-resources to explore this. The findings suggest that once the participants were cognisant of the societal factors, they critically evaluated the reasons for problems or challenges they confronted in their teaching practises through their research dissertations (Khoza, 2015b).

Concerning the personal factor, P1 was moved by ambition and motivation due to her upbringing as a child and experience as a waitress; P2 was geared by enthusiasm and motivation in her career which she imparted to learners; P3 was impacted by the motivation and support she received from her parents who were also professionals; and P4 was penetrated through his desire for valuing education and hard work as important keys for uplifting his learners out of a situation of deprivation. These reasons, conveyed by participants, reveal that personal factors were significant in strategising their need for research using e-resources. Through the one-to-one interviews and reflection activities it was clear that participants acclimated to the current trend of using e-resources and this is what, they believe, creates greater accessibility to further study. Their circumstances during their childhood pushed them to believe and achieve better in life, which inadvertently became a foothold for them to urge their own learners in the same motivation. During the interviews it was possible to perceive the rise of the innate reflections of the personal factors, because

participants were fervent and expressive, using emotions and feelings to articulate their responses. To them research at Masters level was not just about getting a degree or title to your accolades, but a true exploration of pertinent issues that explain experiences of learners that were once a reflection of their own lives. Schiro (2013) contends that personal meanings elucidate knowledge ascribed to each individual because of the context and experiences that have moulded this. Consequently, knowledge should not be perceived only from the outside, but from the personal encounters or habits that explain meaning. This suggests that the personal factor is an important part of participants' reasons for doing research using e-resources; it cannot be ignored as they are foundational and sentimental as to how knowledge is perceived and constructed. In further cementing the personal factor, participants expressed through the interviews that their personal ambitions relate to extending their postgraduate studies to doctoral level. This persuasion comes from their inner desires to excel and become progressive researchers in the field. They want to write and publish academic articles about pertinent issues they have discovered and add to the existing body of knowledge. P1 and P2 assert that using e-resources has made conducting research more possible in recent times, than when they first started off teaching.

The findings suggest that these factors assume a crucial position in guiding students towards their overall completion of their Masters dissertation. When participants made sense of what the content factor, societal factor and personal factor represents, they implemented these in evaluating and analysing how to go about understanding their research topics and questions using different e-resources. This enabled them to communicate their particular beliefs, values, and assumptions in the context of the factors to their research dissertations. In view of the Curriculum CHAT theory developed by this study, participants' experiences and perceptions pose a history that bring different stories to the activity. This assumes the unit of analysis to provide interpretation and meaning about why certain behaviours or actions occurred in response to the main research questions of this study. Thuraisingam et al. (2012) affirmed in their study that the researchers' (transnational partner academics) commonly held beliefs and assumptions exposed issues about power, culture, language, trust, control, and relationships. This influenced their assessment practises as academics and further distinguished the role activity theory held in mediating the different components of the activity system to illuminate tensions and inconsistencies. Similarly, exploring participants' responses revealed that they too dealt with scenarios where language, culture, and relationships were prominent in articulating the tensions and contradictions they experienced in their classrooms. The

participants realised that policy regimes and mandates of CAPS were insufficiently conceived by learners, schools, and even teachers, since some were generating good results in their subjects whilst others struggled. Therefore this intensified their need to engage research projects that would address such concerns. Moreover by cementing their positions as researchers in Curriculum CHAT they perceived themselves as life-long researchers because they did not wish to stop researching at Masters level. In doing so, participants acknowledge that they will have to interact with other principles to ensure the completion of their dissertations, such as the use of e-resources which will be presented in greater detail in the next theme. Thus far, the role of the researcher, who are participants in this study, has been elaborated with discussions on their individual dissertations. This is not to obscure or circumvent the phenomenon of e-resources, but merely to elicit a foundation for understanding their research, and how it is informed by e-resources.

6.2.2 THEME TWO: E-RESOURCES

The use of e-resources in higher education institutions, and particularly that of research imperatives, is both exponential and phenomenal (Alley & Gardiner, 2012). Technology is pervasive, and substantial to this is a demanding economy that seeks students who are well equipped with skills and knowledge to use e-resources. Such usage may be particularly important in research and in the workplace. Universities have already succumbed to the growing needs of students by reconfiguring their curricula to accommodate technological devices that can make research more accessible. Higher education institutions have conceived this as the way forward in addressing progressive education and how students of the modern era want to research (Khoza, 2011). This does not project an advocacy for e-resources but an articulation of reality of how students research in the present day, not just globally but locally, as the literature speaks for itself. In South Africa, a myriad of tertiary institutions have already incorporated the use of e-resources in most of their programmes, and this trend appears to be inclining upwards (City Press, 2013).

E-resources are complex, but can be analysed as an extension of knowledge that focuses on research, primarily in digital and electronic formats, interrelating life, society, and the environment (Govender & Khoza, 2016). E-resources when paralleled with technology, ICT or educational technology, can seem vast and therefore requires it to be critically evaluated in a specific context. In this study the phenomenon relates to the factors that inform the use of e-resources and how students of Curriculum use these to conduct their Masters dissertations. E-

resources also form part of the concepts of curriculum used to frame the literature review, since, when exploring the use of e-resources it cannot be dealt with in isolation but in collaboration with other issues (concepts) that influence it. The dissertations that students engage with comprise of different research resources that help them throughout the research process. A resource can be explained as anything used to communicate or assist research to take place (Criticos, Long, Moletsane & Mthiyane, 2005). Khoza (2012) opines that e-resources/resources are divided into hard-ware (HW), soft-ware (SW) and ideological-ware (IW) resources. The word 'ware' projects awareness of what a person is doing, thinking, or being conscious in using these three types of resources when implementing them in research. Consequently, this awareness exposes itself to the generation of the three factors of content, societal, and personal factors, which inform how students use e-resources to complete their dissertations. These factors need to be understood in the context of e-resources because there is a gap in the literature for studies to be conducted at a local level. Further, in South Africa there is an emerging market for configuring research-intensive universities, therefore the analyses of these factors may produce interesting findings that will not only add to the existing praxis of literature, but could lead to informed practises for research. Also, e-resources are continually being upgraded, which suggests that higher education institutions need to keep abreast by gaining insights from research studies, such as this one.

Distinguishing e-resources into HW, SW, and IW, is further deliberated by Percival and Ellington (1988), who expand this analysis to categorise them into Technology in Education (TIE) and Technology of Education (TOE). TIE is any research e-resource that a person can see or touch, and usually relates to HW and SW resources. Alternatively, TOE refers to resources that a person cannot see or touch until it is produced by TIE, for instance a PowerPoint presentation (Khoza, 2012). TOE mostly includes IW resources in research. As mentioned before, the use of e-resources is diverse, elaborate and extensive to how different studies have implemented and explained its function. This study is interested in generating rich meaning from participants' responses, and has therefore explored the use of e-resources within the parameters of HW, SW, and IW in producing factors that understand how students use these to conduct research. Confining the study, but not limiting it, to these types of e-resources suggests that qualitative data can be received and explained within the context of its use.

6.2.2.1 HARD-WARE (HW) RESOURCES

As a component of TIE, HW resources refer to any type of machine, tool or resource implemented for research purposes (Khoza, 2013b). In e-learning environments they are used to access the internet, for example; laptops, desktop computers, over-head projectors, Smartboards, cellular phone, and tablets (Glen, 2008). HW e-resources can be used in both e-learning and face-to-face contexts, depending on the nature of the research. Lauricella and Kay (2010) have indicated that there is an ever increasing demand for HW e-resources in research at all levels of education, because without these it is not possible to utilise SW e-resources. They attest that most lecture venues are equipped with smart touch screens, projectors, sound systems, and computers that can immediately disseminate information. Arend (2004) opined that students use computers and laptops to conduct research, write papers, compose notes, use software programmes, browse the internet, and store information. Mitra and Steffensmeier (2000) indicated in a study that most university students owned computers or laptops to enhance their research experience and prefer choosing courses in which their devices can be utilised. HW e-resources have developed beyond the incorporation of laptops, to a new dimension of research in the 21st century. The inception of smart mobile technologies such as tablet computers and smart phones have catapulted accessibility to e-resources to an advanced level without the constraints of time or place (Alley & Gardiner, 2012). Personal digital assistants, digital cameras, eBook readers, and portable media players are further part of the extensive range of opportunities available to students. Drawing from this discussion, this study sought to identify what HW e-resources participants used to conduct research, and in the process, discover the factors that informed such usage. In this regard, participants iterated the following quotes extracted from the semi-structured interviews and the reflection activity.

P1 stated: *“I have to admit it wasn’t easy teaching and studying at the same time. Therefore, I had to get myself a computer, because if I had any free time at school, like during my free periods, I was doing my research. Although the university had all the resources, but I had have my own, so that I could work faster, and finish my research in time. I did not have a printer, that was challenging because I needed to download articles and read to understand them. But I managed to print some of the material when I got a chance..... Then we had this WhatsApp group which included the supervisor and other curriculum students. So my cell phone was very important because I could keep in touch what the others were doing..... Since we were doing course work at*

first, they used Smartboards and also projectors to show us slides, and basically anything that could help us with our research.”

P2 mentioned: *“Can anyone in this day and age study without having a computer? I mean the university or any institution for that matter will not accept your assignment or project without it being typed using a certain font and all these other funny requirements. I did use the computers at the university when I was there, and I also used my personal one when I was at home or school. With research it is an ongoing thing, and you have to keep on finding information to help you understand your own study. It’s like if you don’t have your computer with you, you feel like you have forgotten something at home. It just became a part of me, since I used to write when I had the chance..... Everyone I know has a cell phone, it’s rare to find someone without it. It was good that we had this WhatsApp group, since most of us were full time workers and parents. Even when some of us struggled to write, the cell phone would beep when it’s a message from someone else in the group, and then I would be reminded to keep up with my work..... Up until doing curriculum I hardly realised that these were called HW resources, because I used it so frequently without thinking about it. In the lectures I recalled the supervisor using the Smartboards and sometimes the overhead projectors connected to the laptop to deliver the lecture. Studying at university had really changed compared to when I did my undergraduate degree all those many years ago. I think research is more accessible now because we have all these modern gadgets that help us, like for instance this audio tape recording device that I used to record what the participants in my research commented. I also used my tablet now and then when to supplement my search.”*

P3 iterated: *“I live quite a distance from the university so I had to use my own laptop most of the time. Working full-time and studying part-time was no joke, if you don’t have these basic resources, you won’t be able to keep up and finish your Masters in two years. I think for students who are studying in these times must have a computer or laptop. Sometimes the computer rooms at the university are full, so you need your own to be able to do your work, otherwise you will wait in a queue all day..... I did use my cell phone to chat to other on WhatsApp about our research. I could keep track of how far the others were done with their research and compare it to mine. If you didn’t have the cell phone, it was difficult to keep an ongoing record of the others’ concerns and questions they had about their study. The questions they asked were important because it helped all*

of us.....I chose the course work route of doing Masters research because I studied after a long time, and I needed to go through the processes of doing research step by step. The lecturer used Smartboard and sometimes the overhead projectors to teach us how to do research. It was interesting and new, but it was hard to start all over again to study..... I knew how to use a computer with the relevant programmes, so I didn't need to print too much, that would have been very expensive..... When I did research I had to use an audio recorder to tape the findings I had generated for my study. This really helped me to save and remember the information I needed to write. In the course of my studies I also used my tablet, you can get information very quickly, but it's difficult to type Word documents.”

P4 had this to say: *“If I can say it directly, without a laptop or computer you really cannot present your research. Firstly, it is part of the university requirements that all tasks are submitted neatly typed out. They probably won't even look at your work if it is written. I use my laptop for all my work. All my research is stored on it, and is easily accessible because I have file names that make it easy to find. Even when I would journey to campus, I used to carry my laptop, because it had everything I needed for my research..... I did print some academic material, but not as much because it is expensive, and I have learnt to save my articles on my USB..... In the lectures of coursework we used Smartboard technology, which was interesting because this is how the rest of the world also researches. I think using computers or laptops are convenient, and prepare you for doing other tasks with it, like your actual job..... I used my cell phone quite often to communicate with the others in the WhatsApp group, it was like our special meeting place for curriculum students. We always talked about our progress and the things we struggled with in our research..... Whilst doing my research I used an audio recorder to generate data, we learnt about this in coursework. It allows you to always play back any important detail you may have missed, and you can record the real responses of participants in research.”*

Participants' responses indicated that the main HW e-resources they used were computers, laptops, cell phones, Smartboard technologies, overhead projectors, audio tape recorders, USBs, tablets, and to some extent printers. Glen (2008) posits that these are frequently used e-resources that can be implemented in face-to-face contexts and distance learning

programmes. The participants were exposed to both these measures, particularly in that they had to attend coursework research lectures, and since they were part-time students, they also studied independently. All four of them had their own personal laptops, in addition to occasionally using the university's resources (computers, printers). Mitra and Steffensmeier (2000) postulate that most university students acquire their own HW e-resources to enhance their research in searching for information, and writing their dissertations. This meant that they could type out notes on informed research practises from the face-to-face lectures, and work on their dissertations in their own space and time (distance learning). The findings suggest that participants were influenced by all three factors, with significant emphasis on the personal factor. The content factor was prominent in that they integrated the use of HW e-resources in their research because the university expected them to have their dissertations neatly typed out, following certain procedures such as font type and size, line spacing, minimum number of words permitted as a requirement for the study, and specific introductory pages that must be included. This was a formal mandate participants had to abide by, and thus constitutes the content factor as foundational to their use of HW e-resources. Part of the data generation in research involves using an audio tape recorder for interviews; for all of the participants it was a first time in using this device. They were encouraged in the coursework to use this HW e-resource to strengthen the findings of their research which indicates they were motivated by the personal factor, since it is not compulsory to use an audio tape recorder; it is merely implemented to enhance the validity of research.

The societal factor was propagated through participants' perceptions that most students, globally and locally, use HW e-resources to conduct their research. P2 even exclaimed that it would be difficult to find students who do not possess or have access to computers or laptops. Participants are of the opinion that researching in the present times involves using dominant HW resources such as laptops, USBs, and tablets. Keller (2011) asserts that the use of iPads (tablets) in tertiary institutions is relevant, as it inculcates greater interaction between students, supervisors, and the faculty itself. However to use this HW e-resource requires the presence of SW e-resources. Participants' accounts were impacted by the personal factor again because they wanted to research in ways that are more accessible and convenient. Further, they were aware of international trends of research practises which curbed their enthusiasm to use these HW e-resources. Although participants did use printers to eventually print their final dissertations, prior to this there was only little use of printing articles. They

expressed that it was too expensive, and with the perpetual developments in technology, the processing and storing power of HW e-resources have been incredible to allow them to frequently traverse through all their information. The use of cell phones also emerged strongly in the responses, as participants communicated that this was an easy and viable way of keeping in touch with the other curriculum students at all times. Although they mainly chatted about their respective research dissertations, occasionally they communicated socially, through which many became friends after they had graduated.

The personal factor was also illuminated through participants' individual preference for using their laptops to store and read articles that were relevant for their research. They chose not print for the reason explained previously, and this warranted the need for them to be more in touch with using particular HW e-resources. Participants were significantly influenced by the personal factor in using HW e-resources such as their laptops, USBs, Smartboards, overhead projectors, tablets, and audio tape recorders to assist their research imperatives.

6.2.2.2 SOFT-WARE (SW) RESOURCES

The second dimension of TIE is SW e-resources and this comprises any material that is produced for the HW e-resource to express information or communicate research (Khoza, 2013b). HW e-resources and SW e-resources have a reciprocal relationship, because without HW resources it is almost impossible to use SW e-resources. The delivery platform for SW e-resources is a web-based or courseware system, such as the internet, used to develop an online platform in which researchers can instantaneously engage. The literature provides varied propositions as to what constitutes SW e-resources. Bonk (2001) distinguishes SW e-resources into four categories, namely: online class tools (e.g. syllabus posting, self-testing, online lecture notes, uploading and downloading file tools, online student evaluations and courseware); collaboration and sharing tools (e.g. instructor collaboration, discussion forums, real-time chats, interactive feedback and annotation, student or instructor profiles, online task or activity collaboration); instructional activities (e.g. critical and creative thinking activities, data analysis, online scientific simulations); and web resources (e.g. search engines, articles and journal links, lecture notes, syllabi and online glossaries). Alternatively, Jaarsveldt and Wessels, (2011) propose Web 1.0 SW e-resources such as the email, radio, and one-way video conferencing. A more current trend in growing technologies is the advancement of Web 2.0 tools that have been incorporated into research programmes. Web 2.0 technologies embody a social interface of merging communication between people and sharing ideas

(Conole & Alevizou, 2010). Entrenched in this philosophy is a socio-constructivist approach coupled with the notion of experiential research that invites students to become a mediator of their own development and this has become an integral part of how they desire to communicate. Web 2.0 tools include popular sites such as wikis, Facebook, Twitter, blogs, MySpace, Flickr, and YouTube amidst a myriad of other social networking sites (Weller & Dalziel, 2007). These tools can be used to nurture new communities of inquiry and exploration whilst simultaneously enhancing existing ones. On-going communication and collective collaboration are the fundamentals upon which institutions build to remain interactive with students, staff, the academic community, and all other stakeholders.

The latest form of SW e-resources is the advancement of web 3.0. Cook and Kelly (2013) confirm that web 3.0 does not represent a technical update to the web but relates to web pages that allow users to share work created with web 2.0 tools. The underlying premise of this creation is the impression of a 'semantic' web. A semantic web is defined by its ability to harness a relationship whereby machines (computers, laptops, cell phones, smart devices) and people are able to understand each other. The semantic web focuses systematically on data integration. It converts 'display only' data to meaningful information by utilising metadata. The literature suggests that higher education institutions are rapidly employing different SW e-resources because of its potential advantages that relate to cost effectiveness, greater accessibility, and conformation to current research trends. These studies elucidate that there are a myriad of SW e-resources and all cannot be utilised in a single effort to afford better research practises. Instead SW e-resources need to be understood in particular research contexts with an aim of inciting rich, meaningful explanations. Over and above this, these studies have been initiated in varied environments, which suggest there is a gap for findings to be generated on the use SW e-resources in research-intensive contexts. In this regard, participants in this study divulged the following responses:

P1 mentioned: *"When I would communicate with the research partners (other curriculum research students) we used WhatsApp, email, and the discussion forum. On WhatsApp we spoke briefly, not very long conversations. It was just about random things in our research. When we used email we would exchange academic articles and also send messages or chat. I used email a lot to communicate with my supervisor who often would check my work and then make comments on what I needed to revisit or change in my research. My corrections were then emailed back to me. I could say the email was the*

main source of communication between my supervisor and I..... We had to use the discussion forum because it was part of the Curriculum Studies LMS (learning management system) for all the students and supervisors. It was very innovative and helped me with my research..... Whenever we completed a research task or assignment, we submitted it on the discussion forum, where the others could view what we have done. They could also ask questions and provide a critique of our work. I also used to critique theirs. Our supervisor was always present and gave us feedback when we needed..... For the final submission of the thesis I had to submit it on Turnitin, which picked up on any plagiarism I might have committed..... I hardly used any social medial e-resources, except for WhatsApp, the others are just to socialise. When I searched for information for my research I used Google, Google Scholar, and some online Maths journals, local and international. These SW e-resources were advantageous because they were cheaper and I was able to get what I needed quickly.”

P2 said: *“When I was doing my research, internet helped me a lot, through Google Scholar Google and some other search engines to gather research that I needed. You know now it is very easy to find information, in the past we had to spend hours in the library going through so many books, however, this time I did use the library but I used its software host to source any books or materials I needed..... The internet is very fast and it allows me to choose the best information from the variety, to be able to pick and choose what is best for my study..... I would say the disadvantage is that sometimes I would get information that is not 100% of what you are looking for and also sometimes I could not find information that was scarce..... I did participate in the discussion forum but not as much as I did in my Honours research. This time I only did what was required by the course to submit assignments for review by other participants. Although they reviewed my work, I found it a little discomforting exposing my mistakes to everyone on the forum. I preferred meeting with them in the cohort or lectures to discuss.....I used WhatsApp to communicate with others in our group, but we did not discuss much there.....I used emails to communicate with my supervisor to send and receive each stage of my research that I completed..... Yes I do have social media but it’s not for research, I used it just to add my new network of curriculum friends..... The university had enough resources so after school, after I have seen to my family’s supper, my husband would drop me off at campus from 18:00 to about 22:00pm to find all my*

research via the internet. Otherwise I have to pay for my own internet at home which became too expensive in downloading all those articles.”

P3 iterated: *“I could say for SW e-resources I mainly used Google Scholar and Google since I mostly studied from home. Having the internet was very important for my studies, since I don’t live too close to the university to make frequent visits. Therefore I had to get my own internet and choose the best search engine that I could use for my research..... It was costly to use the internet to download all the academic materials that I needed. On weekends I would go to the college to download more information so I didn’t have to spend more money on the internet. But I guess these were the sacrifices I had to make because I wanted that degree..... I also used WhatsApp to talk to others but I didn’t communicate as much as them. I worked more independently..... I participated in the discussion forum where I could see how other people wrote and what their ideas were like. I also had to critique their work and they did the same for me. I didn’t see it as a problem since we helped each other out, and the supervisor was instrumental in the whole process. He gave constant feedback..... Then we had to use Turnitin to put through our thesis for detecting any evidence of copying. I think this programme is good because it helps us avoid any critique from the examiners in marking us down. I do not have Facebook or Twitter or any of these sites that other people have, because I don’t have interest in them, therefore they were in no way beneficial to my research. Those e-resources that I mentioned were extremely helpful, I don’t think I would have managed to finish my studies at my age in two years. Apart from the lectures, I found all the information for my literature review from Google Scholar.....Sometimes I did get a little distracted when I used the internet, like looking for recipes, but I was focused and didn’t spend too much time on those things. You don’t need all the e-resources to do research, just a few that will help you on your way.”*

Then P4 stated: *“I used the search engine of Google Scholar, but I also found it difficult because some of the articles that are important to your research, you cannot access them. You actually need to pay something before you can open that article, which is very expensive. I also used other online journals and sites that I could use for my research, they were very helpful, I could find volumes of information at a time. I enjoyed using these e-resources because it saved me time and it wasn’t too expensive. Most of the time*

I used the university's internet services to download what I needed. There is a special computer venue designed for Masters and Doctoral students, so access to these e-resources were more than sufficient for most students..... As for the discussion forum, it was helpful and it was not helpful I could say. One would put his idea to the forum thinking it is a good idea but others would judge it and that kind of discourages what you are trying to achieve in research. Maybe they don't understand what you are doing, and perhaps I didn't understand theirs. Unless the supervisor comes in and clears up what you are trying to do, then the others understand. Using these e-resources puts you in continuous contact with your study so that you cannot forget about it whilst at work. The WhatsApp group they were always chatting about their research, asking questions and responding, so it was good in a way. I would text someone about a certain research paradigm and they would reply..... I did not use social media like Facebook or Twitter to do anything at all about my research, they were only used to keep connections. I think there are specially designed e-resources for various functions so it shouldn't be confused..... Towards the end of my research when the final write-up was complete I had to submit my work to Turnitin, a special programme designed for identifying plagiarism. I think if the system detects more than a certain percentage of copying you have to go back and revise your work. That was beneficial to help you when your thesis goes to the examiners.”

The findings strongly recommend the SW e-resources of search engines, with emphasis on Google and Google Scholar, email, discussion forum, WhatsApp, and Turnitin as predominantly used by participants. The three factors were each significantly positioned in their responses. The content factor arose through the establishment of the discussion forum and Turnitin envisioned by the Curriculum Studies discipline. This meant that all curriculum students had to participate using both these SW e-resources to engage their research. The discussion forum was set up as an asynchronous research platform that allows the supervisor and students to exchange written text messages that can be viewed at all times. Participants were required to submit their coursework assignments and task to the discussion forum to gain the expertise, insight, and critique of other students and the supervisor. In this manner, each student receives critical feedback which they used to enhance their work that inevitably contributed to the final dissertation. The supervisor stepped in to offer crucial insight as to how challenges could be solved or revision conducted. Others are able to view the comments

and responses as a way to improve their own work, and also adopt research skills of critiquing, evaluating, and analysing. This coincided with the societal factor because students reflected their opinions and thoughts about each other's research tasks. Markel (2001) connotes that such an environment enables students to refine their thinking, construct new ideas from prior knowledge, and maintain a deeper understanding. However, participants also expressed some sentiments of dissatisfaction, as P4 indicated that sometimes other students become too critical of others' work which inadvertently can discourage the student from their ideas. Although P4 participated in the discussion forum he kept some reservations about disclosing too much on the site. Using discussion forum as an e-resource further leads to peer learning, which underscored what the Curriculum Studies discipline partly envisioned. Eventually participants were able to collaborate, form networks, and gain independence in working towards their research. This avoided a hefty reliance on the supervisor, as participants were able to think for themselves or liaise with others. Farren (2008) argues that such activities strengthen Vygotsky's theory of social interaction that produces cognitive research and critical thinking, which represent eminent skills for writing a dissertation. Again the societal factor is reinforced.

Viewing the societal factor in light of Turnitin, reveals that this SW e-resource seeks to eliminate high levels of copying or plagiarism by students. This enables supervisors/course disciplines in preventing their students from stealing another author's work. Participants explained that this was beneficial because it avoided their dissertations from being marked down by examiners who are aware of acts of plagiarism. Once participants had finalised and completed their dissertations they were required to submit it to Turnitin for checking. If the minimum percentage for detecting any form of copying exceeded beyond the expectations, then the participant had to revise their work in order to resubmit to Turnitin. Supervisors had to ensure that each student complied with Turnitin procedures before handing their dissertations in for examination, therefore this informs the content factor, as there is little or no negotiation in adapting to this.

Participants' common use of the search engines Google and Google Scholar propose that they were driven by the societal factor. Chakravarty and Randhawa (2006) opine that these related search engines offer the widest variety of information pertaining to multiple disciplines, ranging from peer-reviewed papers, theses, books, abstracts, and articles from professional societies, universities, academic publishers, and preprint repositories. Participants' responses

through the semi-structured interviews and reflection activity evince that they were influenced by what other students were using and also considered issues such as cost, convenience, and speed. Since these participants were full-time workers involved in part-time studies, they had to bear in mind the feasibility of studying, and the accessibility of using SW e-resources. Moreover, they had to balance family commitments, which indicated that they were looking for resources that would cater for all these concerns. To some extent this overlaps with the personal factor, as participants conceded to their own circumstances such as financial position and family time to impact what SW e-resources they used and how it was implemented.

Participants' engagement with the email also stemmed from the societal factor, because all the students submitted their research to their supervisors using this SW e-resource. Above seeming convenient, it allowed the student and supervisor to download large documents that enabled editing and feedback of the research at various stages. The decision to incorporate the WhatsApp group to reinforce communication stemmed from the societal factor. Participants in conjunction with the supervisor and other students agreed that SW e-resource will help maintain communication about their research, a crucial strategy to support one another. P1, P2, and P3 did make use of WhatsApp to a certain extent, whilst P4 extensively used it to ask questions and provide feedback to others. This suggests that P4 may have been inspired by more than just the societal factor, to include the personal factor too. He displayed that he used the SW e-resource to gain insight beyond just the occasional chat to critically inform his research. Overall, the societal factor appeared significantly evident in participants' use of SW e-resources in doing research. HW and SW e-resources constitute TIE which signifies that research is about using different technological devices. This alone cannot be enough to understand the factors that inform students to use e-resources in conducting their Masters dissertation. Therefore TOE has to be brought into the equation to provide qualitative understanding and interpretation to the meanings that unfold.

6.2.2.3 IDEOLOGICAL-WARE (IW) RESOURCES

IW resources are conditioned by TOE which exhibits resources that inform theoretical assumptions that support the use of HW and SW e-resources. IW resources include research theories or methods; research findings; and experiences of students and supervisors (Khoza, 2012). Amory (2010) argued against an over burdening of HW and SW resources which can produce technology dependent students who are obscured from the true research goals.

Instead IW resources need to be foundational and supportive to implementation of other e-resources in providing a rich and meaningful research experience. Khoza (2013c) proposed that a paradigm shift for sound research practises can only occur with a combination of HW, SW, and IW, the latter being a more dominant component. Despite the potentially great advantages HW and SW e-resources have been said to afford, when these become the central focus of research, the whole process becomes about the technology rather than the ideology. When students are cognisant of theories of learning or particular research knowledge, it enhances the quality and sustainability of their research. Popular theories include that of behaviourism, cognitivism, and constructivism. However, with developments in higher education and the impact of emerging e-resources, other theories have been incorporated into this plethora. These include connectivism; activity theory; technology, pedagogy, and content knowledge; and entertainment-education theory. They are additionally utilised in studies of a curriculum nature (Khoza, 2012; Khoza, 2013c). Being informed by IW resources assists to critically evaluate claims confining students' use of e-resources to specific generations, such as calling them names by the terms of 'digital natives' and 'digital immigrants'. Khoza (2011) attests that IW resources are important in creating e-learning signals that are imperative for effective research to take place and to silence the noise (distractions) that may surface. This suggests that in order for students to competently use HW and SW e-resources in conducting their Masters dissertations, they must be influenced by particular IW resources that can generate factors. Participants commented the following in their use of IW resources:

P1 stated: *"In research at Masters level you cannot only rely on the technology, your writing should reflect how you have used theories and the literature. When I started the coursework I didn't know how we would use these to write, but the lecturers taught us. Since we were curriculum students we were introduced to the Curriculum Spider Web theory, that we could use as a conceptual framework for our research. So we didn't use any other theory, but just used this one to sort of frame our study..... It made sense to use this framework because it related to Maths which my research was about. The Curriculum Spider Web relates to all aspects of research, you could say it's like universal, and it's not difficult to understand. It also makes you to become aware of your role as a teacher and whether you are implementing all these principles..... I was also guided by research design and methodology that was part of the IW resources, because when I became aware of this then my researcher told me that I had to write from this perspective."*

P2 said: *“I looked at the literature around my study and they were mostly based on oral assessment in higher education studies. I saw this as a gap for my study. This is part of the IW resources that shaped my thinking for the research..... I used Curriculum Spider Web to develop my conceptual framework. I used the concepts of rationale, aims, objectives and the rest to understand and present my research. But then when I submitted it to my supervisor for checking he advised me that I should kind of change the principles to make it my own so that my study will be unique. So although I used the Curriculum Spider Web, I made it unique to bring a new IW resource from my research..... My research design and methods were of qualitative nature, and this was also important for my study to be aware of because it influenced how I wrote and how I would present the data.”*

P3 iterated: *“I built my IW resource through the conceptual framework we were taught to develop in Curriculum Studies. At first I struggled because sometimes when you have to do all the readings it is a lot. I studied after so many years. Then I began to find my way, I learnt that you have to use these IW resources to substantiate what you say in your research. Without these they are just loose words..... I looked at Maths concepts particularly how to differentiate them between traditional ways and modern ways. I also looked at strategies of teaching Maths..... Then I thought the case study style of research would be best as an IW for what I was researching. I did not want to research the whole world, just a few Maths educators as my participants.”*

P4 mentioned: *“I used the conceptual framework style to explore my research. I did use the Curriculum Spider Web theory to build my research justification. What I discovered was that some concepts of this theory stood out more than the others. I used some concepts like assessment, content and rationale more than the other curriculum concepts. These were the IW resources that felt were open to almost any type of research. It is not difficult to understand how these concepts relate to research..... I used the concepts to generate themes and categories in presenting the findings of my study..... The research design and methodology I believe is part of IW resources because it guides the process of doing research and adds sense to what you are doing. There is all these steps that must be followed..... When you do the literature review chapter, you have to informed about IW resources that pertain specifically to*

your research, for instance I had to look at the literature in terms of Physical Science, by evaluating what was missing that my research could answer.”

Analysing participants’ experiences reveals that IW resources in terms of conceptual framework mainly centred on the use of the Curriculum Spider Web theory. This projected the content factor because participants’ were influenced by the coursework lectures on using this theory. It appeared that all four participants used this as a conceptual framework to undertake research in their respective subjects they taught. They then identified concepts from the literature and assimilated it with the principles of the Curriculum Spider Web. For instance P3 explained that she viewed concepts of traditional and modern pedagogies of teaching Mathematics and related them to concepts in the conceptual framework. In this process the societal factor emerged because participants were of the opinion that the Curriculum Spider Web concepts are flexible to any research and could therefore be integrated in any study to give meaning. The societal factor also surfaced through participants’ reflections of the curriculum principles applicable to their teaching. The societal factor also gained ground in the research design and methodologies adopted as these were constructed from the social context of each of their studies. The literature was pegged as another IW resource, through which participants derived knowledge with a specific aim to generate concepts and categories to inform their understanding and interpretation of the overall research. They indicated that they had to go through a considerable amount of literature before gaining a perspective. This suggests that the content factor was conditioned because participants developed a sound knowledge base to interrogate research. This filtered onto the next IW resources of research design and methodology. In order for participants to fully explore this part of the research, they had to be circumspect of the literature and conceptual framework to choose methods that would gratify their assumptions. This required deeper reading into these approaches that would best suit the research imperatives. Therefore they were guided by the content factor.

Elliot and Martin (2011) posit that higher education students are usually required to take a course on learning theories (IW resources) as it provides them with intense understanding of how people behave and develop in specific environments. Similarly, participants of this study were informed of the potential and significance of understanding and implementing IW resources in their research through the coursework they first encountered in their studies. Participants’ responses exhibited that they had a stronger foundational knowledge of using

IW resources than those of HW and SW resources. This means that they conducted research while being more informed of the IW resources than the HW and SW resources. Khoza (2012) asserts that this produces good e-learning signals because even though participants used e-resources to do their research, they were firstly and mostly aware of the concepts or principles of research whilst using them. This inculcates the perception that research is about generating meaningful findings using different methods and approaches, and not about the technology itself (Amory, 2010). These perceptions are fuelled poignantly by the content factor with some thread of the societal factor, which elucidates that the personal factor was not a strong motive in driving participants to use IW resources.

6.2.2.4 INTERPRETING E-RESOURCES

The literature categorically divided e-resources into HW, SW, and IW resources and subsequently this impacted how the findings have been presented in this theme. Some interpretation has already been outlined in this regard by exploring participants' experiences. HW and SW e-resources have been associated as TIE because these are resources that can be seen and touched, whilst IW resources embody TOE which implies that these resources cannot be seen or touched. The findings suggest that the relationship between TIE resources and TOE resources is not reciprocal but complementary. This means that IW resources can be independently used without relying on HW and SW e-resources, because the true essence of research can still be achieved (Amory, 2010; Khoza, 2011). These relate to how students used to research traditionally. However, HW and SW e-resources cannot be used in isolation because research then idolises the technology instead of the ideology (IW resources). Current trends of research evaluate the relationship between TIE and TOE as complementary since students use IW resources as foundational to implementing HW and SW e-resources. Students in the modern era want to use HW and SW e-resources in the modern era, because of its significant benefits (Darries, 2004). Therefore, research practises are influenced by these when using IW resources.

From the accounts, participants iterated that the main HW e-resources used were computers, laptops, cell phones, tablets, Smartboards, USBs, overhead projectors, and audio tape recorders, with some use of printers towards the end of their dissertations. Participants used these e-resources informed mostly by the personal factor. The content factor emerged because the university mandated participants to submit their research following certain procedures with regards to typed documents. The societal factor encouraged participants

because this was a global practise of how students presented their research in other societies. They perceived the convenience and cost of using these HW e-resources as feasible and workable to their research needs which heavily weighed in on the personal factor. The personal factor was also instrumental in helping participants to be decisive about how to read the academic articles, whether printed or via their laptops, which were crucial to their understanding. Therefore, the use of HW e-resources was mostly as a consequence of the personal factor because they choose which of these e-resources works best for them for their research.

Although the literature intensely debated several SW e-resources, including those of social media such as Facebook, Twitter, YouTube, and such research tools as chatrooms, this was not the case in this study. Participants indicated the following SW e-resources as mostly employed in their research: search engines (Google and Google Scholar), email, discussion forum, Turnitin, and WhatsApp. This evinces that SW e-resources cannot be applied in general, but have to be uniquely fit to each context. In addition, not all SW e-resources can be regarded as research tools, as all four participants did not use e-resources like Facebook, Twitter, and Instagram. Participants were informed mainly by the societal factor in using SW e-resources. The content factor was pertinent in requiring participants to use Turnitin and the discussion forum to facilitate their research. This was planned and conditioned by the Curriculum Studies discipline. Participants' use of the search engines show that these stemmed from societal factors because other students used them and they were popular e-resources known for containing a multitude of information. The societal factor also led participants to participate in the WhatsApp communication through their cell phones, although only P4 found it particularly helpful in exchanging research knowledge while the others used it follow up on meetings. To some extent, this filtered the personal factor since participants were not instructed to participate in WhatsApp and not all the participants were encouraged by the others to communicate this way. It was merely an individual choice to respond and receive messages this way. Then again this SW e-resource is a social network tool because people exchange social messages rather than formal ones. Evidently the use of SW e-resources is driven by the societal factor in participants' experience of research.

In terms of IW resources, participants mainly utilised the Curriculum Spider Web theory to represent the conceptual framework of their dissertations. This suggests that they were informed by the content factor because the Curriculum Studies discipline developed their

understanding about this theory. This further warranted interrogation of the literature in drawing concepts that could be framed in the ambiance of the Curriculum Spider Web. Therefore, the IW resources included the conceptual frameworks, literature, and research design and methodology that invigorated their understanding and application of research practises. In participants' engagement with the different kinds of literature unique to each of their studies, the content factor was strengthened, as they embraced research that was already conducted and generated claims that have been evidenced to support the assumptions of their research. In their interpretation of the research design and methodology, both the content and the societal factors surfaced. In the first, they were taught through the coursework in curriculum about the various methods and approaches that can be adopted, and for the societal factor, they selected these based on the unique characteristics of the social context of their research. This means that although all the participants used a qualitative approach to present their research, they used different methods of generating data, for example P1 mentioned that she had to drive out to her participants' home to generate data through individual interviews, while P3 was able to predominantly facilitate focus group interviews to obtain her data. The societal factor additionally came through in participants' reflection of the Curriculum Spider Web concepts in their own teaching practises, thereby iterating that this conceptual framework was flexible in being applicable to any type of research or educational context. However, the IW resources were highly afforded by the content factor in guiding participants in using relevant concepts and theories to position their research.

This theme addressed the phenomenon of this study, namely, the factors that inform students to use e-resources. The findings articulate that participants developed a powerful foundational understanding of IW resources to influence their use of specific HW and SW e-resources throughout their research. This was influenced strongly by the content factor. Moreover, participants were firstly influenced by the IW resources in their research, derived from the Curriculum Studies coursework lectures, in order to supplement the use of HW and SW e-resources. This suggests that they selected good e-learning signals that enabled them to use sound research principles to construct their dissertations (Khoza, 2013b). Participants' accounts of their experience using e-resources portray a perception that inclines that they not only want to use these but need to, especially with demands of work, family, and upgrading one's capacity intellectually. All participants indicated that they would have not been able to undertake their research dissertations if these e-resources were not accessible, because it can be challenging to juggle too many things that demand one's attention. As a result of being

exposed to the e-resources participants were able to work full-time and study part-time, thus fulfilling the requirements for a Masters research. In all accounts, participants mentioned that they had carried their HW e-resources to work and used the spare time to continue with their research. If they did not possess these e-resources they admit that they may have not completed their dissertations in time for graduation.

Theme one and theme two have been structured in a way to answer the first research question of the study: “What are the factors that inform Curriculum Studies students to use e-resources in conducting their Masters of Education dissertations at a South African university?” This main research question has been interrogated thoroughly through the presentation of the two themes. Understanding the role of the researcher (theme one) brings important dimensions as to who these research students are, influenced by the three factors that inform their actions and behaviour in regard to the phenomenon of e-resources addressed in theme two. Each factor has been analysed, interpreted, and presented with regards to this. In further evaluating this question, participants’ experiences, values, beliefs, and opinions connote that the content factor mostly related to what was perceived from the university, Curriculum Studies discipline, the literature review built by other scholars and experts in the field of curriculum, theories of research, and the research design and methodology. This was propagated through the use of IW resources. The societal factor emphasised issues such as access to e-resources, influences of how other students were researching, the SW e-resources they used, and how they viewed the environments they taught in which fuelled their need to conduct research. This opines that use of SW e-resources was impacted by the societal factor. Finally, the personal factor was illuminated through participants’ individual aspirations in broadening their knowledge, expanding their career paths into lecturing at higher education institutions, and making personal decisions on which e-resources to use in their own time and space. Therefore the use of HW e-resources is significant of the personal factor. Identifying and interpreting how each factor informs participants’ use of e-resources suggests the mechanisms and detail that involve doing research at postgraduate level. Not only can such findings invigorate existing knowledge about research in curriculum, but also creates awareness among students who want to research further. This increases knowledge about how higher education courses can configure their programmes to bring rationale to the three factors, in that purpose, objectives, and aims may be more transparent to students and assist them in achieving their research targets. The next theme addresses the second research

question of the study, and hence contributes to the overall phenomenon of factors that inform the use of e-resources.

6.2.3 THEME THREE: RESEARCH KNOWLEDGE

In every domain or field of research, knowledge is incomplete and problems are waiting to be identified and solved (Venkataram, 2010). An impetus is placed on students by their careers, personal ambition, family, or educational institution to fill these knowledge gaps. Research knowledge is information or material students must have in order to do research. New dimensions of what we think and know or presume the answer to be can predominantly be filled through scientific enquiry and rigorous research approaches (Somers, 2008). Research becomes less theoretical as the niche for exploratory studies positions researchers as more actively involved in knowledge production by applying discipline-based research skills to generate critical answers. This suggests that students must possess particular research knowledge of a specific field, which can implore credible, worthwhile findings. Hilsden and Verhoef (2004) maintain that the first step in developing research knowledge is to ask questions that have not been asked before. This means that a student must primarily read the literature review pertaining to a specific field, to identify gaps that require answers to be researched. Monash University (2014) recommends that after the literature has been consulted, the next move would be to incorporate a theoretical orientation point. This proposes that the student manoeuvres through various theories of research to have some opinion or point of reference to frame the study. Finally, the student has to develop a plan informing the research design and methodology to generate data that can answer the research questions entailed. Students may use a variety of methods or approaches to strategically design how the data will be obtained. Therefore, in understanding the research knowledge participants should maintain in conducting research, three dominating categories emerge, namely, the literature review, theoretical framework, and the research design and methodology. When these three have been deeply interrogated it informs all other aspects of research knowledge such as the background and problem statement; purpose and objectives; and the findings and concluding remarks of a study. This theme is categorised into the literature review, theoretical framework, and research design and methodology in the assumption of generating factors that influence participants to possess certain research knowledge related to their dissertations.

6.2.3.1 LITERATURE REVIEW

Hilsden and Verhoef (2004) advance that the literature review strategically categorises the problem statement in the context of the research by pinpointing gaps and weaknesses in other studies that can be filled through the new research. A literature review articulates an evaluative account of studies found that are affiliated to a current study under exploration (Boote & Beile, 2005). The review summarises, explains in detail, and clarifies the literature that strengthens present claims indicative by the new research. It is regarded as the most crucial step in the research process as it identifies variables that are related to the title, recognises and supports methodologies and designs, pinpoints inconsistencies and contradictions, and diminishes unintentional replication (Boote & Beile, 2005). The literature flows from the phenomena of the study and therefore this correlation should be evident throughout the research. This means that participants must possess a groundswell of information relative to their topic, and research questions to justifiably present claims and gain support for the gaps they aim to bridge through their research. Before the participant can even begin writing their dissertation, they must ascertain in-depth reading and analysis of academic articles to develop a starting point for their arguments. The construction of the literature must bear evidence of immersion with the work of experts or scholars in the particular field the research is being carried out. In this regard, the study sought to identify the research knowledge, in terms of the literature review, participants used to undertake their research dissertations. They implied the following quotes through semi-structured interviews and the reflection activity.

P1 iterated: *“In the coursework when I learnt about the Curriculum Spider Web issues I was encouraged to read more on this. So I found some online journals that led to me to some articles about these concepts. They were not specific to Maths, the thing I was researching, but they spoke about the curriculum in general. Then I had to understand the concepts broadly to fit my study..... Since my research was focused on the Maths curriculum, I tried to find literature in this area, and I did using the search engines. I then took what others writers were saying and tried to match it to the curriculum concepts. You can say stuff in research without being supported by the evidence, what the scholars are saying..... If you don't have a good grounding of the literature you will be confused your own research. Reading the articles also taught me how to write and construct my sentences, using words that I didn't even use before.”*

P2 mentioned: *“I wanted to understand the rationale of assessment in orals, what actually motivated certain students over others. So my literature at first, was based on Van den Akker’s ten concepts of Curriculum Spider Web. I looked at how other studies tried to use these to match them to their own research. Once I had an idea of this, I then began to identify the specific literature on English oral assessment in collaboration with the ten concepts..... I had to read a lot! It was not easy to find the time, but I was cautious because my supervisor advised me that if I don’t develop a good literature review it will not support the findings in my study. I think that developing the literature was a very important step in the research because whatever it is that you argue, is strengthened by what others have also similarly argued..... When it came to the presentation of my findings I also used my literature again to justify what I had discovered through my research.”*

P3 stated the following: *“The literature review was a critical part of my research because I had to find articles or information that looked at both Maths and Maths Literacy and how the two subjects differ from one another. Sometimes people confuse the two, but the literature demonstrated a significant difference. I compared the two subjects and then looked at strategies from the literature..... I think the literature provides a starting point for a researcher to begin research by asking questions, making comparisons, and finding a gap that your study can fill..... The only thing is that you have to read huge amounts of information, but at least you know that what you are reading is credible because those authors have already conducted research. I then took what I developed from the literature and related it to the Curriculum Spider Web concepts, because these concepts were flexible, and they were not difficult to understand.”*

P4 articulated: *“I looked at various concepts for my literature, but once I understood the Curriculum Spider Web concepts, then I narrowed down what I had initially read. Some concepts dominated over others so when I engaged the literature I focused on certain aspects more than others..... I did look at the literature on Physical Science, but after looking at the curriculum concepts I could say I took a broader approach of how I perceived the subject. Although my focus was on Physical Science but I did not only look at it in terms of the challenges I experienced in the classroom, but at the whole curriculum of the subject..... In my research you could say that the first thing I*

did was read what the experts in my field had to say, and this helped me refine the research questions of my research. The literature helps you to understand what you are trying to say through the data generation and it also adds value to your study because you are building on what others have already discovered. The scholars who write the articles have already done the research, and their beliefs have been proven. So myself as a researcher I can now use that to help my own research.”

The findings generated from participants' immersion with the literature informing their respective studies suggest that they were highly influenced by the content factor. Participants regarded the literature review as the most crucial element in their research. They believed that they were unable to justify the findings of their research without maintaining a good grounding of the literature first. Participants asserted that this was a lengthy process because reading the literature involves time and concentration to pinpoint the relevant concepts or ideologies that would circumvent their own research. This reinforces the content factor because the literature articulates research that has already been initiated, supported by rigorous research methods, and approaches to cement the perceptions. Therefore participants were motivated through the coursework to primarily begin their dissertations by developing sound literature knowledge that can equip them with skills that will enable critical thinking, analysis, evaluation, and interpretation. Moreover, participants were significantly cognisant of the Curriculum Spider Web concepts that shaped and moulded their decisions to pinpoint literature that would address these issues, yet being aware of their phenomenon in each of their studies. Participants expressed that after they traversed the literature it helped them reconfigure the research questions and title of their studies. This indicates they were driven by the content factor to make these changes, which ultimately led them to become advanced critical thinkers. Moreover, the literature was constantly being administered throughout their studies. The document analysis of their theses revealed that they were perpetually aware of curriculum concepts, merged with the concepts from the literature, to represent the findings developed in their research.

Participants' accounts show that they mainly used the e-resource of search engines to inform their search. They located online periodicals, online journals from both local and international sources, and discovered a myriad of information via Google and Google Scholar (Boote & Beile, 2005). All participants revealed that when there is a need for volumes of information that can be helpful to research, it can be very expensive to print, and sometimes retreating to

the library for sources can be met with displeasure as often the books have already been loaned out. Consequently, participants turned to using e-resources mainly to sift through the literature pertaining to each of their research. Although purchasing data for downloading academic articles can also be a financial strain, participants used the free Wi-Fi at the university when they attended coursework or on weekends. The literature established in Chapter Three of this study imparted all three factors as instrumental in guiding students in drawing up the literature. However, the findings elucidate that participants were predominantly disposed by the content factor to develop the literature review for their research in curriculum. This suggests that factors are woven as a result of a specific context, and it is findings such as the one discovered in this study that display rich, qualitative analysis.

6.2.3.2 THEORETICAL FRAMEWORK

The theoretical framework of a research study emphasises the philosophical basis through which the research takes place, and forms the link between the theoretical aspects and practical component of the study conducted (Sinclair, 2007). It is imperative to consider the relevant theory underpinning the knowledge base of the phenomenon to be explored because these will expose opinions and views about a specific field of thought. A theoretical framework also signifies the main research question (hypothesis) of a study, line of inquiry, and methodology governing the research (Ocholla & Le Roux, 2011). Sunday (2016) describes the theoretical framework as a composition of scholarly work based on current knowledge and substantive findings, inclusive of methodological contributions to a particular research. Students first read the literature in order to build the theoretical repertoire. They observe how other scholars or authors have discussed different theories and make a decision on the most apt one for their research. Liu (2010) explains that theories exhibit how research methodologies and patterns have evolved and developed with the progression of society. In today's world education is student-centred and this perception is filtered to institutions that envisage collaboration, interaction, and authenticity within students. Other studies have indicated that the theoretical underpinning of research is governed by all three factors, with some accentuating one over the others. The participants in this study exclaimed the following quotes:

P1 commented: *"I didn't use a theory as such, I used a conceptual framework. So what I did*

was to use the Curriculum Spider Web concepts with the literature concepts to frame my conceptual framework..... I did read other theories like that of activity theory and that TPACK. They were very interesting and would have related to my research. My supervisor advised me that I should choose the conceptual framework route because it seemed best for my study. So I just followed the concepts through because I used them as themes in the presentation of my findings.”

P2 stated: *“I looked at concepts related to English oral assessment in the literature and then I merged it with the ten concepts of curriculum to produce something new. This was a conceptual framework, so there was no specific theory as such, although we were introduced to them in the coursework..... It wasn’t something difficult to do, it’s just that when you study after a long time, things seem to be fuzzy. Therefore these Spider Web concepts were easy to understand and I was able to frame the literature with this so that I sought of produced my own theory at the end of my findings.”*

P3 emphasised: *“I think part of being a research student means you have to develop your own theory. I used the concepts from the Maths literature to integrate them with the Curriculum Spider Web concepts and produce a theory of my study. This is what we were taught in the coursework, to be critical thinkers and be able to analyse and interpret. At first I thought this was going to be hard, but then when you follow the steps of doing research, it take it one at a time..... I did read on many other theories, some were unrelated to my research but I needed to be aware of them. Then when I met with my supervisor, we agreed that I would use the conceptual framework.”*

P4 evinced: *“I only used the conceptual framework by building the curriculum concepts with what I had developed from the literature. I did read on other theories so that I wouldn’t have a narrow view on how to interpret the research. I looked at activity theory because I also included the element of e-resources in my study, and this theory has been used in e-learning environments..... I ended up settling for the conceptual framework so then I could produce my own theory and build from that to doctoral studies..... The curriculum concepts and the Physical Science and e-resource concepts were then integrated to form a new theory in my research.”*

Participants' iterations of the theoretical framework assert that they were prompted by the personal factor. This premise is supported by the perception that they used the conceptual framework of the Curriculum Spider Web concepts and the concepts derived from their unique literature accounts to produce a new theory reflective of their research. To some extent the content and societal factors surfaced. The content factor was instrumental in relating the literature concepts to the curriculum concepts, further facilitated by the reading of other theories to develop participants' research knowledge. The societal factor was underlying in generating the opinions and experiences of how other theories have been implemented in other contexts, thereby producing meaning from that society. However both the content and societal factors are dominated by the personal factor in participants' use of theoretical framework, as they used the personal feelings, opinions, attitudes, beliefs, and assumptions of participants in their own research to theorise their actions and behaviour in the context of the curriculum and literature concepts. Theories are conceptual frameworks that validate how information is processed, received, and retained during research (Wells, 2007). This reaches a person's cognitive, emotional, and environmental ability to develop knowledge, skills, and values. Therefore, participants enunciated the personal factor in skilfully merging two frames of concepts to infiltrate a unique theory representative of the findings in their research. This means that they used the skills of critical thinking, analysis, evaluation, and interpretation to create a theoretical base intuitive of their personal experiences of the problems they identified in their teaching environments coupled with the concepts derived from curriculum. In other words they rationalised their personal encounter into a newly developed theory unique to their research that will contribute to the existing field of studies.

6.2.3.3 RESEARCH DESIGN AND METHODOLOGY

Students are responsible for developing the research design, shaped by the method, to strategise how data will be obtained in research (Richards, 2006). The research design solidifies the empirical nature of the study and connects them to specific sites, persons, and interpretive material, including documents and archives. The research design articulates a flexible set of guidelines that combines theoretical paradigms to strategies of inquiry and methods of getting empirical data (Darko-Ampen, 2003). Paradigms represent fundamental assumptions and beliefs about how the world is perceived and the cognitive framework that guides the behaviour of the student doing research (Jonker & Pennink, 2010). It provides justification for understanding social phenomena that students must understand because it

influences the way they interpret a research study. Methodologies exemplify how inquiries should develop by pinpointing what problems are worth exploring in particular contexts so that relevant data can be generated (Jackson, Drummond & Camara, 2007). Consequently analyses, conclusions, and inferences can be made to reveal tendencies and links. When students engage the methodologies they are further introduced to specific style of doing research, for instance, case study, ethnography, phenomenology, and action research amongst others. They also select particular data generation methods such as interviews, observation, focus group, and document analysis that are best suited to the needs of the participants in a study and their availability. The methods are also related to the paradigm and research approach overshadowing the study. These perceptions about the research design and methodology are affected by the three factors according to the literature, and additionally incorporate that students must be sensitive to these approaches and methods when instituting research. In the context of this study, participants displayed the following comments

P1 affirmed: *“After doing the literature review and conceptual framework, I had to read about the research design and methodology because I wasn’t sure which approaches would be best for me. So then I went back and looked at the literature studies and observed what they had used and tried to use something different in my research. Perhaps I thought that is how to bring uniqueness to your study..... So then I’d decided that I will use a qualitative approach, with case study style. For my data generation I had to physically drive out to do my interviews with my participants, I needed them so I had to make the sacrifice. It was the first time I went to those areas but it was fine because I managed to get their opinions and experiences to support my research. I needed that rich detail because that is what qualitative studies are about. I also got to see the communities that my participants came from so I could understand whether that impacted their teaching strategies in Maths.”*

P2 iterated: *“Since I was interested in qualitative results I used methods and approaches that suited that, so I ended up using one-to-one interviews, focus group interviews and observation. I really wanted to understand the strategies my participants, who were experienced teachers in English, had in teaching oral assessment. Their perceptions were very important to help me find ways to prevent my students from running away from oral assessment..... I used these methods to get that rich information*

envisioned by qualitative studies, and I did..... I used a case study style of research because I did not want too many participants, since I wanted in-depth responses from them. So I kept it small so that I could get the kind of data I wanted. Their opinions and their beliefs about teaching English were valuable to my study, because it brought awareness to me and my readers. I could also understand the environments in which they taught and compared it to mine to determine whether I could achieve the same results..... There are hundreds of articles online to teach students about how to do the research design and methods, so I used them to help me. We also learnt about them in the coursework.”

P3 said: *“In the coursework we were introduced to each stage of doing research. But you still have to learn on your own, because I didn’t learn everything I needed there..... I did a lot of readings at home because I have the internet, so I would search through Google Scholar where I would find online journals that suggested articles on research design and methods..... With my supervisor we agreed that I would use a qualitative framework, and with this comes the usual data methods and approaches. So I went back and read on all those methods. I typed in key words in the online search and a whole list of articles came up. I would then use this to develop my research design and methods chapter. Once I decided on the methods I used them to gain insight from the participants of my study. I needed their experiences to write my findings. They were very willing so I could go further in getting their understanding of teaching Maths and Maths Literacy and then compare them with what the literature said.”*

P4 explained: *“I used research design and methods that would help me get answers about teachers’ reflections in teaching grade 12 Physical Science that was part of the new CAPS curriculum..... I learnt about methods and approaches in the coursework and also through the articles I downloaded off the online journals and search engines. There were so many articles, so I had enough information to write..... For my research I used a critical paradigm so I found related studies that used this and I looked at how they implemented it. I also brought something different from what the literature articles said by using an action research. So it was interesting to me and something different..... I used semi-structured one-to-one interviews and focus group discussion to collect data. They were teachers so naturally they were able to explain in detail the information I was researching. Their reflections consisted of experiences and beliefs*

about teaching with CAPS so it was very informative to my research since I was using a qualitative approach.”

Analysing the findings of participants’ responses of the research design and methodology suggests that they were influenced primarily by the societal factor. This occurred after they engaged various methods, approaches, and paradigms in order to gain the experiences, beliefs, assumptions, and values of participants involved in each of their studies. Hancock (2002) maintains that this embodies qualitative research where the researcher searches deep into the perceptions and experiences of participants to explain a social phenomenon. Therefore participants used approaches such as qualitative research to gather rich, informative, and detailed experiences of their participants. In addition they employed methods that are synonymous with qualitative studies such as one-to-one interviews, observation, and focus group discussion to obtain the opinions and assumptions of the participants’ immersion within a particular society. Therefore these unique experiences and beliefs that they generated elucidates that they were impacted by the societal factor in utilising specific research design and methodology. Moreover apart from being informed by this element of research knowledge, participants in this study significantly used the e-resources of search engines and online journals to build their understanding of how to instrument these methods and approaches.

6.2.3.4 INTERPRETING RESEARCH KNOWLEDGE

The findings extracted from participants of this study indicates that research knowledge is made up of several criteria but dominated by these three being the literature review, theoretical framework, and the research design and methodology. It is perceived that these three guide and inform all other aspects of research. Cumulative to this ideology, three factors of content, societal, and personal, emerged as a consequence of ascertaining specific research knowledge. These factors were not loosely applied, but circumspect to the context surrounding participants’ immersion with research. The literature review represented the scholarly works of experts and authors in the field of knowledge creation who have already implemented measures to verify and strengthen the credibility of their findings (Onwuegbuzie, Leech & Collins, 2012). Participants then began their research journey by first immersing themselves with the literature in order to develop a sound literary base that would enable further exploration of their particular research studies. This suggested that they were strongly impacted by the content factor because literature originates from research that

has already been conducted. Participants used this as a foothold into providing understanding to the problems or challenges they identified with the aim of investigating. The literature subscribed firstly to articles that addressed the Curriculum Spider Web issues, and then manoeuvred to redefined information that particularly focused on the aspects of phenomenon to each of their studies. Participants iterated that they used the library to a minimal extent in sourcing information, but primitively used e-resources such as the search engines and online journals to generate what their studies required. They explained that this was a cheaper and more convenient means of accessing a myriad of information at the touch of a few buttons. All four participants exclaimed that without developing an intensive analysis of the literature review, it's almost impossible to justify the need for a research. Therefore participants' engagement with the literature review to build their research knowledge manifests the content factor.

Interpreting how participants developed their research knowledge about the theoretical framework highlighted the personal factor. Participants integrated their knowledge of the Curriculum Spider Web concepts with the literature concepts of their respective studies to formulate unique theories prescriptive to their individual research (Creswell, 2009). This suggests that they personalised the two worlds of curriculum and literature to create something new and tailored to what they envisioned in their research. Participants used their skills of analysis, evaluation, critical thinking, and interpretation to establish a conceptual framework that produced a theory that contributes to existing plethora of knowledge in curriculum. Cohen et al. (2007) presume that human beings have an innate attribution for wanting to understand the context in which they exist and the phenomena that shape this existence and what it means to them. Therefore this requires the emergence of specific skills to invigorate this process. Although the content and societal factors were instrumental, the personal factor was illuminated as participants reflected on their personal experiences of the societies they taught in to inform their research.

Participants' understanding of the research design and methodology indicated that they had to first comprehend various methods and approaches of conducting research before establishing how data will be generated. Since all of their studies were of a qualitative nature, participants selected methods that would obtain rich, detailed accounts of the phenomenon in each of their studies. This elucidates that they were encouraged by the societal factor because they were interested in gathering the meanings, experiences, beliefs, and assumptions of participants in

their study to contribute to the research they were doing. In further exploring methods and approaches of research design, participants enveloped their understanding by sourcing information from search engines such as Google and Google Scholar, and online journals. They perceived how other studies implemented these and moulded them to coincide with the assumptions of their research. Cumulative to this, they specifically chose methods such as one-to-one interviews and focus group discussions that would provide in-depth data, thereby reinforcing the societal factor.

Interrogating this theme reveals that the literature review, theoretical framework, and research design and methodology are the most important elements of research knowledge. Cultivating strong research knowledge in administering research is influenced by the content, societal, and personal factors (Van den Akker et al, 2009). In immersing with the literature review participants' connoted that they were impacted by the content factor because literature stems from rigorous research approaches that have already been ascertained. The personal factor affected how participants merged the curriculum concepts with the literature concepts to produce new theories. Their own unique beliefs and experiences shaped how they perceived the conceptual framework to a differentiated theory in each of their studies. Then, engaging the research design and methodology exposed the societal factor as participants used the experiences, feelings, opinions, and beliefs of participants in their own research to implore particular methods and approaches in obtaining data. Their participants developed certain behaviours and action after having been immersed with a particular society to add value to the research that was conducted. Therefore research knowledge is emboldened by the literature review, theoretical framework and research design and methodology as the main elements, informed by the three factors. Engeström (1993) enunciates that research knowledge is shaped and transformed into a research dissertation with the assistance of physical and symbolic external and internal mediating e-resources and resources. This means that in the Curriculum CHAT theory research knowledge is considered as the object of the activity, in other words, the primary reasons why researchers opt to participate in research (Yamagata-Lynch, 2010). Research knowledge holistically orients the researcher towards the completion of their dissertation as an activity, verifying why they may select particular resources/e-resources to navigate such a process. The use of e-resources declares that research knowledge is mediated by other principles in Curriculum CHAT, divulging that this is a correlative process where interaction is crucial (Yamagata-Lynch, 2010). Therefore the

next theme deals with the accessibility participants had in conducting their research dissertations, in further attributing the mediating principles of Curriculum CHAT.

6.2.4 THEME FOUR: ACCESSIBILITY

According to Van den Akker et al. (2009) accessibility concentrates on how researchers are allocated to various research trajectories, and with whom these pathways are constructed. It alludes to the parties that are involved in the student's research journey. This includes establishing relationships or associations with the purpose of having access to certain trajectories for the purpose of conducting research. Without being subjected to these, it may be intensely difficult for the student to fulfil their research intentions. Therefore, these trajectories include supervisors, peers, participants of their research, financial sponsors/donors, and the university (Moyo & Pratt, 2014). For the assumptions of this study these trajectories are divided into categories of physical, financial, and cultural access and explain what researchers additionally require to undertake their research projects. These three formulate the main proponents of accessibility, having been influenced by the three factors.

6.2.4.1 PHYSICAL ACCESS

Physical access mitigates the ease with which researchers are able to complement their research by attending meetings/cohorts at the institution at the assigned time. Some researchers are full time employees, and some travel from international countries, which can hamper access to important sessions that may be significant to their study. Deem and Brophy (2000) contend that international and part-time researchers experience the most challenges accessing their peers, academic culture, and the participants of their study, because they are not physically present to work with them. This can be a disadvantage to such students, in not being physically present to obtain first-hand information. Physical access also extends to the health and well-being of the student. Researchers who have particular disabilities may be hampered in engaging in certain activities, as this may slow them down in having to attend treatments. However, institutions are sensitive to this and certain privileges/pardons are warranted to them. Physical access also relates to the contact researchers have with their participants and whether it is convenient for them to locate them to conduct data generation (Khoza, 2015b). In this study physical access is ascertained by means of how I was able to meet with participants as well as their own interaction with participants in their own study. The following comments unfolded as a result of semi-structured interviews and the reflection activity.

P1 said: *“When I starting my research I had a car accident! That really affected my studies because I could not go to campus as I wanted. I could not drive and had to wait till I recovered. Then I would come to campus on weekends if I could and try do some research when I could..... When I was collecting the data I planned to do my group discussion at the school where I did the research. It was planned for a Sunday afternoon when everyone was back from church so I could do the focus group discussion. I planned to do it in the library resource centre of the school. Oh! And then when I get there I could not find the security with the key, and then one of my participants had a problem I had to drive and fetch him, then another lady who also was participating needed to be picked up. I drive all the way to Umbumbulu and Umlazi to fetch them. It was not easy!..... I said to myself I am not going to postpone this discussion with them, I need the research. I had to wait for other participants from Amanzimtoti..... These participants of mine were very supportive to my study because they also valued education, and they too wanted to study. Even though some of them did not have a car, I was willing to fetch them..... Imagine that we all planned to meet a certain time, then when I went searching for the principal of the school, he was nowhere to be found with the keys. Then I had to take all the participants to my home and conduct the interviews there. I had to leave my children with a friend so that my house could be quiet to do the recordings.....It doesn't matter the little bit of struggle I went through because it paid off in the end.”*

P2 mentioned: *“When I started my Masters I did not have a car, so I depended on my husband to drive and fetch me from campus. It was a challenge, because I was studying after school. I would go home to do some cooking and then he would drop me off at campus to do some research from about 18:00pm till about 22:00pm. So if he had anything to do it was a challenge to us. I like this question you asking and I am going to dwell because my son went to play soccer and he was knocked down by a car. I get a call from the hospital and then I had mixed feelings because I thought it was minor, they told me not stress..... When I get there he was half dead, they wanted to remove his leg..... I prayed. On that day ambulances were on strike so he was left to bleed for two hours before getting to the hospital. The artery in his right leg was torn in two places..... Miraculously they did not remove his leg, my prayers were answered..... So these challenges set me back from completing my Masters in*

time, I had to wait to submit the following year..... When I did my research, the participants in my study did call to cancel and I understood, especially after what I have been through. But we rescheduled so that I could obtain the data. They were willing, they were teachers like me, and they too wanted to study after seeing my perseverance.”

P3 iterated: *“I always had physical access to the e-resources I needed. Most of the time I studied at home, if there was a need after coursework I would go to campus, and the resources were always there.....I had the physical access at home so I didn’t have to be at campus, I was disciplined at home..... The participants in my study were teachers, and it wasn’t a challenge to do the interviews with them, they were supportive, and they understood what I was doing because they could relate to my study. Some of the interviews were conducted during school times and their principal allowed them time to participate, so that really helped me. I think if you are nice to people, they will understand, especially if they see you are sincere..... My supervisor was very helpful, I would always get a response when I had questions. That was important because sometimes you can’t move forward if you are stuck and that’s why you need their support and advice.”*

P4 commented: *“Yes I always had access to the e-resources because if you had a student card it meant that you were registered so you could access the research commons lan. That was a place where Masters students could study. It was quiet and peaceful. And there were many computers and of course free Wi-Fi. I spent a lot of time there. That is how I got much of my research done..... I didn’t have any major challenges in doing my research because I was in good communication with my supervisor, he was always available and I was focused in finishing. My supervisor guided me a lot throughout the research, you need that especially if you are a second language speaker of English you will struggle therefore you need the support.....For my participants, I can say they were willing to participate. Since they were teachers they understood the value of education so they made themselves available for the data collection process.....”*

In terms of physical access it appears that participants were informed by the personal factor. They affirmed that they always had access to e-resources because the university made these significantly available to postgraduate students by allocating a specific centre equipped with

computers, Wi-Fi, printers, desks, and chairs (Khoza, 2012). There was sufficient room for all the students therefore they could utilise this space and engage their studies. Participants also vented that they were able to meet in groups and assist each other in the challenges they encountered in their writing of the research. Due to their own ambitions and inhibited motivations these participants were geared towards accomplishing their Masters, therefore they maintained perpetual contact with their supervisors. P1, P2, and P3 met with their supervisor at least once a month, whereas P4 initiated a minimum of two meetings per month. Most of their interaction with the supervisor culminated through email, where they would send the progress of their work for checking and the supervisor responded with corrections and advice (Moyo & Pratt, 2014). There was also some communication via the discussion forum but this was mainly concerned with minor research tasks or assignments. The participants iterated that their supervisor was always available to meet in person and responded quickly through emails. Through their personal endeavour, the supervisor reciprocated positively towards assisting them with their research.

The personal factor was also instrumental in liaison with participants involved in their research. The Masters researchers indicated that they were warm and cordial in approaching research participants who were also teachers to request their participation in the research. These teachers were willing because they valued education and supported the participants in their achievement of attaining a Masters degree. Moreover they responded to the humble approach in which participants greeted and embraced them. P1 expressed that it was no easy challenge in conducting the focus group interviews with participants of her study. These participants were hampered by transport in reaching the vicinity where the discussion was scheduled to take place. In addition, P1 was confronted by the problem of the school being locked and unable to locate the security or principal to get the keys to open. This placed P1 under immense pressure to find a conducive environment for the interview to take place. This was surmounted by having to drive far out and fetch her participants to inform the research. Nevertheless P1 persevered to ensure that this took place by conducting the focus group discussion in her home. This attests to the personal factor because against the odds she persisted using her own ambition and desires for completing the research. In the same spirit, P2 was overcome by the situation of her son being run over. Being concerned about this incident prevented her from submitting her dissertation in that year, but her inner convictions to press on led her to complete the following year. Therefore, physical access to using e-resources is empowered by the personal factor.

6.2.4.2 FINANCIAL ACCESS

Financial access refers to the costs a student will incur as a result of studying and researching, and what monetary resources are accessible to support these needs (Moyo & Pratt, 2014). The University of Western Cape (2015) avows that researchers will have to consider costs for equipment such as a tape-recorder, computer, and scientific equipment as well as services such as transport, internet access, transcription of data, photocopying, binding, library loans, and editing of thesis. These costs can escalate and prove too expensive for researchers to bear, therefore the researcher, in consultation with the supervisor, will plan a budget based on the project and submit to the university who will make funds available through the funding threshold. Certain universities provide bursaries and scholarships that researchers can access where their entire fees or portion of it are covered. Particularly for postgraduate studies, funding is increasingly available. This motivates researchers to pursue their studies to the next level and encourages new researchers to have access. However, in some institutions only full-time students are funded whilst part-time students have to pay for their studies. Researching can be a costly affair, especially when you have to go out and meet participants to generate data. Participants of this study mentioned the following with regards to the financial access their research endured:

P1 said: *“I had to finance my study myself. When I went to the university to apply for a bursary they said that I did not qualify because I was a part-time student..... But I wanted to study so I had to make the sacrifice and pay each month out of my salary..... I found it expensive because I have a family, three children, they have needs. I have to also pay for their school fees..... Apart from paying for the Masters, I had travel to campus often not just for meeting my supervisor but attending the coursework in the first year. Some days I used to go to campus to use the e-resources because it became too costly to use my own internet..... Then I had to travel out to meet and pick up my participants..... So all of this was a financial burden on my budget. This was my sacrifice for my degree.”*

P2 articulated: *“There was no bursary for part-time students, only full-time. What I didn't understand was that the full-time students were also full-time teachers like us, so that was a little unfair..... Paying for my studies was not easy, because besides seeing to my family needs, I had to pay for my son's additional medical costs. I also had to pay for registration fees the third time because my studies were postponed. I battled*

because my husband was dropping off at campus many days in the week, plus coming back to pick me up at night. So you can imagine the petrol costs..... Then I did not want to inconvenience any of my participants so I drove out to them, and I also phoned them on some occasions..... I didn't have any sponsors or donors to support me but I managed. All I can say that it is not cheap..... At least I did not have to spend too much money on e-resources and the internet because I spent a lot of time at the university. Even the participants in my study want to study as well but they are concerned about the fees. Each year fees go up, but at least I am done with that now."

P3 stated: *"I funded my study on my own expenses. When I inquired about financial aid there was nothing for part-time students..... I paid the fees for two years and I knew the D.O.E will not reimburse me. They would only give what is worth half my salary when I graduate, what is that? I had to also bear the costs of meeting with my participants, I didn't want them to be inconvenienced because they were already being good to me by participating I saw this as a good sacrifice in a way that benefited in getting more knowledge, although I had to pay every cent..... Since I studied mostly from home I also had to pay for the internet so I could use the e-resources at my convenience."*

P4 quoted: *"Yes, I paid for my studies on my own. But it was expensive to me because I did a lot of travelling to campus. So you can imagine how much petrol costs were. Then I had to meet with participants so I had to go to them..... When I spoke to other students they were also not aware of financial assistance if you were a part-time student. Some of the students were working full-time like me but they did the full dissertation research which meant that they did not attend the coursework, so they got the bursary..... However I hardly paid for e-resources because I did a lot of search using the campus postgraduate research facility..... I know that when I do doctoral studies than I will get a bursary because I already found out about that."*

Participants' experiences of financial access elucidates that they were impacted by the societal factor (Khoza, 2015b). The university's financial threshold was insufficient to fund each of their studies, which indicates that an onus was placed upon students to provide their own funding. Although this intertwines with the personal factor, the societal factor is evident

in the particular items that constituted the costs of doing research. Over and above the tuition fees of studying at the university, participants had to bear the costs of driving out to meet participants involved in their research. Apart from this, they telephoned them on numerous occasions. P1 iterated that she had to drive out to far out areas to pick up her participants and bring them to the interview focus group discussion and then take them back home. She explains that their opinions and experiences were crucial to her research so she could not allow the opportunity to surpass. Participants in each of their studies are symbols of the society they are immersed in because their experiences of teaching are shaped by the community expectations and characteristics of that unique environment. Therefore the societal factor is instrumental in impacting participants of this study's financial access.

P1, P2, and P4 elicited that the costs of using e-resources were minimal because throughout their research they used the accessibility to the university to deflect these expenses. However, P3 argued that since most of her research took place in the confines of her home, she had to pay for additional data charges. She downloaded several of her articles from her personal internet, and this accumulated the costs of doing research tantamount to the tuition fees for two years. Participants conveyed concern over how bursaries were afforded at the university. P2 felt it unfair that full-time students who were also full-time workers were given bursaries. This means that her perception was fuelled by the societal factor because she liaised with other students to discover this. In addition, participants emphasised that some participants in their studies also desired to study but were worried about the perceived high fees which escalates each year. Again this renders the societal factor as the costs of studying increase each year, thereby discouraging some people from studying. In a nutshell, the societal factor was eminent in understanding participants' relation to financial access.

6.2.4.3 CULTURAL ACCESS

Khoza (2015b) espouses that cultural access rests on issues such as sport, social beliefs, art, religion, and politics. This assimilates with students' background as they use this to inform their projects. These cannot be avoided in research because students are sensitive to them and it informs their perceptions about the world around them. For example, a researcher in Khoza's (2015b) study taught Mathematics because they believed that Mathematics is a respected subject in society, therefore this researcher also adhered to this belief and undertook it at university. In addition, researchers want to be able to have access to different kinds of sports at university by being a part of the official team. They also form religious

organisations that affirm their beliefs and value system of how they grew up. Students participate in these organisations that have already been established by others which suggest that they may be influenced by the content factor. These particular cultural accesses articulate beliefs and values, which are imparted upon students. It therefore informs their views on what to research and how to go about it. In this sense participants in the study divulged the following beliefs:

P1 explained: *“For me culture is about my belief in my religion. I am a person who takes God very seriously in my life. I attend bible studies so that should tell you what is important to me. I know that I managed to do this research studies because of my faith, even when I struggled I prayed. I never looked back at what I was doing; I always saw it as test to move forward with anything in my life..... Even the participants in my study, I had to wait to interview them for the focus group discussion after they had gone to church. That is why I had to drive to them because their first priority was to go to church. I understood them because we shared the same beliefs. “*

P2 stated: *“I am a Christian and you know I am one of those Christians that take church seriously, so what I can say to you is that God is first for me and my family. When I explained about my son, my prayers were answered otherwise his leg would have been lost..... Through that experience I thought I was not going to finish my studies, but everyone was praying at the time and I managed to get the strength a few months later to finish my research. Even though I did not finish in that year, but I eventually did..... I also value sports because I play netball with the other ladies in my team frequently. My family also enjoys sport. In fact, the day that my son got knocked he was coming home from soccer..... I play sports to balance my life out, I have family, I’m studying, and I go to church.”*

P3 iterated: *“I grew up believing that education was extremely important and that we should not stop studying. I’m much older now but that does not stop me from studying. This is what my parents taught me and this is what I taught my children..... I do go to church, but one should know to help themselves. I can say my beliefs are important to my studies because I think that’s what helps you identify goals in your life.”*

P4 conveyed: *“I play soccer at the university for fun, I really enjoy that. You need to be*

involved in things like this to take away the stress of work..... I believe in God, my parents raised my siblings and I with these values. So I am a Christian and I think that shapes who you are and what you do.”

Discovering participants' beliefs and assumptions about cultural access exposes the content factor (Van den Akker et al, 2009). To them cultural access pertained primarily to religion, particularly that of being a Christian. They were practising a faith that has been laid down centuries ago and continues to impact their lives as believers, which suggests that the content factor is prevailing. Although some indications of the personal factor and societal do correspond as a consequence of their personal belief and the people that have informed these perceptions such as pastors or leaders of their churches. Participants evince that faith cannot be left out of the equation of research, because they were taught and believed that your decisions must be blessed, and that success comes from believing in God. All of these participants were church goers, with P1 and P2 attending bible classes. This proposes that cultural knowledge of their religion, or faith as they called it, was an indispensable component of their assumptions and values of studying. Document analysis of their theses revealed that in the introductory pages of their research their acknowledgements cited that they were grateful to God. They enunciated statements of thanksgiving and gratitude to the wisdom and knowledge bestowed upon them through prayers. This meant that the knowledge generated from research was first informed by their prayers and beliefs in their faith. Since knowledge was intercepted from divine intervention this conditions the content factor, as the precepts of religion have been established long ago. Moreover, P1 expressed that her participants shared the same faith as her. Her participants supported her venture of research, since they were taught in church to help one another. Only P2 and P4 acknowledged that sport was an important cultural access in their lives. They played sport to alleviate the pressures of other aspects in their lives, especially their work environments. P2 belonged to a team which encouraged them to take part in competitions against other teams. Again, the content factor is cemented as P2 is also responsible to the demands of the netball organisation.

6.2.4.4 INTERPRETING ACCESSIBILITY

The theme accessibility has been constructed by three categories of physical access, financial access, and cultural access. These avenues of success elicit the particular repositories participants required in order to successfully complete their research dissertations (Van den

Akker et al, 2009). Interpretation in their respective categories has already been presented. This section renders some brief overarching discussion. Interrogating physical access articulated that participants were influenced by the personal factor as they employed their personal ambitions and warm approach to motivate participants in each of their studies to inform the data generation process. They were able to relate to participants in their own study by using their personal experiences and character traits to establish a harmonious relationship. Participants used their shared values for education to stimulate their participation, which reciprocally encouraged them to contemplate studying in the future. In addition, being cognisant of the personal factor, participants negotiated with their supervisors certain meetings in their own terms, for example meeting during the school holidays which symbolised their period of leave. Participants used the e-resources of search engines and online journals to further inform physical access, as P3 mostly studied from home towards her research, based on her own decision. The other participants also inclined to doing research from home and in their spare time at the schools they taught. In overcoming the challenges to physical access, participants pursued against the odds of their personal incidents, like when P2's son was involved in an accident. This suggests that the personal factor is crucial to physical access.

Exploring financial access revealed that participants were impacted by the societal factor (Moyo & Pratt, 2014). All participants indicated that there were no funding provided by the university or private organisations. This meant that they had to bear the costs of full tuition fees as well as expenses of driving out to meet participants of their studies. Conducting data generation has costs involved, particularly for P1 who had travelled in different directions to fetch and drop off her participants in order to conduct the focus group interview discussions. Their experiences and opinions were crucial to her, as with the other participants, which suggest that the societal factor was eminent because their teaching strategies were a consequence of the communities in which they taught. Participants agreed that using e-resources is not a cheap strategy of doing research because it involves purchasing data to access the internet but that it is cheaper than frequently visiting the library for books which might already be loaned out. However, they were grateful that the university provided access to free e-resources to all students. There was a designated postgraduate facility with the sufficient amenities to engage research. Again, this positioned the societal factor. Only P3 indicated that it was costly for her to use e-resources because she mostly studied from home; this was not an extreme cost she explained. Participants also explained that participants of

their study also desired to study but considered the escalating fees of higher education. This perception was infused by the societal factor because of what they had learned from the researcher.

The content factor was illuminated in participants' response to cultural access (Khoza, 2015b). All four participants were Christian and indicated that their beliefs and faith was a significant element in acquiring knowledge to conduct their research dissertations. This reinforces the content factor because cultural elements such as religion have been cemented and filtered centuries ago, where beliefs and values are passed down from one generation to another. Although this does tap into the personal and societal factors, the content factor outplays. Moreover, the beliefs and knowledge that they gain from the teachings they receive in church are foundational to particular interpretations they receive from their respective pastors, or readings of the bible. Participants perceived that the knowledge they used in research was inspired by divine interventions, therefore they cannot ignore that cultural access is an important dimension in attaining a Masters degree. Sport was another element that defined cultural access, particularly for P2 and P4. They valued sport in helping them to alleviate the stress of work life. For P2, she was part of team and participated in games against other teams. This evinced that the content factor permeated her experience; she was expected to participate in competitions and her experience was not about socialising. P2 also indicated that due to her busy schedule, having time to spend at the library searching for books was difficult, therefore she appreciated having access to e-resources to enable her research endeavours.

Understanding accessibility in the Curriculum CHAT theory suggests that the participants (researchers) should consider the nature of the research platform by exploring their expectations in consultation with others, and how these proponents/categories of physical access, financial access, and cultural access can be supported (Joyes, 2006). This advocates that researching is not an isolated process of merely searching for information using e-resources or obtaining data from participants, but an extension of broader activities such as interacting with others that share a common purpose (peers, supervisor) and discovering the diversities within them that clarifies and enhances existing perceptions (Vygotsky, 1978). This provides logical reasoning as to why certain interactions culminate in the research (activity system). Therefore accessibility is mediated by all other principles of research in Curriculum CHAT, signifying that research is not about using the HW and SW e-resources

independently, but considering the IW resources that inform such access. IW resources can be related to accessibility because they explain particular beliefs and assumptions that incorporate what students must have in order to do their research dissertations (Kain & Wardle, 2008).

6.2.5 THEME FIVE: RESEARCH ACTIVITIES

Researchers are expected to articulate and communicate academic work on a professional level (Wahyuni, 2012). A culmination of this means an obligation to certain research activities envisaged by the research process. This process commences with application and registration accompanied with all supporting documents to the faculty of the institution who then appoints a supervisor/s from the interested discipline of the researcher. This is a formal process as documents completion is mandatory, and the researcher can only move on once these have been attained. Documents further include ethical clearance forms that must be followed and submitted before any data can be generated. Trigwell and Dunbar-Goddet (2005) signify the position of the supervisor as crucial in guiding the researcher (student) in the appropriate research principles and methods that should be applied. The supervisor and researcher must negotiate time and location of meetings to ensure that due processes of research are followed. This suggests that the supervisor is an important component of the researcher's journey in completing their dissertations. Cumulative to research activities is the function of the cohort. Designed by course coordinators of a discipline, the cohort is a group of a few supervisors and research students who meet on an ongoing basis to advise them on research skills, methodologies, writing a literature review, understanding the theoretical framework, and how to present the data (The University of Adelaide, 2016). It is essentially about teaching novice researchers how to do research using principles, theories, and assumptions of research. Researchers are equipped with step by step procedures of how to structure each chapter in the writing of the research. They are taught about data generation and how to implement methods and approaches. Through such engagement, researchers are introduced to peers who are, by their very positioning, fellow researchers. They share a common purpose and are able to relate to one another in terms of research. From these discussions it can be established that research activities are defined by three dominating categories of supervisory meetings, cohort sessions and peer involvement. Participants in this study annotated how research activities contributed to their overall presentation of their Masters' dissertations.

6.2.5.1 SUPERVISORY MEETINGS

The supervisor is instrumental in eliciting guidance and assistance in developing the researcher's skills and knowledge to complete the research in the permitted time (The University of Adelaide, 2016). At Masters level, researchers are given a period of two years to fulfil the requirements of submission. In the preliminary stage of a research dissertation the supervisor possesses a deeper understanding of the chosen field of study, however, as time progresses and the researcher's knowledge is increased, the supervisor represents a sounding board for ideas, to review and comment on written work (Chiappetta-Swanson & Watt, 2011). Therefore, the role of the researcher indicates that he/she has to be responsible and focused in attending meetings with the supervisor to understand and formalise the research methods, techniques, and resources that will be used to interrogate the study. Trigwell and Dunbar-Goddet (2005) evinced that formalised guidelines need to be in place that dictate the supervisor's obligation towards the researcher's studies in terms of the minimum time allocated. This alludes that the supervisor assumes an important role in rearing researchers towards acquiring the necessary research skills and knowledge to undertake specific steps in their research. In this regard participants quoted the following as to how this activity unfolded:

P1 said: *"I met with my supervisor very often, and when I was lost I would pop him an email and tell him that I'm lost. I emailed him all the time, when I had a problem I would say to myself I need to speak to the supervisor..... Sometimes I would email him at like 3:00 in the morning and I would get shocked that he would even reply. I wondered whether he sleeps..... My supervisor also advised me in the beginning of my research about filling in the ethical forms, because other students told me that I had to go to Pietermaritzburg for this. I was so confused until he made us fill it at our campus. It's so important not to listen to anyone else but your supervisor..... He was very supportive in my study, I counted on those meetings and communication by email. That is what helped me with my research. He also communicated with all of the other students through discussion forum..... Research sometimes can be hard so you need a supervisor that's always available..... he advised me on how I could refine my topic and the data methods that I should use."*

P2 suggested: *"I met with my supervisor when I needed to, sometimes we would meet every*

three weeks, then I wouldn't see him for a while..... We usually met when I needed corrections or I didn't understand something. He was always available to explain..... I mainly used email to communicate with my supervisor. I always sent through my work and he would email it back to me the areas that needed revision..... I knew that attending these meetings were not only compulsory but necessary for me to attend..... In the beginning of my research if you asked me what a research instrument was I wouldn't even know but after I gained the knowledge from the expert (supervisor) then I began to develop myself. Now I see myself doing doctoral studies in about a year's time."

P3 stated: *"My supervisor and I didn't meet that often because whenever I got stuck or had questions I usually emailed him..... When we met it was usually when I started a new chapter in writing the research. We sometimes met when I needed to discuss in detail then my supervisor would advise me that it was best for us to arrange to meet..... Supervision is very important, they told us that in orientation. So our supervisors had to ensure that we were on the right track. He explained everything to me about to do research..... At first my topic and research questions were very broad but then he helped me narrow them down."*

P4 affirmed: *"I met with my supervisor very often. Whenever I had a problem I went to him. I communicated with him more frequently through email. I would send him my work when I completed a section and he would resend it to me with what I needed to correct. He also advised me what articles I should look at to help me..... He also sent me articles that I should read so that I could understand what I was doing better..... We met on several occasions in his office to discuss and it was in-depth. He always had time for me and other students..... He showed me how to use methods and approaches that could fit my study..... I followed his guidance and that is how I finished my study in time."*

The findings elicited by participants in reference to the supervisory meetings esteem that this was motivated by the content factor. Supervisors are mandated by the university to arrange scheduled meetings in helping students with understanding the principles and assumptions of doing research (Polonsky & Waller, 1998). They guide students on following the correct procedures in research by understanding the literature, methods, approaches, theories, and

presenting the findings of the research. Participants in this study conveyed high regard for their supervisors because it appeared that they fulfilled all their duties such a position should exhibit. The supervisor was punctual to meetings and met timeously according to the participants' request (Chiappetta-Swanson & Watt, 2011). This strengthens the content factor as the supervisor acclimated to the requirements of the university in being available and met with the requests of the students. Although participants met with their supervisors occasionally, besides P4, they were in constant communication through the e-resources of email and discussion forum; however the former was mostly implied. Participants explained that the meetings and communication via email was extremely vital to their understanding of research principles and concepts. P2 expressed that in embarking on the study she almost felt as if she knew nothing on research, but after having acquired knowledge through interaction with the supervisor she is equipped to move a step further on to doctoral studies. Participants expressed that there were several moments in their research where they felt confused or to some extent clueless on how to go about certain procedures. These feelings were quickly diminished through the support they received from their supervisors. Bonk (2006) opines that when students seek the efforts of the supervisor it leads to a higher development of research. This posits that supervisors have a crucial position in rearing students in the right direction of understanding how to undertake research and completion of the dissertation for receiving of a Masters degree. Therefore the content factor informs supervisory meetings between the supervisor and researcher.

6.2.5.2 COHORT SESSIONS

Researchers also commit to other research activities such as attending cohort meetings. A panel of experienced supervisors arrange meetings with various researchers to advise them on research skills, methodologies, writing a literature review, understanding the theoretical framework and how to present the data (The University of Adelaide, 2016). The cohort then consists of supervisors and research students from the same or other disciplines. Such a gathering results in a brainstorming of ideas to assist the student to refine their research topic and questions to target specific issues. Chiappetta-Swanson and Watt (2011) avow that supervisors are instrumental in urging their students to participate in such programmes as it builds their repository. For novice researchers, cohorts serve as a significant platform to capacitate their research skills and knowledge. Participants explained the following:

P1 stated: *"I attended some of the cohort sessions. They took place over weekends.....It*

*was very helpful to me because they taught us how to research at each stage.....
When I started off with my research questions it was there that they helped me to make it
more specific, because I started off broad then I narrowed it down..... My
supervisor was also there giving feedback to all of us.....Then I managed to also
speak to some of the other students, we became friends or colleagues I should say. These
were the students I communicated with through the WhatsApp group..... In the
cohort they taught us how to structure our research. It was many hours so we spent all
the time working on our topics and how to select literature that matches that.”*

P2 said: *“I did attend the cohort, I needed it. They said to us it was important for us to be
there so that we could learn how to prepare our dissertations..... Like I
said when I started off this research I felt like I knew nothing about researching. But
these meetings developed us in a way that we had a plan of how to construct our
projects. We learnt about selecting concepts from the literature and what research books
we could use to help us to write. I would then use what they told us and search for the
articles through Google Scholar.....I did not know what a paradigm
was, although I learnt about it in honours, it still never really made sense. But now I
could see how it frames your study..... There were other students there
and they shared the same struggles that I did, so I didn’t feel alone. We became friends
because we share the same purpose.”*

P3 expressed: *“I didn’t attend the cohorts because it was over weekends and I lived a
distance from the campus. I did manage to meet some of the students who attended, and
we chatted over WhatsApp..... These were students who were also part of the
discussion forum..... I’m sure I would have had better knowledge in
understanding some of the research issues but nevertheless my supervisor advised me.”*

P4 mentioned: *“I attended all of the cohort sessions and I can say I really benefited. It was
very informative in teaching us about how to construct each chapter in your research.
They discussed the different paradigms and methods of collecting data..... To
me I needed this information because at times I felt it hard to write and understand
certain things..... My supervisor was there so we used the discussions
there to build on my study..... Also we could see the progress of other
students because they also discussed their topics and what their study was about. They*

had challenges too so I knew it was normal..... Then we formed a WhatsApp group and some of us were more active than others..... I would ask them questions when struggled and they would respond..... These students were also part of the discussion forum where we critiqued each other's work.”

Participants' experience of the cohort sessions adumbrate that they were confronted by the societal factor in their attendances. They were influenced by the opinions and assumptions of research by other supervisors and students in the cohort. The cohort symbolised a gathering of researchers where they could exchange ideas and knowledge with regards to how research can be structured and implemented for novice researchers (Chiappetta-Swanson & Watt, 2011). Supervisors assumed the lead in teaching participants about how to be selective in the literature review in choosing concepts that can add value to a study. They were introduced to research methods and approaches unique to each paradigm, which participants were previously unaware of. They were encouraged to explore new avenues of doing research that differ from what existing studies present. In addition they were advised how to go out into the field and relate to participants in their own study, taking cognisance of the approach and paradigm (The University of Adelaide, 2016). The cohort was instrumental in the spawning of relationships between supervisors and students, and between students themselves. A WhatsApp group was formed where perpetual communication was envisaged to take place so that students could raise their queries. This was further elicited by the discussion forum that students were required to participate in order to critically evaluate each other's work, with input and monitoring from the supervisor. The cohort represented the interaction between supervisors and students, and between students in interrogating research principles and theories that were crucial to each of their studies. This highlights the societal factor in propagating that the cohort sessions were driven by this, as it produced relationships in which participants felt a little more at ease in communicating their struggles and concerns with research.

6.2.5.3 PEER INVOLVEMENT

Research activities may further incorporate researchers meeting with fellow researchers in the same or similar field to support and guide each other, share resources, and establish communication networks (Khoza, 2013b). Peer involvement is complementary to research practises because students require support in which they liaise with others in sharing the same concerns. Taylor and Martin (2004) suggest that peers often hold an important position in

reviewing others' work by making critical recommendations that assist with understanding the research. This means that peers may possess different knowledge that the student may not perceive at the time, which may be helpful in bring understanding and meaning in applying research knowledge. Roche, Guta and Flicker (2010) state that peer researchers are members of a research dissertation's target population who function as co-researchers. Therefore, peers are trained in particular research skills to assist other students in coherently following due processes of effective research practise. Peer researchers often empower others through their insight and expertise, and additionally serve as a support structure to struggling students. Therefore, the role of peers is crucial in strengthening the researcher's confidence in appropriating effective research practises that are compliant with the research targets.

P1 explained: *“My peers were the other students I met at the cohort meetings. They were students doing Curriculum Studies. We all were unsure about certain things in research, we didn't understand some of the things we had to do. So I guess we related to each other because we wanted to learn these methods and approaches they were teaching us..... Then I would communicate with them through WhatsApp and the discussion forum. We evaluated each other's work through the discussion forum..... They were very helpful and I also helped them where I could.”*

P2 said: *“In terms of peers I can say they were very supportive and helpful because usually when I would go after school to study at the campus, some of them were also there. So if I didn't understand something they were there to assist and I also did the same for them..... Then, since I didn't have a car, I found this lift club of students who were also doing their research so we became like friends. They were also full-time workers and were studying in the afternoons..... I met my peers through the cohort and also when I registered for Masters. We used to attend the cohorts and discuss the issues about our research..... We communicated through the discussion forum to view each other's work and make recommendations..... There was also the WhatsApp group where we would speak sometimes.”*

P3 iterated: *“Although I didn't attend the cohort sessions I did liaise with peers because I met some of them in registration and when I attended the coursework lectures..... We communicated through the discussion forum and the WhatsApp group..... Our conversations were mostly about research and when we needed to ask questions about*

things we were challenged with..... I think it is good to have peers peers because they can identify your mistakes in your project when you can't seem to see them."

P4 explained: *"Yes there were many peers I worked with. We were supportive to each other because I would ask them questions about my dissertation and they would respond.....I attended the cohort so did the others and then we chatted through WhatsApp and also the discussion forum. In the discussion forum I could see their progress and how they were writing because we had to critique each other's work..... I think peers are important because they assist you and I worked with them in the cohort. I think we all shared similar struggles so we could identify with each other."*

From these perceptions about the influence of peers it is clear that this is propagated by the personal factor. Their accounts suggest that liaising with peers was an individual choice. P1, P2, and P4 appear to be mostly impacted by role of peers, while P3 indicated only some involvement as she preferred working independently. However all four participants valued peers, revealing that they were supportive and helpful in times of confusion and struggle with writing their research. P2 and P4 showed the most involvement with peers to the extent that P2 had a peer group that she worked with on a regular basis. P4 divulged that he too was in contact with peers as they assisted one another with queries and concerns about particular issues in their dissertations. The findings propose that discussion forum and the WhatsApp messenger group were significant e-resources that enable this connection with peers. The discussion forum was a platform for them to explore the writings and knowledge of other researchers whilst simultaneously hedging their own assumptions from these (Roche, Guta & Flicker, 2010). This e-resource encountered more detailed experiences as participants developed critical thinking skills and tools for evaluation of research. However, the WhatsApp group was more about exchanging brief messages with one another. Therefore, since the involvement of peers as a constituent of research activities was not compulsory, it therefore provides insights the personal factor as participants were overcome by their inner aspirations to make a decision as to how far to extend this relationship. It was mostly espoused from their own ideas as to whether to engage with peers or not, and if so to what extent this involvement would permeate.

6.2.5.4 INTERPRETING RESEARCH ACTIVITIES

This theme has articulated research activities as all those processes that are complimentary to participants' development of research knowledge using e-resources. Generating the findings has allowed the study to divide research activities into three fundamental categories, namely, supervisory meetings, cohort sessions, and peer involvement. Wahyuni (2012) asserts that researchers must possess particular skills and knowledge to undertake research professionally and ethically. Being informed by these research activities discloses that these were significantly relevant in guiding participants in the right path of doing research because it was developed by the co-ordinators of Curriculum Studies in consultation with the University's beliefs. This opines that research does not only involve going in the field and obtaining data to write a report, but is impacted by other important activities that enable understanding and interpretation of sound research principles. Interrogating how research activities influenced participants exposed the three factors. Some interpretation under each category has already been deliberated. The supervisory meetings were conditioned by the content factor because these were sanctioned by the university. Supervisors were consequently obligated to conduct face-to-face meetings with their students in order to guide their progress in the research (Chiappetta-Swanson & Watt, 2011). This was additionally supplemented by the use of emails in maintaining perpetual communication with participants. Other e-resources facilitating this engagement were the discussion forum and WhatsApp were other students were able to view the communication. However, for personal encounters the email and face-to-face meetings were scheduled. This allowed the supervisor to concentrate primarily on the participant's research, providing intricate knowledge pertaining to their study. All four participants attributed their success of completing their Masters research to the influence of their supervisors. They believe that the role of the supervisor is vital in teaching and guiding the student in literature concepts, theories, and research design and methodology (Polonsky & Waller, 1998). Participants conveyed that their supervisors were always available to provide input at almost any time, and they were punctual to meetings. Moreover they depended on the support of the supervisor as they intercepted each stage of the research to produce chapters. Therefore, when supervisors are informed by the content factor they ensure that their responsibilities to students are carried out. Such practises lead to enhanced research performances and completion of dissertations.

Deliberating cohort sessions as another research activity implies that it was afforded by the societal factor. They built research knowledge and skills from the opinions and assumptions

of other supervisors and students. The cohort symbolised a rostrum for supervisors and students to commune and develop students' knowledge of research principles and practises. It explored each stage in the research from the literature review till the final touches of proposing recommendations and conclusions in a study. This was a platform for participants to form links with peers in assisting each other throughout the research journey. The supervisors initiated the cohorts by giving participants the opportunity to present their ideas of what each of their research entailed, and this would be open to others' input to add value to their study. Participants expressed sentiments of gratitude for the cohort as they began to identify that their struggles or concerns in doing research was not isolated. Other students also iterated their challenges which created an atmosphere of healthy critical engagement. This sparked the development of the WhatsApp group where students could directly relate their concerns beyond the cohort and receive feedback from the others, including supervisors who participated at any given time. This eventually filtered the discussion forum where participants critiqued and evaluated each other's work to provide useful recommendations. Participation in the cohort was not compulsory as P3 did not attend. Therefore this research activity was emphasised by the societal factor as participants were presented with the platform to form links with other research students.

The research activity of peer involvement was significantly galvanised by the personal factor. This was as a result that the onus of maintaining relations with peers was dependent on the participants' own needs of doing research. All four participants affirmed that they experienced peer involvement, with P3 indicating the least. P2 and P4 worked very closely with peers in discussing challenges and providing strategies to each other. P2 was part of a peer group that met more frequently than the others. They usually engaged in the evenings after work, at the designated facility for postgraduate students. They had access to all the relevant e-resources in order to conduct research. Since they were in close proximity while writing, they could gain the assistance of the others when confronted with any concerns in doing their research. Participants iterated that peers were very supportive, informative, and helpful. They encourage each other to pursue their goals until their work is completed. This posits that peer involvement is mitigated by the personal factor in helping students with their research dissertations.

Research activities compounded by the three factors represent a negotiation of tasks and responsibilities in the Curriculum CHAT theory. This suggests that research activities are

divided into responsibilities of supervisory meetings, cohort sessions, and peer involvement where each assumes a distribution of the research task to ensure that the researcher is equipped with necessary knowledge and skills in fulfilling the dissertation's research. Amory (2006) argues that research activities requires deliberating who does what, for instance the supervisor conducts meetings with the researcher while the peers provide support and motivation. This is further influenced by other principles in CHAT such as accessibility and the researcher role in converting this research knowledge into a final dissertation. Such a process explains the various interactions that occur in CHAT where each principle relies on the other to produce meaning, simultaneously being informed by factors to explain their responsibility in the activity. Leont'Ve (1981) enunciates that this activity symbolises a historical process in producing higher cognitive functions where the researcher is geared by an object-oriented mind-set because of the other culminating principles that are at work. This invokes a harmonious atmosphere in the endeavour of doing research, as all the principles of CHAT (e-resources, peers, supervisors, and research knowledge among others) perform their particular duties towards the overall completion of the dissertation.

6.2.6 THEME SIX: RESEARCH ENVIRONMENT AND TIME

Van den Akker et al. (2009) asserts that for developments in curriculum to be homogenous and balanced various concepts of the curriculum (plan for research) need to be intercepted and coherently applied. These concepts include the research environment and time a researcher has and uses to explore research with the purpose of presenting it in their dissertations. The expectations of postgraduate researchers is greater than that of undergraduates as they have to manage more sources of information and display comprehensive knowledge of research skills, principles, and theories reflective of a particular field of thought. Transitioning to postgraduate studies involves a deeper level of independence with the demands of not just sourcing the literature for research but establishing comparisons, inferences, and deciphering relationships among this. This can be a complex challenge particularly for researchers who are full time workers and have to take care of their dependents' needs. Therefore the research environment and time is crucial in stabilising the research process. In a study undertaken by Khoza (2013b) HW, SW, and IW e-resources were used to bring research into the comfort of students' living rooms. This suggests that with the advancement of e-resources researchers can choose to study from almost anywhere, in their available time, provided they have access to these e-resources. Two

categories were used to explore this theme, namely, location and time. Participants indicated the following statements with reference to this:

6.2.6.1 LOCATION

The research environment is about where researchers conduct research from, e.g. libraries, home, the university, or fieldwork. In a study conducted by Budden (2013) on the use of e-resources by postgraduate students, participants in the study indicated they were researching on campus because of the free access to computers and the internet. They also exclaimed that some of their research was done whilst at home or during spare time at work. They upheld the use of the internet (e-resource) as imperative for researchers to access as it makes the process of engaging research more convenient and less time consuming in having to drive to campus. Many researchers in today's world opt for online learning because of its' potential advantages (Darries, 2004), discussed in Chapter Two. In this manner they can study from almost anywhere, provided there is signal. This increases researchers' rate of completing their dissertations which can sometimes be a challenge if they don't have the integral e-resources. Moreover researchers need a place that is conducive to their studying, where sometimes studying at home can be noisy or distracting.

P1 said: *“If I couldn't drive to campus I would study at home. I have everything you will need in an office, all the e-resources, printer, laptop and the internet..... I even studied at work, I would carry all my stuff during exam time and work non-stop. During exam time if I wasn't invigilating I would be researching.....The only time I stopped working when I was involved in a car accident and the doctor advised me not to do anything for a few months. But I didn't wait till so long as soon as I regained my strength I was back at it and that is how I finished my Masters in two years.....When I studied at home I used the internet to find all my articles so it was like being on campus..... The doctor said I should suspend my studies for three months but I just took three weeks if he only knew what I was doing!”*

P2 indicated: *“I preferred studying at the university because when I tried to at home then somebody would come. Then I would attend to them so it took up my time. By the time I actually got down to doing my work I was already tired and it was late. That is the reason why I used to make my husband leave me at campus in the afternoons. Besides at campus I had the necessary e-resources to do my research and I was working with the*

others.....If I spent four hours at campus it was dedicated to my work..... I did study at home, sometimes I'll be like cooking and studying at the same time. My rice used to get over cooked.”

P3 mentioned: *“I mainly studied at home because I had the computer, internet, and whatever else I needed. It wasn't difficult. I was able to download all the articles I needed..... Once I had done the data collection then I had everything I needed to continue my research.”*

P4 exclaimed: *“During the school holidays I would come to campus every week and download all the information I needed..... I did a lot of studying at home, so what I downloaded when I was at campus I would use at home. That is how I managed to finish my studies.”*

Participants' response in the semi-structured interviews and the reflection activity imply that their location in studying was prompted by the societal and personal factors. In the first this became evident when they were studying at campus with their peers. Particularly for P2 who found it more valuable to engage researching at the university because she surrounded by the other research students who assisted her when she was confronted by challenges in her study. P1, P2, and P4 explained that the university had access to all the e-resources (HW, SW and IW) so it was efficient and convenient in conducting research from there (Khoza, 2011). Moreover they were in close proximity to their supervisors so were able to meet them when they were available. They were also researching in the cohort sessions that enable an environment for constructive analysis and evaluation of their dissertations. The personal factor rose in participants' decision to research from home since they wanted to maximise every opportunity to see their dissertations finalised. P4 stated that studying from home was beneficial to her because she lived quite a distance from the university. She would study from late at night till early hours of the morning when it was quiet and peaceful in her home. The accessibility of e-resources in her home made this process even more convenient for her. All participants indicated that they did research from home in order to complete their studies. This suggests that researchers can study from almost anywhere provided they have access to particular e-resources such as the computer (HW), search engine (SW), and academic literature (IW) to conduct their research (Khoza, 2013b). Conole and Alevizou (2010) believe

that such evidence of independent research produces constructive thinking that enables better understanding of how to use e-resources to conduct research.

6.2.6.2 TIME

Research time represents the period in which researchers are given to complete their projects. According to Moyo and Pratt (2014) the stipulated research time for Masters studies at the Durban University of Technology is 2 years, with a maximum of three years. If it is not completed within that stipend the Senate may refuse a continual of re-registration the following year, unless an extension of studies is applied for with the faculty board. An interruption in the study will mean that the researcher has to follow due protocol in making possible requests for additional extension. Some researchers get preoccupied by personal and professional commitments, which connote an additive burden on the researcher to complete their studies in the given time frame. This discussion admonishes the significance of planning and setting targets for completing each stage of the research process (Khoza, 2013b). Each chapter in the dissertation requires sufficient time for providing critical analysis and evaluation. Therefore, the supervisor and researcher may have to be in constant communication and ensure more contact sessions to enable submission of the project.

P1 quoted: *“I studied everyday whenever I got a chance. Sometimes I would spend about three hours. During the holidays I would spend even more time working on my study. Even at school if I had a break of an hour I would use it for the research.”*

P2 said: *“I would finish work at 14:45 in the afternoons and then I would get home. You could say I used to spend about five hours a day..... It wasn't the same hours each week because sometimes I played sport or I had to see to my children, they are in school too.....I studied over the weekends and the holidays too.”*

P3 conveyed: *“I can't say I worked so many hours per week when I started off with my research it depended on my targets, on how far I had been on that chapter..... When it came to August of the second year of doing research I worked on a weekly basis putting in at least 3 hours a day. Some days I spent more hours..... When I came home after work I would sleep while the others in the house were busy. Then I would wake and start studying around 22:00 at night. I worked like this once I had collected all the data.... I would study till 2:00 or 3:00 in the morning and then have a small sleep of*

about two hours and then go to work. My family knew that I needed quiet time when I was studying.”

P4 iterated: *“I would study every day and I usually spent about three hours per day. That is how I managed to finish my Masters in two years. It wasn’t easy but it was done I can say.”*

Concerning research time, this is driven by the content factor because participants were given a period of two years by the university to complete their research dissertations. If they requested additional time as in the case of P2, they have to make a request to the university and provide reasons for this extension (Moyo & Pratt, 2014). However, this involves more costs for the researcher as they have to pay for the registration fees for an additional period. Participants explained that once they were aware of the time frame of two years, they planned each stage of the research by setting benchmarks for how each chapter will be completed by a certain month (Khoza, 2013b). Interrogating the time researchers used for research also lingered on the personal factor because they negotiated their own individual time frames as to when certain target should be met. This negotiation allowed them to be flexible because they had access to their own e-resources (Brin & Page, 1998). For instance, P3 mentioned that initially she was not spending time on a daily basis on her study. However once her data was generated, by August of the second year of Masters research, she started working every day, devoting at least three to four hours per day. All participants revealed that they utilised the school holidays to allocate maximum time towards their research. P4 signalled that in this time he would spend most of the day at campus downloading academic articles to inform his study. Then in the evenings he would begin his writing from home. Participants conveyed that studying for a Masters degree requires time, effort, and dedication; where every spare moment should be maximised in full aim towards the research. Therefore, participants were encouraged to use their free time at work to engage their research. Overall, the content factor dominates participants’ acclimation to time because this was warranted by the university.

6.2.6.3 INTERPRETING RESEARCH ENVIRONMENT AND TIME

The findings from participants’ perceptions about research environment and time allude that these were crucial imperatives that facilitated the construction of their research dissertations. Factors emerged propagating how participants managed the location, from where research was conducted, and the time devoted to ensuring the success of completion, since they had

the basic e-resources (Conole & Alevizou, 2010). Participants' location in researching was convened by the societal and personal factors. The societal factor became apparent when participants researched at university with their peers. Working with other research students meant they could compare and make inferences between their research dissertations. Participants could seek the assistance of peers in clarifying issues and provide constructive feedback. The personal factor was clear in participants' decision to study from home and work. Participants expressed that studying at home was convenient because they possessed all the necessary e-resources such as a laptop and the internet to conduct research. At each stage of their research they would email their work to their supervisors who would then respond with feedback. Therefore, they did not have to be present at the university often. P1, P3, and P4 sometimes did not go to the university for at least a month. Moreover, it was expensive for them to travel on a daily basis to the university, which led them to do most of their writing from home. However, P2 inclined that most of her research was done at the university because there were potential distractions when studying at home. Therefore she was informed more by the societal factor than the others; since she also enjoyed the support she received from her peers. Research time was geared by the content factor because the university allocated two years in which participants were given to complete their dissertations. This means that participants had to strategically structure their work in a way that lead to effective research in completing their dissertations.

In Curriculum CHAT theory, research environment and time is a principle of rules which introduces negotiations of actions and interactions within the activity of participants doing their Masters dissertation (Li & Bratt, 2004). This suggests that once participants were aware of the time frame in which they were given to complete their Masters dissertations they began to strategise from where and when research would take place. This symbolised action. Then, once the action had been operationalised, the interaction culminated through liaison with peers and their respective supervisors. Research environment and time are complimented by another rule of assessment. These give off implicit and explicit norms that create interactions in the activity of doing research. The explicit rules of research environment and time relate to the two years participants were allocated to complete their research. This also included compulsory attendance of the coursework lectures (research environment) where they were learning foundational steps in research. The implicit rules apply to negotiating how they will structure their environment (from where to study) and time (when to study) (Barab, Barnett, Yamagata-Lynch, Squire & Keating, 2002). Kain and Wardle (2008) concur that rules

symbolise a mutual agreement about how an activity materialises in enabling progression in an objective direction. This means that the rules are not rigid but informed as systematically guiding participants in completing their dissertations.

Themes three, four, five, and six have been presented to answer the second research question of this study, “How do Curriculum Studies students use e-resources in conducting their Masters of Education dissertations at a South African university?” Critically exploring each of these themes emphasised the phenomenon of this study being the factors that inform e-resources. Theme three, termed research knowledge, was probed by three categories, literature review, theoretical framework, and research design and methodology. Participants’ immersion with the literature review indicates that they were geared by the content factor because literature stems from studies that have been conducted by scholars who have applied rigorous research approaches to justify their findings and assumptions (Onwuegbuzie, Leech & Collins, 2012). The theoretical framework was underpinned by the personal factor because participants used a conceptual framework comprising of the Curriculum Spider Web and concepts from the literature to produce findings of opinions, feelings, emotions, and experiences of participants in their own research (Cohen et al, 2007). The research design and methodology category was appropriated by the societal factor because participants considered the context of their research in gaining the in-depth meanings of how they related to the respective environments of teaching (Christiansen et al, 2010). Then, theme four related the concept of accessibility which was explained in terms of physical access, financial access, and cultural access. Physical access was motivated by the personal factor because the university offered the necessary e-resources to engage research, although participants also had their own HW and SW e-resources. Therefore it was their personal choice of whether to use the e-resources provided by the university or their own. It also considered the physical access participants had to their own participants in their study, also urged by the personal factor. Financial access was conditioned by the societal factor as it related to the sources (university and private donors) participants wanted to have access to in terms of gaining funding for their research. Cultural access related to the content factor as participants mainly account for their religious beliefs influencing their goals of researching to acquire knowledge and a higher qualification. Sport also emerged as cultural access that P2 and P4 significantly engaged.

Theme five pertained to research activities and this was constructed by supervisory meetings, cohort sessions, and peer involvement. The supervisory meetings were produced by the content factor because the university envisioned that these should take place formally by meeting face-to-face. Participants also expressed that communication with the supervisor culminated through the use of the e-resources of email, WhatsApp, and the discussion forum. The findings suggest that they used e-resources more than face-to-face to ensure perpetual contact. Brin and Page (1998) maintain that the potential e-resources have in enabling independent research prompts students to want to study on their own. The cohort sessions were directed by the societal factor as this facilitated group discussion with other supervisors and research students. This was a platform where they discussed challenges participants were confronted with in research in a bid to provide strategies. The cohort also gave rise to the WhatsApp group formed and channelling of the discussion forum. Peer involvement was afforded by the personal factor as it was purely based on the onus of the participant to keep communication with others. P1, P2 and P4 engaged on a more frequent level to liaise with peers while P3 kept it to a minimal through the discussion forum, preferring to work on her own. Theme six comprised of two categories, being research environment and time. According to participants' accounts the research environment was impacted by the personal factor and societal factor. In the first instance participants chose to study at home or at work because they had their own laptops with internet availability. The societal factor surfaced when participants researched at campus whilst working with peers. Research time was accustomed by the content factor as participants were given two years in which to complete their dissertations for submission.

Interrogating these four themes analyses and explains how participants used e-resources to conduct their dissertations, by first being informed by the factors that propagated their actions. These actions and interactions produced the Curriculum CHAT theory which maintains that research is not a linear, narrow process but an activity of reciprocating principles that interact to lead the researcher towards the research target of completing their dissertations (Thuraisingam et al, 2012). This elucidates that participants were able to research and successfully fulfil their dissertations by articulating research knowledge (theme three), requiring accessibility (theme four), engaging particular research activities (theme five), and negotiating the research environment and time. These represent how participants were informed by the content, societal, and personal factors in doing their Masters research dissertations.

6.2.7 THEME SEVEN: RESEARCH TARGETS

According to Van den Akker et al. (2009) research targets represent the goals towards which researchers are driven in order to accomplish. In many higher education contexts researchers are often unclear about what is expected of them in research, and as such can invoke negative feelings about their research experience. Noddings (2007) postulated that in an era where accountability and emphasis on assessment are crucial in research, the need for clarity in developing purposes, objectives, and research questions are eminent. This ideology is cemented by Johnson's (2012) decree that university research dissertations should be constructed in a way that channels researchers to graduate towards their chosen career paths with the relevant skills, knowledge, and understanding to make informed contributions. Moreover, Nusche (2008) argues that since higher education face scaling pressure to provide accountability and consumer information on the quality of research, existing ratings and rankings tend to neglect purposes, objectives, and research questions. Consequently there is no viable indication whether the knowledge and skills of researchers are critically developed. Given this rationale, considerable consensus reveals that these three propositions should be clarified as an important element of educational processes that can support research targets (Ramsden, 1992; Schwartzman, 2010). These have been categorised into purposes, objectives, and research questions.

6.2.7.1 PURPOSES

Purposes are developed from the perspective of researchers and may convey broad general statements of what they are expected to research (Noddings, 2007). Purposes are also insinuated as aims in some studies (Khoza, 2013a). They reflect the commencement of a research period and the overall intentions of a research dissertation. Purposes are thought of as universal because they symbolise the premise of higher education which filters to each course as an introductory element of what researchers should articulate. From these, corresponding purposes are configured with the content for the design and implementation of how the research will be unpacked. The purpose further informs the research strategies and the assessment tasks used to measure these. It enables the researcher with circumspect direction of appropriate research initiatives that can generate data in writing a thesis. Purposes may further include an explicit rationale for the research project that relates to why and how it holds significance, distinguishing it from other fields of knowledge. In this regard, participants stated the following purposes in their research:

P1 said: *“My purpose was to find the experiences teachers have in teaching grade 10 geometry because I wanted to know the problems they had or challenges in teaching geometry..... My purpose came from my own challenges as a teacher therefore I conducted this study.... In order to do research something must interest you, so find maybe a problem in what you are doing or you see happening..... For me personally I needed to explore this to help myself..... I used Google to find articles around this, like other teachers who are experiencing similar problems in teaching.”*

P2 explained: *“My purpose of my research was to understand teachers’ experiences in teaching oral assessment..... This was chosen because personally I experienced the challenge of my students running away from oral assessment. So I thought maybe I should do something more so that they want to participate..... I have children and I want them to do well, and it’s the same for the learners in the class, their parents want them to do well. So I think it starts with me as a teacher because I will impact the learners.”*

P3 postulated: *“Since I wanted to know for myself as a teacher ways in which Maths can be improved, that is where the purpose came from..... In curriculum we were taught about purpose, objectives, and research questions, and how to construct them..... I looked at other studies and this helped me to position mine..... I knew that these three had to frame my study..... I also wanted to see the difference between strategies in Maths and Maths Literacy, so this caused me to be interested.”*

P4 mentioned: *“My purpose of my Masters study was to develop myself firstly..... I needed to explore how other teachers taught Physical Science because to understand the lessons that can be learned to also improve myself as a teacher..... Therefore my purpose was to understand teachers’ reflections of teaching grade 12 Physical Sciences CAPS..... It was important to understand how teachers interpreted the new CAPS because teaching also comes from you as a person. It affects what happens in the classroom.”*

From participants’ statements about how purposes were instrumental in constituting the research target, these were motivated by the personal factor. Noddings (2007) argued that

purposes in research may be considered as broad or general in nature. This is due to the premise that it comes from the researcher's personal feelings and ideas about what they perceive to spark their interest in conducting research. They are broad because they surface from the initial intentions or aspirations researchers envision when they first identify a challenge. All four participants in this study parallel this assumption by Noddings (2007) because they began to respond in the interviews by reflecting on how the purpose was to develop their selves. They used words such as 'develop myself' or 'personally I experienced the challenge'. P2 mentioned that when she considered the purpose of her study, she thought about herself as a teacher and this intercepted how she went about her research. Participants' iterations inform that they were mainly drawn by the personal factor in discovering the purposes of their research. Participants explained that constructing the written element of purposes was guided by their immersion with other theses they accessed through e-resources such as the search engine. This was also conditioned by the coursework lectures and the cohort sessions that helped them to formalise their intended purposes into statements. Noddings (2007) attests that when purposes are too general, they seem vague and difficult to specifically address. Therefore participants written purposes had to go through a phase of refinement in order to be written in their dissertations.

Upon document analysis of participants' theses it was clear that coherence was maintained between the purpose of their research and the phenomenon in each of their studies. The initial assumptions of the literature review suggested that the purpose was strengthened by the content factor; however participants' statements declare that they have been propelled by the personal factor in deriving purposes towards the research target. Blake, Smith and Standish (1998) concur that the purpose of a research should include a tradition of enquiry which demonstrates continuities in the sets of problems. In this spirit, participants were confronted by their personal challenges as teachers in their respective subjects and used the feelings and experiences that emerged to explore the purpose of conducting research.

6.2.7.2 OBJECTIVES

Objectives stem from the purpose and are explicit statements of what the researcher will achieve throughout the research project (Williamson, 2008). This suggests that objectives are formal intentions in achieving the research target. In various educational settings purposes and objectives are esteemed synonymous and are therefore used interchangeably. However, Noddings (2007) argues that purposes can sometimes appear vague in nature whilst

objectives provide measurement. The purpose/s provides an indication of what a researcher may research from their personal beliefs and how they may benefit from such a process. In most instances purposes hardly divulge any details of how assessment evolves and whether research has been effective. In this regard, Hussey and Smith (2002) adumbrate that objectives are likely to be distinct statements of research directly related to a domain of knowledge or course that help researchers identify how assessment takes place and the success of such.

P1 expressed: *“I used my purpose to define my objectives..... I learnt how to do this from the coursework we attended and from reading other theses and articles..... I got these from the internet, mainly from Google..... Also my supervisor advised me on them once I had developed them..... The purpose, objectives, and research questions had to be in line, matching each other and they needed to flow throughout the study..... Curriculum Studies teaches you about these, because it is an important part of any curriculum.”*

P2 evinced: *“My objectives came from my purpose..... I went and checked the grade 9 performances in oral assessment to see if there was a trend..... I chose grade 10 because that is the FET phase and I wanted to check if there was this transition from grade 9 to grade 10..... So I checked the CAPS document for what they were saying should be done in oral assessment and I compared because I thought maybe they didn’t do this type of orals in grade 9..... When the ground is not fertile in grade 10 how are they going to perform in grade 12? So I wanted to check with these teachers, I wanted to get more, as to whether they were strictly following what CAPS was saying.”*

P3 indicated: *“The objectives came after reading the literature and also attending the course work..... Then while at home I would read articles I downloaded them from the internet, I used Google Scholar..... These helped me make my questions more specific to what I wanted to research because when I started off it didn’t look like that..... My supervisor also checked them when I had submitted it to him.”*

P4 confirmed: *“The objectives came from the purpose that’s how I knew to write*

them..... We were taught in the cohort how to construct these..... Also I read the articles and looked at how others theses had showed them..... The articles were the ones I downloaded from Google Scholar and another online journal.”

Direct quotes from participants elucidate the content factor as instrumental in prompting them to construct objectives of their research. Participants were driven by this factor because they cited that they were taught in coursework lectures and cohort sessions about the contents and construction of objectives. They considered them as formal written statements that were related to the phenomenon of their studies. Hussey and Smith (2007) provides conflicting views in that objectives as specific statements of research because they are directly linked to a field of knowledge but disagrees that they are linked to the title which includes the phenomenon of a research. Alternatively, these participants were taught that purpose, objectives, and research questions should materialise concurrently in research thereby showing flow and correlation. The content factor was further cemented when participants exclaimed that they sought academic articles and theses of other researchers from the e-resource of search engines such as Google and Google Scholar, with reference to developing their own understanding in informing how to draft their objectives. Khoza (2013b) postulated in a study that objectives are an indication of good e-learning signals because researchers may acquire a greater level of understanding curriculum knowledge (IW resource) which leads to better research output. Objectives are influenced by the content factor because they are derived from the research and reflect what researchers are expected to exhibit about that specific knowledge. The literature review presented both the content and personal factors, but the findings from this study exhibit the content factor. This is a qualitative study suggesting it is unique in nature because it employs a case study style of research specific to a particular context; therefore the cultivation of only the content factor is sustained.

6.2.7.3 RESEARCH QUESTIONS

Research questions serve to represent a statement of what a researcher is expected to know, understand, and be able to demonstrate at the end of a research task. Research questions are mostly replaced with the concept of learning outcomes in some studies; however, in the context of this study it is appropriate to articulate them as the former because research at Masters level does not have outcomes but rather research questions used to extrapolate whether the study has fulfilled its research targets. Research questions parallel the competence-based curriculum as a model of educational scaffolding that emphasises clear

and explicit identification, statement, and assessment of research (Adam, 2004). In current times, the incentives of research have permeated higher education systems within the context of qualifications framework to bridge the gap between knowledge development and workplace demands (Bergan, 2007). This strategy is galvanised by the move to authorise a broader set of qualifications amongst researchers than subjecting research to a particular discipline or profession. Therefore, research questions have substituted learning outcomes to ensconce the intentions of research at this level of education. Moreover, Nusche (2008) contends that defining curricula in hindsight of research questions is an important step in comparative assessment and measurement of research performance in a feasible way. This suggests that research questions seek to ask questions based on prevalent issues in curriculum and allows the researcher to analyse and evaluate the phenomenon. Exploring how participants constructed the research questions of their study, revealed the following comments.

P1 mentioned: *“My research questions were ‘What are the experiences of teaching geometry and why do they have those experiences?’ These were my main research questions and I had them because I realised that all the time students complain about Maths. It is not only a problem in my school but in many.....Every year the Maths results are bad, so many are failing..... So I conducted the research to find ways that can improve the results through better strategies..... In the cohort sessions we spoke about how to construct our questions, also I downloaded articles on research and other theses to see how they formulated these. My supervisor also advised me a lot.”*

P2 iterated: *“My research questions were about teachers experiences in conducting oral assessment in grade 10 and what these were. I also looked at the why part of it so that I could explore my study more..... At first I thought I only needed one research question but when I looked at other student’s theses I realised I need to have at least two..... I located these theses from the library and on Google Scholar..... In fact they taught us in the cohort how to align the purposes, objective, and research questions.”*

P3 said: *“The main research questions were based on the strategies teachers use in teaching*

certain concepts in Maths and why do they use them..... These questions were the main target of my study and they came from seeing how my learners struggled in class..... The Maths results are not good so we have to find ways to help them..... Each year students struggle with their Maths and I see it year after year, that is why I did my research based on this.”

P4 conveyed: *“I wanted to engage other teachers who were my participants to reflect on their teaching, not only to provide me with information for my research. As I said that my research was in the critical paradigm which seeks to cause change. So by these teachers reflecting it would cause them to change their teaching practises of teaching Physical Science in a better way that will perhaps produce better results..... The main thing was for them to transform their teaching practises..... This is needed to help those learners who are struggling with the subject, so we have to look at that.”*

Exploring participants’ responses to the research questions advocate that they were encouraged by the societal factor. The research questions were created to gain the experiences, perceptions, and beliefs of participants in their studies to inform teaching strategies in a certain context. This proposes the societal factor because P2 expressed earlier that teachers teach based on what that community or society expects from them. Therefore, participants derived research questions not only based on the challenges they experienced personally, but also what they discovered from liaising with teachers in other schools and being influenced by the environment that surrounds them. According to the literature, the dispensation of research questions in higher education satisfies a broader set of expectations about what researchers should gain from their studies (Aamodt & Hovdhaugen, 2008). For society, a significant element of tertiary studies is to prepare researchers for future endeavours. Instituting qualifications frameworks incorporating research questions as instruments of progressive education assists governments, employers, and international labour markets to understand what researchers have learnt and how this may benefit society, simultaneously advantaging the researcher with employment (Bergan, 2007). This advances that research questions are societal in nature because they aim to serve a greater purpose beyond the immediate dissertation. It seeks to answer questions in society, for instances like what P1 and P3 mentioned about understanding why so many learners perform so poorly in Mathematics and Mathematics Literacy.

Participants explained in first developing their research questions that they began from a broad angle. They consequently sought other studies and theses obtained from the library and the e-resource of search engine to gain some perspective. Moreover, the cohort sessions, coursework and supervisory meetings allowed them to circumspectly refine their research questions to their research. Again Khoza (2013b) contends that using e-resources is an extension of a good e-learning signal in formulating research questions. Traversing the literature review revealed that all three factors were prominent, but in the context of this study, participants development of research questions is aroused by the societal factor.

6.2.7.4 INTERPRETING RESEARCH TARGETS

This theme has produced three categories of purposes, objectives, and research questions influenced by the three factors of personal, content, and societal respectively. Interpretation around these has already been discussed, with this section providing some concluding assumptions. The research target forms the crux of any research undertaken because it impacts the entire study from the construction of literature review till the finality of assumptions and conclusions, which essentially represent research knowledge. Kain and Wardle (2008) point out that the research target and research knowledge are ongoing and reciprocal to all the other principles in Curriculum CHAT theory. The participants (researcher role) uses e-resources/resources to inform their research knowledge and reach the desired research targets based on their interpretation of the whole process, simultaneously consulting with the supervisor, peers, and the cohort. They are motivated to implement e-resources because they want to achieve something and the e-resources facilitate this process. Engeström (1987) defines research knowledge (object) as the ‘raw material’ or ‘problem space’ at which the activity is directed and then transformed into research targets (goals) with the assistance of physical and symbolic mediating resources/e-resources. In working towards developing research knowledge, the research target is transformed over time. Inevitably, what was initially envisaged mentally has been externalised in the form of research targets (Tsai et al, 2010). An activity instantaneously carries artefacts such as procedures, signs, instruments, laws, and methods that are moulded, developed, and manipulated to exhibit actions that produce research knowledge (Uden, 2007). These are unequivocally driven towards achieving a goal which is the research target. The research target represents the intended purpose of the activity and motivates the other principles to harmonise with this endeavour (Joyes, 2006). These assumptions from the Curriculum CHAT theory cannot be ignored because it places the researcher in a position to interact with all the principles in pursuit of the

research target, being the completion of their Masters dissertation. It also symbolises the reality of what transpires throughout a participant's research journey of the two years or more of studying, negotiated by the content, societal, and personal factors.

6.2.8 THEME EIGHT: ASSESSMENT

This theme is the final one interrogated to analyse and interpret the findings generated from employing specific data methods. Together with theme seven, these seek to answer the third research question of the study. Assessment is pivotal to research and connotes what is researched and how this process unfolds. It involves making assumptions about existence, and how people may know about this through research (Knight, 2002). Essentially, assessment involves measuring performance of a task, activity, test, assignment or exam against particular criteria that denotes levels for achievement (Yorke, 2003). Moran (2000) evinces that assessors who evaluate the assessment with the intention of awarding a mark or level do so in correlating the evidence and criteria, and make judgements based on these. In higher education, research is measured against researcher's ability to effectively carry out research by complying with specific theories and principles of research. This included developing a thorough account of the literature, implementing a theoretical framework, employing a particular research design and methodologies, and being able to conceptualise these in presenting the findings (Boote & Beile, 2005; Sinclair, 2007; Nieuwenhuis, 2010). Kennedy et al. (2006) describe assessment in terms of formative (assessment for learning), summative (assessment of learning), and peer (assessment as learning). According to them, formative, summative, and peer assessment are the main types of assessment initiated in curriculum research; therefore this resonates with the assumptions of this study and will consequently be explored in terms of how participants related to them.

6.2.8.1 FORMATIVE ASSESSMENT

Formative assessment (assessment for learning) is usually maintained at the inception stage and duration of a research as it provides a diagnosis of how the researcher is progressing throughout the research process. It also gives developmental feedback to a researcher on their current understanding of research knowledge and enables them with skills to conduct effective practises. This propels the researcher to review their progress and make necessary adjustments to enhance their performance (JISC, 2007; Carroll, 1995). Moreover, formative assessment enables good communication between the supervisor and researcher since they will regularly meet for contact sessions. The contact sessions are formal formative

assessment because the supervisor perpetually monitors the progress of the researcher's project each time they communicate. Feedback is permitted through advice and recommendations about how the dissertation can be improved. Subsequent to this, resides the influence of family and friends who offer support and motivation towards the researcher's achievement. This refers to informal formative assessment (Yorke, 2003). Yorke (2003) espouses that formative assessment places the researcher at the centre of research where it is about developing research knowledge that enhances understanding and analyses. It focuses on their perceptions and understandings about research, whereby they discover methods that are relevant to their research. In this regard, participants commented the following as to how formative assessment materialised in research:

P1 explained: *"I was aware of the assessment because my supervisor explained to me how it will take place..... The formative part was through the coursework when I did my assignments and tasks that they gave us to do.....I knew what formative assessment was because it was what they taught us in lectures as part of curriculum..... Then my supervisor and I met often and he used to check on my progress whether I was on the right track so that was also formative assessment. I used to email him my work in advance the day before we met so when I go there he had an idea of what I was doing. My supervisor was very supportive and wanted to ensure that I understood research. My family was also supportive, for instance my sister had kept my children the day I conducted the focus discussion interviews in my home."*

P2 conveyed: *"For my first year since I was doing coursework the formative assessment was for assignments that we were expected to do. They usually gave us assignments based on developing our research knowledge and skills..... They informed us before we could start the Masters programme what it entailed. Since we were part time students we had to do these while the full time did not do the coursework..... For my assignments I used Google and Google Scholar to get my information to do the assignments..... I met with my supervisor where he used to check my work and see the progress I had made, but that was mostly in the second year of my study. I used to email him my work and then when I attended the meetings I would write down all the points he said I should correct and then go back and correct them. This was ongoing after I had completed each section in my study. I can say I had a good supervisor, he assisted me with what I needed..... My*

family was very supportive, especially my husband who day after day would drop me off at campus to study and come at like 22:00 at night to fetch me.”

P3 quoted: *“During the coursework we were taught about assessment in curriculum and they also explained how assessment would take place for us..... Formative assessment did take place in the first year when I was doing the modules. We had to submit assignments [for] which we received marks..... Also I met with my supervisor and then we would go over the progress I had achieved at each stage of my study. I only emailed him my work because it was convenient and then he would outline corrections which I would go back and change..... This was very important because sometimes you don't realise when you are off track so the supervisor is there to advise you.”*

P4 stated: *“Formative assessment took place in the first year where we had to do assignments and submit for marking. For that whole year we learnt about how to do research in preparing us for our final thesis in second year..... Then in second year we met with our supervisors mainly to guide us in writing our thesis. I met with my supervisor often and he would check my work which I sent him through email. He responded with how I should do my corrections and what needed to be changed to improve my writing..... My supervisor was very supportive throughout my study and my family. I owe what I have to my parents.”*

The discussion reveals that two types of formative assessments took place, assignments and meetings with the supervisor, and these were conditioned by the personal factor. This assumption is supported by the notion that formative assessment is researcher-centred which suggests that understandings and knowledge are also shaped by their own perceptions (Yorke, 2003). Researchers intuitively manoeuvred the knowledge obtained from the coursework and engagement with the supervisor to fit their feelings and beliefs about their research projects. JISC (2007) attest that formative assessment usually takes place at the beginning of research. Participants confirmed that they began to learn about theories and principles of research in the coursework of the first year of the Masters programme. This fuelled their own beliefs and assumptions about research, as they sought to merge the challenges they experienced in their relative environments to the knowledge acquired in the lectures.

Formative assessments enabled the use of e-resources such as discussion forum, search engines, WhatsApp, and email. During the coursework participants were introduced to the different types of assessment that take place at higher education, as they were immersed with assessment strategies of school-based level. The coursework represented the commencement of assessment so therefore constituted formative assessment. This entailed completion of assignments and tasks researchers were expected to submit for being awarded a result at the end of the year. Participants utilised search engines to generate these. Further, once they had completed their formative assessments they were requested to submit them through the discussion forum for analyses and evaluation by other research students of curriculum. The supervisor also provided valuable feedback on the discussion forum to participants' formative assessments. Although participants were awarded a mark for participating in the discussion forum which intercepts the societal factor and the content factor, the personal factor was highlighted through the additional responses. Participants indicated that some researchers were more active than others.

Although the supervisory meetings are driven by the content factor as explained earlier, the personal factor outplayed through the various meetings that were conducted. The university does stipulate that such engagements must culminate, but the way in which it is induced connotes the personal factor. For instance, participants expressed that the supervisors were always willing to meet, even when it was a random request, or an unscheduled meeting. Additionally, supervisors showed care and concern for participants' personal circumstances such as when P2's son was involved in an accident and had to delay her studies and graduate later than the others. This suggests that the supervisor's support makes a significant difference on participants' initiative and ability to research with the intentions of accomplishing the dissertation. Moreover, such engagement produces feedback which Yorke (2003) confirms leads to improved research. Participants conveyed that before attending the meetings with the supervisor, they would email their research for review. The supervisor would then check this and provide recommendations and advise on how it could be revised to add credibility and value to their studies. This is usually what the meetings entailed; constructive feedback used to inform critical thinking of participants.

6.2.8.2 SUMMATIVE ASSESSMENT

Summative assessment (assessment of learning) articulates the final assessment of a researcher's achievement, which entitles them to a qualification of a Masters degree (JISC,

2003). Each discipline is associated with its own dispositions, skills, and knowledge that are valued. Consequently researchers in higher education are expected to understand the relevance of the material; develop discipline-specific skills; and display evidence of strategic relevance of literary and theoretical research that procure achievement (Knight, 2002). This occurs at the end of the research period, once the data has been analysed and interpreted in printed form, ready for submission to examiners who will award a mark. The researcher's project is sent to at least two examiners before the results can be disclosed. This mark does not only show a measure of the researcher's achievement but a description of what has been achieved and how the research can be improved (feedback) (Biggs, 2003). Knight (2002) suggests that the feedback is a performance indicator for the researcher so that they can establish their strengths and weaknesses of the research. Moreover, feedback enables higher cognitive learning because when researchers identify the shortcoming of their study, they seek to rectify these by showing evidence of improvement to the examiner. Dalziel (1998) connotes that examiners usually have a developed criteria in which to assess researchers' dissertation, and this often includes searching for the validity and reliability of the study. They also tend to view how research knowledge of the literature, theory, methods, and approaches has been designed to flow throughout the study. Participants iterated the following statements as to how summative assessment impacted their research:

P1 said: *"At the beginning of Masters, all the students were told how the assessment would Take place. I knew that in second year I would do a final thesis, which was the main thing for examination. My supervisor explained that once my thesis was complete it would be sent to two examiners..... It happened in the second year so that the first year would prepare us for how to do research..... I used my computer, internet, search engines and others to write my thesis..... I was so glad to pass and get my Masters, especially if you knew what I went through with that accident, you would think I wasn't going to finish in that year..... The examiners sent my mark with a report indicating what was good and the things that I had to correct..... Then I corrected those things and made a list of them and sent it to my supervisor..... After that I was ready to print them into hard copy books."*

P2 mentioned: *"I knew what the summative assessment was that our final thesis would be sent to two examiners.....So the whole of the second year was dedicated to writing the thesis with skills and knowledge we gained from coursework."*

P3 affirmed: *“The final thesis was sent to two examiners who then gave you a mark for what you have presented in your thesis. My supervisor explained this to me..... In the second year I began writing my thesis..... I used my laptop so often, and then Google and Google Scholar to search for my information..... I had to finish in that two years so I worked frequently in that period..... When the examiners had finished marking the thesis they send it back to you for minor corrections which you have to do and send to your supervisor. After you have done that you bind your thesis into books which the library and your supervisor receives a copy.”*

P4 responded: *“The summative assessment was the final thesis I submitted in second year. In the coursework they explained how assessment would take place. I was aware that it will be sent to examiners..... I wanted to do well so that I could do my doctoral studies and further my education..... I worked with my laptop and the internet on a daily basis the year I done my thesis, it was a lot of work because I had to find articles to support my study, and then present the findings based on the knowledge you gained.”*

Participants direct statements declare that they were motivated by the content factor in their interpretation of the summative assessment. Kennedy et al. (2006) concur that summative assessment generally occurs at the end of a research period. In this case, participants were given two years to complete their Masters dissertations with the full assumption that a thesis will have to be submitted for examination purposes in the second year of studying. The summative assessment referred to the thesis participants were expected to develop apart from the coursework they undertook in the first year. This must be completed and submitted to be awarded with a Masters degree. Knight (2002) argues that researchers are expected to understand the importance of the academic material in developing their theses by articulating discipline-specific skills, literature knowledge, theoretical imperatives, and design of research in accordance with methods and approaches to inform the writing of the dissertation. Therefore, this propagates the content factor in leading participants in summative assessment. Document analysis revealed that participants were able to coherently and effectively apply research knowledge to their research questions and phenomenon. Participants mentioned that they used HW, SW, and IW e-resources to conduct their final thesis. These were driven by the advantages of convenience, accessibility, and cheaper costs, which helped all four participants throughout their research. In preparing to submit their summative assessment,

participants were aware of the criteria examiners might look for when evaluating their work. Dalziel (1998) confirms that examiners have explicit criteria in traversing the research to pinpoint how research knowledge has been applied to the interrogation of findings. Participants' supervisors guided them in selecting research knowledge that would be apt to their title and research questions. In addition, participants described that once their results were ascertained, a feedback report was provided. This assisted researchers in developing higher cognitive understanding because they identified their mistakes and made revisions (Biggs, 2003). As a result, the content factor encourages the use of summative assessments.

6.2.8.3 PEER ASSESSMENT

Assessment as learning refers to peer assessment where colleagues, friends, and fellow researchers are in some way involved in a researcher's journey through their studies (Khoza, 2015b). Research activities incorporate researchers' attendance in cohort sessions that seek to empower and enhance understanding of research principles and theories (The University of Adelaide, 2016). Cumulative to this process requires researchers critiquing and examining others' work and presentations. The peer assessment accelerates researchers' ideas by observing how others have conducted their studies, at what stage in the research process they have reached, and the language style maintained. This propels researchers onto the next level through motivation and enhanced understanding of research concepts. Researchers hedge networks through such engagements where the communication is perpetual beyond the cohort sessions to enable feedback and constructive criticism. Although they may not always have the opportunity to meet physically, but through the use of e-resource tools such as discussion forums and social media the networking is preserved (Farren, 2008). Astin (1997) argues that acquiring achievement in research, which can relate to conducting each stage of the dissertation using sound research principles, is related to engagement with others. Knight (2002) contends that engagement is not primarily about the time researchers spend on a specific task, but also includes their engagement in communities of practise, and their ability to become functional in networking and interchanging with others. This suggests that peer assessment, a social act, can be a vital stimulus for affording a deeper understanding of research knowledge. Brown and Duguid (2000) advocate that when researchers interact in communities of research and networking, it introduces them to research strategies or principles that might have not been declared in advance. Participants emphasised the following enunciations through the data generation methods:

P1 iterated: *“Peer assessment did take place. In the discussion forum our supervisor told us to post our assignment where other students had to critically evaluate them..... At first. I wondered what the others would think of my work but then we got used to it since they are also students so they may have had some struggle like I did..... Also in the cohort we used to assist each other when we would check each other’s work, topic, research questions, all that..... The WhatsApp group sometimes students would ask questions if they were doing something right in their studies, so that was where we also engaged.”*

P2 explained: *“I wasn’t quite aware that peer assessment was actually taking place at first. Then in curriculum we explored it more in terms of how it takes place in research. All of us knew what assessment was because we are teachers, but it’s different when you are studying at university, although it’s there..... In the discussion forum we assessed each other’s assignments and provided recommendations. Then also when I would meet with the others after school in the evenings at campus we were also checking each other’s work and guiding one another about understanding certain things in our dissertations. Peer assessment is important because you help each other and it makes you feel like you are not alone when you have challenges in your writing.”*

P3 said: *“For me the peer assessment was not that much because by the second year I was hardly at campus and if I did go it was to meet my supervisor..... It did take place on the discussion forum in first year where we had to critique each other’s assignments. It was helpful because you could see how the others were doing compared to your work.”*

P4 evinced: *“One was compelled to critique other students’ work because you would get a mark based on this. So we participated on the discussion forum where we evaluated each other’s work and provide suggestions or feedback as to how it can be improved..... This took place in the first year of Masters, also in the cohort we used to check other student’s work and how their topic, research questions could be improved.”*

Participants' exclamations of their experience of peer assessment (assessment as learning) warranted the societal factor. *Peers* refer to other research students undertaking their Masters dissertations. They formulated networks through the coursework lectures, cohort sessions, and discussion forum. They maintained contact through e-resources such as WhatsApp, email, and discussion forum. This suggests that they were influenced by social sites as these enabled the process of networking (Farren, 2008). Engagement with others, especially those who share the same concern, have the power to invigorate understanding of research theories and principles that otherwise may have not been understood. Brown and Duguid (2000) posit that engagement leads to informative practises by liaising with others who have the potential to understand better. Such engagement produces higher cognitive emergence which inadvertently improves the application of research knowledge to the data generated by participants.

The cohort sessions were integral in cementing the relationship between participants and peers (Khoza, 2015b). Participants developed some idea of who these research students (peers) were and identified with them on the basis of having the same goals in mind. Once this was established they maintained contact through communicating via WhatsApp and the discussion forum. They would also email each other pertinent articles if it could help them. Participants maintained networking with peers even when the first year coursework lectures were over, since they continued to liaise and meet on campus during the second year of preparing the dissertation. The ongoing communication assisted P2 in conversing with peers during the evenings when she studied. Her peers usually advised her on ways to improve her research by ironing out specific methods, approaches, or the literature to support her study. She reciprocated this assistance to them. In the discussion forum they evaluated each other's work, being aware of who they all were, to give critical yet valuable feedback to their assignments. Astin (1997) contends that peers have the potential to positively affect one another, because when researchers perceive others making meaningful attempts in their studies, it serves as a motivator and reminder of the goals to be achieved. Only P3 expressed little involvement with peers which suggests that she may have been driven by the personal factor because she chose to study more independently than the others. However, overall it appears that participants, particularly P1, P2, and P4 were influenced by the societal factor in peer assessment, as they were able to advantageously impact each other in understanding research knowledge that was pivotal to informing their research.

6.2.8.4 INTERPRETING ASSESSMENT

Some interpretation in each category has already been synthesised. Assessment of research has been driven by formative, summative, and peer assessment. The findings postulate that formative assessment has been spearheaded by the personal factor since participants used their own experiences and assumptions of the knowledge generated from the coursework to assimilate with the research imperatives of their studies. It symbolised the first attempts to make sense of what constitutes research principles and theories, therefore they developed their own ideas and shared them in order to uncover their research (Yorke, 2003). This was cumulative to the meetings with the supervisor which also elicited the personal factor, as participants and their supervisors negotiated the meetings. Moreover, these exceeded the mandate of the university in guiding this process because supervisors always availed their time and expertise to benefit the participants' development of their research dissertations. Supervisors assessed their work in the endeavour of enhancing their ability to understand and write their dissertations. Consequently, formative assessment was mitigated by the personal factor and included two sets of tasks, the first being the coursework as it occurred at the commencement of the Masters programme, and the second referred to the supervisory meetings.

Summative assessment was motivated by the content factor because this entailed the write-up of the final thesis submitted to two examiners for evaluation. This was done at the end of the two year research period, and was conducted in the second year of study. Participants were expected to display convergence of research knowledge to the data generated in their studies in affording understanding and interpretation of what they had researched (Knight, 2002). Peer assessment was guided by the societal factor, as participants networked with other research students to inform their research knowledge. The cohort sessions, discussion forum, and coursework lectures were significant in establishing the relationships between participants and peers as they conversed about research and networked to negotiate discussions and meetings that could develop their understanding of research knowledge. Conole and Alevizou (2010) argue that such interaction takes place as a result of the accessibility students have. This suggests that participants want to research with peers, as they are able to exchange ideas and strengthen each other to possible challenges that may arise in the construction of the dissertation because they are able to identify with one another.

Participants conveyed that they were aware of the three assessment strategies in the introduction of the Masters programme. They were informed during orientation, coursework, and the by their supervisors. Participants' responses affirm that throughout this journey they used HW, SW, and IW e-resources to engage their dissertations. Particularly with regards to assessment, they were enlightened by the use of discussion forum, email, and WhatsApp to network with peers and their supervisors. Further, the use of email was frequent since they perpetually sent the completion of each section in their chapters to their supervisors for correction and recommendations. This facilitated most of their discussion in the meetings during the second year of research. Dean (2010) and Oliver and Whelan (2010) assert that use of e-resources makes the process of doing research in higher education more convenient, accessible, and cheaper. They maintain that this is the heritage of the current generation of how students research, therefore higher education institutions need to be sensitive and create the platform to enable such technologies.

Like the other reciprocating principles in Curriculum CHAT, assessment assumes the position of rules. Barab et al. (2002) and Engeström (1993) opine that rules outline specific procedures that must be followed in order to obtain the research target. They imply that rules are formal or informal. They denote formal rules as systematic, general or expected; and informal to mean idiosyncratic adaptation; and technical as mandated and written. The formal rules of assessment comprised of the formative assessment of coursework participants were expected to do in order to receive a mark that contributed to their overall Masters grade. This also included the summative assessment of the final theses submitted to examiners for evaluation. The informal rules of assessment related to peer assessment and engagement with the supervisors in meetings. Kain and Wardle (2008) explain that this symbolises a negotiation of the rules, a mutual agreement about how an activity materialises in warranting progression towards attaining research knowledge. In the context of this study, participants were fully cognisant in the commencement of the Masters programmes; they were expected to do the coursework assignments and prepare a research dissertation in the second year. Supervisors understood and accepted their roles to guide, assist, and evaluate participants' progress throughout the research. Examiners conveyed their position in marking and providing corrections that the participants needed to review in their dissertations. This negotiation further extends itself to the principles of division of labour and community in Curriculum CHAT. In as much as each of these stakeholders is instrumental in assessment (rules), their roles are also influential in the division of labour and community. For instance,

supervisory meetings and peer involvement surfaced initially as a category in theme five of research activities. The premise here was that research activities govern the distribution of tasks and each position is crucial in leading participants to greater heights of acquiring research knowledge (Amory, 2006). Also, they are benevolent as community members to the activity of attaining the research target of participants completing their research dissertations. All these perceptions point to the notion that the principles of Curriculum CHAT are in negotiation, and this produces research knowledge prescriptive to the research target. What this means, is that participants, throughout the research process, have been fuelled by different people/stakeholders who constituted a position in the activity in rearing them towards developing sound literature, theories, approaches, and methods of research to enable them to integrate these with findings they generated in their respective studies. Such interactions were informed by the three factors of content, societal, and personal.

Theme seven of research targets and the final theme eight of assessment have been devised to answer the third research question of this study being, “Why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university?” Theme seven comprised of three categories of purpose, objectives, and research questions. The purpose was conceived from the personal factor because participants expressed their initial intentions consisting of their aspirations and the challenges they identified in their teaching contexts to generate purposes of research (Blake, Smith & Standish, 1998). Objectives stemmed from the content factor, because participants derived these from engaging with literature, sourcing academic articles via search engines to understand and formally write these out (Noddings, 2007). Then, exploring participants’ comments about the research questions put forth the societal factor. The research questions were ascertained from the environment they taught in which led to the research. They were informed by these communities and liaising with teachers in other schools and this revealed particular questions that sparked their interest for doing research (Aamodt & Hovdhaugen, 2008). These were impacted by the e-resources of discussion forum, email, WhatsApp, and search engines in addressing research targets and assessment.

Theme eight, assessment, was the final theme presented in this chapter and connoted three categories, formative assessment, summative assessment, and peer assessment. Formative assessment was emboldened by the personal factor, as participants portrayed their personal assumptions of research such as the feelings and beliefs of experiencing the challenges in

teaching. This was assimilated with the theories and principles of research. Summative assessment was afforded by the content factor since participants were aware that the coursework in the first year was in preparation for the final theses in the second year, to be submitted for examination purposes. Lastly, peer assessment was prompted by the societal factor because participants engaged with peers to support their research imperatives. In answering the third research question of this study interrogating this theme suggests that participants used e-resources to prepare for the various assessment tasks they were informed about at the inception of the Masters programme. Participants used e-resources because it enabled them to explore how other studies presented the purposes, objectives, and research questions in theme seven, and formative, summative, and peer assessment in theme eight. Moreover, it led to them to contemplate their own experiences as teachers, transitioning to researchers, by assimilating these two roles into a dissertation. Participants comments conveyed that working full-time and studying part-time can be complex, to the point that some may not finish in time, like P2. Therefore they need to use e-resources that make this process more accessible, to the point of encouraging participants in their own research to embark on studying in the future. They did not have the time to visit the library and go through a multitude of books in search of academic information, which may have not been available. This propelled students to rely on the use of e-resources.

Prensky's (2001) ideology of digital natives and digital immigrants are unsupported in the context of this study. P1, P2, and P4 admitted that growing up in families from disadvantaged backgrounds meant that having these types of technologies were a luxury, therefore when they entered higher education they did not possess the particular skills central to these. However, it did not disadvantage them in the way envisaged by Prensky (2001) because it was not difficult to learn to use these e-resources. Hence, the gap between those who had access to e-resources and those that didn't was blurred because these participants were first influenced by IW resources to help them use HW and SW e-resources. In being first informed by the IW resources means that this is a good e-learning signal for participants to use in developing an effective understanding of research knowledge.

6.3 CONCLUSION

This chapter centred on the presentation, analyses, and interpretation from the data generated from participants, using the methods of semi-structured interviews, online reflection activity and document analysis. The chapter commenced with the introduction eliciting a table

articulating the eight themes constitutive of categories. This provided the layout and structure embraced by the chapter. The eight themes included the researcher; e-resources; research knowledge; accessibility; research activities, research environment and time, research targets; and, assessment. Each theme has been interrogated in-depth to understand the factors that supported participants in using e-resources to conduct their Masters dissertation. The e-resources of HW, SW, and IW were intercepted to understand and explain how they informed each theme. The findings elucidated that the HW e-resources incorporated laptops, computers, USBs, tape audio recorder, Smartboards, tablet PCs, and printers to a minimal extent. SW e-resources included discussion forum, WhatsApp, and search engines such as Google and Google Scholar through which they accessed the online journals and email. The IW resources comprised of the Curriculum Spider Web used to impact the conceptual framework each of the participants administered in their research. Unearthing each theme in the ambience of HW, SW, and IW e-resources provided a lens in which to explore and answer the three research questions of the study. As each theme was introduced, the study began by stating literary perspective in shaping the theme. It then emerged to declare the direct quotations obtained from the semi-structured interviews and the online reflection activity. Once these were ascertained, interpretation on participants responses directly related to the category under scrutiny culminated in consultation with the literature and document analysis. Ultimately as each category was explored to represent the theme, a final interpretation holistically was enabled at the end of the theme. This encompassed a further discussion of analysing and interpreting the findings with the Curriculum CHAT theory developed in this study. This followed through coherently in each of the eight themes. The next, seventh, chapter provides recommendations and some concluding remarks based on the findings generated.

CHAPTER SEVEN

UTILISING THE FACTORS OF E-RESOURCES IN MAKING RECOMMENDATIONS

7.1 INTRODUCTION

This chapter represents a holistic analysis of the entire study, with impetus placed on the manifestation of the findings and the culminating interpretation of these in the previous chapter. The title of this study being, “Exploration of factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university” was informed by a qualitative research approach constitutive of a case study style, that utilised three data generation methods of one-to-one semi-structured interviews, online reflection activity, and document analysis. To this end, the study was divided into seven chapters, with each containing relevant issues to enable this research to its finality. The first chapter symbolised an introduction to the entire study, by also eliciting the research questions, focus of the study and the rationale for engaging the research, amongst others. Key aspects of each chapter were selected to correlate the imperatives of Chapter One. The following chapter, Chapter Two articulated the first instalment of the literature which pertained to the curriculum concepts that influenced the phenomenon of factors that inform the use of e-resources. These concepts centred on the three factors being content, societal, and personal factors that provided a lens for exploring the prevailing chapters that ensued, within the analysis of e-resources. The second instalment of the literature comprised Chapter Three, and concentrated on the balance of curriculum concepts that needed to be unpacked. These included research targets; research knowledge; researcher role; research activities; accessibility; research environment and time; and, assessment. The curriculum concepts derived from both iterations of the literature were cultivated to produce the fourth chapter of the theoretical framework. This chapter utilised the tenets of CHAT and integrated them with the curriculum concepts to produce the Curriculum CHAT theory that was used as a foundation for analysing and interpreting the findings in Chapter Six.

Chapter Five emphasised the paradigm in which the study evolved, namely the interpretive, and this provided a sounding board for selecting qualitative research design and methods to generate the data. This included the three methods of obtaining data mentioned earlier, sampling methods of purposive coupled with convenience, case study style of research, data

analysis using guided analysis, measures of ensuring trustworthiness, and ethical considerations. This propelled the next chapter, Chapter Six, which presented the analysis and interpretation of the data using these methods and approaches. The data was divided into eight themes which conditioned sub-themes referred to as categories. This established patterns and trends that integrated the literature and the Curriculum CHAT theory in corroborating the findings. This chapter being the seventh, is the final chapter of this study, and focuses on summarising the research holistically. It seeks to draw significant implications from the data interpretation for current practises. The chapter closes with concluding remarks and recommendations for informed practise.

7.2 CURRICULUM CHAT THEORY: KEY FINDINGS

The first projection of Curriculum CHAT theory was developed as a consequence of the literature and the basic tenets of CHAT, stemming from Activity Theory. It provided a theoretical base to enable further research by identifying and articulating relationships between earlier studies and the current study at hand. Onwuegbuzie, Leech and Collins (2008) posit that a literature review intertwines theory/concepts and practise in accordance with the phenomenon of a study, discusses main research methodologies and design, and identifies contradictions and inconsistencies that spark further interest in the field. In this regard the study pinpointed curriculum concepts envisioned by Van den Akker et al. (2009). Traversing the works of Van den Akker et al. (2009) introduced the ideology of factors as critical indicators of the rationale of how and why students behave in particular ways. Essentially, this referred to understanding the what, how, and why students use e-resources to conduct their Masters dissertation. In exploring the factors of content, societal, and personal it helped make sense of what the reasons or rationale were in guiding the findings conveyed in the studies of the literature. Consequently, it assisted in identifying comparisons, inconsistencies, and trends by relating the findings of this study when pitched against the literature. Then, exploring the theoretical framework of CHAT, an extension of activity theory, rendered the principles that underpinned the assumptions of Vygotsky, Leont'Ve and Engeström. This allowed the study to merge the literature concepts with the CHAT principles to produce the first rendition of Curriculum CHAT theory. Figure 7.1 presented below symbolises the Curriculum CHAT theory diagram created in Chapter Four. The purpose in recapturing it here is to parallel it with the newly emerged Curriculum CHAT theory enveloped as a consequence of the findings analysed in Chapter Six.

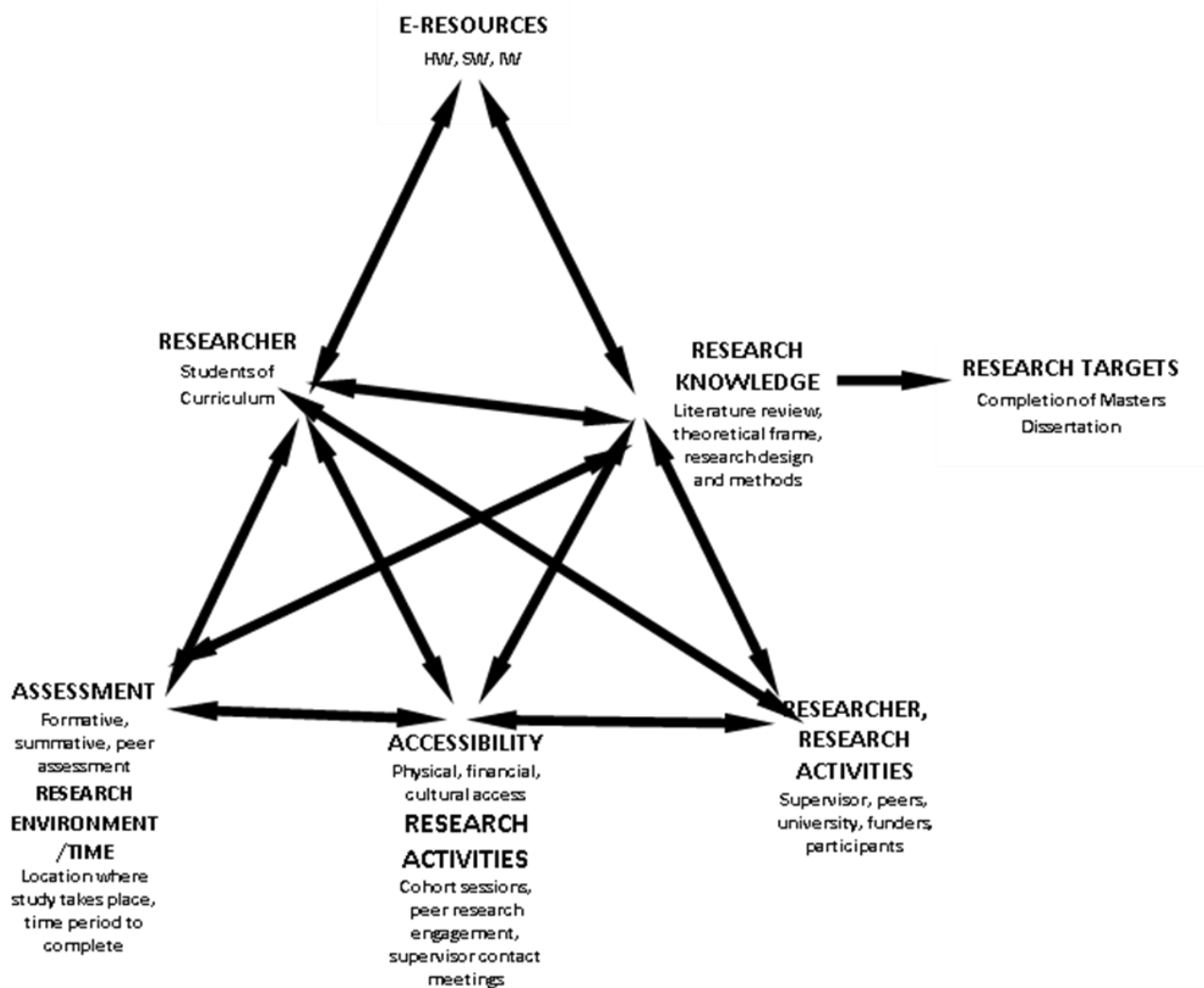


Figure 7.1: Curriculum CHAT Theory Diagram Developed from Chapter Four

The Curriculum CHAT theory diagram in Figure 7.1 illustrates the emergence of the literature and the curriculum concepts to produce an activity system of how researchers engage their research. Different studies were selected to understand how students undertook research using e-resources. For instance in Morrison’s (2003) study, activity theory was exerted to define its assimilation with a computer-supported learning environment in obtaining knowledge about a constructivism in the design of online environments for an agricultural leadership programme. The study implied that this rationale was governed by the content factor. Thuraiongam et al.’s (2012) has been elaborately discussed, and the main premise of their study was to identify contradictions and inconsistencies as to why partner academics were not appropriately implementing the desired assessment practises highlighted by the parent institution. Their study did not produce all three factors; the content factor was

salient in understanding the overall assumptions generated. This enabled the current study to analyse varied contexts and as such all three factors initially emerged in supporting students' use of e-resources in those studies. Upon closer inspection, it appears that the content factor arose strongly in creating this diagram because the study was influenced by the literature and the curriculum concepts. This suggested that there was a need to create another diagram that would be reflective of the findings particular to the context of this study. This does not seek to dispel the evolution of the first Curriculum CHAT theory diagram as it provided perspectives on how students research. However, it is necessary within the landscape of the emerged findings to present something current that can invigorate existing thoughts about this field. Curriculum is vast and technologies are continually being transformed, which elucidate that new issues and avenues of research need to be transcended to produce new knowledge about the world or societies we live in.

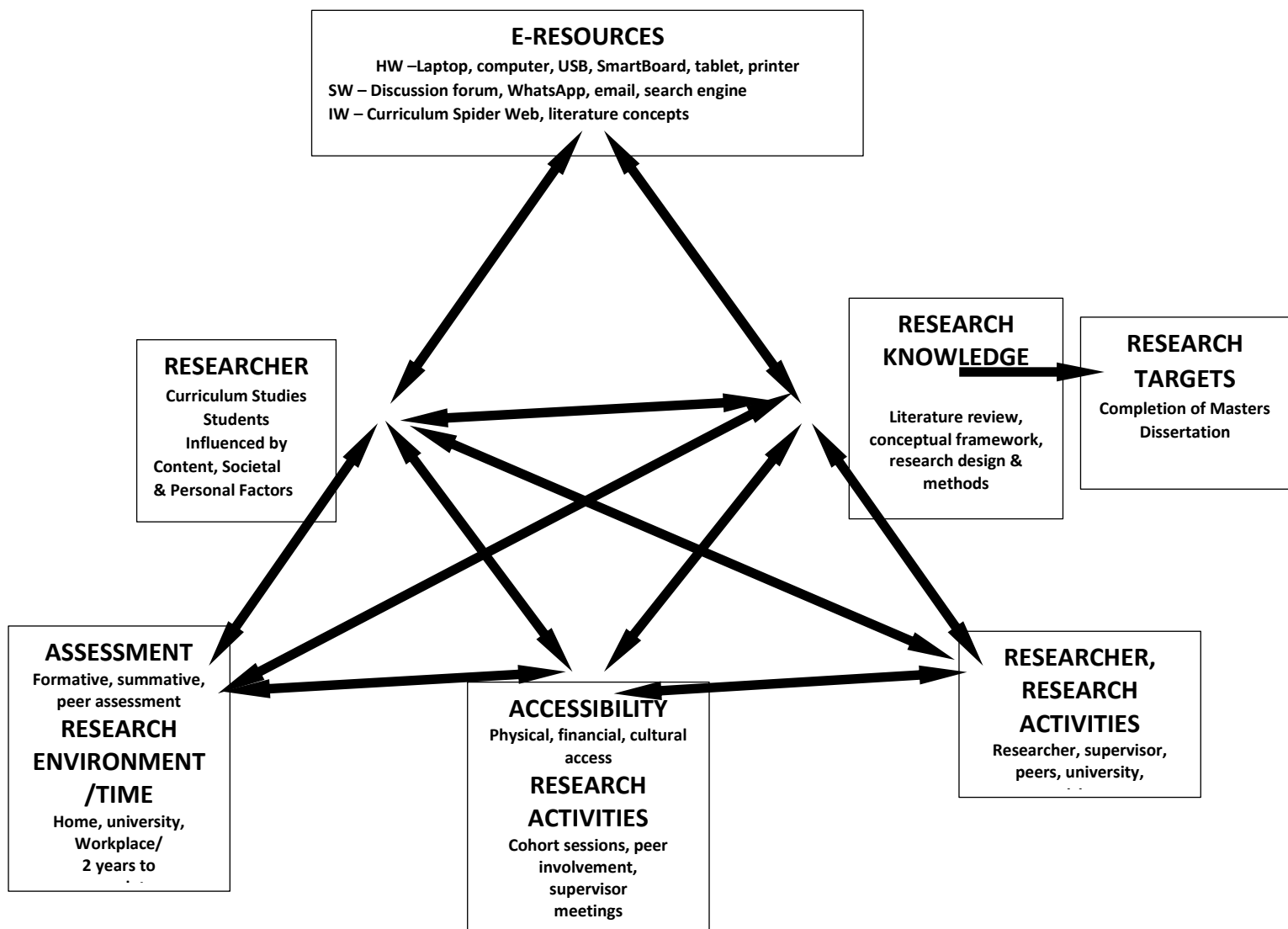


Figure 7.2: Curriculum CHAT Theory Reflective of Findings.

In comparing the first proposition of Curriculum CHAT theory in Figure 7.1 to the current one in 7.2 may appear to illuminate minor contrasts, but the analyses and interpretations differ immensely. Figure 7.1 brought about the content factor because the principles of the activity system were produced by the literature. The recent Curriculum CHAT theory accentuates the findings generated from participants and consequently signifies the societal factor. The societal factor egressed through the direct quotations retrieved from the one-to-one semi-structured interviews and the online reflection activity. These were constitutive of the experiences, feelings, opinions, beliefs, and assumptions participants explained in using e-resources to undertake research. Although their iterations may impede on the personal factor, it is increasingly promoting the societal factor because their attributes are social in nature because they liaised with peers, supervisors and the cohort meetings to inform these. This means that they are influenced by the environment in which they teach, and how they use these experiences to understand using e-resources in higher education. However, the societal factor is in regard to the culmination of the Curriculum CHAT theory as a whole, while each individual principle is understood in the frame of all three factors. Moreover, it does not presume that the societal factor dominates over any other factor when analysing each principle and its function in the activity. It does imply that activities are primarily social because they involve actions and interactions that culminate. Consequently participants' interactions between the various principles (activity) of acquiring the research target are reared by the societal factor mainly (Vygotsky, 1978).

Interrogating each principle of the Curriculum CHAT theory exposed some contradictions and consistencies between the literature and the findings. The researcher role represented the starting point of understanding the activity system holistically (Kuuti, 1996). The literature mostly highlighted the personal factor, but participants' responses indicated that all three factors hold pivotal positions because it depended on the current experience that occurred at each stage of the research. For instance when they were attending the cohort meetings it was driven by the personal factor because attendance was not mandatory but rather the choice was left to whether or not to attend. Yet when they kept to the supervisory meetings it was content driven because the university mandated the supervisors to conduct these. This does not portray that the findings in the literature are not plausible; it simply attests that this is a qualitative study and the findings are unique to this particular setting. Then, interrogating the principle of research knowledge in the literature review and theoretical framework signified both the societal and content factors as powerful indicators in allowing students to develop

knowledge. The findings in this study revealed that participants were driven emphatically by the content factor. Although, for each principle all three factors emerged in supporting particular categories to inform the theme, there may be instances where certain factors dominate over others when implementing the process of triangulation. Participants quotes were gathered from the semi-structured interviews and online reflection activity, which leaves room for document analysis to substantiate their responses. Therefore, although participants confronted all three factors in hedging their research knowledge, upon document analysis the content factor is prominent over the others because they were focused on building their conceptual frameworks through the Curriculum Spider Web with the concepts of the literature related to their specific subject fields. Notwithstanding that theoretical framework was esteemed by the personal factor and the research design and methodology by the societal factor, each of these still contained underlying content factors. To develop research knowledge, a student also has to read different theories, and essentially what they mean to align personal feelings, beliefs, and experiences. Also, selecting the appropriate methods and approaches requires one to first have understanding by reading what scholars have debated. In order for participants to conduct data generation and presentation of the findings, it required intense knowledge of the literature review, theoretical framework, and the research design and methodology. These formed the backbone into their investigations and proposed that these forms of knowledge are crucial to understanding how to conduct effective research.

E-resources constituted another principle in Curriculum CHAT, and in Activity Theory it is epitomised as tools (Nardi, 1996). E-resources were directly informed by the phenomenon of the study, and thereby posed the main research questions that enabled data generation measures to be operationalised. This principle was divided into HW, SW, and IW e-resources to add depth and quality to the study. E-resource is a broad field because technologies are perpetually developed to produce new ways of accessing information with varied services. Therefore, such a field requires it to be distinguished in terms of the context. The literature exposed a myriad of HW e-resources applicable to students' use in research and these include laptops, computers, Smartboard, cell phones, tablets, overhead projectors, tablets, smart devices, personal digital assistants, digital cameras, eBook readers, portable media players, and portable devices, amidst others (Alley & Gardiner, 2012; Glen, 2008; Lauricella & Kay, 2010). The SW e-resources were PowerPoint, online class tools (e.g. syllabus posting, self-testing, online lecture notes, uploading and downloading file tools, online student

evaluations), collaboration, and sharing tools (e.g. instructor collaboration, discussion forums, real-time chats, interactive feedback and annotation, student or instructor profiles, online task or activity collaboration), instructional activities (e.g. critical and creative thinking activities, data analysis, online scientific simulations), and web resources (e.g. search engines, articles and journal links, lecture notes, syllabi, and online glossaries), social media tools such as Facebook, Twitter, YouTube, and the more later development of Web 3.0 tools (Balanko, 2002; Bonk, 2001; Darries, 2004; Donnelly & McSweeney, 2009). Then IW resources included the theories of Connectivism, Activity Theory, TPACK, EET, Behaviourism, Constructivism, and Cognitivism. The studies revealed that HW e-resources were impacted by all three factors, SW e-resources by the personal, and societal factors, and IW resources by the content and societal factors.

The literature adumbrated intense accounts of what comprised each e-resource in varied contexts. So even if SW e-resources may generally be accepted as being influenced by the societal factor, the different contexts enabled other factors to arise. For instance the study undertaken by Cook and Kelly (2013) produced the content factor, as students in the study were mostly using Web 3.0 to gain access to political papers because it was possibly the most viable route to enable this. This suggests that factors are dependent on the nature of the context, and when e-resources are applied to different environments factors may arise beyond the expectation of the researcher. Therefore, this intercepts Klein and Meyers' (1999) argument that the researcher's preconceptions are transformed and invigorated throughout the research process. Taking the lead from their argument, the findings in this study revealed the HW e-resources as laptops, USBs, Smartboards, overhead projectors, tablets, and audio recorder which participants used, influenced by the personal factor. They purposely chose to use these because they felt that it was more convenient and accessible to engage their research dissertations. These participants were not digital natives as Prensky (2001) would assume, because they did not possess HW e-resources growing up, nor were they taught in schools how to use them. Neither were they digital immigrants because they did not struggle to use them when first introduced to the resources. It poignantly attests that using HW e-resources contributed to the greater function of using IW resources. Exploring the factors that propelled participants to use SW e-resources contends that they were geared by the societal factor as opposed to both the personal and societal articulated by the literature. The SW e-resources included search engines, with an emphasis on Google and Google Scholar, email, discussion forum, WhatsApp, and Turnitin. The literature presented several studies

articulating the use of Web 2.0 e-resources with emphasis on social media tools like Facebook, Twitter and YouTube. In this study there was clearly no indication of such usage in assisting the construction of their dissertations. In fact, participants did not use these e-resources to socialise in the manner defined by what these e-resources actually represent. They merely used them to engage with their supervisors, peers, and discover academic materials imperative to their research because they were significantly motivated by the IW resources.

IW resources extended only to the Curriculum Spider Web and the literary concepts selective to the subject domains they taught. The literature enunciated that IW resources were impacted by both the content and societal factors. Siemens' (2005) perception elucidated the societal factor because the study observed how societies changed to produce emergent ways of learning and researching. In the context of this study the findings purely emphasise the content factor because participants were influenced by the coursework lectures on knowledge of the Curriculum Spider Web and how it influenced their respective research phenomenon. Moreover, they wanted to gain as much knowledge needed for them to effectively embrace their research, which led them to find academic articles that were relevant to their studies. These are studies that have already been conducted by scholars in the field, who have implemented measures of trustworthiness to validate the findings. Therefore, participants always read deeply to inform their knowledge base and to declare assumptions in their own studies. In addition, the cohort sessions equipped them with the skills required to interrogate such knowledge.

Accessibility, another principle in the Curriculum CHAT theory, is evinced by the societal factor as a strong motivator in the literature. This means that societal influences were mandatory in students having physical, financial, and cultural access. However in participants' responses all three factors emerged in driving the three categories, but in selecting the most important and dominant among these, it can be argued that both the societal and personal factors resonate. This initially may suggest that the content factor does not hold ground which essentially warrants that cultural accessibility is ignored in this situation. This is not the case, since cultural access does contain threads of the personal factor. Cultural access in this study related to religion and sports. Although these are laid down by the content factor (because they have been established long ago and refers to knowledge passed down from one generation to another), it does in deed possess the personal

factor, because when one prays or goes to church they are also informed by their inner desires and experiences that led them to such places. Then, the societal factor is eminent in participants' constant iteration about the university's position in providing funding. Having access to this financial threshold and that of donors or sponsors is important for them, because paying tuition fees were expensive to them. Consequently, societal and personal factors prevail to inform accessibility whereas the literature is mainly dominated by the societal factor.

In the Curriculum CHAT theory, research activity is a principle enlightened by two functions in the activity system, that of community and division of labour. This emerges as a result of community members also sharing the distribution of tasks in assisting participants to do their research. For example in the study, the position of the supervisors is such that as community members they guide and support the students by motivating them and providing them with opportunities like the cohort sessions to enhance their understanding of research. However, in the division of labour they assume their duties of conducting meetings as commanded by the university. They also ensure that the researcher has followed due ethical and registration processes to enable research (Trigwell & Dunbar-Goddet, 2005). Again, this advances the reciprocal nature of CHAT where connections and interconnections are multifaceted to allow the researcher more avenues of accessing e-resources/resources to undertake their dissertations. When they immersed with peers and supervisors through the cohort sessions they enable the discussion forum and establishment of the WhatsApp group. Research activities have been explored through three categories of supervisory meetings, cohort sessions, and peer involvement. Upon careful analysis and interpretation it appears that the supervisory meeting egressed more strongly than the others. This suggests that research activities are dominated by the content factor since this factor supported the supervisory meeting. The data revealed that the supervisory meetings were given priority over the other research activities because these were attended the most. P3 indicated in the semi-structured interview that she did not attend the cohort at all and only participated to a minimal extent on the discussion forum when required, and on the WhatsApp messenger with the group when necessary. This posits that research activities are driven by the content factor whereas the literature postulated the societal factor.

The principle of research environment and time serve as rules in the Curriculum CHAT theory, because participants were guided by these in completing their dissertations.

According to the literature, the research environment is convened by the societal factor, whilst the findings of this study stated both the personal and societal factors. Close inspection and interpretation of the data attests that the personal factor dominates participants' research environment since between researching at home, university, and the workplace, conducting their dissertations from home was mostly utilised. P1, P3, and P4 explained that they discovered studying at home more convenient as they were in the comforts of their private space and they had the necessary e-resources such as their laptops (HW), internet (SW), and research knowledge (IW). They also acknowledged studying at the university but this was undertaken when they needed to meet with their supervisors or peers. Researching at the workplace was only for a short space of time, when they were free from their duties and responsibilities at school. These suggest that they preferred researching from home which put forth the personal factor. Advancing to research time presented the content factor in the findings, as participants' experiences indicated that they were continuously aware of the two year period which they had to complete their research. However, the literature evinced the societal factor as it was articulated from an angle of negotiation between the supervisor and researchers in working out time to conduct meetings. Whereas in this study, participants' perceptions were informed by the timeframe they had in finishing their dissertations. As a result this pioneered the content factor.

Assessment is yet another crucial principle of the Curriculum CHAT theory. The findings stipulated that participants were aware of the assessment tasks of the Masters programme during orientation. This meant that they could adequately prepare to ensure these are completed and submitted in the required time explained in the previous discussion. Assessment comprised of formative, summative, and peer assessment. Of these, participants held that formative and summative were the most important, as the first constituted their assessment for the first year, and the second for the final dissertation. Therefore, the findings argued for the personal and content factors as strong indicators of why students use e-resources to conduct their research. The findings paralleled the claims of the literature as it was also posited that these factors emanated over the societal (Yorke, 2003; Knight, 2002). Although participants were cognisant of peer assessment, they perceived the formative and particularly the summative assessment as more intense, holding greater value towards their examinations. In the activity system, assessment also symbolises the rules which elucidates that these have to be followed and abided by. Without completing the formative, summative, and peer assessment tasks, participants may have compromised the attainment of the research

target. Although peer assessment was not valued the same as the other two forms of assessment, it still contained assessment about their contribution to the discussion forum, in generating critical thinking.

Research targets, the final principle, assume the concept of goals in Curriculum CHAT theory. This conveys that researchers embrace all the principles in the endeavour of acquiring the research target, which represents the essence or core functioning of the activity as a whole. Multiple actions and interactions take place to enable the research target and this implies the reciprocal nature of the activity system. Research targets are made up of purposes, objectives, and research questions, where the factors of personal, content, and societal are warranted respectively according to the findings. However in the literature, purposes, are motivated by the content and personal factors due to the context portrayed in those studies (Khoza, 2013b). Objectives also evince the personal and content factors, while research questions envisage the personal and societal factors (Williamson, 2008; Adam, 2004). The findings in this study produced each factor circumspect to each category of research targets. It does not imply that underlying factors did not exist, or that, for instance, objectives were limited to the content factor, but rather that interpretations were based on those factor/s that have been most influential upon the participants' use of e-resources. Therefore, the personal factor impacted purposes; whilst the content factor influenced objectives, and the research questions informed by the societal factor. All three factors emerged powerfully to inform research targets.

The Curriculum CHAT theory diagram is represented by mediating principles. The arrows derived from each principle are directed at all the other principles which suggest the interconnections that culminate. No principle operates in isolation, as each is connected and has some relevance to every other principle. This implies that for researchers to use e-resources effectively in attaining the research target of completing their research dissertations, other actions and interactions must take place. For instance, the researchers as the subject in CHAT must also participate in the division of labour in the principle of research activities and researcher, because they are responsible for ensuring that they carry out their duties by attending the supervisory meetings, cohort sessions, and peer involvement. The most important of the division of labour referred to the supervisory meetings, as participants perceived these as extremely valuable and conditional towards achieving their goals (research target). Then, although the division of labour was interactive with the

researcher principle, it was also informed by the principle of e-resources since the research activities used e-resources, such as discussion forum, WhatsApp, email, computers, online journals and the internet to generate research knowledge (object). This also filtered on to the principle of community, as members of the division of labour further appraised their roles as part of the researchers' community. This indicates that although they were responsible for administering their duties, they were also informing the researcher and being supportive. The division of labour was additionally reciprocal to the rules of CHAT which were governed by assessment and research environment and time. Researchers in collaboration with members of accessibility (community) and research activities (division of labour) were guided by formative, summative, and peer assessment, as well as the location of research and the duration of two years in which to achieve their research targets. Formative and summative assessments were regarded as more significant than peer assessment which evoked the personal and content factors in using e-resources. Participants explained that having a laptop, the internet, and a USB were imperative in gaining access to research knowledge, and without these it would be incredibly difficult to have multitasked working full-time and studying part-time while being sensitive to the needs of their families.

Even as division of labour has been interrogated to explain its interconnections and interaction with all the other principles, each principle can be interpreted in the same way. Foundational to the activity system of researchers using e-resources is the reciprocal nature where each principle is in perpetual connection with each other to ensure that the research target is achieved. However, in as much as participants articulated that they were aware of the research target, they were first concerned with developing research knowledge (object) which Vygotsky (1978) called object-oriented. Object-oriented activity involves mediation processes whereby researchers take part in the endeavour of acquiring research knowledge and utilising this in a way that directs them in implementing new resources/e-resources to make their dissertations more robust (Yamagata-Lynch, 2010). This ascertains that it was more crucial for participants to first develop research knowledge and then be inspired by the research target. It further elucidates that research is more about developing knowledge than completing a task. In this manner research becomes the ideology (IW resource) instead of the technology (HW and SW e-resources). Khoza (2011) argues that using e-resources is not about the thrill of assimilating with modern approaches to researching, but how these can be used in conjunction with research knowledge. In this spirit, participants showed that they were first informed by the need to obtain research knowledge in order to achieve the research

target. This advocated that IW resources were more significant and foundational to using e-resources. In order for HW and SW e-resources to be employed it must be advanced by strong IW resources to support its use so that effective research knowledge can be enhanced and the research target achieved.

7.3 ADDRESSING THE PHENOMENON OF FACTORS IN USING E-RESOURCES

In exploring the phenomenon of factors of using e-resources, three main research questions emanated. These research questions framed the entire study, and further informed questions that arose in the data generation strategies employed. The study was consciously aware of these throughout; whereby the literature, theoretical framework, research design and methodology, and the presentation of the findings were centred on. The first research question stated, “What are the factors that inform Curriculum Studies students to use e-resources in conducting their Masters of Education dissertations at a South African university?” In answering this, theme one of factors and theme two of e-resources have been extensively analysed and interpreted. In order to decipher factors the study needed to understand the role of the researcher in doing research. At a glimpse, participants were not initially aware of the factors until being introduced to them in the Curriculum Studies coursework. Thereafter, once they were able to ascertain these they explained through the data generation methods how these influenced their actions and behaviours in doing research. This allowed the study to then explore these in light of the content, societal, and personal factors. The findings enunciated that the content factor promoted the use of IW resources, the societal factor SW e-resources, and the personal factor HW e-resources. Participants exclaimed that they were first informed by the IW resources to consequently use the HW and SW e-resources. They considered the IW resources most valuable because this is what hedges the foundation in building knowledge, whereas the HW and SW e-resources serve as the vehicle in which to gain this knowledge.

The second research question of the study, “How do Curriculum Studies students use e-resources in conducting their Masters of Education dissertations at a South African university?”, was probed through theme three of research knowledge, theme four of accessibility, theme five of research activities, and theme six of research environment and time. Categorically analysing each theme answered the *how* part of the phenomenon. For instance, research knowledge comprised of three categories, literature review, theoretical framework, and research design and methodology, and these produced the particular e-

resources participants used to conduct their dissertations, which have already been explained in the previous section. Accessibility produced physical access, financial access and cultural access. These have been outlined and deliberated to inculcate certain factors that dominated in guiding participants in their research. Research activities, theme five, were constructed by supervisory meetings, cohort sessions, and peer involvement. The supervisory meetings emerged as the most powerful research activity in influencing participants' development of research knowledge circumspect to their individual studies. Theme six constituted location and time, and these evinced additionally from where and when participants conducted their research. These four themes have already been critically evaluated in terms of answering the second research question. The purpose of debating it here was to provide brief representation of what egressed in the findings. Specific factors proceeded to inform what transpired in participants' experiences of using e-resources to undertake their research dissertations. These have been laid out.

The third and final research question of the study proclaimed, "Why do Curriculum Studies students use e-resources in conducting Masters of Education dissertations in a particular way at a South African university?" and emphasised theme seven of research targets and theme eight of assessment. Theme seven is comprised of three categories; purposes, objectives, and research questions and sought to define the *why* part of the phenomenon. This advocated that participants were using e-resources because they were motivated by research knowledge and the research target. Being cognisant of this from embarking on the Masters programme helped them to stay focused and clear on what needed to be achieved. This facilitated the eighth theme which included formative, summative, and peer assessment. Participants realised that these assessment strategies were paramount, particularly the first two, in successfully attaining the research target. Having this mind-set enabled them to strategise how each step in the research process would unfold. Again, these actions and behaviours were fuelled by the factors already previously highlighted.

Having succinctly described how the study traversed in answering the three main research questions only provides a summary of what has already been debated, interrogated, and interpreted in the previous chapter. At lengths, the study has prevailed in signifying the factors that supported the culmination of each theme, with potential implications for recommendations. Importantly, this study is located in the qualitative research field, adopting an interpretivist perspective confined to a case study methodology. This being said, the

findings generated are congruent to a small group of people defined by a specific context. Therefore, the study does not seek to generalise the results but rather how it can inform the existing body of literature in relation to curriculum, and the influence it possesses in affecting similar contexts. The field of curriculum is both diverse and broad, with new developments in higher education on the rise. Maintaining this study till the end produced final assumptions that require such knowledge or research needed to invigorate current and future researchers in the field that articulate critical thinking skills that can preserve the true essence of research. As Amory (2006) and Khoza (2011; 2013b) poignantly concur, research is not about technology but ideology and as such they resolutely enunciate that it is not about the e-resources that are used but rather how they can be manipulated to achieve the true goals (research target) of research. The next part of this chapter represents the penultimate section and elicits some recommendations that have emerged as a result of the findings.

7.4 RECOMMENDATIONS

Drawing from the findings that have emanated in this study, and the phenomenon of factors in using e-resources, as well as engagement with the literature, pertinent recommendations have consequently been warranted. These recommendations have been developed to inform the Curriculum Studies course, the broader field of curriculum, supervisors and researchers, and the academic community in the endeavour of invigorating research practises that can capture the true essence of discovering new knowledge. Research has become a cornerstone activity for higher education institutions in South Africa more robustly than ever before (Clare & Sivil, 2014). There is a pressing need to equip students with skills of critical thinking, analyses, and interpretation in the assumption of conducting effective research. Technologies are perpetually being innovated, knowledge systems are blossoming, and an influx of students appear to be swarming the doors of tertiary institutions. Such tendencies can be overwhelming and exacerbated, which then extends the need to explore practises that do not distort the goals of research and the core function of higher education. The literature connoted the prevalent use of e-resources in research courses and programmes. Some of these studies projected the focus on these e-resources which suggested that students' research were driven by these technologies instead of the ideology to support such implementation. Khoza (2011) cautioned against these practises, and relatively evoked arguments that called for studies that can introduce the IW resources as foundational to using HW and SW e-resources. Therefore, this study gained its strength and momentum into exploring such issues that could shed light on current trends of using e-resources in conducting research. The first

recommendation, consequently stems from this, by advocating that curriculum courses or any research programme should instil the potential of IW resources in motivating its' researchers to pursue research. IW resources should be benchmarked to preserve the academic heritage of the respective field the researcher is involved in. When IW resources are embraced it then provides a rationale of using HW and SW e-resources. Researchers can become distracted by the entertainment or social element of using e-resources; therefore if they are first geared by the IW resources it helps them to gain concentration of the research knowledge and research target ahead.

Secondly, curriculum courses or programmes should introduce researchers the content, societal, and personal factors at the inception stage. When researchers are aware of these, it propels a process of reflection where they search deep into their experiences, thoughts, actions, and habits about what causes them to do certain things, which they may have previously not acknowledged. Such factors expedite and invigorate research, where they develop sound research principles and theories of how to effectively disseminate such knowledge towards their dissertations.

The third recommendation motivated by the study is the importance of research activities. The findings postulated that supervisory meetings, cohort sessions, and peer involvement are crucial in helping researchers formulate a repository for knowledge. Participants expressed that they experienced difficulty with understanding certain concepts and the level of language required to write a dissertation. This was also due to the fact that they were second language speakers of English and therefore needed the support of these channels. The supervisory meetings surfaced as being most influential, as researchers relied on this for guidance and direction in the literature they sought and the actual writing of the dissertation. Participants confided that some of the other students in other fields of study complained that they did not receive the desired support of their supervisors. Therefore, higher education institutions should be inspired by the content factor to mandate a prerequisite for meetings between the supervisor and researcher.

Fourthly, the study recommends that universities should pave the pathways for researchers to be accessible to crucial online journals. Participants iterated that they were restricted access to certain online journals due to the monetary payment attached, which is sometimes quite expensive for researchers who are also burdened with paying tuition fees. Although this

would also intrude on the university's budget, they may be in a better position to negotiate this kind of access. Students in the current era of researching often utilise online journals to a great extent, therefore this opportunity should not be limited in preventing the researcher from retrieving imperative information in hedging their research knowledge.

Fifthly, it is recommended that curriculum courses or programmes explore the concepts of the Curriculum Spider Web in research. These concepts are flexible and universal to any curriculum and can be adapted to divergent theoretical frameworks. All four participants used these curriculum concepts to their different subject fields of research such as Maths, Maths Literacy, Physical Science, and English. It specifically interrogates significant threads of curriculum, with a most notable one being e-resources. It considers a holistic analysis and interpretation of the context by exploring how each concept fits and impacts the other to initiate a unified effort. The field of curriculum is vast, where such concepts can be conducive to explaining implementation and practise thereof. Coincidentally, these curriculum concepts were also used to position the literature and merge the CHAT framework to produce the Curriculum CHAT theory in this study. Again, this evinces the dynamic inherent capabilities of employing the Curriculum Spider Web concepts in any relative dimension of curriculum. It further represents a good starting point for educating novice researchers into intrinsically understanding research in the selected field of study.

Finally, additional research must be undertaken in other branches of curriculum, as this study only focused on Curriculum Studies of the Masters programme. It would be interesting to ascertain how other curriculum programmes perhaps that of the full-time researchers, engage their research using e-resources. The full-time researchers do not attend the coursework lectures, which then creates a gap for exploring the e-resources used to fuel their knowledge. Moreover, other levels of postgraduate or undergraduate studies can also be explored in this avenue. The findings generated in this study advance that the factors elicited in the use of e-resources propagated participants in achieving their Masters degree. This proved that being aware of the factors in consultation with the knowledge derived from using HW, SW, and IW e-resources significantly assisted their journey of conducting research. Multiple actions and interactions culminated to cement this process, which serves to recommend that these principles are reciprocal and not a single one can be ignored or isolated from the activity system of doing research. Therefore, the various stakeholders need to be cognisant and supportive in harnessing such interactions.

7.5 CONCLUSION

This chapter represented the final chapter of the study titled, “Exploration of factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university,” and centred on key aspects of the entire study. Inferences were made between the literature, theoretical framework, and research design and methodology to explore how it informed the findings and consequently produced pertinent assumptions. The chapter emerged with an introductory outline of how it would unfold, pinpointing these inferences with emphasis on how it proceeded to address the phenomenon of factors in using e-resources. To this end, the second part of the discussion focused on drawing implications from the findings in consultation with the literature, by identifying contrasts and comparisons in eliciting plausible assumptions. This further elicited a projection of the first construction of the Curriculum CHAT theory derived from merging the literature with the theoretical framework of CHAT. After interrogating the findings of this study, a configuration of the second Curriculum CHAT theory diagram evolved and was conveyed. The chapter then moved on to the third part of directly addressing the phenomenon of factors in using e-resources with emphasis on the three main research questions used to frame the study. The penultimate section described possible recommendations aimed at Curriculum Studies and other related fields of curriculum, supervisors and researchers, the university, and broader academic community who can apply the findings to similar contexts. This section articulates the final statements summarising the chapter and signifying the salient points of the study holistically.

It was significantly imperative to undertake a study of this nature due to the evolving technologies permeating all levels of education, with particular emphasis on ways in which e-resources inform research at universities. With emerging e-resources that prove to be more advanced and convenient for researchers to access, higher education institutions are confronted with immense pressure to succumb and address such rapid developments. Simultaneously, the needs of society egress with transformative ways of learning and researching; therefore studies should be conducted to affirm how this assimilation takes place and the advantageous benefits it holds for prospective students. Moreover, identifying pertinent factors that inform such activities provides a lens for analysing how human beings make sense of their worlds, and how they adapt to changes, whilst still maintaining the core essence of knowledge generation through research. This suggests that IW resources must be integrated with transforming e-resources to build a strong foundation into the basics of doing

research. Without IW resources, research merely becomes a function of entertainment or thrill of using e-resources, which may prevent concrete knowledge from being developed. In a country like South Africa where the political atmosphere can be turbulent far too often, and with unrest in student needs, demands are placed on the government to provide access that is unbiased or unlimited. To this effect, additional studies may need to be explored as development and changes in e-resources may contribute to curbing such demands and enable greater access for more students.

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