

**Teaching resources used by university tutors in teaching
Post Graduate Certificate in Education (PGCE) teaching
practice modules at a University in Durban KwaZulu-
Natal.**

By

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Teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal.

Abstract

This research draws on a case study of six university tutors who were teaching the PGCE students at a university in KwaZulu-Natal. The study gives the university tutors a voice to air their views on what teaching resources they use at the university to teach the PGCE students. The study revolved around three critical questions which were used to draw out information from the participants. The first question was what teaching resources do the tutors use in teaching practice modules for the PGCE? Secondly how do the tutors use these teaching resources in teaching practice modules for PGCE? And lastly why do tutors use these teaching resources the way they use them? Some tutors claim to be using teaching resources to assist them to achieve their aims of the curriculum while others thought that it was convenient to teach with resources simply because the students understood the lesson. The study concluded that teaching resources are very important and should be used in the teaching and learning environment. Participants also indicated that the teaching practice students visit three types of schools during their teaching practice time. Namely an under resourced school, middle resourced and a well resourced school. At this juncture the researcher would like to highlight that students attending the PGCE course must be serious about their career. They must develop a passion for teaching to enable and understand the imperativeness on the usage of teaching resources. Data collection occurred through document analysis, observations and semi structured interviews. The study was framed around activity theory.

SUPERVISOR'S STATEMENT

This dissertation has been submitted with/without my approval

DR S.B. KHOZA

DECLARATION

I Mrs Sandhya Naidoo hereby declare that the study conducted on “Teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal, is my own work and has not been submitted previously for any degree at any university.

SIGNED

DATE

The statement by the supervisor:

This dissertation is submitted with/without my approval.

Dr S.B. Khoza

SIGNED

DATE

DEDICATION

To my late mother Mrs M. Ramthal I know that you would be proud of your daughter reaching this milestone. You have always supported me in your own little way when it came to my studies. Thank you mum.

To my loving and dedicated husband thank you for your support and motivation and most of all for standing beside me and having faith in me.

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CHAPTER ONE

BACKGROUND TO THE STUDY

1.1 Introduction

Chapter one outlines the purpose of the study, the rationale and objectives, and then concludes by looking at a brief overview of the study. Teaching resources such as textbooks, data projectors, power point presentations, integrated whiteboards and chalkboards play an important role in influencing teachers' thinking with regard to the teaching and learning (Drews, 2007). There are various definitions of the concept 'resources'. The researcher has decided to use the following definition in the teaching and learning context. According to Khoza (2012, p.75) "any person or thing that communicates learning becomes a teaching and learning resource". The purpose of resources is to promote efficiency of education by improving the quality of teaching and learning (Okobia, 2011). Many disciplines such as Philosophy, Chemistry, Law and Business also make use of various resources (Nicholas, nd). For many years primary school teachers and Foundation Phase practitioners viewed the use of teaching resources as an indispensable part of Mathematics learning and teaching (Drews, 2007). University tutors are required to educate the Post Graduate Certificate in Education (PGCE) students on how to effectively make use of teaching resources, so that when they go to teaching practice they will be able to effectively make use of teaching resources and be familiar with the use of resources for their own teaching of the subject in due course. This implies that university tutors should make effective use of teaching resources which can lead to the improvement of teaching and learning.

1.2 Full descriptive title:

An exploration of the teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal.

1.3 Focus and Purpose of the Study

The focus of the study has been to explore teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules. It has been a case study conducted at a university in KwaZulu-Natal, South Africa.

1.4 Rationale

The study was chosen because the researcher had, observed that there appeared to be a challenge regarding the effective utilisation of resources in teaching at schools. When the researcher brought this to the attention of the teaching practice (TP) coordinator, it became clear that there was a challenge between what the university tutors were using in training the PGCE student teachers, and what student teachers face when they attend schools where they engage teaching practice with their school mentors. There were, for example, cases where the student teacher was expected to use a ‘smart-board’ or an Interactive Whiteboard (IWB), but was unable to do so, because the student teacher had never been exposed to these resources. The researcher was then tasked by the Teaching Practice coordinator to examine issues around teaching resources used by university tutors. University tutors form the key liaison and link between student teachers and mentor-teachers; between the university and the school; and between the coursework of the initial teacher education programmes and school-based practice.

The study aims at teaching resources, their use and how they are used by university tutors at a university in the KwaZulu-Natal Province of South Africa. It is anticipated that outcomes of this research could benefit other educational sectors, for example the student teachers, school mentors, university tutors, the Department of Basic Education and the Further Education and Training sector.

1.5 Objective of Study

The study sets out to examine how university tutors use teaching resources to teach Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal Province. This objective was approached through the three critical questions listed below:

1. What teaching resources do tutors use in teaching practice modules for the PGCE?
2. How do the tutors use these teaching resources in teaching practice modules for PGCE?
3. Why do tutors use these teaching resources the way they do?

1.6 Literature Review

In the literature review, the researcher explored issues relating to teaching resources. Teaching resources were seen to be a significant aspect in the teaching and learning environment. The literature views how previously conducted studies narrate on a variety of teaching resources used by teachers in the teaching and learning environment. The study informs individuals about teaching resources and its positive impact on the teaching and learning environment. There are also many ideas and concepts on how to make teaching resources obtainable at no cost and low cost in the literature review.

The literature review was presented using the thematic process. The literature review also took into consideration the possible ways the university tutors can make effective use of teaching resources to teach the (PGCE) students teaching practice modules at a university.

1.6.1 Resources

A case study conducted by Khoza (2011) involving university lecturers in the use of advanced teaching resources, revealed that some lecturers were leaving their fields of study that use advanced teaching resources such as Web-Based Teaching and Learning (WBTL), IWB and others. A study conducted by Mohamed and Dzakiria (2005) indicated that internet classroom assistant (ICA) also called NICENET in teaching English at the University Utara Malaysia was a helpful tool for teaching in the classroom. Participants indicated that they were not familiar with World Wide Web (WWW) based classrooms. However, according to the studies conducted by Mohamed and Dzakiria (2005) at the beginning of classes web based was not accessed by 95% of the students in their study. Braham (2006) has stated that some teachers find it daunting to use the Interactive Whiteboard (IWB). Some teachers mentioned that the IWB is a costly tool yet it was indicated by some teachers that the only reason they are unable to use the IWB was simply because they lack appropriate training as claimed by Braham (2006).

In another study conducted by Zondo (2000) advanced technology provides a challenge. People yearn for knowledge and resources in order to achieve their goals. This can be achieved by using various kinds of resources such as “teaching material, learning material, resource material, curriculum material, instructional material, audio - visual resources, teaching resources and Information Computer Technology” (ICT) (Zondo, 2000). According to a study by Dasgupta (nd, p.3) “teaching resources provide a stimulus for exploration and thinking

with the adult interaction and discussion that arise.” These are regarded as crucial to real activity based learning. Lastly a study conducted by Asokhia (2009, p.1) indicates the poor performance in English Language competence and claims that some schools are teaching using a textbook only therefore this is seen as textbook dominated. It is therefore essential and necessary to look for other means of providing the needed teaching resources (Asokhia, 2009). It was therefore suggested that staff should be adequately trained in the usage of technology. Teachers’ lack knowledge in the usage of any resources, inclusive of technological resources, would most certainly impact on the learning results of students.

1.7 Theoretical Framework

The study attempts to understand the activities, actions and operations performed by the participants of the study respectively on teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules. Therefore the researcher employed Activity Theory as the theoretical framework for this study. Activity theory provides a tool to seek information on various aspects of educational technology, according to Murphy and Manzanares (2007). There are various components involved in Activity Theory. These include tools, objects, subjects, rules, community and division of labour. Tools in this study refer to the teaching resources for example textbooks, computers, overhead projector and many more. Subjects refer to the university tutors who are currently teaching the students. Objects are the activity which is directed and which is changed into outcomes with the help of ‘external and internal tools’, Murphy and Manzanares (2007, p.2). Community refers to all participants of an activity who share the common objects mentioned by Murphy and Manzanares (2007). Labour involves tasks “among members of the community as well as the division of power and status” (Murphy & Manzanares, 2007, p.2).

1.8 Research Paradigm

The researcher had chosen the Interpretive Framework as it is embedded in the world of lived experiences. Interpretive research is fundamentally concerned with meaning, and it seeks to understand the social definitions and understanding of situations (Henning, Rensburg & Smit, 2004). Interpretive research “seeks to produce descriptive analyses that emphasise deep interpretive understanding of social phenomena” (Henning *et al.*, 2004, p.24). In this study the focus is on teaching resources used by university tutors. The researcher focused particularly on “understanding the individual participants’ experience and perceptions” of

their part as mentioned by Henning *et al.*, (2004, p.24). The voice of the participants in this type of research is of paramount importance (Lowe, 2007).

1.8.1 Research Design and Methodology

There are many types of qualitative research styles however, for the purpose of this study, the researcher concentrated on the use of case studies. This research used a case study based on six university tutors that teach (PGCE) teaching practice modules at a university in KwaZulu-Natal. A qualitative approach was used for this study because it is more descriptive, holistic, explorative and contextual and it aimed to produce a rich description of the phenomena (Creswell, 2012). Within the qualitative approach, the researcher made use of a multiple-method of data collection using document analysis, observations and semi-structured interviews with the intention to develop in-depth qualitative information (Maoba, 2009).

1.8.2 Context and Sampling

“Sampling refers to the process which was used to select a portion of the population for the study” states Maree (2007, p.79). The participants in this study were six university tutors that were from a university. The researcher focused on teaching resources used by the university tutors in teaching PGCE teaching practice modules. Purposive sampling was applied in this research. “Participants were selected because of the defining characteristic” that they were the owners or vessels of the data needed for the study (Maree, 2007, p.79).

1.8.3 Data Generation Plan

In the methodological approach, the case study set out to answer the three critical questions namely what resources do the tutors use, how do the tutors use these teaching resources and why do they use teaching resources the way they use them? The data was generated so that the researcher could identify what teaching resources were used. The researcher also needed to understand the procedures being followed by the university tutors when using these resources. The critical questions assisted the researcher to become aware of the reasons the university tutors use these teaching resources. In terms of the research strategy document analysis was used to generate data, followed by observations and lastly semi-structured interviews were conducted to gather information. The source of data was based on the documents used by the university tutors. Document analysis was based on The Guide to Professional Practice, Specific Skills Development Classroom Technology and a lesson plan. The data was generated since the documents formed part of the university property.

Therefore they were accessed from the university hence data was generated using document analysis. The tutors were observed as they were teaching in their respective classrooms. Documents (Guide to Professional Practice, Specific Skills Development Classroom Technology and a lesson plan) from the tutors were analysed as part of the document analysis process, before observation of a lesson and, thereafter during three different intervals, but also before observations. Document analysis occurred at a time convenient to the participant. Documents provided data that was thoughtful in that participants had given attention to compiling them.

The participants were observed teaching during their respective class periods. Each was observed three times over a three week period. They were interviewed (in semi-structured interviews) before the lesson commenced, as well as after the lesson. This allowed for reflection on their practices. This allowed for the generation of relevant data. To justify the generation of data, documents provided a clear direction of what was expected from the tutors. Classroom observation provided a clear picture of what actually occurred in the classroom providing the researcher with information on the context of the work and issues that participants might not freely talk about in the interview sessions. Semi structured interviews enabled the researcher to gain a detailed picture of the participants' views. This type of interview allowed the informant's free will to state their views in their own way, allowing the researcher to probe further after initial responses.

1.8.4 Data Production

Purposive sampling was used to select the six university tutors. There were currently only six tutors at the university who were teaching the PGCE teaching practice modules. The researcher interviewed all six university tutors. The university tutors became the participants who had the knowledge relating to teaching resources being used by the tutors themselves. The respondents were questioned regarding methods to be used and convenient times for interviews, so that they would not be disturbed during their teaching time.

1.8.5 Data Generation and Analysis

Various instruments were used for data generation. Document analysis included reference to such works as The Guide to Professional Practice, Specific Skills Development and Classroom Technology. A lesson plan for document analysis proved to be useful in the research. All the participants were observed in their classroom environment during teaching and learning time.

The three critical questions were used to assist to generate the themes and categories. Various instruments were used for the purpose of triangulation thus ensuring trustworthiness and validity.

1.8.6 Ethical Issues

The aim of the research was communicated to the participants (Mouton, 2001). The anticipated consequences of the research were also communicated as fully as possible to the participants (Mouton, 2001). In the generation of data respect for each individual participant is deemed an important aspect of ethical research (Creswell, 2012). The ethics committee considered the topic and permission was granted by the university. This is shown in Appendix 5.

1.8.7 Validity/Reliability/Trustworthiness

Lowe (2007) indicated that validity is an important aspect in research. Validity is important in research because it allows the reader to know that the data was recorded correctly and what it purports to describe, states Lowe (2007). An effective method for examining validity is to discuss the research with a colleague, seeking an independent view as to whether material was appropriate for the research area under consideration (Lowe, 2007). De Vos, Strydom, Fouche and Delport (2002) indicate that reliability in research was a concern, not with what is being measured, but how well it was being measured.

1.8.8 Limitations

Most of the university tutors were busy as a result they did not have enough time for the interview.

1.9 Conclusion

The rationale and the purpose of the study attempts to explain the use of teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal. Chapter one gives an overview of the study. It is the foundation to which the following chapters add in order to build an understanding of the teaching resources used by the tutors. The background to the study, the research problem and questions were presented in chapter one. The rationale and aims of the study was outlined as well as the reasons why the researcher undertook this study. The critical questions refer to the questions which assisted the researcher to guide the entire study.

Chapter two is the literature review which relates to the literature regarding various teaching resources used by tutors, teachers and facilitators in the teaching and learning environment. The researcher used a number of authors to draw information on teaching resources. In the third chapter the theoretical frame is described. This is then followed by chapter four where the research design with methodology, the research paradigm, and data generation is summarized. Thereafter the researcher proceeded to chapter five which discusses the data and its analysis and the findings. Lastly recommendations are laid out in chapter six which also concludes the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter the researcher explores issues relating to teaching resources. Teaching resources are seen as an important aspect in the teaching and learning environment. The literature review presented is based on the works of various authors who have researched and presented studies, journal papers and reports on teaching resources as used by teachers. It concerns a variety of categories of resources and their impact on teaching and learning. There are also many ideas and concepts on how to make teaching resources available at no cost and low cost. Therefore, chapter two starts by defining a resource which is categorised into two categories. These two categories of resources are further divided into three categories. This chapter also presents the twenty five types of teaching resources.

2.2 Definition of Resources

According to Criticos, Long, Moletsane and Mthiyane (2005, p.269), “a resource is anything which helps learning to happen”. Khoza (2012, p.75) also shares a similar idea in defining a resource as “any person or thing that communicates learning”. Teaching resources are divided into two components namely Technology in Education (TIE) and Technology of Education (TOE). Technology in Education refers to teaching or learning resource that one can see and touch (Khoza, 2012). Technology of Education refers to teaching and learning resources that one cannot see and touch. TIE is further divided into hardware and software. Hardware refers to a tool or machine used in the teaching and learning environment for example hardware would be desktop computers and laptops and many more (Khoza, 2012). Software is any material that is produced for the hardware to display information or communicate learning and an example would be transparencies for overhead projector. One can see and touch the transparencies and one can see the PowerPoint slides but cannot touch them unless it is printed out (Khoza, 2012).

TOE is also known as “ideological ware” of teaching and learning resources and an example would include teaching and learning strategies, experiences and more (Khoza, 2012). Therefore, the next section will be a discussion around commonly used teaching and learning resources followed by online and off line resources.

2.3 Types of Teaching Resources

The resources being discussed were framed by Hardware, Software and Ideological ware. Therefore, this study presents twenty five important issues around different types of resources in terms of these three frames.

2.3.1 Voice Board Support

According to a study conducted by Hew and Cheung (2012, p.360) views of education in blended learning progressively emphasize the social nature of learning which stresses interactions among students, or students and instructors. These interactions can ensue “asynchronously using a text-based discussion forum”. However, text-based discussion forums may not be appropriate for all students because some find it a challenge to explain difficult thoughts or terms in words while some complain of being misunderstood due to the lack of verbal cues (Hew & Cheung, 2012). The study examined the use of the Wimba Voice Board to support asynchronous voice discussions (Hew & Cheung, 2012). Two classes of undergraduate students participated: a class of 24 students made use of the WVB while the other 18 students made use of the text discussion forum in Black Board. The results revealed that there was no major difference between the two classes that participated (Hew & Cheung, 2012). However, online discussions appeared to be more continuous in the asynchronous voice discussion group (Hew & Cheung, 2012). The analyses revealed that voice discussions have many advantages over the text forums (Hew & Cheung, 2012). Voice discussions allowed students to comprehend one another’s messages better and allowed students who prefer speaking to writing or students who are not well versed in written English to participate in the discussion forum (Hew & Cheung, 2012).

This suggests that online learning is encouraging students to make use of voice discussions and text-based discussions because students indicated that when they used voice discussions they were able to understand each other’s message better simply because they could hear the tone and expression by the person’s voice. Students also took time over what they wished to say over the voice discussion. This also gives students an opportunity to feel free and confident to communicate because some students don’t know how to spell and are not sure how to illustrate their ideas in writing.

2.3.2 Animations

Lively concepts are hard to explain in traditional media such as still slides (Hwang, Tam, Lam & Lam, 2012). The benefit of animations is to offer better illustrations and concepts. Associated with static images and text, animations can present procedural information (an example of this would be the kidney or the heart demonstrating how blood flows) more clearly since they exhibit the steps in a methodical manner (Hwang *et al*, 2012). In stage 1 the perceptions of students were collected through surveys and focus-group interviews (Hwang, Tam *et al*, 2012). The results indicated that animations could explain complicated content more easily to students and there is a demand for similar learning tools for other challenging topics (Hwang *et al*, 2012). Stage 2 indicated that animations where there is close integration with extended readings can be good in facilitating learning of the subject matter (Hwang *et al*, 2012).

This suggests that animations can be used in certain learning disciplines. As much as animations are better media for certain types of topics it is also important to be mindful that an animation can only offer and show the student a certain amount of information which means that certain terms will be found in notes or textbooks (Hwang *et al*, 2012). This means that the teacher can make use of animations combined with traditional teaching because it enhancing teaching and learning.

2.3.3 Facebook

A study conducted by Lam (2012) examines four Facebook benefits which include interaction, communication, social relationships and participation. The study examines how Facebook benefits relate to student motivation in learning. The results revealed that interaction, communication, social relationship and participation impacts significantly on student learning and motivation (Lam, 2012). The results show teachers how Facebook benefits improve student motivation. Among the 284 participants 201 (70.8%) were male and 83 (29.2%) were female. There were 219 students whose ages ranged from 18-21 and the balance, 65, was mature students. There were 14.8%, 17.6%, 13.7% and 16.2% of the students spending less than 1 hour, 1-2 hours, 2-3 hours, and 3-4 hours respectively on Facebook (Lam, 2012). There was only 9.9%, 9.5% of the students spending 4-5 hours and 5-6 hours respectively on Facebook, however, there is 18.3% of the students spending more than 6 hours on Facebook (Lam, 2012). Among the variables participants has the highest which is .93 followed by communication .92 thirdly social relationship .89 and lastly

interaction .88 (Lam, 2012). The four variables display significant relationships with student motivation and learning.

This means that the social network is used as a platform for students to network. Facebook is motivating students and this indicates that Facebook can be used in the teaching and learning environment. A positive aspect about Facebook is that it is not bounded by space, location or time and it allows students to access the resource more flexibility (Lam, 2012). This enhances and opens up communication between student and teacher. This platform brings about openness and sociability which improves the social network. However Lam (2012) states that there is a cultural difference between students in Europe and Asia, where most students in Asia are willing to accept new technology quicker than those in Europe. Awareness regarding multiple identities, privacy and security should be noted.

2.3.4 Using Internet as a Resource Tool in the Classroom

A study conducted by Mohamed and Dzakiria (2005) indicated that internet classroom assistants (ICA) also called NICENET in teaching English at the University of Utara in Malaysia, were found to be helpful tools for teaching. Participants in this study indicated that they were not familiar with World Wide Web (WWW) based classrooms. However, the studies by (Mohamed & Dzakiria, 2005) indicate that the World Wide Web was not accessed by 95% of the students in the early years of its use. According to Mohamed and Dzakiria (2005) after students had spent a week on the World Wide Web they found it to be a useful tool, thus instilling confidence in these students to use it effectively. This therefore suggests that resources are indeed helpful tools in the teaching and learning environment.

2.3.5 Open Space Learning Circle

According to a study conducted by Wang (2009, p.1), the open space learning circle “(OSLC) can turn passive learning into active learning” thus giving participants a voice in the class which means students learn through talking sticks, dialogism and mobility and have their voices heard in the classroom. Wang’s (2009, p.1) study indicated that those students taught within the “open space learning circle attained better satisfaction from lectures than those in a traditional class in terms of instructional objective, instructional material and many other methods.” “In traditional classroom management, the structure is hierarchical rendering it mainly a top-down structure” so that learning tended to be teacher centred (Wang, 2009, p.1).

In the traditional classroom students can only pay attention, take notes and commit to memory (Wang, 2009). It was concluded that students' input and output information given by the teachers was a one way process of teaching, as indicated by (Wang, 2009).

This suggests that the open space learning circle is the way forward in the English Communication class. OSLC would also encourage various forms of communication among students, for example the student can enquire from the open space if he or she needed assistance about a certain aspect of the topic which was discussed in class.

2.3.6 Open Space Learning

Open space learning (OSL) occurs in a space that is always "open" both figuratively and actually (Nicholas, nd, p.1). It offers a certain kind of freedom in which, if managed by the tutor, individuals exist as neither performer nor passive listener, but as a participant in the sighting of knowledge (Nicholas, nd). An open space learning environment is entirely dependent on "openness" to the physical; characteristics of the spaces in which the work takes place (Nicholas, nd, p.1). OSL equips students for the complexities of work in society (Nicholas, nd).

This suggests that the open space learning circle is highly recommended as a method according to the study. This means that open space learning can be used for various disciplines and it gives students an opportunity to establish communication freely and at any given time. Also students that lack confidence in the classroom are given the opportunity to air their opinions using open space learning. Open space learning produces better educated students.

2.3.7 Interactive Whiteboards

Interactive Whiteboards (IWB) is a large touch sensitive board which controls a computer connected to a digital projector. A study conducted by Smith, Higgins, Wall and Miller (2005, p.1) examined the "impact of IWBs on literacy and mathematics in years 5 and 6 of primary school students aged between 9 and 11 years." The evaluation looked to detect the impact of classroom interaction on teacher's perceptions and on student's attainment, progress and attitudes. The results indicated that there is insufficient evidence to identify the impact IWB's had on learning in classroom interaction or attainment and achievement. Teachers reported that IWB's created further options when catering for a range of needs within a lesson (Smith *et al.*, 2005). The "facility of being able to flip back and forth

between pages on the IWB screen” was also reported to be a valuable technique as indicated by (Smith *et al.*, 2005, p.2).

This suggests that IWB’s are able to accommodate several important teachers’ needs, as can be noted from the study. The IWB is user-friendly and can also accommodate students that are slow or who did not grasp a concept the first time around. This means that more time and focus can be dedicated to students in the classroom compared to walking around the computer lab and giving each student attention which takes up the lesson time. The students can also benefit because the teacher can flip back and review when necessary.

Furthermore in a study conducted by Sweeney (2010, p.4) it was noted that participants felt that the IWB enhanced these elements (IWB software) because lesson content could be easily presented and discussed. Sweeney (2010) indicated that a participant using an IWB made improvements to the school infrastructure and was now able to easily save work for students who could thereby access work and continue in their classroom after their lessons. The study indicated that participants were able to generate “multiple copies of files as an initial point for use with each class and also assess progress” (Sweeney, 2010, p.5).

This suggest that teachers need guidance and support to make better choices about how and when to use IWB’s which is based on the pedagogical content knowledge indicated in the study. The use of IWB’s can assist teachers in the learning and teaching environment fruitfully as seen from the studies conducted above.

2.3.8 Classroom Technology

According to Aziz (2010, p.1) “[Classroom] Technology is the considered implementation of appropriate tools, techniques or processes that facilitate the application of the senses to enhance teaching practices and improve learning outcomes”. This definition is considered and discussed in segments below: ‘Implementation means ‘any technology whether physical or conceptual and has value’ (Aziz, 2010, p.1). “Tools techniques or processes” refer to the general public and the teachers in the education system (Aziz, 2010, p.2). For example ‘the use of video brings the depths of the universe to the student’s eyes thus facilitating the application of the senses for memory and cognition’ (Aziz, 2010, p.2). The use of the internet allows the student to actually think beyond. And lastly the phrase “enhance teaching” practice is not just about learning or simply providing the students with access to information and resources, but it is about the student being able to progress under the

mentorship of the teacher. According to Aziz (2010) the students can only develop to the next level with the assistance of a teacher who is skilled and well educated.

This suggests that technology be used for helping the students in the classroom. Aziz (2010) posits that to “enhance teaching” is not about learning or providing students with information but it is about the student being able to develop. Therefore, students can only fruitfully make progress using technology with the help and guidance of the teacher.

2.3.9 Challenges with Teaching Resources

Zondo’s (2000) study is based on teaching resources that are available for Geography teachers. It was gathered that there were factors that contributed to poor teaching and learning in schools. The study concluded that all schools researched have no electricity which makes the use of resources a challenge (Zondo, 2000). However, not all schools are fortunate to have teaching resources. “Some schools have only limited resources,” and some teachers are not able to use these teaching resources (Zondo, 2000, p.9). Zondo (2000) posits that despite the critical conditions of teaching and learning geography in African schools some teachers are determined and driven to teach. Zondo (2000) suggests that a program be put in place to assist with the lack of resource as this will improve the current condition.

This means that it is imperative to look for other means of providing the required teaching resources (Asokhia, 2009). It was noted that human beings remember 10% of what they hear, 50% of what is heard and seen, and over 80% of what is heard, seen and done (Asokhia, 2009). This means that resources play an important role in teaching and learning at school. However, despite a lack of resources teaching and learning can still be stimulating. This can be made possible by using various kinds of resources such as charts, pictures, the chalkboard and textbooks and more importantly having teachers that are motivated to teach.

2.3.10 Information Communication Technology (ICT)

Gulbahar and Guven (2008, p.11) study indicated that “although teachers are willing to use ICT resources, and are aware of the existing potential, they face problems in relation to the accessibility of resources as well as a lack of in-service training opportunities.” Hennessy, Harrison and Womakote (2010, p.11) claim that information and communication technology will assist “teachers to work collaboratively over time with their peers, and to learn from one another’s innovations and experiences”. Staff being trained in the usage of computers to be able to keep up with the modern trends of the outside world is rather important. Providing

continuing courses and sharing workshops could be deduced to be a necessity for teachers, so that they can be encouraged to deliver lessons on computers in the classroom.

Furthermore, in so far as the use of computer is concerned a study conducted by Galbahar and Guven (2008) concluded that the instructors were not knowledgeable in using computers. Negative views on the use of technology in the classroom were often focussed on technology being employed merely because it was novel and innovative or misused by teachers (Dunmire, 2010). This reflects the importance of teachers being knowledgeable to impart information.

2.3.11 Common Internet Resources

A study conducted by Khoza (2011) involved eight South African Educational Technologists who use web based teaching and learning (WBTL) in their modules. The study looked at the challenges lecturers experience whilst using WBTL. Khoza (2011) study indicates that universities found it difficult to locate suitable candidates in the Educational Technology field and the universities cannot afford to pay these candidates for their posts. This simply means that there is a shortage of Educational Technologists in South Africa. According to a survey conducted by the office of Academic Planning and Assessment at the University of Massachusetts (UMass) in the United States (Khoza, 2011) students are more interested in WBTL than in face-to-face education. Over 50% of the students in the study felt that they can learn while they were in their living rooms (Khoza, 2011).

This suggests that universities are obligated to use WBTL in order to gain students and to improve on student numbers. Khoza (2011) posits that since teaching and learning resources can be divided into the two disciplines, Technology in Education (TIE) and Technology of Education (TOE), students should be trained to utilise the most available resources with good understanding of TIE and TOE. This suggests that students should be helped to distinguish between TIE and TOE for effective teaching. There are many International Educational Institutions that have used information communication technology (ICT) to their advantage (Khoza, 2011). One of these institutions, for example, is Athabasca University in Canada. This institution used WBTL to triple its graduation rate (Khoza, 2011).

2.3.12 Inadequate Training on Resources

A study conducted by Yara and Otieno (2010, p.1) found “Kenya had faced a number of shortcomings, which include inadequate training and learning resources in schools.” They also found that the performance of mathematics in the National Examinations had decreased which created a concern in society (Yara & Otieno, 2010). Mathematics was a compulsory subject up to secondary school level. Florendo (2012, p.2) argues that “teachers must be trained in preparing, constructing” and using resources. In addition there needs to be emphasis placed on this training for the Post Graduate Certificate in Education (PGCE) students who are going to schools to do teaching practice.

This suggests that staff should be trained adequately on the usage of resources. When teachers lack knowledge on the usage of resources this will certainly impact on the learning results of students. Therefore, the use of resources plays a curial role in teaching and learning at schools.

2.3.13 Primary School Resources

Dasgupta (nd, p.3) indicated that the usage of teaching resources could assist young children to “interpret sensory and language experiences, to clarify them, and relate them to their previous understandings.” Children thereby learn from “blending language with experiences,” and learn to think (Dasgupta, nd, p.3). If stimulating, encouraging experiences provide “maximum mental growth and personality development, appropriate learning materials (teaching resources) help children to develop their innate abilities” (Dasgupta, nd, p.3). Teaching resources help children to learn as indicated by Dasgupta (nd) when using the example about ten soft drink bottle caps. Bottle caps refer to the top cap of the bottle this suggests that a wide variety of resources and many more teaching resources should be introduced to children in the classrooms. Children learn better by seeing an actual demonstration or process. Resources can also accommodate the rural schools, as they are easy to make and are referred to as “*low cost no cost*” teaching resources. This implies that low cost resources and no cost resources are important in the training of student teachers.

2.3.14 Tape Recorder

A study conducted by Holesinska (2006), investigated young students attempting to master a foreign language (English). Emphasis is laid on teaching process and methods that should be applied with young students with learning disabilities. Holesinska (2006, p.23) indicates that

there are “some words that are difficult for the children and some may be getting this right in an oral test but may spell them incorrectly when writing.” Using a “tape recorder to test an individual and to practice pronouncing words correctly into a tape recorder will support students and words should be recorded like a spelling test” Holesinska (2006, p.2 7).

In a study conducted by Jadal and Gaikwad (nd) the tape recorder was used for teaching English in primary schools and it was felt that children learn not only from teachers and textbooks but also from a variety of other sources. This informs the researcher that there is most certainly a need to have other resources in the teaching and learning environment. The Government of Maharashtra provided audio cassettes for a textbook to each and every English teacher through Balchitravani (Jadal & Gaikwad, nd). The cassettes contained the recorded materials of the textbooks. The study indicated that 100% of the teachers used tape recorders for effective teaching and developing skills in English (Jadal & Gaikwad, nd). It was further revealed in the study that 20.58% of students agreed that the English teachers are using the tape recorder for teaching interviews, conversations and discussion; 3.93% of the students are undecided and 75.49% dis-agreed (Jadal & Gaikwad, nd). The teachers are using tape recorder for teaching pronunciation, 100% of the students agreed with the statement.

This suggests that teachers should use the tape recorders purposefully for students to benefit in their respective classes. This means that learning a foreign language, which can be difficult in terms of pronunciation and spelling can be made more effective by making use of a tape recorder to assist and encourage the learner.

This further suggests that the use of a tape recorder in teaching is useful in facilitating certain assessment strategies such as the interview. According to Adam (2004) assessment is divided into formative assessment and summative assessment. The interview as an assessment resource is used for both formative and summative assessment.

2.3.15 Television

Adekunle (nd, p.10) indicates that while “television is one of the great automated devices which shape our changing world, it has been found to be a powerful medium which can be used to improve the quality of instruction, enrich the curriculum and extend the benefits of such schooling to millions of children who will otherwise be deprived of opportunities that

should have been opened to them.” Students can learn from television programmes, current affairs and discussions on issues which could be seen and heard, just as they can from teachers, texts and other resources (Adekunle, nd).

This suggests that the television is a rich source of information to enable the student to be able to see and remember easily. While TV may be used for formal instruction it is mostly used for entertainment purposes. According to Khoza (2012) resources like TV needs awareness learning which combines the use of both TIE and TOE in the form of Entertainment-Education Theory. The television also offers learning programmes from which students can progress in a particular learning area. Students also learn from the entertainment they watch on television unconsciously.

2.3.16 Overhead Projector

According to Cooper and Yoder-Wise (2003) transparencies can be easily prepared at low cost by copying materials on acetate with a copying machine. The use of too many transparencies can interfere with its effectiveness, states Cooper & Yoder-Wise (2003). As a general rule one transparency should be limited to six or seven words per line and not more (Cooper & Yoder-Wise, 2003), while a variety of graphics and the use of colour for emphasis enhances the presentation.

Furthermore, Mehlinger (1996) indicated that the overhead projector is easy to use and relatively cheap. It permits the teacher to prepare notes in advance, and to project them onto the screen for all students to view. It can be used without darkening the room or turning ones back on the students (Mehlinger, 1996). The overhead projector can be very flexible, speedy and cheap. It can enlarge text in a manner which replaces the whiteboard, magnetic board and posters as indicated by Medwell (1998). Machines which are illuminated by a bulb below the transparency offer much better contrast, and are easier to write on in class (Medwell, 1998). It is also suggested that for safety purpose in the classroom the OHP should be fixed on the wall (Medwell, 1998). Furthermore, Townsend (1999) states that there must be no obstruction to student’s view of the screen and that the projector needs to be switched off between each transparency.

This suggests that Overhead Projectors are easy and simple to use, however, there are rules when using the overhead projector which should be followed. This further suggests that

OHPs are only useful teaching resource for presentation as they cannot be used for notes. However it may be useful for formative assessment. In different well-resourced schools, the OHP as one of the older TIE resources is mostly replaced by the latest common TIE resources such as PowerPoint and in some other schools Smart board.

2.3.17 PowerPoint Slides

According to Muralidharan (2012) PowerPoint acts as a supplement to regular oral lectures by outlining the class schedule. Presentations break down lectures into layers, and thereby give them a structure (Muralidharan, 2012). PowerPoint is the very basis for teachers when used moderately (Muralidharan, 2012).” This implies that the usage of PowerPoint supports students to build their notes and grasp thoughts where they will be able to see images and remember what was taught (Muralidharan, 2012).

In another study it was noted that PowerPoint can support, but never substitute, for, carefully thought-out teaching and learning activities (Gallagher & Reder, 2004). Teachers need to be clear about what their use of PowerPoint is designed to achieve for themselves, their students and their course (Gallagher & Reder, 2004). Despite outside pressure to use PowerPoint inside the classroom, use of PowerPoint “needs to be a sound decision” (Gallagher & Reder, 2004, p.3). When conducting a presentation it is important to explain what is on the screen and not to read text (Townsend, 1999). The goal is to nurture and to formulate interactive communication between teacher and student and to network with the material (Gallagher & Reder, 2004).

This suggests that PowerPoint is a very useful aid for teachers when used appropriately in the classroom. One should not read from the notes and should ensure that the rule for PowerPoint is followed. When PowerPoint is used effectively it is able to enhance lessons in the teaching and learning environment. According to Aziz (2010, p.2) the student, can only progress to the next level with the guidance of a teacher who is skilled and knowledgeable. Therefore, the teacher should be trained and skilled to be able to utilise resources effectively.

2.3.18 Using Video in Teaching and Learning

A study conducted by Baharun and Porter (2010) considered the use of video-based resources in the teaching of statistics. Participants in the study numbering 89 undergraduate and 86 postgraduate students enrolled for a particular subject. 95% of the postgraduate students felt

lecture notes were useful as well as 79% of the (undergraduates) felt the same. When asked about the use of video on the course, 98% of postgraduates agreed they were useful while only 46% of the undergraduates felt the same way (Baharun & Porter, 2010). The conclusion of the study indicates a majority (or 80%) of postgraduate students had responded that the resources were helpful in variety of ways which also assisted to improve their understanding and learning covered in the subject. It was also noted that the resources helped to increase their confidence in completing tasks such as assignments, lab work, quizzes and the final examination (Baharun & Porter, 2010).

In another study conducted by Moonsamy (1998) the use of video in teaching and learning had a positive impact on students in the classroom. Video presentation can be merged into other methods of teaching such as lectures and discussions (Moonsamy, 1998). It can also be used as a “substitute for a lecture presentation” (Moonsamy, 1998, p.90).

Furthermore Kadzera (2006, p.2) indicated that while resources such as “chalkboards, flip charts, overhead projectors, video, computer and local resources from the environment” were used by tutors at teacher training colleges in Malawi, the results indicated an infrequent use of technologies such as overhead projectors, videos and computers. This attributed to a “lack of training, unavailability of resources and lack of maintenance” (Kadzera, 2006, p.56). This draws attention to the role that training plays in the usage of resources. There needs to be an enthusiasm on the part of the teacher to adapt to change in using resources in their teaching. Constant training and peer support on the usage of resources is significant. Kadzera (2006, p.96) indicated that the “failure of some tutors to use locally available resources can be attributed to a lack of creative thinking as well as lack of initiative on their part to use the local environment in their teaching”.

Therefore, training tutors and providing support groups on how to use classroom technology can play a pivotal role at training institutions. According to Kadzera (2006, p.48) the study concluded that “tutors use of technology at Blantyre Teachers College over half of their 19 (10) tutors either never used, or seldom used, the flip chart and in another case 15 of 19 reported never using, or seldom using, an overhead projector”.

This suggests that it is pivotal for student teachers at training colleges to have exposure to resources in order to enhance teaching and learning in the classroom. The word resource

implies anything that a teacher can use to teach to enhance or enrich a lesson. This can only be done by ensuring that training institutions provide proper training to teachers that are up and coming.

2.3.19 Multiple Resources

A study, conducted by Okobia (2011, p.3), on teachers' use of teaching resources and the availability of such resources in secondary schools, shows that the most available resource material included "textbooks (100%), chalkboard (100%), maps and atlases (48%). These were followed by display boards (20%), graphs and charts (20%), globes (18%)" (Okobia, 2011, p.3). Other resources for teaching social studies were lacking, for example radio tapes (0%) overhead projector transparencies and video tapes (0%) (Okobia, 2011). Regarding how often teachers used resources, the study showed the following items were sparingly used radio tapes, overhead transparencies and television sets. "Computers, video recorders and overhead projectors were not used at all" (Okobia, 2011, p.3).

This suggests that there is much neglect on the usage of resources in the classroom, which will certainly impact on the implementation of the curriculum and students' results. This is an indication of failure on the part of stake holders in the schooling system. However, teachers continually look for fresh ideas to solve the challenges of teaching (Killen, 2006). Where teachers make creative use of physical resources such as newspapers this will further assist students (Killen, 2006). The involvement of parents and the community can be assured where they make use of study guides and many similar repaired resources. There are limitations such as equipment however; resourceful teachers make most of the conditions and opportunities that are accessible (Killen, 2006).

Khurana (nd) expresses the view that teaching resources are useful to reinforce what the teacher is actually saying, and also to ensure that a point is being understood. Students are able to visualize or experience something when teaching resources are well used, that is impractical to see or do in real life (Khurana, nd). There are various types of teaching resources. Khurana (nd) suggests the following uses: Flip charts or boards be used for small groups, problem based learning tutorials, and workshops, Life and plastic models can be very effective in anatomy teaching in small groups or for self-directed learning, Videos are good for clinical teaching in larger groups (use film); also for teaching communication skills and practical skills (students can keep films for self-appraisal).

2.3.20 Worksheets

In a study conducted by Ören and Ormanci (2012) it was mentioned that nearly all pre-service teachers argued that worksheets used in science courses were effective in drawing students' attention, and interest in the course. The participants believed that using worksheets in science will be effective in establishing links, or integration of other courses. It was also found that worksheets were effective in determining students learning levels. It was therefore suggested that the application of worksheets should be increased in the teaching and learning environment in higher education (Ören *et al.*, 2012).

This suggests that worksheets are effective in drawing students' attention and interest. According to Wellington and Osborne (2001) pictures, words and diagrams convey meaning to students in different ways. Each has their significance, and their own limits. The well-known saying "a picture is worth a thousand words" means that worksheets can be used in conjunction with pictures.

2.3.21 Flipcharts and Whiteboards

Flipcharts are a teaching resource well suited to small group teaching (but which are generally too small for use in a lecture theatre). They can be used as a substitute for a whiteboard or chalkboard. By way of example Harrison (2003) demonstrates a possible use of the flip chart. A group could be asked to brainstorm ideas on a certain topic (e.g. what are the different types of resources) and the tutor records the ideas that are generated on the flipchart. In this way the tutor can record this information for further development. The group can be asked to consider either the same question or problem, or two or three related ones. Each group is equipped with a page from the flipchart and a pen. After a suitable period for discussion has been allowed the groups are asked to review their discussions and, using the flipchart as a guide, to present their findings to the entire group. The various pages might then be attached to the wall for future reference. The tutor may wish to retain the charts as a record or to type them up for distribution to the students which can be helpful.

Flip charts can be used for small groups; problem based learning tutorials and workshops according to (Khurana, nd). The facilitator must write down a few points on the flip chart and communication must continue (Townsend, 1999).

2.3.22 Pictures and Charts

According to Wellington and Osborne (2001), pictures, words and diagrams convey meaning to students in different ways. Each has their significance, and their own limits. The well known saying that ‘a picture is worth a thousand words’, indicates that there are, certain meanings one wishes to convey which cannot possibly be put across in words alone (Wellington & Osborne, 2001). Illustrative demonstration is effective particularly for students having reading problems or for those with minor vocabularies (Adekunle, nd). “Pictures help to clarify what is being taught and develops a sense of authenticity (Adekunle, nd, p.11). While images arouse awareness, create correct impressions and bring lessons to life, charts, on the other hand, are appreciated in the presentation of resources to be taught in their simplest way (Adekunle, nd). When pictures are used, the teacher should use a variety of them in order to make an impact on his or her points to the students. Where “charts are used to stress some important facts they should be clear and large enough to be seen from any part of the classroom” (Adekunle, nd, p.9). Pictorials are effective when applied to learning areas. And if students had to just observe pictures many thoughts, concepts and feelings come to mind which encourages the student to think and contribute to the lesson in the classroom.

This suggests that the use of pictures in the classroom is encouraging students and improving their learning. However, in addition to the usage of pictures, other resources such as micro films, charts, filmstrips, videotapes and other material combined can help to achieve the desired results in the teaching and learning environment.

2.3.23 Textbooks

A study conducted by Asokhia (2009) highlights the need to make the English Language lessons easy and entertaining through the use of teaching resources or improvisation. (Asokhia, 2009) posits that the “poor performance in English Language in most schools is because teaching is textbook dominated.” Teachers do not have a steady supply of teaching resources and where it is available it is insufficient or outdated (Asokhia, 2009). It is agreed that the purchase of visual aids is costly. The foreign exchange rate is also high and it therefore becomes essential for teachers to improvise to close the gap between students in the real world and the English Language world (Asokhia, 2009).

This suggests that the improvisation of resources can be useful in the English lesson when puzzles, flash cards, word cards pictures and so forth can be used. The concept of improvisation is indeed a good concept however, in the case of other subjects it will be difficult but it is a challenge to the teacher to enhance teaching and learning.

A study conducted by Lee and Bathmaker (2006) on the use of English textbooks in the upper secondary Normal Technical classroom in Singapore showed that teacher beliefs are related to factors that exist within and outside the classroom, and that teachers' beliefs in the use of textbooks are influenced by the load of examination. The study also indicated that the most frequently conducted activities from textbooks were reading comprehension (52.2%) and vocabulary (43.5%).

2.3.24 Chalkboards

In a study conducted by Seth, Upadhyaya, Ahmad and Kumar (2010) it was noted that lectures accompanied by chalkboard teaching were clear and comprehensible, stimulated students' interest and encouraged participation. Furthermore a study conducted by Kern, Elhouar, Sterling, Grant, McGowan, Rubash, Neelly and Wolffe (2005) at Bradley University set out with several immediate goals to outline effective teaching principles, effective teaching practices and how effectively teachers can utilise the chalkboard to supplement traditional teaching in order to improve academic programs. In the study it was noted that students claimed that they would like to see the chalkboard used more often. The study noted that at the outset about 80% of the 9 courses made use of a chalkboard. One way of achieving this goal was to strengthen the faculty to effectively teach in the classroom with the aid of the chalkboard.

The study conducted by Seth *et al.*, (2010, p.2) based on teachers' preferences for different lecture delivery methods, pointed out that "48.66% used a chalkboard, 29.95% used OHP and 21.39% used PowerPoint". This informs teachers that various lecturer delivery methods in education are used at institutions and it enhances teaching and learning. However, the measure of preferences revealed that 40.47% preferred the chalkboard, 28.43% preferred the OHP and 31.1% preferred the use of PowerPoint. It was concluded that the main form of lecturer delivery is still supported by a chalk and talk (Seth *et al.*, 2010).

This suggests that despite the use of low technology academic goals can be achieved using the chalkboard effectively as mentioned. The chalkboard can be used for a variety of tasks: for example it can be used to sketch diagrams, draw student's attention towards the topic or focus area and many more. The chalkboard also gives the students the opportunity to focus when the teacher is elaborating a concept or drawing a mind map to help students understand.

2.3.25 Newspapers

A study conducted by Ellen and Ellen (2009) indicated the importance of using newspapers in the classroom. A programme called 'Newspaper in Education' was started to get young people interested in reading. The impact of newspapers in education is seen as significant according to Ellen and Ellen (2009). They connect young people to current affairs, and assist to stimulate interactive ways of teaching to attain the goals. It was concluded that "international research suggests many significant improvements in attitudes and skills of people participating in the Newspapers in education programme" (Ellen & Ellen, 2009, p.7). In a study conducted by Mysliwiec, Shibley and Dunbar (2003) in a Science course encouraged students to manage their learning. Newspapers facilitate active learning in the classroom environment to create assignments focused on the students (Mysliwiec *et al.*, 2003). Relevant parts of newspapers can easily be multiplied by stencilling or photocopying and being made available to students.

A study conducted by Tafani (2009) noted that newspapers can be used as teaching materials to develop students' language skills, and can be used effectively with a wide range of levels of students. According to Tafani (2009) dedicated and enthusiastic teachers can design exercises to improve students reading, comprehension, critical thinking skills, writing skills, grammar skills, vocabulary, map/chart reading skills, geography skills and social study skills. When planning a lesson, the teacher should take into consideration the length of the article, paragraph, the complexity of the language, the density of information, the subject-matter and content, the time available and the level of the students (Tafani, 2009).

This simply means that newspapers can play a significant role in the classroom and in the work place as well. Newspapers as resources can be used to sensitise students to extend reading habits. The newspaper is a cheap resource that can be easily access and used by just about any student.

2.2 Conclusion

In conclusion it can be seen from the literature and research results, that teaching resources are a valuable tool in the teaching and learning environment. They have positive impact on students. Some studies reveal that students are able to see pictures and remember their work better (Muralidharan, 2012). The absence of resources will have a negative impact on student results (Yara & Otieno, 2010), and will disadvantage students from being able to visualise graphics introduced, and to utilise their imagination. Some issues relate to how teaching resources should be used, while others relate to the impact resources have on the teaching and learning environment. The important role that teaching resources can play in improving teaching and learning in the classroom, is clearly indicated by more than one author. This section has provided a general idea of what researchers from various countries, and of different contexts, express as their findings regarding teaching resources used in the teaching and learning environment.

CHAPTER THREE

CONCEPTUAL/THEORETICAL FRAMEWORK

3.1 INTRODUCTION

This chapter three presents important concepts used for this study, the research paradigm and a theory used to frame this study. The main concepts are resource, hardware, software and ideological –ware. The paradigm is an interpretive paradigm and the theory is Activity Theory. In the current study, the researcher intends to conduct a document analysis, observe and interview lecturers at a university, which is their natural setting. The target group is the lecturers, from whom the researcher wants to understand how they use teaching resources to teach the PGCE students.

3.2 Concepts

Teaching resources mean anything that can support the teacher in encouraging expressive teaching and learning (Adekunle, nd). “Any person or thing that communicates learning becomes a teaching and learning resource” as defined by (Khoza, 2012). “Teaching resources are divided into two components namely Technology in Education (TIE) and Technology of Education (TOE). Technology in Education refers to teaching or learning resources that one can see and touch (Khoza, 2012). Technology of Education refers to teaching and learning resources that one cannot see and touch. TIE is further divided into hardware and software. Hardware refers to a tool or machine used in the teaching and learning environment for example hardware would be desktop computers and laptops and many more (Khoza, 2012). Software is any material that is produced for the hardware to display information or communicate learning an example would be transparencies for an overhead projector. One can see and touch the transparencies and one can only see the PowerPoint slides but cannot touch them unless they are printed out (Khoza, 2012). TOE is also known as “ideological ware” of teaching and learning resources and an example would be teaching, learning strategies, experiences and more (Khoza, 2012).

3.3 Paradigm

The researcher had chosen the interpretive framework for this study embedded in the world of lived experiences. This type of research is fundamentally concerned with meaning, and it seeks to understand the definition and comprehend situations (Henning *et al.*, 2004). This paradigm provides an understanding of the teaching resources used by university tutors in

teaching PGCE teaching practice modules. Interpretive research pursues to produce expressive analyses that emphasises deep interpretive understanding of the social phenomena involved (Henning *et al.*, 2004). The researcher focused on comprehending individual participant's experience, views and perceptions of their role as mentioned by Henning *et al.*, (2004). Therefore, the power of voice from the participants in research becomes important states Lowe (2007). The interpretative paradigm nurtures dialogue between the researcher and participants. Participants were re-opened to re-interpretation and negotiation through the conversation. Multiple experiences of university tutors using teaching resources determined the multiple realities which is the ontology of this study as reality in the interpretivist paradigm is negotiated with participants (Schwandt, 2000). This study is determined by multiple truths that emerged from each situation. According to Schwandt (2000) multiple truths exist in an interpretivist paradigm. The setting of the university provided the researcher with in-depth understanding of the teaching resources used by university tutors and the documentation or module notes used by the university tutors gave insight and understanding of the rules of how resources was to be used in the classroom.

3.4 Theory for the study

Nardi (1995) defines Activity Theory as a philosophical and cross disciplinary framework for studying different forms of human practices as growth processes, both individual and social. "Activities are not static or rigid; their elements are under continuous change and development which is neither linear" nor straight forward. This means that "activities also each have a history of their own" (Nardi, 1995, p.7). The first generation Activity Theory represents activity at an individual level according to Robertson (2008), it is based on the assumption that tools mediate between the subject and the object. These tools are created or transformed in the course of an activity (figure 3.1).

3.4.1 TRANSFORMING AN OBJECT INTO AN OUTCOME

ACTIVITY	TEACHING STUDENTS
ACTION	RESOURCES EXAMPLE COMPUTER
OPERATIONS	USING THE COMPUTER OR DATA PROJECTOR

In transforming an object into an outcome refers to the actual activity. For example when the teacher is teaching the students the actual activity here is teaching. The action is the resource being used to teach the student. And lastly the operation is when the teacher makes use of the data projector or computer to perhaps show the students.

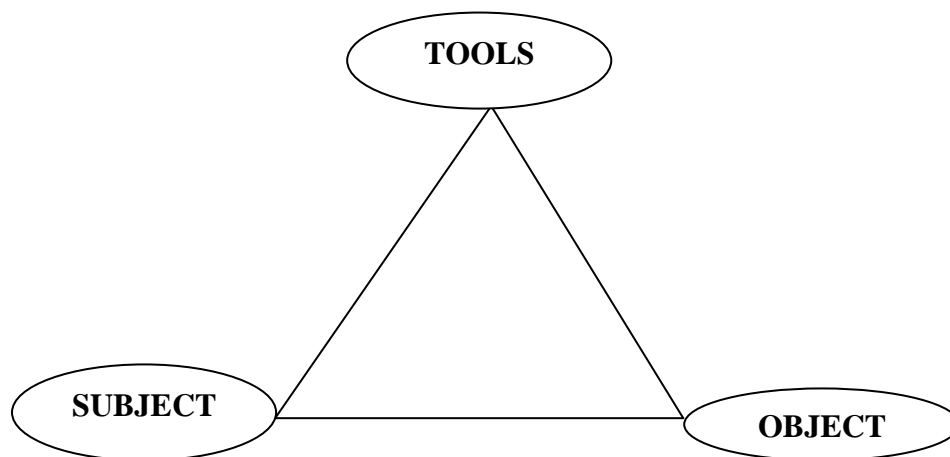


Figure 3.1: Model one of Activity Theory (AT) (Engestrom, 2001, p.2)

3.4.2 THE STRUCTURE OF ACTIVITY THEORY

Figure 3.1 outlines a brief structure illustrating the three components that are part of Activity Theory. These three components (tools, subjects and objects) represented the first principles of Activity Theory which is later joined by outcomes, rules, community and division of labour as shown in Figure 3.2. “An activity is a form of doing directed to an object, and activities are distinguished from each other according to their objects” (Nardi, 1995, p.8). An example given by (Nardi, 1995) is demonstrated below in section 3.2.

Activity Theory provides a frame work for describing the structure, development and context of activities (Nardi, 1995). Figure 3.2 is the model of the activity theory which describes the components of each node in the system.

In Second Generation Activity Theory, the activity is considered at a ‘collective level’ and rules may be explicit or implicit (Robertson, 2008). And the Third Generation Activity Theory represents ‘networked’ activity and incorporates the idea of boundary objects (Robertson, 2008). Figure 3.2 indicates the components and the roles each component plays in activity theory in this study.

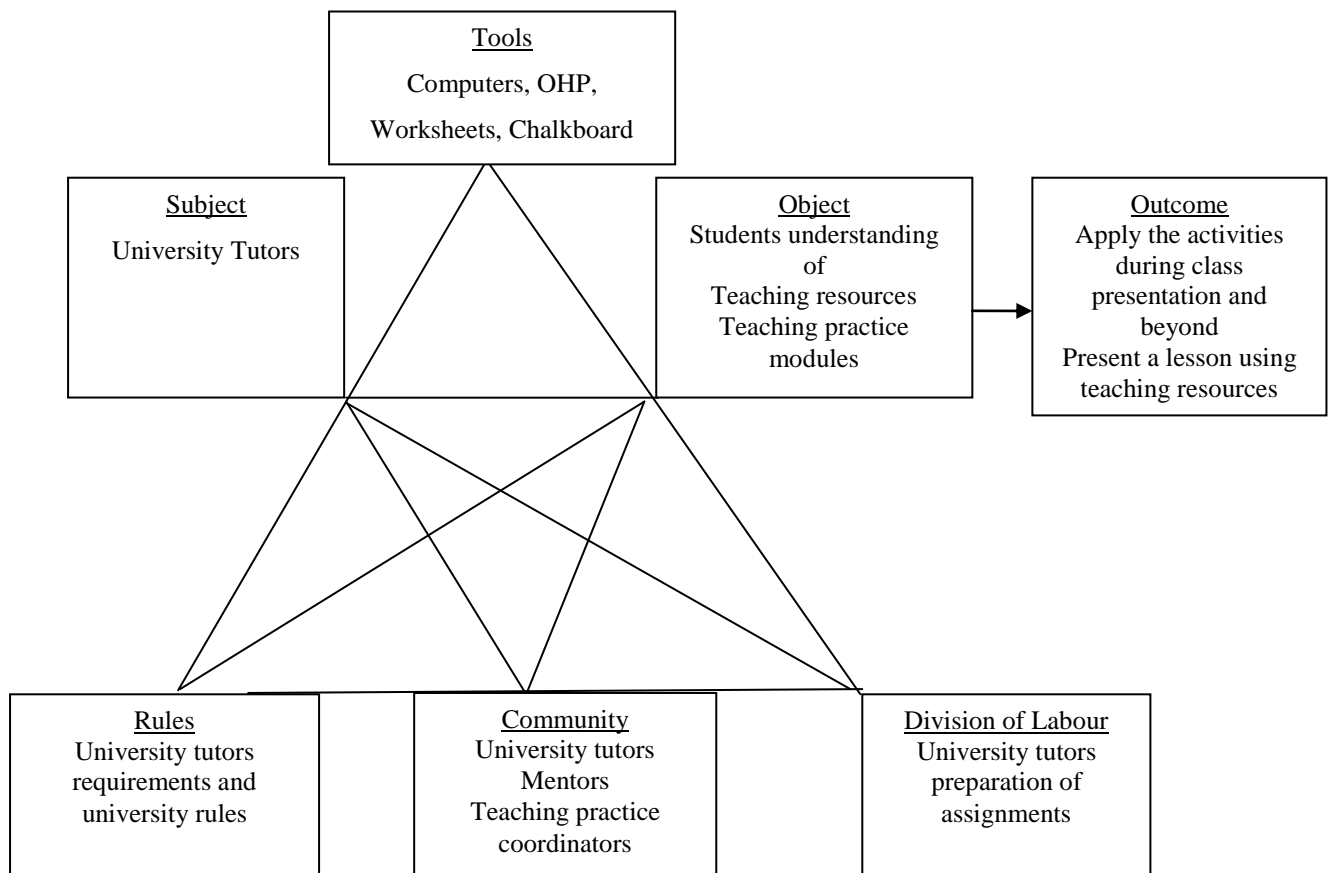


Figure 3.2: Model two of Activity Theory (AT) (Engestrom, 2001, p.3)

3.4.3 How the activity system works

According to Nardi (1995) an activity always contains various artefacts such as instruments, signs, procedures, machines laws and so on. “An essential feature of these artefacts is that they have mediating roles”; the relationship between elements of an activity is not direct but mediated (Nardi, 1995, p.7). Figure 3.2 (above) outlines the process of the activities that are current at the university.

“An activity is a form of ‘doing ‘directed to an object’”, and activities are distinguished from each other according to their objects according to Nardi (1995, p.8). Transforming the object into an outcome motivates the existence of an activity. An object can be material; it can also be less tangible (a plan) or totally intangible (an idea), as long as it can be shared for manipulation and transformation by the participants of the activity (Nardi, 1995). There is a possibility that the object and motive will themselves undergo changes during the process of

an activity; the objective and motive will reveal themselves only in the process of doing when mediation is carried out by introducing a third (Nardi, 1995).

Below is an example of how resources are used in the activity process as indicated by Nardi (1995).

TOOLS	Teaching resources refers to tools that were used by the participants in the study. Examples are listed in figure 3.2
SUBJECTS	University tutors are those participants that teach the teaching practice modules to the PGCE students.
OBJECTS	Teaching Practice modules that were done at the university included Specific Skills Development and Classroom Technology. Students are required to be able to apply these modules, and use resources fruitfully.
RULES	Rules presented for the conduct of the course as outlined by the tutor. In this case rules can refer to punctuality, due dates for submission of assignments and pass percentage and more.
COMMUNITY	Members involved in Teaching Practice, for example university tutors, administrators and the community.
DIVISION OF LABOUR	Tutors and Students

Table 3.1: Identified components for this study

Table 3.1 indicates the activity theory components of the study as explained in the next paragraph:

Tools are referred to as TIE used in the teaching and learning of the modules; subjects refer to the university tutors who were teaching the modules; objects refer to the processes that

were used in combining TIE and TOE in teaching the student teachers; rules contain TOE used in the teaching and learning of the modules; community refers to anyone who was contributing towards the teaching and learning of the modules; and division of labour refers to the duties that were performed by the community members. The object of the teacher-education programme is to assist students to be contributing members of society. This objective is mediated by multiple artefacts in the form of books, resources, computers, white boards, data projectors and other types of technologies. Figure 3.1 gives an outline of the components that are used in Activity Theory.

3.5 Conclusion

The researcher would make use of components of Activity Theory, as described above – such as tools, subjects, objects, rules, community, divisions of labour and outcomes to analyse the data generated from the participants. This chapter outlines the components of Activity Theory stating what role each component is used for in the activity theory. The participants have also informed the study that they are using various tools in the teaching and learning environment. It can be seen how the university lecturers play their role as subjects and determine rules for the modules namely Classroom Technology and Specific Skills Development that is offered at the university.

CHAPTER FOUR

RESEARCH DESIGN AND RESEARCH METHODOLOGY

4.1 Introduction

The research design and research methodology assists to determine research outcomes. They were used in order to address the research problem and the relevant research questions. This chapter outlines the research design and methodology components which are research style, sampling, data generation plan, data production, data analysis, ethical issues, validity and the limitations of the study.

4.2 Research Design and Research Methodology

This section consists of research style, context with sampling, data generation, validity, reliability, trustworthiness and ethical issues.

4.2.1 Research Style

This research is qualitative and provides an in-depth understanding of the experiences of the teaching resources used by university tutors in teaching. The exploration and description of the case study takes place through detailed, in-depth data collection methods, involving multiple sources of information that are rich in context (De Vos, 2002). According to Maree (2007, p.75) researchers have used the case study research method for many years, “across a variety of disciplines to answer ‘how’ and ‘why’ questions”. The researcher had chosen the case study, in particular, because it was suitable for this study. “Case studies offer a wide perspective analysis, in which the researcher considers, not just the voice and perspective of one or two participants in a situation, but also the views of other relevant groups of actors, and the interaction between them,” claims Maree (2007, p.75).

This opens various options for giving “a voice to the helpless and voiceless, like children or marginalised groups”, according to Maree (2007, p.75). This allowed the researcher to come to a “deeper understanding of the dynamics of the situation” as indicated by Maree (2007, p.75). The qualitative approach was applied because the researcher intended to make use of document analysis, observations and semi structured interviews, which were used to bring out in-depth qualitative information (Maoba, 2009). The case studies assisted the researcher to

understand the deeper meaning of the university tutors experiences and challenges through their use of teaching resources in the teaching and learning environment.

4.2.2 Context and Sampling

The context in which this study was carried out was specifically at a university in KwaZulu-Natal. The participants in this study included six university tutors that teach at a university in KwaZulu-Natal. The researcher focused on the experiences of these tutors in their use of teaching resources, because they are the university tutors teaching the PGCE teaching practice modules at a university. Communication was established early with the university tutors to inform them about the study. Permission was obtained from the university, and participants were asked to sign a letter of consent which contained details of the study as indication of their willingness to participate in the study. The participants had the option to participate or withdraw at any given stage of the study. As a full time teacher at a tertiary institution the researcher was able to establish a pleasant relationship with the participants. These participants were identified as participant P1, P2, P3, P4, P5 and P6 to ensure anonymity. The process used to select a portion of the population for study refers to sampling (Maree, 2007). Purposive sampling was applied in this study. "Sampling decisions were made for the explicit purpose of obtaining the richest possible source of information to answer the research questions" (Maree, 2007, p.79). "Participants were selected because of some defining characteristic that made them the holders of data" necessary for this study (Maree, 2007, p.79). The purpose was to derive a deeper understanding of the university tutors that were using teaching resources to teach (PGCE) teaching practice modules at a university.

4.2.3 Data Generation

During this research the data was generated by means of document analysis, observations and one-to-one semi structured interviews. This was carried out over a two week period. The participants were approached almost three months in advance so that they could make time for the study that was going to be conducted thus avoiding any inconvenience during teaching and learning time for both tutors and students. The methods used for data generation included document analysis, participant observations and individual semi-structured interviews. The researcher answered the critical questions for the study which were based on the use of teaching resources by the tutors.

Question one was: “What teaching resource do the university tutors use in teaching practice modules for the PGCE?” The next question was: “How do the tutors use these teaching resources in teaching practice modules for PGCE?” And lastly: “Why do tutors use these teaching resources the way they use them?” Various methods were used for the purpose of triangulation thus ensuring reliability and validity. Scribing of information was used to record observations and semi structured interviews. The researcher had drawn out descriptive and holistic data that aims to produce rich expressive data from the data collection. The data analysis that was applied in the study was guided analysis: the researcher used categories which can be modified through interaction with data. The themes with categories were generated from the data and the theory. The summary of the data generation process is presented in **table 4.1**. This process took place when the study unfolded. Data was generated on the teaching resources used by the university tutors whom are currently teaching the PGCE students.

Table 4.1: Data Generation Plan

	Critical Question One	Critical Question Two	Critical Question Three
Methodological approach: Case Study	What resources do the tutors use in teaching practice modules for the PGCE?	How do the tutors use these teaching resources in teaching practice modules for PGCE?	Why do they use teaching resources the way they use them?
Why is the data being generated?	To identify what teaching resources are used by university tutors in the teaching practice modules for the PGCE?	To understand the procedures being followed by the university tutors when using teaching resources.	To become aware of why university tutors use these teaching resources
What is the research strategy?	Document analysis was used to generate data.	Observations were used to generate data.	Semi structured interviews were conducted to gather information.
Who or what will be the sources of	Data was based on the documents used by six University Tutors.	University tutors were observed.	University tutors were interviewed.

the data?	Namely their study guide, lesson plans, specific skills development and classroom technology.		
How many of the data sources will be accessed?	University tutors workbooks were analysed. Such data consisted of study guide, lesson plans, specific skills development and classroom technology.	Six university tutors were accessed.	Six university tutors were accessed.
Where was the data to be generated?	Since the documents form part of the university property they were accessed from the university. Data was collected using document analysis.	Six university tutors were observed at the university in their classrooms.	Six university tutors were interviewed at the university in their respective classrooms.
How often data was to be generated?	The documents of the university tutors were analysed before a lesson and thereafter at two different intervals but before observations.	The university tutors were observed during teaching and learning. They were each observed twice over a four week period.	The university tutors were interviewed before the lesson commenced, and after the lesson, so that they were able to reflect on their practices.
Justify this plan for data generation.	Documents provided a clear direction of what was expected from the university tutors. Document analysis was accessed at a time convenient to the	Observations provided a clear picture of the actual happenings in the classroom visited during teaching; therefore the researcher was able to understand	Semi structured interviews enabled the researcher to gain a detailed picture of the participants views on this topic. This type of interview allowed the

	researcher. Documents represent data which was thoughtful in that participants had given attention to compiling them.	the context of work and to discover aspects that participants might not freely talk about in the interview sessions.	informants freedom to express their view in their own way, thus allowing the researcher to probe initial responses.
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The researcher needed to understand the procedures being followed by the university tutors when using teaching resources. The researcher needed to understand why they use teaching resources and the way they use them.

4.3 Research Methods

4.3.1 Critical Question One

What teaching resources do the tutors use in teaching practice modules for the PGCE?

Document analysis was used to collect data. The documents of the university tutors were analysed before a lesson and also thereafter during two different intervals but before observations. According to Creswell (2012), documents are a valuable source of information in qualitative research. During the research process, data was accessed from trustworthy sources such as study guides, specific skills development, classroom technology and mini lesson plans. The documents therefore provided valuable information in assisting the researcher to understand the phenomena (Creswell, 2012). These sources gave the researcher some insight as to what was happening in the teaching and learning environment, in relation to the usage of resources.

4.3.2 Critical Question Two

How do the tutors use these teaching resources in teaching practice modules for PGCE?

The researcher observed the process of the university tutors using the teaching resources in the classroom during their teaching periods. They were observed twice over a four week period. The researcher observed how the university tutors made use of teaching resources to teach the PGCE students. The observation gave the researcher the opportunity to see at first hand what was actually occurring in the classrooms for this area of the study. A day to day report on the actual observation was done in order to maintain the form of field notes (De Vos, 2002). In the process of qualitative research, it is difficult to record all of the observed material. The researcher therefore undertook to make accurate and systematic notes as soon as the

observation session had ended (De Vos, 2002). It was stated that the more time that passes between the sessions and the making of field notes, the less accurate the data would be, and therefore the loose notes and jottings were converted into field notes immediately after the observations. The observational protocol indicated by Creswell (2012) was used to record information during an observation. Each observation lasted for thirty minutes.

4.3.3 Critical Question Three

Why do tutors use these teaching resources the way they use them?

The university tutors were interviewed and various questions were asked to rake out rich data from the semi structured interviews that were conducted. The university tutors were interviewed before each lesson commenced, as well as after the lessons to enable reflection (see above). Semi structured interviews refer to one-on-one interviews which were conducted to gain a detailed picture of the participant's beliefs about, perceptions on, or accounts of the topic of this study (De Vos, 2002). This type of interview gave the researcher and participants much more flexibility. The researcher was able to follow up on any particular interesting avenues that emerged in the interview, and the participant was able to give a fuller picture (De Vos, 2002). With semi-structured interviews the researcher had prepared a schedule of predetermined questions, and the interview was guided by the schedule rather than dictated by it (De Vos, 2002). From the research by Cohen, Manion and Morrison (2005) all participants in this study answered the same questions, thus increasing the opportunity for comparability in responses. The researcher also recorded the conversations in order to ensure the accuracy of the data during the data collection process. Six semi structured interviews were conducted and each of the interviews lasted for almost an hour.

4.4 Validity/Reliability/Trustworthiness

Validity is important in research since it allows a reader to know that the data was recorded correctly and describes what it purports to describe (Lowe, 2007). An effective way of checking validity was to discuss the research with a colleague or lecturer, and to ask them if they think they are looking at what was appropriate for the research area (Lowe, 2007). Validity for this study had been assured by the use of three data generation methods, which provided a triangulation feedback. Triangulation is the use of two or more methods of data collection in the study of human behaviour, according to Cohen, Manion and Morrison, (2005). For this study, interviews were recorded for easy transcription and returned to the

participants for check-ups. Therefore, the findings are according to what was approved by the participants.

4.5 Ethical Issues

The aim of the research as well as the anticipated consequence of the research was communicated to the participants as suggested by Mouton (2001). The participants were informed as to what can occur and their signed consent was obtained (Mouton, 2001). The researcher therefore, throughout the research process tried to ensure that the rights of university tutors were not compromised in any way. Permission was obtained from the University to conduct the research with the university tutors (refer to **Appendix 2, 3 and 5**). The participants of the study were asked to sign informed consent forms that described the nature of the research project, as well as the nature of their participation in it (Leedy & Ormrod, 2005) (**Appendix 1**). Participants were informed that if they agree to participate, they also have a right to withdraw from the study at any time (refer to **Appendix 1**). (Leedy & Ormrod, 2005)

4.6 Limitations

It was anticipated that the university tutors may encounter challenges concerning time for the interviews. This meant that the researcher may only have 30 minutes of interview time. What also made it difficult were the strikes that occurred on campus at the time of the research. This meant that staff members were not available for the interviews. Initially, the study was planning to use another person as an assistant researcher (one of the tutors), but no one was available to perform this duty. This suggests that participants may have failed to reveal other issues because of the researcher's position as a student. Lastly the ethical clearance was given at a time, when the students were going on vacation, and returning from teaching practice.

4.7 Conclusion

Chapter four gives a clear view of how the study was conducted. This chapter covered issues on the research design and research methodology. In chapter five the data analysis and findings of the study are presented.

CHAPTER FIVE

DATA ANALYSIS

5.1 Introduction

Data analysis is the process of transforming raw data into usable information which is presented in an orderly manner to add value to the output (Huberman, 2002). This chapter discusses the findings of the study based on teaching resources. The data presented below used themes and categories which were generated from the research methods (document analysis, observation and semi-structured interviews).

5.2 Analysis and Interpretation

The research analysis and interpretation of the data was carried out using the critical questions, themes and categories that were applied to lead the discussion. Question one reveals the evidence from document analysis.

Critical Question One

5.1.1. What teaching resources do the tutors use in teaching practice modules for the PGCE?

Table 5.1: Guide to Professional Practice

Theme 1	Categories
Guide to Professional Practice	Section one: Principles and goals for professional practice.
	Section two: Professional practice curriculum
	Section three: Roles and responsibilities of key participants.
	Section four: Assessment critical reflections in, on and for action: what is being assessed?

Document analysis was used to generate data. As part of the document analysis the following documents were analysed: 1) Guide to Professional Practice, 2) Specific Skills Development (SSD), 3) Classroom Technology and 4) Lesson Plan.

5.1.1.1 Principles and goals for professional practice.

As novice student teachers, the goal of the faculty is to produce student teachers who are competent to serve the South African society especially in terms of national needs.

This includes being able to serve a range of students who learn within well-resourced school contexts, as well as under-resourced contexts. Students teachers are expected to develop competences enabling them to teach in diverse authentic learning context.

This suggests that student teachers are expected to be able to serve a broad range of learners whether they are from under resourced, middle resourced or well resourced schools. Therefore, there is a need to introduce student teachers to a wide variety of resources. Teaching and learning should be as stimulating as possible, and this can best be achieved with the use of various kinds of resources, such as “teaching material, learning material, resource material, curriculum material, instructional material, audio - visual resources, teaching resources and Information Computer Technology (ICT)” as indicated by Zondo (2000, p.36). According to Khurana (nd) teaching resources are useful to reinforce what the teacher is actually saying and also to ensure that a teaching point is being understood; another sound reason why student teachers must be introduced a variety of teaching resources.

The Guide to Professional Practice did not outline learning outcomes. This means that the students do not have a say in the development of the curriculum. Outcomes belong to the students and are very important. According to Adams (2004) a learning outcome is a statement of what the learner is expected to know, understand and be able to demonstrate at the end of the lesson. Kennedy, Hyland and Ryan (2012) argue that international trends in education show a move from a traditional teacher centred approach to a student centred approach. The curriculum is teacher centred; this means there is no voice in post curriculum. According to ECTS Users' Guide (2005) learning outcomes points out what the student is expected to know, understand and be able to do after fruitful achievement of the process of learning. This suggests that the entire teaching approach used was a teacher centred approach because learning outcomes are from the school of student centred approach.

5.1.1.2 The Professional Practice Curriculum

School based 610

There are two components namely School Based and Campus Based.

School based - *“This phase takes place during April and May. The professional practice programme for the PGCE phase two runs for four weeks.....”*

This suggests that school based experiences are an important aspect for student teachers' development as teachers, as it provides them with important opportunities to develop their knowledge and skills in the school environment (part of TOE resources). This means that it is good for student teachers to undertake school visits and to understand how the actual school environment operates because according to Hobson, Malderez, Tracey, Giannakaki, Pell, Kerr, Chambers, Tomlinson and Roper (2006) student teachers feel they are being treated like professionals and as members of the teaching community during their teaching practice at schools. Student teachers also feel privileged because their mentors help contribute to their professional training in a constructive manner (Hobson *et al.*, 2006). This may help instil confidence in student teachers.

“Campus based programme includes hands-on practical skills development around using audio-visual materials (e.g. charts, hand-outs, posters, etc.)”

This indicates that students may be well geared on the usage of various forms of resources, mainly Technology in Education (TIE) and Technology of Education (TOE) considering they are given a period of up to ten weeks to conduct presentations on campus and another ten weeks during off campus Teaching Practice. University tutors are responsible for the student teachers progression and development as future teachers (Sim, 2006). The pre-preparation of student teachers can be expected that they will be confident and seek to apply the use of effective teaching resources in the teaching and learning environment (Sim, 2006).

A bus tour is conducted in semester one, which is held in March. Students are taken to visit three different types of schools, namely an under resourced, a middle resourced and a well resourced school. The Department of Education informs the university as to which schools are well resourced, medium resourced and average resourced schools. Students are also taken to rural schools which make use of resources from the environment. This forms part of their TOE as indicated by Khoza (2012) that any part of teaching and learning that one cannot see and touch is a part of TOE.

The focus is that students must understand how to make use of resources from the environment in order to manage teaching and learning especially in a rural area (both TIE and TOE). Dasgupta (nd) says teaching resources help children to learn, for example, how soft drink bottle caps can be used. It is of great value for students teachers to be introduced to the

three different types of schools to ultimately help build on their experience and understanding of a variety of teaching and learning conditions.

School based 620

This programme consists of two sections 1) a school-based programme and 2) a campus-based section

Regarding the campus-based section, students are together undertaking classroom technology. Assessments here are conducted by the university tutors only. In classroom technology students build their skills and competencies in the design, development and use of technology for their teaching learning facilitation in schools.

This means that classroom technology assists the students to build and gain a better understanding of the resources that are used in classroom presentations. According to Aziz (2010, p.1) “classroom technology is the considered implementation of appropriate tools, techniques or processes that facilitate the application of the senses to enhance teaching practices and improve learning outcomes.” He adds: “The implementation process refers to the use of any physical or conceptual tool that adds value” Aziz (2010, p.1). In respect of this, topics in classroom technology include the use of lesson plans, worksheets, OHP with transparencies, charts, posters and many more. Students are taught how to prepare and use these resources. The students are ultimately assessed on their abilities in this regard.

School based assessments are conducted by university tutors and mentors. Students attend teaching practice in July and August for a period of up to six weeks. An external examiner from outside the university assesses each student’s file which is 620 and this is also moderated externally. The discussion below outlines the roles and responsibilities of the key participants.

This simply means that students are given six weeks to undertake teaching practice at schools during July and August. The skills, knowledge and understanding they bring here are for the most part derived from school experience therefore this is their strength (Furlong, 2000). “Real learning does not begin until they enter the classroom” since teaching is a practical activity (Furlong, 2000, p.3); thus the six weeks to conduct teaching practice is recognized to

be of great value. Mentors will, as support, need to model and train student teachers (Furlong, 2000) to bring out their best.

5.1.1.3 Roles and responsibilities of key participants

Committees, coordinators and administrative structures Meet once a week.

This suggests that teaching resources are of great importance for the teaching practice students simply because the Professional Guide consists of resources from the environment. The resources that the researcher is referring to, include committees, coordinators and administrative structures that are established by the university (TOE). The organisers plan and prepare to ensure that the students attend teaching practice because teachers must be trained in preparing, creating and using resources effectively in the classroom (Florendo, 2012).

5.1.1.4 Assessment critical reflections in, on and for action: What is being assessed?

The purpose of the guide to professional practice school experience programme is not about 'critting' students performance. The goal is to assess the student teacher in terms of all seven roles of the professional norms and standards for teachers.

No aims are set out to inform the student of what is being assessed. It is important for students to understand the aims and objectives of the course. According to Kennedy *et al.*, (2012, p.5) the aim refers to a “statement of the intention which indicates what the teacher intends to cover” in a particular module of teaching. “Aims are written from a teacher’s point of view to bring out the content and direction of the module” Kennedy *et al.*, (2012, p.5). An understanding of the aims and objectives helps the students to interpret their module learning outcomes into practice because the main goal of learning for students is to achieve their module intended outcomes (Khoza, 2011). However Khoza (2010) claims that students feel that the module outcomes should be given to them at the end of the module because if the learning outcomes are given early they actually limit the students from going deeper into their module. It is therefore suggested that the classroom technology information guide give students their outcomes towards the end of the module. This will assist them to go further into the module and not restrict them to what is only required from the outcomes (Khoza, 2010).

5.2.1. Table 5.2: Specific Skills Development

Theme 2	Categories
Specific skills development	Section 1: Presentation of posters
	Section 2 – 3: Using newspapers
	Section 4-6: Mini lesson: planning and presentation Using picture/visuals

5.2.1.1 Presentation of posters

Read “My school days” activity Each student must present their “My school days” poster group.

The data above reveals that students must share their first school experience using a poster. Students were asked to present posters, which are resources from the environment. The students attending Classroom Technology were taught how to use teaching resources and resources from the environment and apply that knowledge in Specific Skills Development (SSD). The university tutors gave students a good study guide on the usage, steps involved in the design, development and production of charts and posters. Students are guided as to what information may be included in a poster, and the guidelines to be remembered and used when laying out a poster or chart.

This suggests that the student-teachers were given enough information in terms of using the posters because according to Wellington and Osborne (2001) pictures, words and diagrams convey meaning in different ways to students (refer to table 5.2). Wellington and Osborne (2001) mentioned that pictures are worth many words. In other words these student-teachers are getting relevant information for their real teaching in terms of the posters and reflection on their experiences. Furthermore Townsend (1999) mentioned that the human brain stores information that is visual, heard or felt data.

5.2.1.2 Newspapers

You must make a poster using and newspapers

Students are, in this way, encouraged by the university tutors to make use of a variety of resources, including transparencies, newspapers, worksheets and PowerPoint as indicated in the study guide. Ellen and Ellen (2009) indicate the value of students being introduced to the use of newspapers in teaching. Newspapers connect young people to latest affairs, and stimulate interactive ways of teaching to achieve the goals when teaching states Ellen and

Ellen (2009). This underscores the importance of using newspapers in the teaching and learning environment.

5.2.1.3 Mini lesson: planning and presentation using picture/visuals

You are ... to design three lesson plans using different approaches and variety of resources.

This importance of visual presentations is emphasized with the students who will need to know both how and when to make use of resources. Okobia (2011, p.3) notes that the availability of teaching resources in secondary schools, and their use by teachers is measured at “100% for textbooks and the chalkboard while maps and atlases are only available and used by 48%.” Khurana (nd) suggests for what, and how, teaching resources can be used. For example it is suggested that flip charts or boards be used for small groups, problem based learning tutorials, and workshops. The second suggestion refers to the life and plastic models that can be very effective in anatomy teaching in small groups or for self-directed learning. “Lecture notes can be used for small and large groups to help to improve interactivity” claims Khurana (nd, p.9). The students will acknowledge and easily remember the lesson by using visual presentations.

5.3.1. Table 5.3: Mini lessons assessed by University Tutor

Theme 3	Categories
Mini lesson assessed by university tutor (Specific skill development)	5.2.1.3 Mini lesson 1: question and answer method

5.3.1.1 Question and answer method

Resources	E	VG	G	A	S	Needs Attention
Design of original resources						
Appropriate selection of commercial produced						
Effective use of resources						

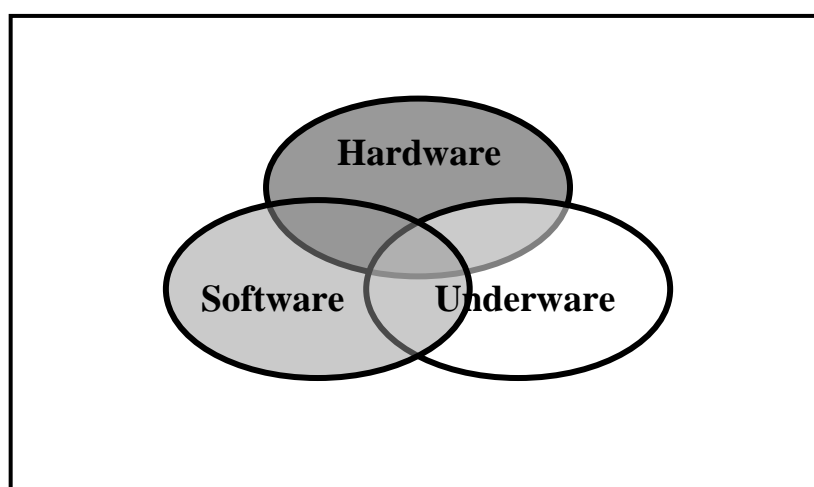
This simply means that if there is another column added to the assessment sheet university tutors can use to comment fruitfully on student’s use of resources as it can be seen that the space is insufficient. The use of resources is important and impacts positively on teaching. Teaching resources are undoubtedly important resources that the teachers can use when

planning and carrying out teaching (Florendo, 2012). This can help the student to trace his or her faults. If the student knows that he or she had achieved satisfactory results on effective use of resources this may not necessarily help the student understand why (refer to table 5.3). Therefore, it is necessary for the university tutor to comment and emphasis should be placed on teaching resources because the module on SSD helps the students to be able to present lessons using teaching resources because resourceful teachers are not content to do what others have done they continually look for new ways to solve challenges of teaching and learning (Killen, 2006).

5.4.1 Table 5.4: Classroom technology Information/study guide

Theme 4	Categories
Classroom technology Information/study guide	Section one: Classroom technology Section two: Worksheets Section three: Overhead projector (OHP) Section four: PowerPoint

5.4.1.1 Classroom Technology



University tutors teach students Technology in Education and Technology of Education as indicated in chapter one. Hardware refers to teaching equipment such as computers, DVD recorder or player, overhead projector and more. Software refers to consumables that are required in order to make the equipment work such as the transparencies. This means that classroom technology is crucial in the teaching and learning process. Townsend (1999) in his study states that 52% of participants say that their memory favours visual information; while only 7% prefer words, lectures and sounds, participants claimed that they preferred a channel for remembering data. And lastly underware refers to classroom management, teaching methods and styles such as learner centred instruction group work and many more.

5.4.1.2 Worksheets

DESIGNING EFFECTIVE WORKSHEETS

- *Be clear about the learning outcomes you want to achieve,*
- *Think carefully about how you will assess learner competence on the basis of the activity and set out the instructions accordingly,*
- *Try to engage challenge and extend learners,*
- *Include an element of fun,*
- *The worksheets appearance should be appealing*

The table above shows that students have been given strategies to design effective worksheets and tips on worksheets. According to Ören and Ormanci (2012), almost all pre-service teachers argued that worksheets used in science courses were effective in attracting student's attention and interest in the course. Worksheets in science would be effective to formulate a linkage or assimilate other courses (Ören *et al.*, 2012).

This suggests that worksheets can be helpful in the classroom and also at school that is under resourced. Not all schools are fortunate enough to have access to various types of resources. Some schools have “limited resources”, and some “teachers are not able to use these teaching resources” (Zondo, 2000, p.9). Worksheets must be used often in the teaching and learning environment considering that it is used to capture attention and build students understanding of concepts.

5.4.1.3 Overhead projector

Do make sure	If not
OHP Is Plugged In and Working	<i>Check plug, change lamp/projector</i>
Projected Image Is Bright	<i>Clean the lens and glass platen</i>
Projected Image Is Focussed	<i>Turn knob forwards and backwards until image is clear</i>
Visibility Is Good	<i>Check from back row, enlarge picture by moving OHP further from screen</i>
Turn Off Lamp Between Visuals	<i>To bring audience's attention back on to yourself. A brilliant, blank screen acts as a distractor. Also to cool the Fresnel lens</i>
TURN ON, TALK ON SUBJECT TURN OFF Projector	

Students will have a good understanding of the overhead projector because Cooper and Yoder-Wise (2003) state that transparencies are often used to highlight or reinforce concepts.

According to Medwell (1998) the overhead projector can be very flexible, speedy and economical. Text can expand in ways which substitute other resources such as big book and posters (Medwell, 1998).

5.4.1.4 PowerPoint

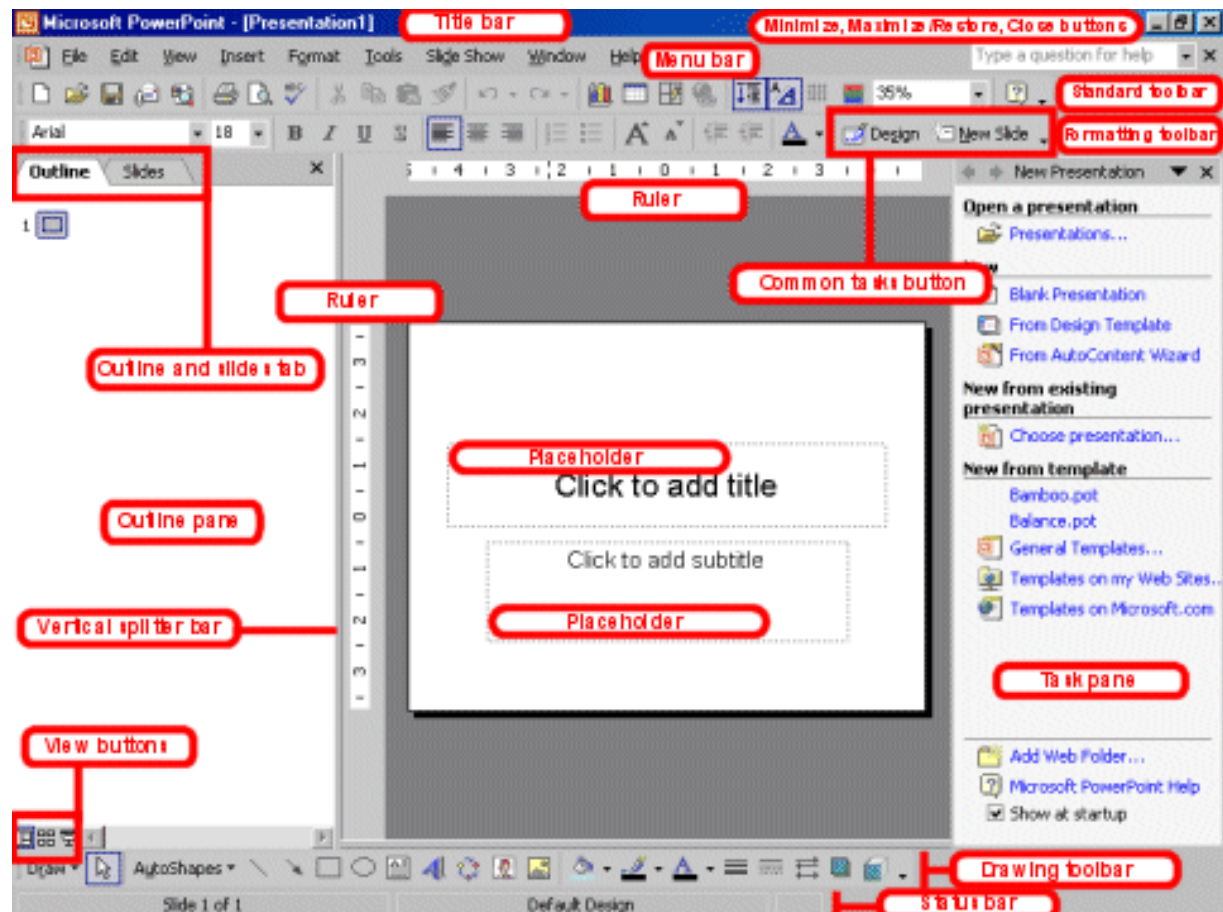


Figure 5.1 PowerPoint from Classroom Technology Guide

This means that the students will not be able to make effective use of PowerPoint fruitfully simply because figure 5.1 indicates that the copy is not clear. The university is currently using Microsoft 2007. This version on the display above is 2003. The copy is not very clear. This may be a challenge to students considering that PowerPoint presentations are tending to replace the use of the OHP in teaching and learning (Khoza, 2011).

CRITICAL QUESTION TWO

5.2.2. How do the tutors use these teaching resources in teaching practice modules for PGCE?

Table 5.5: Technology in education and technology of education

Theme 4	Categories
Hi-technology resources	<ul style="list-style-type: none">• Open space learning
	<ul style="list-style-type: none">• Whiteboard
	<ul style="list-style-type: none">• PowerPoint
	<ul style="list-style-type: none">• Overhead projector
Low technology resources	<ul style="list-style-type: none">• Chalkboard

5.2.2.1 Open space learning

A class of 172 students was present in the lecture theatre. The tutor made use of open space learning which highlighted the importance of students making use of open space learning. Students were reminded about the features of open learning space as they had just returned from a six weeks teaching practice. Students were reminded about the discussion forum, marking of the register, checking who is in class at that moment, and who were still in the computer laboratory working during the tutor's period, and viewing student's portfolios. The tutor also pointed out that from 172 students only 10 students were not making use of open learning space. P4 encouraged students to make use of open learning space by getting them to submit their assignments on-line.

This suggests that various tasks can be accomplished using open space learning. Open space was used indicating a discussion forum, showing who is present in class, where students should go to retrieve a file or task that the tutor requires. A majority of the students were using open space learning and they are also encouraged by the tutor to make use of open space by submitting their assignments. Students are able to communicate freely with one another in a discussion forum. Open space learning environment is a task that is entirely dependent on "openness" to the physical "characteristics of the spaces in which the work takes place" (Nicholas, nd, p.2). Open space learning produces better educated students and equips them for the complexities of work in society (Nicholas, nd). Lastly effective use of open space learning was conducted by the tutor. During the computer lab observation of students it was noted that students were able to open their work simultaneously and follow

the tutor's instructions. While the tutor was making reference to a graph, students were informed where to locate the graph so that they were able to view the graph simultaneously P4.

This suggests that open space learning is very useful, considering that photocopies and notes do not have to be given to the students simply because students are able to retrieve their work and perform tasks using open space learning.

When students require assistance they can insert the area of information or assistance that is required and receive feedback or responses from other students in the class not necessarily from the tutors themselves. The tutor does not have to run copies of the assignment because students can now open the document in the open space learning P4.

This means that open space learning is effective, reason being that students are able to get answers instantly. Also students that lack confidence to communicate verbally in the class room are given the opportunity to air their opinions using open space technology (Nicholas, nd).

During the lesson, while the tutor was explaining to the students what was expected from the assignment the class encountered a power failure and they were unable to continue with the lesson and on that day students were dismissed. On another occasion during open space learning the server went off line and the tutor was unable to continue with the lesson P4.

These instances indicate that open space learning does have some disadvantages in the teaching and learning environment. Teaching staff would always need to have a backup lesson plan in the event of such mishaps.

5.2.2.2 Whiteboard

It was observed that the learning environment was conducive to teaching and learning. All participants had a whiteboard in their classrooms. There was evidence of equipment being used by the Participants. During this presentation various teaching resources were used, the whiteboard was one such tool used by P3. The white board had been cleaned before the commencement of the lesson. The title of the lesson was written on the whiteboard. The explanation of a Geometry lesson, about different angles was demonstrated to the class, using a reflex angle as being greater than 180 degrees but less than 360 degrees. The Tutor drew

the diagram indicating and placing emphasis with the use of brightly coloured pens. The participant was able to write and talk at the same time while not losing his audience by maintaining good eye contact with the class during the use of the white board. While writing on the whiteboard the participant simultaneously spoke out aloud to the students. According to Welch (2009) a successful teacher maintains close interaction with their students during teaching and learning. This contact keeps teachers aware of and to be responsive the needs of the students in the classroom (Welch, 2009).

Effective use of the whiteboard was enhanced by the use of different pen colours to highlight and place emphasis. According to Welch (2009) the white board can be used to illustrate ideas and concepts. The whiteboard can enhance clarity of drawings to and can enliven the lesson or to topics in a lesson (Welch, 2009).

5.2.2.3 Using PowerPoint

A diagram was presented to the class to assist to build their understanding. A PowerPoint presentation was used to deliver the lesson. However there was no data projector used to present the lesson by P2.

The absence of a data projector was the result of poor planning and organisation for the lesson. Students were asked to view the laptop screen in order to see the power point slide. This means that some students were unable to view the diagram during the presentation. This would lead to students not gaining a full understanding of the lesson because some of them were unable to view the diagram which was presented because the slides on the computer must be used to project in a classroom using a data projector (Harrison, 2003). Hence it is important for a data projector to be used. The aim is to foster learning and to ensure interactive communication between teacher and student and to interact with the material (Gallagher & Reder, 2004). It is therefore a requirement that a data projector be used when presenting PowerPoint slides to enhance teaching and learning in the classroom.

5.2.2.4 Overhead projector

It was observed that P1 did not make effective use of the overhead projector. After the presentation of the lesson and while explaining items to the student's the projector was left on following the discussion. The writing on the transparencies was not large enough to accommodate students with disabilities.

This indicates that the overhead projector was not being used correctly. As a general rule one transparency should be limited to six or seven words per line and not more (Cooper & Yoder-Wise, 2003). It was noted that after P1 had explained the lesson using the overhead projector, it needed to be switched off so that students could listen and focus to the discussion without distraction. For safety purposes in the classroom the OHP should be fixed to the wall (Medwell, 1998) and it must be switched off during the class discussion. Medwell (1998, p.1) claims, machines which are well-lit by a “bulb below the transparency offer much better contrast and are easier to write on in class”.

5.2.2.5 Chalkboard

The heading for the lesson and the date was written on the chalkboard. In order for students to remember the various sub-headings emerging from the lesson that were discussed, these should be written on the chalkboard. The chalkboard was not being used effectively meaning no emphasis and coloured chalk was used P4.

In the lesson observed the chalkboard was not used to its full capacity. The common and most inexpensive visual aid 'utilised by the teacher is the chalkboard. The chalkboard is used to write up lesson outlines, or to make a summary of the lesson (Adekunle, nd). It is also used to direct the teacher aims to teach and to “draw sketches, maps and pictures” to show claims Adekunle (nd, p.11). If the chalkboard is not used to its full strength or capacity students would not show much interest in the lesson. According to Seth, Upadhyaya, Ahmad and Kumar (2010, p.2) it is stated that with chalkboard teaching, lectures are clear and comprehensible, “stimulate student’s interest and encouraging participation.” For this reason (Seth *et al.*, 2010, p.2) advocate that the “chalkboard should be used effectively and to maximum capacity”.

CRITICAL QUESTION THREE

5.2.3 Why do tutors use these teaching resources the way they use them?

Table 5.6: Teaching Resources (Activity theory)

Theme 5	Categories
Activity theory	Open space learning (tools)
	Whiteboard (subjects)

	PowerPoint (object and outcome)
	Overhead projector
	Chalkboard (rules, community, division of labour)

5.2.3.1 Tools

The following question was put to the participants: What teaching resources are you using?

Responses included the following:

I use chalkboard, overhead projector, worksheets, charts and posters, online learning space P4.

I use chalkboard, laptop, overhead data projectors and posters P3.

The university tutors made use of the tools mentioned in chapter three *figure 3.2* because they wanted to accomplish the stated objectives using these tools. They are the resources that will help them to do so. The tools that mediate the activity system are textbooks, computers, overhead projectors (OHP), chalkboards, worksheets and other artefacts the non physical is referred to as the PowerPoint, software and the transparencies (Kain & Wardlee, 2002). When students first learn to use a resource this is referred to as conscious action meaning that they are aware of the resources and they must think about how to use the tool and what they wish to accomplish (Kain & Wardlee, 2002). Once the university tutors use the tool to perform a particular task over a certain period of time, “the use of the tool becomes operational and largely unconscious and the tools move back to conscious acting if something goes wrong or a new tool is brought into the system” (Kain & Wardlee, 2002, p.4).

5.2.3.2 Subject and object

Activity Theory can be defined as a “philosophical and cross-disciplinary framework for studying different forms of human practices as development processes, both individual and at social levels interlinked at the same time” (Nardi, 1995, p. 7). The subjects of an activity system refers to the person who is directly involved in the activity. Here the university tutors are the subjects who had provided their services to the students who have applied to undertake the Post Graduate Certificate in Education. The subjects have knowledge of the activities and tasks. The motives in this case include the object of the activity which is important to the outcomes (Kain & Wardlee, 2002). The objects refer to the teaching practice modules, which in this case include Specific Skill Development and Classroom Technology.

The outcomes that must be achieved are that students must be able to present a lesson using resources effectively.

5.2.3.3 Rules, community, division of labour

Rules, community and division of labour make up what is known as the social basis of the activity system. The community is a large group of subjects which is part of the university and from whom students take their instructions. The community interest shapes the activity. The division of labour describes how the tasks are distributed within the activity system. Rules are ways of making an effort to minimize conflict within the activity system. Rules and regulations will be given by the university tutors. The rules, norms and values need to be followed by students attending the university to maximise productivity. Rules can change the subject; however, rules help to even out differences. Rules also affect how the students use tools.

5.2.3.4 Why lecturers use open space:

“Generally they are used because we are training students to prepare them for different kinds of environment. Some schools are well resourced, while others are under resourced, therefore we need to cover them with all the resources” P4.

I ... was not trained to use open space learning with the students and doesn't P2.

Participant 4 makes use of open learning spaces so that students will be able to fruitfully conduct teaching practice at a well resourced school and beyond. However, some students will be deprived of making use of open space learning since some tutors (as in the case of P2) were not trained to use open space learning.

5.2.3.5 Whiteboards

Participant 2 made good use of the whiteboard. The whiteboard is used because of the rules regarding the use of the whiteboard that participant 2 applied. However, the Classroom Technology Guide does not have criteria or rules that the students should abide by when using the whiteboard. This means that student teachers will not easily acquire basic knowledge or have access to the rules on how to make use of the whiteboard because, according to Townsend (1999), use is made of the whiteboards in order to share information.

5.2.3.6 PowerPoint

It is the nature of the course and to motivate students to teach... P2.

It ... to attract their attention... P1.

Participants claim that they use PowerPoint to draw student's attention during teaching and learning in the classroom, since it is an excellent resource to be used in the classroom. Muralidharan (2012, p.3) concluded that "PowerPoint is a very useful aid for teachers when used moderately". This implies that the usage of PowerPoint helps students to build their notes and grasp thoughts as well. The goal is to foster learning and to formulate a triangulation of interactive communication between teacher and student and to interact with the material indicated by Gallagher and Reder (2004).

5.2.3.7 Overhead Projector

I first check if it is working

I switch it on"

A blank page is used to hide points

I read and explain to student

The overhead projector stays on throughout ... P1.

I use the overhead projector as a plan B option to PowerPoint because it is easy to print P2.

The overhead projector was used however the rules for its usage were not adhered to. During the class presentation when P1 is explaining the lesson, the overhead projector must be switched off given that (Cooper & Yoder-Wise, 2003) transparencies are often used to highlight or reinforce commentary or a concept. They can be easily prepared at low cost by copying materials on acetate with a copying machine indicated by Cooper and Yoder-Wise (2003). According to Medwell (1998) the overhead projector can be very flexible, quick and cheap. This suggests that rules must be followed when using the OHP.

5.2.3.8 Chalkboard

I use it to clarify purposes only thing is I cannot do changes so the PowerPoint is used. I use the chalkboard for accounting P1.

I use it to explain concepts I prefer using the chalkboard for math P2.

It is clear that participant 1 prefers to use PowerPoint compared to the chalkboard. However, it is good to make use of the chalkboard because currently about 80% of the 9 courses make use of a chalkboard to some degree claims Kern *et al.*, (2005). P2 uses it for maths so that it can be clear to the students. P2 uses the chalkboard to explain and demonstrate mathematical tasks. This indicates that the chalkboard is having a positive impact on the students. Lastly the Classroom Technology Guide does not indicate rules and procedures for students to abide when using the chalkboard.

Conclusion

In this chapter I have set out the experiences of the participants making use of teaching resources in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal. The comments, views and quotations from the participants were used to illustrate their experiences. The data assisted the researcher to identify the kind of support that will be needed to utilise teaching resources effectively so that student teachers could benefit from the teaching practice modules at the university. The results indicated what teaching resources the tutors used in teaching practice modules for the PGCE, how do the tutors use these teaching resources and why do tutors use these teaching resources in the way they do.

CHAPTER SIX

FINDINGS AND RECOMMENDATIONS

6.1 INTRODUCTION

This is the final chapter of the research. This chapter discusses the summary of findings with conclusions and recommendations from the study that was conducted on teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal.

6.1.1 Summary of Findings

This study explored teaching resources used by university tutors. Chapter one outlined the background and the purpose of the study. The study was chosen because the researcher had observed as a university tutor that there was a challenge to utilise resources effectively in the teaching and learning environment. When the researcher brought this to the teaching practice (TP) coordinator's attention it became clear that there was a challenge between what the university's tutors are using in training the PGCE student teachers. Also what student teachers face when they go to schools where they work with school mentors.

In chapter two a variety of literature based on various authors who have researched and presented studies, journals and reports on teaching resources used by teachers was reviewed. The review provides information regarding various types of resource and their impact on teaching and learning. The studies have also indicated the advantages and disadvantages of teaching resources and the impact on student results.

In the third chapter the researcher outlined Activity Theory. The theory's models and principles were discussed in detail in order to understand the way in which teaching resources were used by university tutors in teaching Post Graduate Certificate in Education (PGCE) students. The fourth chapter focused on the research design and methodology used to carry out this research, in order to address the research problem and the relevant research questions.

Chapter five lays out an analysis of the findings that emerged from the interviews.

Chapter six set out the recommendations of the study.

6.2 Summary of Conclusions

This study was guided by three critical questions. The researcher concluded the following findings.

6.3 Critical Question One

What teaching resources do tutors use in teaching practice modules for the PGCE?

Teaching resources are an important aspect of teaching and learning, this has been highlighted in chapter two. It was deduced as essential that student teachers understand, and have knowledge of to how these resources can be used in the classroom. The tools that were used by the participants include open space learning, whiteboard, PowerPoint, overhead projector, worksheets and chalkboards. Muralidharan (2012, p.3) concluded that “PowerPoint is a very effective aid for teachers when used moderately.” This implies that the usage of PowerPoint supports students to build their notes and grasp thoughts where they will be able to see images and remember what was taught (Muralidharan, 2012). The subjects of an activity system refers to the person who is directly involved in the activity. Here the university tutors are the subjects who provide their services to the student teachers. The rules, norms and values have to be followed by students attending the university. Table 3.1 outlines the activity theory components. “An activity is a form of ‘doing ‘directed to an object”, and activities are distinguished from each other according to their objects Nardi (1995, p.8).

As per the findings the study Guide to Professional Practice does not contain any information on teaching resources and what qualifications the university tutor must have in order to teach PGCE students. However, this guide mainly contains rules. Student teachers must be introduced to a wide range of resources. A school bus tour is a very good idea therefore this must continue at the university. Student teachers must be introduced to more resources from the environment in order to accommodate the rural schools and under resourced schools. School based 620 purports that Classroom Technology assists the students to build and gain a better understanding of the resources that are used in classroom presentations. Student teachers are given six weeks for teaching practice and this helps to build their confidence, this must therefore continue. The resources from environment refer to the tutors from the university. The tutors are responsible to plan and prepare and to ensure that the student teachers attend teaching practice. This means that teachers must be trained in preparing;

constructing and using resources effectively in the classroom (Florendo, 2012) is indeed excellent.

6.3.1 Specific Skills Development

The university tutors have given students a good study guide on the usage, steps involved in the design and development and production of charts and poster (refer to table 5.2). Students are guided as to what information may be included in the poster and the guidelines one must remember when laying out a poster or chart. Students must be encouraged by the university tutors to make use of newspapers consistently. Visual presentations are important and students must know how and when to make use of these resources the way they do. University tutors use resources because the curriculum requires them to make use and also for the student to be able to understand and grasp concepts. Tutors also found it easy to deliver lessons using resources. When asked about the use of video on the course 98% of postgraduates agreed they were useful while only 46% of the undergraduates felt the same way (Baharun & Porter, 2010). The conclusion of the study indicates a majority (or 80%) of postgraduate students had responded that the resources were helpful in variety of ways which also assisted to improve their understanding and learning covered in the subject.

6.3.2 Mini lessons assessed by university tutor

University tutors must be given extra space on the assessment sheets to comment on the usage of resources (refer to table 5.3).

6.3.3 Classroom technology. Information/study guide

Students have been given strategies to design effective worksheets and tips on worksheets. The overhead projector is a very useful resource and during a presentation, while a discussion is taking place, it must be switched off. When doing PowerPoint one must ensure that a data projector is used at all times table 5.4. Teachers need to be clear about what their use of PowerPoint is designed to achieve for themselves, their students and their course (Gallagher & Reder, 2004).

6.4 Critical Question Two

How do the tutors use these teaching resources in teaching practice modules for PGCE?

Open space learning was used by some of the participants; however, not all participants are making use of this resource. This can disadvantage the student teacher. The chalkboard was not used to its full capacity as mentioned in critical question two. The study guide needs to contain rules so that student teachers will be able to use the whiteboards and chalkboards effectively. A study conducted by Kern *et al.*, (2005) at Bradley University set out with several immediate goals to outline effective teaching principles, effective teaching practices and how effectively teachers can utilise the chalkboard to supplement traditional teaching in order to improve the university. In the study it was noted that students claimed that they would like to see the chalkboard used more often. The whiteboard was used very well by participants. When using the overhead projector, participants must switch off the machine when they are discussing aspects of the lesson. Regarding the usage of PowerPoint slides a data projector was not used due to unforeseen circumstances which become problematic when students were unable to view (refer to table 5.5).

6.5 Critical Question Three

Why do tutors use these teaching resources the way they use them?

The university tutors made use of the tools mentioned in chapter three *figures 3.2.* and the reason being they want to accomplish their objectives using these tools which are the resources that would assist students. The tools that mediate the activity system include textbooks, computers, overhead projectors (OHP), chalkboards, worksheets and other artefacts. The non physical tools include PowerPoint software and the transparencies. “An activity is a form of ‘doing ‘directed to an object’”, and activities are distinguished from each other according to their objects Nardi (1995, p.8). Transforming the object into an outcome motivates the existence of an activity. An object can be material; it can also be less tangible (a plan) or totally intangible (an idea), as long as it can be shared for manipulation and transformation by the participants of the activity (Nardi, 1995). The subjects of an activity system refers to the person who is directly involved in the activity. Here the university tutors are the subjects, who provide their services to the Post Graduate Certificate in Education students. The objects refer to the teaching practice modules, which in this case include Specific Skill Development and Classroom Technology. The community is a large group of subjects which are part of the university and students take their instructions from their subjects. Rules are ways of a minimising conflict within the activity system. Rules and regulations must be given by the university tutors refer to table 5.6.

6.6 Recommendations

There is no doubt that teaching resources are seen to be an important resource in the teaching and learning environment. It is therefore recommended that the study guides indicate the outcomes so that students can understand clearly what they are expected to know.

The Study Guide for Professional Practice should contain components on teaching resources such as open space learning, overhead projector, chalkboard, resources from environment and many more. New staff members should be trained to utilise open space learning so that the students can benefit from the PGCE course. University tutors should be required to make use of all teaching resources that are stipulated in the Classroom Technology and Specific Skills Development literature. Smart boards should be available to students at all times (during the class period) reason being the smart boards are only introduced once to the PGCE students. Tutors must show encouragement regarding the use of resources from the environment to help students from the rural area. Further research is needed to explore the teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at the university in KwaZulu-Natal. The SSD Guide and Classroom Technology should contain information on the usage of whiteboards and chalkboards. While it is important to use open learning space today, but the student teachers should be given a step-by-step process on how to use the space without assuming that they know how to use it because they are all expected to be computer literate. All tutors should be trained to use the open learning space before they start the course.

6.7 Conclusion

The study has contributed to understanding by revealing teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KwaZulu-Natal. The results of the study can benefit the student teachers, school mentors, university tutors, the Department of Higher Education and Training and the Further Education and Training Institutions. These sectors can read the importance and benefits of teaching resources (TIE and TOE). The study can assist tutors to make knowledgeable choices and decisions on how to improve their modules so that the student teachers can take advantage of the situation to accomplish good usage of resources at school and beyond.

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Appendix 1

25 June 2012

Dear **Participant**

I am undertaking a research project on “Teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a University in KZN.” Therefore, it will be highly appreciated if you could read this document, sign the declaration below and email it as an attachment to my email address 201505051@ukzn.ac.za, snaidoo250@gmail.com or fax it to 032 5377435

The research is influencing the ways in which people are being educated and trained. South Africa, like any other developing countries, is forced to conduct studies of this nature in order to critically evaluate and improve teachers’ methods. Therefore, this study aims at providing valuable information on the teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules.

Please take note of the following issues:

1. There will be no limit on any benefit that the participants may receive as part of their participation in this research project;
2. Answer all the questions;
3. Respond to each question in a manner that will reflect your own personal opinion;
4. Your identity will not be divulged under any circumstance;
5. There are no right or wrong answer;
6. All your responses will be treated with strict confidentiality;
7. Real names of the participants will not be used, but symbols such as A, B, C or X, Y, Z ... will be used to represent participants’ names;
8. The participants are free to withdraw from the research at any time without any negative or undesirable consequences to themselves;
9. The participants will not be under any circumstance forced to reveal what they don’t want to reveal; and
10. Audio or video recording will be made.

This research project is supervised by Dr SB Khoza. His telephone number is (031) 260 7595 at the University of KwaZulu-Natal and his email address is khozas@ukzn.ac.za

Thank you for your support, co-operation and valuable time: Best wishes from

Mrs S. Naidoo
Student at University of KwaZulu-Natal
Tel.: (032) 5376716
Cell: 082 3324 289

E-mail: snaidoo250@gmail.com

Please sign the following declaration and include your full names as indicated:

I (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

.....
.....

SIGNATURE OF Academic Cluster Leader

DATE

Appendix 2

25 June 2012

Dear **Dean of Education**

I am undertaking a research project on “Teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KZN.” Therefore, it will be highly appreciated if you could read this document, sign the declaration below and email it as an attachment to my email address 201505051@ukzn.ac.za, snaidoo250@gmail.com or fax it to 032 5377435

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Please sign the following declaration and include your full names as indicated:

I (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

.....
SIGNATURE OF Dean of Education

.....
DATE

Appendix 3

25 June 2012

Dear **Academic Cluster Leader: Education Studies**

I am undertaking a research project on “Teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a university in KZN.” Therefore, it will be highly appreciated if you could read this document, sign the declaration below and email it as an attachment to my email address 201505051@ukzn.ac.za, snaidoo250@gmail.com or fax it to 032 5377435

The research is influencing the ways in which people are being educated and trained. South Africa, like any other developing countries, is forced to conduct studies of this nature in order to critically evaluate and improve educators’ methods. Therefore, this study aims at providing valuable information on the teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules.

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1. There will be no limit on any benefit that the participants may receive as part of their participation in this research project;
2. Answer all the questions;
3. Respond to each question in a manner that will reflect your own personal opinion;
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Please sign the following declaration and include your full names as indicated:

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I understand that I am at liberty to withdraw from the project at any time, should I so desire.

.....
SIGNATURE OF PARTICIPANT

.....
DATE

Appendix 4

RESEARCH QUESTIONS

CRITICAL QUESTION ONE

What teaching resources do the tutors use in teaching practice modules for the PGCE?

CRITICAL QUESTION TWO

How do the tutors use these teaching resources in teaching practice modules for PGCE?

CRITICAL QUESTION THREE

Why do tutors use these teaching resources the way they use them?

SUB-QUESTIONS

1. What teaching resources are you using?
2. Why do you use these teaching resources?
3. Describe how do you use these teaching resources?
4. What are the advantages of using these teaching resources?
5. How long have you been using these teaching resources?
6. How are the students coping with the use of these resources?
7. Are there any disadvantages of using these resources?
8. Are you using open space?
9. Why and what are the benefits?
10. Which resources do students prefer?
11. And why?
12. How does this impact on the curriculum?
13. Why do you find these resources appealing?
14. How does it become problematic?
15. How does it affect you as a teacher when you don't have these resources to teach?
16. How do you accommodate those teachers from the rural area?

Appendix 5



30 July 2012

Mrs Sandhya Naidoo (201505051)
School of Education

Dear Mrs Naidoo

Protocol Reference Number: HSS/0615/012

Project Title: Teaching resources used by university tutors in teaching Post Graduate Certificate in Education (PGCE) teaching practice modules at a University in Durban KwaZulu-Natal

In response to your application dated 06 July 2012, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Professor Steven Collings (Chair)
/ms

cc Supervisor: Dr SB Khoza
cc Dr MN Davids
cc Ms S Naicker / Mr N Memela

Professor S Collings (Chair)
Humanities & Social Sc Research Ethics Committee
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