



An analysis of the Service-Learning projects undertaken by Biology pre-service teachers at a Tertiary Education Institution: 2007-2011

By

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for the degree of Masters in Science Education, School of Education,
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DECLARATION


I **IFEOMA CECIL DECA-ANYANWU** declare that this master dissertation titled an analysis of the Service-Learning projects undertaken by undergraduate student teachers at a Tertiary Education Institution: 2007-2011.

- (i) Is my original and independent research work, except where otherwise indicated?
- (ii) This dissertation has not been submitted for any degree or examination at any other university.
- (iii) This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
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 - a) Their words have been re-written but the general information attributed to them has been referenced;
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Signed  DATE...**March 2019**.....

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I hereby declare that this dissertation has been submitted for examination with my approval

Signed.....  DATE.....

DR. ANGELA JAMES
(Supervisor)

DEDICATION

This work is dedicated to a rare gem. My iroko, my change maker. A silent hero who made a profound difference in my life, my mum, Mrs Eugenia Echianu. Mummy, consider this a small tip of the hat for you.

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ABSTRACT

Service-Learning (SL) is an extension of an academic course, which does not only provide tangible and meaningful service to the community but is also connected to a course curriculum and gives students an opportunity for reflection during the duration of the course. Most SL programmes consist of SL projects. While some SL projects involve experiential learning that provides students with the opportunity to work directly with off-campus community groups, others are non-experiential SL projects which provide the opportunity for students to serve community groups without direct student/community contact.

As a pedagogy, SL combines student learning with a commitment to addressing problems in partnership with communities. The principles of SL study: reciprocity, and reflections are intended to bolster student learning and civic responsibility which can yield positively in addressing community identified needs and support long-term mutually beneficial community-university partnerships. Though the benefits of SL in various contexts are well documented in literature, there are gaps which indicate a need for further qualitative research on the experiences of students while implementing SL projects.

The policy framework of South Africa has a number of documents that addresses community engagement in higher education. This study is a qualitative analysis of purposefully selected written reflective and project reports of a Service-Learning project in a Biology for Educators module at a South African university. The study provides insight into the SL aspect of the SL project, as well as a means of analysing the pre-service teachers' experiences for their growth and change. The study used an interpretive paradigm and generated data from three sources which are reflection diaries, project reports and module outline to understand the pre-service teachers' experiences while implementing the SL project. Five themes were used for the analysis; four were derived from the conceptual framework and one emerged from the data: Structure, Reciprocity, Relationship, Reflection and sustainability were the themes. Drawing from the theory of David Kolb's experiential learning and using content analysis, these themes were used in analysing the data generated from this study.

The findings support the influence of SL in the communities, and the benefits of reciprocal relationships and reflection during SL projects. The complexity of SL forces students out of their comfort zones and compels them to confront their 'other side', and thereafter integrate it

into their knowledge and experiences. While this experience was hard for some students, it was easy for others who found it easier to grasp the idea and running with it.

This SL project although not without challenges has proven to be rewarding for all the parties involved. The findings add to the growing popularity of SL in Higher education and foster the community-university relationship. From the results of this analysis/study, SL projects provided students with knowledge and skills to gain opportunities. They were able to apply theory to practice, have a direct experience of reciprocal community engagement that fostered their personal growth, which would not have been possible in a traditional classroom context. Based on the findings, recommendations were made for future research on SL, and for higher education institutions and educators.

Key words: Service-Learning, pre-service teachers, pre-service teachers service-learning projects.

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

CHESP-	Community Higher Education Services Partnership
CHE -	Community on Higher Education
DoE-	Department of Education
GPA-	Grade Point Average.
HEIs -	Higher Education Institutions
HEQC -	Higher Education Quality Committee
JET-	Joint Education Trust
SL-	Service Learning

CHAPTER ONE

INTRODUCTION

1.1 Background

As a researcher and a student of higher education, I have learnt that we are faced with an ever-evolving and ever-changing, dynamic world where knowledge is generated by different people and in different contexts. In this context, students are not only required to think critically, but also act caringly (Kuh, 1996; Osman & Petersen, 2013). To respond to this challenge, educators created Service-Learning programmes that connect students to their communities, enabling them to participate in real world learning environments that evoke in students, a sense of empathy (Bringle & Hatcher, 2007).

This chapter captures the basics and essence of Academic Service-Learning (hereafter referred to as Service-Learning - SL) and the plan for the research. This section provides an overview of the SL concept and its background in South Africa; the focus and purpose of the research as well as the questions guiding this research; the rationale and significance of the study; the research design, findings, anticipated limitations and the organisation of this research are also presented.

1.2 Overview of Service-Learning

The introduction of SL to South Africa can be traced back to the United States of America as early as 1636, with the founding of Harvard College. There was an intention on behalf of the first American colleges to equip/prepare citizens to be actively involved in community (Kenny, 2001). Benjamin Franklin, the founder of the Academy of Philadelphia in 1740 that later became the University of Pennsylvania, envisioned this institution as a university dedicated to promoting civic engagement (Harkavy, 2010).

The turbulence of the 1960s protest movements in America prompted a return to civic engagement, collective acts of civil disobedience, and the involvement of students across the nation to include university campuses as a place of social action. Affirmative action programmes were launched to recruit historically overlooked students, and to promote a belated social justice agenda (1996).

SL merges the two concepts of action (service) and efforts to learn linking whatever that is learnt to previous existing knowledge (learning). The two-merged concepts;

Service and Learning was first developed in the 1960s by Bill Ramsay and Robert Sigmon who were community coordinators of research in America, addressing regional problems in the South, they described the reflective approach they used with their community-development interns as such (Campbell, 2007). The Oak Ridge Associated Universities used SL in 1966 for a project on tributary development (Harkavy & Hartley, 2010) after which SL was adopted in higher education in the US in 1970's by some educators who entered the higher education institutions through community based careers (Stanton, Giles Jr, & Cruz, 1999).

However, as a relatively new pedagogy (Stanton *et al.*, 1999), SL only became broadly recognised and accepted in the 1990s in the US as a means of partnership between higher education and communities, to address development aims and goals. SL evolved beyond a volunteer and practice experience to “an intentional, structured tool for social change” (Phillips, Brady, & Jousma, 2007, p. 13), Jacoby (2003) defines it as a “Philosophy of reciprocity, which implies a concerted effort to move from Charity to Justice” (p. 4). As SL expanded in the 1990s, “educational institutions began to see developing graduates committed to their role as engaged, responsible citizens as renewed priority in a world with increasingly complex problems” (Campbell, 2007, p. 212). As pedagogy, SL combines student learning and a commitment to addressing problems in partnership with communities.

SL is an approach of teaching and learning that infuses academic study and reflection into community service with the intention of strengthening communities, enriching learning experience and teaching civic responsibility (Seifert & Zentner, 2010; Zentner, 2011). The principles of SL study, reciprocity and reflections are intended to bolster student learning and civic responsibility which can yield positively in addressing community identified needs, and also support long-term mutually beneficial community-university partnerships (Bringle & Hatcher, 1996; Butin, 2010; Eyler & Giles, 1999).

SL is one form of experiential learning (Berson & YOUNKIN, 1998). It is actually founded on John Dewey's philosophy of experiential education, particularly on his ideas of learning from experience and linking the school to the community (Dewey, 2011; Eyler & Giles, 1994; Hatcher & Bringle, 1997; Hatcher & Erasmus, 2008). The main area in

which SL differs from experiential education is in the focus. While SL is reciprocal in that the community and the students benefit from each other, experiential education may only benefit the students (Berson & Younkin, 1998).

SL is a unique and effective way in which students and young adults can explore and serve the world around them, learning about the world and making more informed decisions about their future. Moreover it requires students to incorporate community service projects into their traditional learning (Enos & Troppe, 1996). Most SL programmes are made up of projects such as assisting in community agencies, participating in environmental projects, tutoring, mentoring, or providing services to at-risk populations (Berson & Younkin, 1998). While some SL projects involve experiential learning that provide students with the opportunity to work directly with off-campus community groups, others are non-experiential SL projects which allow students to serve community groups, but without direct students/community contact (Cohen & Kinsey, 1993). Since SL projects help encourage students to become involved in trying to meet community needs through collaborations between the academic institution and the community, SL projects have to be conceptualized as a complete experience that is directly related to a particular course. The experience/s students acquire during the implementation of the projects serve/s to extend students' learning beyond the classroom and into the community, hence promoting civic responsibilities (Bringle & Hatcher, 2007).

However, with regards to research, questions are raised about SL methodology and research rigour. Most SL studies have been quantitative and primarily used instruments designed for course evaluations that were adapted for research purposes (Steinberg, Bringle, & Williams, 2010). While the plethora of quantitative studies have advanced the understanding of positive SL outcomes using surveys, scales, Grade point average (GPA) measures, and questionnaires, less emphasis has been placed on qualitatively examining students' outcomes (Gerstenblatt, 2013).

There is an acute need for high-quality research on SL outcomes across institutions, faculties, students, and communities (Bringle & Hatcher, 2000). There is need for research using qualitative methods aimed at understanding the meaning making of SL experiences for students when they plan and implement a project. SL projects as conducted in the institution under research, intend to make SL more implanted as a

disciplinary field in higher education. SL is said to provide a means to link academic with practical, thereby representing a powerful form of pedagogy. One goal of integrating service into academic studies is to enhance a life-long habit of civic involvement, community service and a positive impact on students towards growth in their interpersonal skills.

1.3 Service-Learning in South Africa

South Africa in 1994 gave birth to a new democracy and calls for society amendment at every level were apparent. The uptake of SL in South Africa was to respond to the government's insistence that universities should be more responsive to local and national needs and address the social problems surrounding the communities; hence the inclusion of SL in the South African curricular of Higher Education Institutions (James, 2010).

SL was introduced in South Africa as a well-defined pedagogy from the American context at the time that South Africa was undergoing a transformation for Higher Education (Badat, 2004) so as to commit resources to engage more extensively with the communities that Higher Education served (Hatcher & Erasmus, 2008). Since then, SL has grown through the initiatives of the Joint Education Trust (JET), and the Community-Higher Education Service Partnerships (CHESP). CHESP began in 1999 and has funded the development of more than 100 SL courses, or modules, across institutions of higher education in South Africa (Hatcher & Erasmus, 2008). In the South African context, HEIs were expected, as evidenced in the Education White Paper 3 (Department of Education (DoE), 1997) South African policy document, "To promote and develop social responsibilities and awareness amongst students of the role of higher education in social and economic development through community service programmes" (p. 10). This policy document is in alignment with the growing interest in community service projects for students, and subsequently provides support to "feasibility studies and pilot programmes which explore the potential of the community service in higher education" (DoE, 1997, p. 18), a transformation in the shift from "reproductive learning" (memorisation and learning acquisition) to "reconstructive learning" (understanding and application of theory in practice) (Bringle & Hatcher, 2005, p. 21).

SL is embedded in South African policy documents such as the Green Paper on Higher Education Transformation (1996), the White Paper on Higher Education (1997), the

National Plan for Higher Education (2001), the Founding Document (2001) of the Higher Education Quality Committee (HEQC) of the Committee on Higher Education (CHE), the HEQC Criteria for Institutional Audits (2004) and the HEQC Criteria for Programme Accreditation (2004).

The White Paper on the transformation of higher education (DoE, 1997) sets out broad national goals, and refers to community engagement as an integral and core part of higher education in South Africa. The White Paper makes specific reference to the role community engagement can play in transforming the higher education system, and HEIs are called on to “demonstrate social responsibility [...] and their commitment to the common good by making available expertise and infrastructure for community service programmes”(DoE, 1997, p. 10). The White Paper further states that one of the goals of higher education is to “promote and develop social responsibility and awareness amongst students of the role of higher education in social and economic development through community service programme” (DoE, 1997, p.10).

The Founding Document (2001) of the HEQC of the CHE identified “Knowledge based community service” as one of the three areas – along with teaching and learning, and research – for the programme accreditation and quality assurance of higher education. Subsequently, the HEQC incorporated community engagement and its SL component into its national quality assurance systems. In June 2004, the HEQC released its *Criteria for Institutional Audits*, including Criteria on SL (Criterion 7) and community engagement (Criterion 18). In November 2004, the HEQC released its *Criteria for Programme Accreditation*, including minimum requirements for SL (Criterion 1). These national initiatives helped strengthen the resolve of academics to use SL pedagogy and continuously adapt it to reflect and accommodate uniquely South Africa contexts and realities (Osman & Petersen, 2013).

As the importance and success of SL spread globally, making ‘Service Learning’ an attractive if not well-known innovation offers “to educators a means for connecting universities and communities with development needs” (South African Council for Higher Education, 2008, p. 2-3). Researchers and practitioners are also beginning to embrace and engage with the success of SL. One implication of a success like this is that there have been theoretical and or conceptual concerns regarding the practices,

implementation, and goals of SL. Thus, this leads us to the next section, which is the discussion of the focus and purpose of this research.

1.4 Focus and Purpose of this Research

The focus of this research is on the SL projects conducted by pre-service teachers in the Biology for Educators 420 (BIO 420) module in a HEI (University). The pre-service teachers are taught research and SL within the BIO 420 with the view of meeting set objectives which includes developing a conceptual understanding about research and SL. These set objectives are of priority as they fulfil the outcomes of the module, which are to transform approaches to education. The approaches to education are with regard to community engagement by participating as responsible citizens in the lives of local communities and being culturally and socially sensitive across a range of social contexts.

The BIO 420 is a Research and Service-Learning undergraduate module that is completed in a period of 12/13 weeks. The first five weeks focus on the theory discussions and identification of the placement sites that they conduct their service and the latter seven/eight weeks, they implement the SL and have reflective class discussions based on their experiences of their Research and Service-learning (details in Chap. 3). Pre-service teachers are expected to conduct research on their Service-Learning projects. The purpose of this research is to analyse the SL aspect of the pre-service teachers' projects. The analysis included the nature of the SL projects and the reasons for the pre-service teachers undertaking these projects in their particular ways.

1.5 Research Questions (RQs)

The following research questions underpin this research:

1. What is the nature of the SL projects undertaken by pre-service teachers during the year period 2007-2011?
2. Why did the pre-service teachers undertake the SL projects in the particular ways they did?

In analysing the nature the nature of the SL projects, the following aspects were considered (i) what type of SL projects were undertaken by the pre-service teachers? (ii) How were the SL projects undertaken and (iii) were the projects SL projects? The

module outline highlights what is expected of the pre-service teachers with regards to the SL projects. The reflection diaries and project reports of the pre-service teachers highlight the characteristics and their experiences of undertaking the SL projects.

1.6 Rationale for this Research

Rationale in this research also draws from the fact that there is limited research in SL scholarship. Although this SL module has been in existence for about 14 years in the institution, few studies and limited research analysis of the SL projects has been conducted.

Most SL research globally have used quantitative approaches and research instruments such as GPA measures, surveys and scales which were designed for course evaluations and were adapted for research purposes (Steinberg et al., 2010). Although this quantitative method of research has improved understanding on the positivity of SL, less emphasis has been on analysing students using the qualitative approach. Adopting the qualitative approach for analysis in this research can help bridge this gap.

Conducting this research fulfilled a personal agenda I harboured– To understand the etiquettes of SL and how SL stands out from other service programmes. According to I the researcher, SL as an educational phenomenon was relatively new, since it is not practiced in institutions in Nigeria. Coming from a background where community service in some parts of the country does not receive the level of awareness it should, and in other parts where it is practiced, but looked down upon, it evoked nostalgic feelings within me. Until this research, I was of the view that community service, volunteerism and Service-Learning are similar and had not imagined that it could be relevant in education. Similarly, there has been critique about the relevance of SL among South African academics (Hatcher & Erasmus, 2008). A critique from a South African Academic highlights that SL came to Africa as a result of globalization and Americanization trying to adopt an American initiative (Le Grange, 2007).

Another rationale to conduct this research is the possibility that I might gain more insight on SL theory and practice with regards to particular contexts in South Africa. As a teacher in South Africa being guided by the South African education policy framework and the National Education Act (No.101 of 1997), it is expected that the

researcher work with quality assurance and addresses the issue of community engagement, which is seen and known as SL in Higher Education.

Further rationale for this research is guided by the HEQC requirement of constant reporting on SL engagement with communities (Committee, 2004). Correspondingly, there has been a number of national mandates and accountability since 1997 in South Africa through the Department of Education (DoE) to promote the development of SL courses.

1.7 Significance of this Research

The core functions of a university which has been regarded as teaching, research and community engagement has been united by the concept and practice of SL (Fourie, 2003). This research is connected to the Biology for Educators BIO 420 module; therefore, its findings will be useful in the context of accumulated SL work in this field. This research is a qualitative research which used content analysis to analyse the SL projects done within a SL module by pre-service teachers. There is also much to gain from a constant appraisal or as in this case analysis of SL, as it will assist in ascertaining the benefits of the programme. The findings of this research will also inform higher education lecturers on the teaching of SL and the organisation of SL projects. While the result of this research is hoped to provide a base for faculty and administrators to understand how SL is practiced in this institution under research, the conclusion will also suggest ways to improve it.

Several concepts need to be discussed with reference to research to fully understand what SL is all about (Furco & Billig, 2002). This research can add to the existing literature and the methodological processes with regard to conducting research in SL and bring scholars a step closer to grasp SL fully. Finally, this research contributes to experiential learning as proposed by John Dewey and David Kolb and its relevance to education as well as to the SL in HEIs. Therefore, this research intends to make its finding available to HEIs– management and lecturers, as a measure that might inform on how SL could be implemented and/ or enhanced in the institution under research and others in South Africa.

1.8 Research Designs

This research made use of interpretative, qualitative approach. An interpretative paradigm was used to analyse and understand the pre-service teachers' experiences and their thoughts of participating in the SL projects. Experiences in this context refer to the pre-service teachers' understanding, practices, and feelings while participating in the SL project.

The use of qualitative methodology in this research was not to generalise but capture the phenomenon as much as possible. The research also employed one method of generating data which is document analysis from three different documents as written narrative accounts namely: pre-service teachers' SL projects, the pre-service teachers' reflection diaries, and lastly the SL module outline. The aim of extracting data from different documents was to answer the research questions as effectively as possible, which also helps to enhance the data.

This research as a case study, analysed the compulsory SL projects of 3rd/4th year pre-service teachers who were involved in the BIO 420 module which is a SL module at a teacher education institution in KwaZulu-Natal. The case in this study is the SL project within a SL module at a teacher education institution.

Purposive sampling was adopted in this research as a sampling method. Data collection methods and sources concerned documentary analysis and the project reports and reflection diaries selected from a set of projects conducted from the year 2007 to 2011. A total of 14 project reports and 14 reflection diaries were analysed (see breakdown in Chap. 3). All the data generated is analysed through a content analytical process of documents in line with a qualitative research approach. The content analysis was done by first categorising it according to relevance, then coding it into pre-decided themes and patterns.

1.9 Research Findings

The meanings and interpretations from the data analysis were made and examined in line with the two research questions. Based on this, findings are made in the form of descriptive and interpretative representations and these are then summarised and presented as results of the research. The findings were categorised according to four

pre-decided themes guided by the conceptual framework: reciprocity, structure, sustainability and relationship, as well as one emerging theme from the analysis: sustainability. Through these themes, the type of SL projects that were done and the actual learning if any that occurred during the various services were evident. The findings also included why the SL projects were conducted the way they were. Deductions were also made from the findings that the pre-service teachers focused more on the research aspect of the project than the SL aspect.

However, the feeling of empathy, care and belonging displayed within the community by its members during the projects were emergent in the pre-service teachers' reflection narratives. From the satisfaction the pre-service teachers received from working and helping the community people, they unanimously agreed to have enjoyed the experience and wished to experience it again, if given the opportunity. Lastly, the findings of this research provide a strong empirical base not only for the institution under study but for other HEIs to formulate improved practices concerning SL.

1.10 Limitation of this Research

No research project is without its limitations. In this research, the researcher worked with 14 project reports and 14 reflection diaries of pre-service teachers who participated in the SL programme within a five-year period from 2007 to 2011. The number of documents used for this research may have been a limitation; however, an in-depth analysis of the documents was conducted.

1.11 Organisation of this Research

The chapters of this research presented multiple perspectives on the practices and studies of SL. Though the chapters help answer the questions guiding the research, they also reveal that there is much to be known about SL; conducting quality research on SL and using the findings from this research might assist in filling in those gaps.

This research report is organised into five chapters. The chapters cover a broad range of headings and subheadings that address issues of SL related to the topic of this research. Each of these chapters speaks for the overall aim of the research and allows an easy guideline on distinguishing the different parts of the research. Where there is need for more clarity, tables and figures were used.

Chapter One: This chapter explains the background; roots of SL in South Africa, focus and purpose, rationale and significance of the research. The chapter was introduced through a discussion of the prominence which SL has gained since its emergence in the early 1990s. The chapter also provides the research questions and an overview of the research design. It also provides the background information that frames the research and the findings from this research. Finally, this chapter describes how the research is organised.

Chapter Two: In this chapter, the conceptual framework that informs my research is explored. The chapter explores the variety of contextual foundations of SL and thereafter, the existing literature of Bringle and Hatcher (1995) and Jacoby (1996) were used to define SL.. This chapter draws on the writings of experts within the field and researchers with related studies such as Howard (2001) and Marais and Botes (2005) to create a link with the current research. It also highlights how SL is embedded in various SA policy documents and the emphasis on the implementation of SL in institutions.

In this chapter, a broad-scope of literature is used to discuss SL pedagogies and principles. How SL relates with Education with much emphasis on higher education was noted. The important aspect of clarifying SL from other service programs such as volunteerism, community engagement and internships are also discussed at length in this chapter.

This chapter outlines the experiential theory as the theoretical framework guiding this research. This theory is used because SL is related to experiential education (Giles Jr & Eyler, 1994) and the necessity of the theory for the development and refining of a research agenda for SL cannot be taken for granted (Giles Jr & Eyler, 1998).

Chapter Three: In this chapter focuses on the research design and the methodology used under focus. The justifications for the choice of research design and methodology adopted are provided. The chapter unpacks the research paradigm, research approach and research design. The sampling method is explored, the data generation methods are explained and the process involved in the analysis of the data is discussed. Issues of research rigour - trustworthiness, research ethics, and limitations are also explored.

Chapter Four: In this chapter the presentation, analysis, interpretation, and discussion of the qualitative findings are provided, considering the key research questions and the

literature reviewed. The data is firstly presented and thereafter, the discussion of the data using the themes from conceptual framework is followed.

Chapter Five: This chapter concludes the research. Based on the findings of this research, this chapter provides discussions of findings with reference to the research questions, areas for future research, and recommendations of the research for teaching, teachers, lecturers and policy makers respectively.

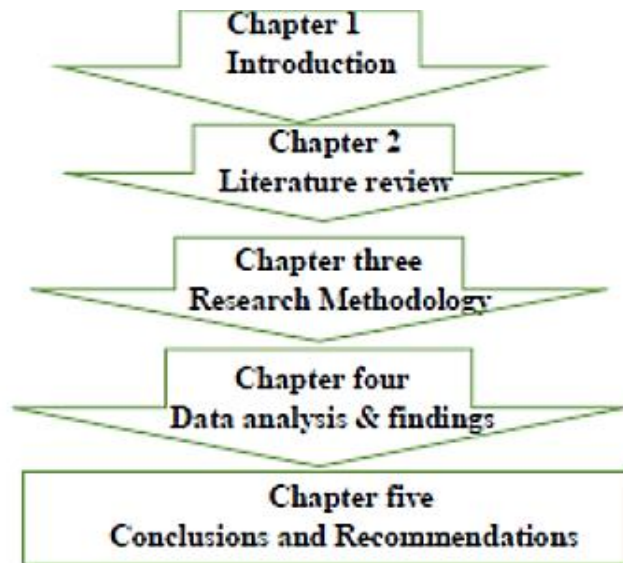


Figure 1. 1: Chapters in sequence

1.12 Conclusion

In summary, this chapter introduced SL as a fast-growing pedagogy in education. The background of SL and its introduction into South Africa was also discussed. The focus and purpose as well as the research questions guiding this research were explored including the significance of the research. These were followed by a brief outline of the research and a guide of what to expect in each chapter of this research report.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Chapter one provided an overview of the research. It also introduced the research content while highlighting its background, rationale, focus, and purpose. The questions guiding this research were also introduced. This chapter examines the various perspectives, literature, and ideas that contribute to the research and the SL projects under analysis.

A literature review is defined as a systematic, and generative method used to identify, evaluate, and interpret the existing body of researched work that has been produced by researchers and practitioners. It provides evidence to the research audience that the researcher is aware of the work that was already done on the subject and points out what are believed to be the key issues in the research field. Furthermore, “it establishes theoretical and principle-based co-ordinates for readers in terms of what was applied to shape the research design” (McNabb, 2002, pp. 393-394).

Based on the above meaning, this chapter will review the range of literature that addresses SL concepts and the different views that inform how SL is being infused and practiced, with emphasis on South African Higher Education. The critiques, global and local researches of SL will also be discussed, while also discussing the models that inform this research phenomenon. The theoretical approach of this research and the implication of theory to SL were discussed extensively in this chapter.

For clarity and alignment purposes, it is important that the review of literature begins with the meaning of SL, which will also give the conceptual framework guiding this research. Clarity of the difference/s and link between SL and other service programmes such as volunteerism and civic/community engagement are discussed. The introduction, implementation of SL in education, higher education; making reference to South African higher education and teacher education were discussed as well in this chapter. Lastly, SL projects, key principles guiding the practice and implementations of SL programmes will be discussed in this chapter.

2.2 Conceptualising Service-Learning

For the purpose of this research it is realised that SL conceptualisation is found across multiple disciplines (Butin, 2003) and is often confused with other concepts of experiential learning. Based on this, a review of meanings of SL is important to clarify any misunderstandings and concepts of SL, various definitions, criteria, conceptualisation, and perspectives of SL that have been presented by different scholars. These perspectives are used to give meanings of SL and how it is enacted across multiple disciplines and contexts (Butin, 2010). Although these perspectives might not be contradictory, they seem to highlight new issues of design and application strategies previously not taken into cognisance (Billig & Furco, 2002). Therefore, researching SL understanding, practices, and implications are relevant.

In 1967, from the work of Robert Sigmon and William Ramsey, the term “Service-Learning” was coined and it was a major step in providing conceptual clarity on SL (Giles Jr & Eyler, 1994). In subsequent years, efforts in this field were focused on principles of good practice to combine service and learning and to develop a common, agreed upon definition of SL (Kendall, 1990; Shumer, 1993; Stanton *et al.*, 1999). For example, Belisle and Sullivan (2007) provided a definition from which other definitions can be derived. According to their definition, SL links both learning objectives and service objectives with the purpose that the participants and the recipients both benefit from the service provided (Belise & Sullivan, 2007).

Kendall (1990) identified 147 views and definitions of academic SL in the literature on programs designed as SL. These views and definitions were from brief to intensive, and where the SL programmes ranged from a one-time experience, several weeks, a semester course, or as an integrated programme consisting of a series of connected courses. However, the most quoted definition of SL and the definition known by the pre-service teachers of the module under research, which also forms the conceptual basis of this research is the definition by Bringle and Hatcher (1995) which defines SL as:

“.... a credit-bearing educational experience in which students participate in an organised activity that not only meets the needs of a particular community but also reflects on the service activity in a way that further

understanding of the course content is achieved and sense of civic responsibility is enhanced” (p. 112).

Finley (2012) extends this by stating that, “SL is essentially an umbrella term under which many activities and programs can fall, rather than narrowly defined practice with associated outcomes” (p. 2). Eyler and Giles Jr (1999) who have conducted extensive research in SL, did not adhere to one definition of SL in their research, rather they explored the outcomes of SL programmes and attempted to identify what types of programmes led to particular outcomes.

As noted by Jacoby (1996) ... “Service-Learning is a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote students learning and developments” (p. 5).

Figure 2.1 is a structure clarifying the concepts of SL in higher education and its link to some of its related programmes such as education, volunteerism, and traditional internships.



Figure 2.2: Concept of Service Learning in Higher Education

South African National and Community Service Act of 1990 (Gazette, 1990) gave meaning to community service which in current times could be linked to SL, as viewed in the following dimensions:

- a. Students learn and develop through participation in organised experiences that meet actual community needs and are coordinated in collaboration with school and community; in other words, not only the server or in this case the student teachers should benefit from the service, the community being served should also be responsible for the articulation of the service provided and what the service should be in the first place.
- b. The program is integrated into the academic curriculum and the students are provided with structured time to think, discuss, or write about their experiences. The programme should also be relevant to the academic module in which it is integrated and if possible be the central component of the module.
- c. Experiences enhance what is taught by extending learning beyond the classroom into the community, which fosters development of a sense of caring. This means that the pre-service teachers conducting the SL project under research should be empathetic and respect the way of life, the outlook and the circumstances of the community being served.

In the SL context, ‘community’ refers to those specific, local, collective interest groups that participate in the SL activities of the institution. To this extent, SL is defined in this work as an experience (feeling, practices and understanding) that a student has with a community based on the subject of his/ her project, to widen his/her horizon and scope as well as connect between theory and practice.

The educational outcomes of SL are developed through reflection activities (e.g., journals) that link the service experience to learning objectives, and are guided, occur regularly, and allow feedback and assessment. Despite the various definitions, views and applications, SL praxis is consistently noted to include the following characteristics which form the basics of the themes used in the data analysis of this research.

- Structure: it is attached to study/academic credit and designed to engage people in challenging and responsible actions for the common good.
- Reflection: has adequate time set up for structured critical reflection on the entire SL experience.
- Reciprocity: has an articulation of clear service and learning goals for everyone involved and there should be reciprocity between those served and those who learn.

- Relationship: allows for those in need to define those needs, clarifies the responsibility of each person involved and matches service providers and service needs through a process that recognises changing circumstance.

(Bringle, Hatcher, & Jones, 2012; Kendall, 1991).

However, these characteristics do not have to follow a certain order, they can occur simultaneously in the course of the SL implementation. The most important thing is that the characteristics balances each other out to give the students the opportunity to develop their academic, social, personal and civic competencies, giving the community the opportunity to also benefit from youth that helped solve needs (Hatcher, Bringle, & Muthiah, 2004a; Zentner, 2011).

How and why SL is being endorsed gives room for its wide range of conceptualisations (Butin, 2003). For instance, Kendall (1990) differentiates between SL as a specific method for content knowledge delivery (pedagogy) and SL as a world view that is infused into the curriculum, instruction and assessment of a course (philosophy). Nevertheless, scholars such as, Liu (2000) and Morton (1995), suggested that concepts of SL provides valuable services and increases academic learning only if enacted enough.

Since “Service” has various meanings, SL is probably going to be interpreted in many different ways by its participants (Donahue, 1999, 2000; Kahne & Westheimer, 1996). For this reason, it is vital to consider that the way pre-service teachers interpret the given SL definition might reflect in their SL projects.

SL is a multifaceted pedagogy that spans through all levels of schooling, is potentially relevant to all academic and professional disciplines, connected to a wide range of dynamic social issues, and can be implemented in a wide range of community contexts (Furco & Billig, 2002). As pedagogy, SL is integrated into a broad range of disciplines and curriculum including education, law, social work, engineering, health sciences, arts, and humanities. Since the origination of SL in the 1960 and 1970s, this form of student engagement has had a wide scope and scale of studies attested to it (Stanton & Erasmus, 2013). SL pioneers, mostly made up of non-academics provided learning opportunities within cities that had HEIs, these opportunities highly influenced the workforce of those cities (Stanton & Erasmus as cited in Gassman, 2015).

In recent times, many institutions in America have adopted SL pedagogy (Colby, Beaumont, Ehrlich, & Corngold, 2010) and the learning outcomes of students who engaged in SL are properly documented (Ash, Clayton, & Atkinson, 2005; Astin, Vogelgesang, Ikeda, & Yee, 2000; Bringle, Phillips, & Hudson, 2004; Eyler & Giles Jr, 1999; Kuh, 2008; Paul & Elder, 2006).

The pedagogical model for the SL course under this research is in the form of a university-community partnership whereby the SL projects are conceptualised in a semester to maintain relationships with the communities as the pre-service teachers serve in the community. Reflection was also built into the module content and the class teachings included dialogues and activities that framed the importance of a lot of the SL projects implemented.

According to Bringle *et al.* (2004), SL projects and classes are known to engage students in activities that concurrently pursue two goals which are:

- i. Benefit to the community stakeholder.
- ii. Academic learning outcomes.

The experience derived from the “service” in SL, provides rich text, which academic lessons are learned through the interplay between theories and practice (p. 5). The reflection activities such as journals, small group discussions and directed writing provide the educational outcome of SL programmes (Eyler, Eyler, Giles, & Schmeide, 1996).

SL represents a paradigm shift in higher education due to the fact that it increases the role students can take as constructors of knowledge and part of the strengths of SL is in its compatibility with other pedagogical trends (collaborative learning and problem based learning) in education (Bringle *et al.*, 2004). Correspondingly, Rice (1996) noted that SL is also compatible with other changes occurring in higher education that involves a focus shift from teaching to learning; moving from isolated character of higher education to a democratic and public approach to academics.

SL, students go out from the classroom into the community to experience real-life connections between what they have been taught and everyday issues in various communities (Cress, Collier, & Reitenauer, 2005). This is because according to Crabtree (2008), SL is not bound by the four walls of the classroom but has an intimate

connection to the world of everyday living. This implies that SL allows students to showcase who they are and what they can do in and beyond the classroom to make an impact in the community. This is why there are cases in which students travel abroad for SL. Such cases are known as international Service-Learning, which gives the students opportunity to engage in cultural exchange to develop their inter-cultural competence (Grusky, 2000).

For SL to be considered well implemented it has to involve a structured partnership between the institution and the community; the service experience will be fused with the educational aims; and the student's community service is consistent with their objectives.

2.3 Clarification of Service-Learning Related Programmes

There are several programmes/experiences related to SL. Though these programmes/experiences are mostly about community involvements, they differ in their scope and learning agendas; hence, it is important to know and distinguish them from SL. As deduced from Kolb (1984), experience and learning are not tantamount; while experience is necessary for learning, it is insufficient for learning since it requires a lot more than experience. Hence, it would be unjust to assume that a student's involvement in the community makes learning automatic. According to Howard (2001), academic and/or civic learning from a community experience requires efforts through reflection. This section focuses on differentiating SL from programmes/experiences such as volunteerism, community service, internships, and field education.

SL is different from volunteer experiences because of the categorical link of course aims with structured community interactions to meet community-driven needs. During volunteerism, the activities students engage in have emphasis on service that will most likely benefit the recipient (Cress *et al.*, 2005). According to Kamai and Nakano (2002), SL is more than volunteering as it provides a level of critical thinking which is not accessible during volunteerism. The main feature of SL that differentiates it from volunteerism is that it involves students self-reflecting on their experiences during the programme (Smith & Mckitrick, 2010). In addition, the civic engagements and reflections which are essentially attributed to SL often distinguishes it not only from volunteerism, but also from Internship (Howard, 2001).

According to Howard’s point of view, SL is different from compulsory internship as it is often a graduate requirement in disciplines such as education, health and engineering. While SL is often voluntary, internship can be paid or unpaid. In addition, Howard argues that:

“While internship and academic service-learning involve students in the community to accentuate or supplement students’ academic learning, generally speaking, internships are not about civic learning. They develop and socialise students for a profession and tend to be silent on students’ civic development. They also emphasise on student benefits more than they do community, while service-learning is equally attentive to both” (Howard, 2001, p. 10).

In the same vein, SL also differs from other community service engagements by its representation of academic work in which the community activities are used as “texts” that are interpreted, analysed, and related to the content of a course that allows for formal evaluation for academic learning. However, SL is not only a representation of academic work, it also challenges the teachers, learners and the communities to connect academic work to the service provided in the community, thereby evoking communal and reciprocal approaches (Flecky & Gitlow, 2010).

Though SL and field education are implemented in a community context, they are still different and cannot be interchangeable; while the field education focuses on skill building, SL makes provision for a unique opportunity for students to experience a community and civic engagement (Gerstenblatt, 2013).

Table 2.1: Typology of Service and Learning (Furco, 1996)

Term	Meaning.	Example
service- LEARNING (sL)	Learning goals primary; service outcome secondary.	Internships
SERVICE- learning (Sl)	Service outcomes primary; learning goals secondary.	Volunteerism
service learning (sl)	Service and learning goals completely separate.	Field Education

SERVICE- LEARNING (SL)	Service and learning goals of equal weight and each enhances the other for the participants.	Service-Learning/ Community Service.
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Table 2.1 provides a basis for the clarification of the differences amongst various types of service programmes/service-oriented experiential education programmes. In correspondence to the above service and learning typology, an ideal SL pedagogy will relate with the service-learning model.

It is important that the hyphen between service and learning is noted as this symbolises the central role of reflection in the process of learning through community experience (Eyler & Giles, 1999). A community-service programme which does not involve reflection does not encourage learning; hence, cannot be identified as SL. For instance, a student programme which involves students helping out in a community garden without linking the programme to a certain academic goal in most cases do not involve formal learning. The difference between SL and other forms of service is mainly in its intention to benefit both parties. In other words, the students and recipient community both gain from the programme; equal focus is placed on the learning that occurs and the service rendered (Harwood, 2008).

SL may seem different from other service related programmes by its intentions and dimensions. A concern raised by Pacho (2017) is that in practice it is difficult to distinguish SL from its equivalents, since in all cases, service is involved, unintended learning may occur and reflection may also take place.

2.4 Community/Civic Engagement and Service Learning

There are a wide range of perspectives of civic engagement for educating students to become civically engaged citizens, scholars, and leaders (Jacoby, 2009). SL is one way for universities to get involved with communities through a course-based learning experience in the community for students from a variety of disciplines and durations based on the practice of study, reciprocity, and reflection (Jacoby, 2009).

According to Altman (1996), “the purpose of service-learning is to promote the acquisition of socially-responsive knowledge” (p. 374). Furthermore, he states, that

“The goal of socially responsive knowledge is as follows: First, to educate students in the problems of society; second, have them experience and understand first-hand social issues in their communities; and third, and most important, give students the experience and skills to act on social problems” (pp. 374-375).

However, students are not the only members of the university that benefit from engaging with communities; SL has the capacity to “promote institutional citizenship” (Bringle, Games & Malloy, 1999) with the participation of faculty and administration in developing extended relationships with communities (Gerstenblatt, 2013).

SL is one component of civic engagement; however, while civic engagement is also used interchangeably with SL, it is also related to meaningful and reciprocal relationships with communities that students work in (Butin, 2010). The entangled relationship of civic engagement and SL represents an interconnectedness that orders SL as a component of civic engagement, or civic engagement as the philosophical linchpin of SL partnerships with communities, particularly as it relates to reciprocity and community identified needs (Bender, 2008). Civic engagement as the broader theme can encompass SL but is not limited to it.

Whether SL is civic engagement is still being debated among scholars and practitioners. The practitioners and scholars centred their debates on; it is not enough for students to perform service in communities; they must also engage in skills and learning that prepares them for the democratic society as proactive citizens which includes dialogue negotiation, collaborative work and problem solving within diverse groups (Finley, 2011). According to Butin (2010), the political perspective in SL aligned more with civic engagement which is the significance of SL model that addresses power imbalance, silenced perspectives, and negotiation over neutrality and objectivity.

The magnificence of the three concepts of civic/community engagement and SL got scholars thinking and wondering. For instance, how and where these concepts and practices are situated is the source of confusion and debate within scholars and practitioners (Jacoby, 2009). Given the plethora of definitions, it is imperative that we identify the fundamental problem of aligning the guiding principles of civic and community engagement with SL (Hatcher, 2011). While identifying the intersection, it is also vital to note the differences. SL is an institutional driven process of placing

students in the community as part of their academic learning experience, while community and civic engagement is specifically attentive of reciprocal relationships with individuals or organisations in a community driven process.

Research on Community engagement has now become an academic field in its own right (Preece, 2016). Actually, several forms of Community Engagement have been analysed by O'Brien (2012). These analyses brought about the revelation that forms of Community Engagement varies from philanthropic models to those models that actively promote change and community empowerment (Preece, 2016).

According to the Carnegie Foundation (2001), community engagement is the collaboration between HEIs and their larger surrounding communities for the sole purpose of mutually beneficial exchange of knowledge and resources to promote reciprocity. The distinction of civic and community engagement is in the scope of impact. Civic engagement is social responsibility in a larger context, while community engagement tackles a specific challenge (Gerstenblatt, 2013). With strong emphasis on providing a “service” for the upliftment of a certain community, community engagements are primarily intended to benefit the recipient of the service (Furco, 1996). For instance, in the high school, a community engagement addresses a social issue such as recycling, environmental awareness, AIDS etcetera. These social issues are also addressed as part of after-school work clubs that are not traditionally related to an academic course or as part of a curriculum (Billig & Furco, 2002).

Contrarily, SL engages students in projects that combine community engagement and academic learning. Since SL is deeply rooted in formal academic or elective courses, the service projects are often based on particular curricular concepts that are taught (Furco, 1996). Though students may develop socially and personally, the primary intention of SL is to enhance students’ academic development and civic responsibility (Cohen & Kinsey, 1993).

Largely, SL is held in high esteem by some educators as an academically rich form of experiential education, educationally beneficial than community engagement. This benefit over community engagement is because SL provides opportunities for reflection which, helps students deepen their understanding of the academic content studied as well as the social issue/s they address (Eyler, Giles Jr, Stenson, & Gray, 2001).

2.5 Research on Service-Learning

Research on SL is important as it provides the route to improving the understanding and practice of SL. Moore (2010) while citing the works of Eyler and Giles (1999), Butin (2005), Jacoby and Associates (1996), Heffner and Beversluis (2002) West (2004), Butin (2010), Sheffield (2011), Zentner (2011) and Zentner and Nagy (2012) argued that more “systematic research has been done in the realm of SL than any other form of experiential education” (Moore, 2010, p.5).

Consistent with theories of experiential learning influencing students’ learning (Dewey, 1916; Kolb, 1984), SL research has been predominated with the intention of understanding the impact of SL on students. The initial research on SL focused on positive students’ learning outcomes (improved academic performance, social and personal development), and the impacts of service participation on students’ attitudes, values, and beliefs (Astin & Sax 1998). Researches have gone further than that to excessively focus on students’ outcomes over the community partners they work with (Sandy & Holland, 2006). Additional studies and literatures have invested on finding out how best to improve SL Programmes, assessments, and institutional culture for positive, academic and community outcomes (Billig & Furco, 2002). Efforts have been made through research to address questions on teacher adoption of SL pedagogy and institutionalisation (Eyler & Billig, 2003).

It is safe to say that rapid growth of SL and its research is largely due to its many benefits. Generally, research on SL has shown positive outcomes for students and communities (Conway, Amel, & Gerwien, 2009; Novak, Markey, & Allen, 2007). Studies have addressed the impact of SL on the community and have confirmed that the community partners appreciate their role as student educators and the resources the institutions bring to their locality (Worrall, 2007). Eyler *et al.* (2001) cite 32 studies and dissertations linking SL with “reducing stereotypes and facilitating cultural and racial understanding” (p. 1). Correspondingly, SL has been shown to increase students’ knowledge of, and ability to get along with people of other races and cultures (Astin & Sax, 1998); accommodating and reducing use of stereotypes (Eyler & Giles, 1999); team player amongst other different groups (Osborne, Hammerich, & Hensley, 1998); and being able to be empathetic, notwithstanding their background.

Previous, studies on SL have noted that if SL is connected to a specific course/module, students' learning the course content will increase (Boss, 1994; Cohen & Kinsey, 1993; Driscoll, Holland, Gelmon, & Kerrigan, 1996). A report on three studies indicated that students in SL programmes showed significantly enhanced skills for assessment, analysis of complex problems and critical thinking ability than students in non-SL programmes (Eyler & Giles Jr, 1999). Though a research by Billig, Root, and Jesse (2005) showed that students who did not experience SL showed the same outcomes with students who had SL experience. Novak *et al.* (2007) also corroborated the positive effects of SL on students' academic performance in a meta-analysis which showed that those participating in SL component produced an overall increase of 53% on learning outcomes attainment for students in these courses compared to students not engaged in SL. A meta-analysis of courses incorporating a SL component conducted by Conway *et al.* (2009) revealed that students in a course with SL had an average increase of 43 points between pre-and post-test measures of academic outcomes.

SL was found to be correlated with an increase in grade-point average and improved academic performance (Daigre, 2000; Mooney & Edwards, 2001; Wade, 1995). The evidence regarding the impact of SL on students' GPA is mixed and as such could be debatable. Some studies on how undergraduates are affected by SL report a positive effect of SL on students' GPA (Astin & Sax, 1998; Markus, Howard, & King, 1993; Strage, 2000); other studies on this aspect found no difference in the effect on GPA between SL and non-SL students (Boss, 1994; Hudson & Trudeau, 1995; Kendrick Jr, 1996). A consideration in the conflicting reports is the suggestion that SL involves higher-order thinking, hence grades or GPA are not the most appropriate outcomes for measuring the cognitive effects of SL experiences, and though grades are inexpensive ways of collecting data, a combination of grades, content analysis, and observation will be more effective in measuring SL outcomes (Rama, Ravenscroft, Wolcott, & Zlotkowski, 2000). In addition to increased knowledge, GPA, and grades, other outcomes included positive changes in academic motivation, self-esteem, course attendance, attitudes towards programs and institutions, and satisfaction with classes and teachers (Conway *et al.*, 2009).

Morally, SL have been noted by some studies to enhance moral development of students and also been effective in building students' self-esteem (Driscoll *et al.*, 1996). In

addition, SL was found to increase students' self-awareness, awareness of and involvement with community, personal development, sense of service, sensitivity to diversity, and independence in learning (Driscoll *et al.*, 1996).

Conway *et al.* (2009) cited that SL places teaching and learning in a social context, thereby facilitating a socially accredited knowledge. Furthermore, in a quantitative research by Conway *et al.* (2009), SL experiences corresponded with a small increase in mean on outcomes that are related to citizenship in an average increase of 17 points between pre-test to post-test means.

The literature indicates that SL results in growth and transformative student development in domains such as student learning, personal and social development (Bringle & Hatcher, 2000; Conway *et al.*, 2009; Eyler *et al.*, 2001). This indication might have given rise to the criticism that SL students receive more benefits than the communities they partner with especially given that the timeframe of the academic semester is not sufficient to effectively engage with community partners, and faculty and students may fail to reflect on and address the complex, social structures facing the communities in which they served (Beran & Lubin, 2012; Butin, 2010).

However, despite a large body of research that supports the educational benefits of SL activities, there is still much that remains on the programmatic characteristics of SL programmes that have the greatest effects on students or maybe how different kinds of SL projects/ activities affect students (Mantooth & Hamilton, 2004).

There is scarcity of research that analyses the lived experiences, meaning making, and transformative process of students who participate in SL courses. Though studies have tapped students' personal reactions to their SL experiences in their own words by using students' reflection journals as data sources (Gerstenblatt, 2013; James, 2010), more studies on this aspect will be welcomed as these studies are done under different contexts. This scarcity on research gives this research an opportunity to expand in context as this research hopes that the lived experiences of the student teachers as the focus of this research will be evident through their various reflection narratives and project reports.

There is also a need for more high-quality research on SL across institutions, faculty, students, and communities (Bringle & Hatcher, 2000). Qualitative research on SL has

utilised interviews, focus groups, journals, and reflective papers; however, this type of research is relatively small in comparison to researches on other pedagogies. To capture the rich and complex experiences of service learners, faculty and community, studies need to include a more expanded repertoire of qualitative and quantitative methods, particularly in-depth analysis of student generated course materials on SL.

Although research on SL have been questioned largely due to its methodology and rigour, studies have shown that SL impacts positively on students' attitude towards community engagements, civic responsibilities, interpersonal relationships as well as problem solving (Eyler *et al.*, 2001). Research on SL has been innovated by the development of several validated scales and questionnaires which gives promising results and evidence of positive outcomes of SL, however, these questionnaires and scales do not showcase the complexity and distinction of SL experiences or the process of civic/community engagement (Gerstenblatt, 2013). Using a mixed method research, Driscoll *et al.* (1996) noted that SL impacted on students involvement with the community, and heightened the awareness of the community's history, strengths and problems. The mixed method study having used interviews, focus groups and analysis of journals, is one of the few studies on SL that made use of the mixed method approach to derive its results (Steinberg *et al.*, 2010). There are also few qualitative studies that look at reflection papers and journals that reveal insight to students' implementation of a SL project (Gerstenblatt, 2013). This current research hopes to add to that body of knowledge by using a qualitative approach to analyse the SL projects of pre-service teachers using their reflection diaries and project reports as a mixed method of data generation.

Narrowing down research in SL to the teacher education context, Root (1994) noted that research in this area is still at the infancy stage, although a lot of studies have been conducted since then. For instance, a complete review of the research done by Root and Furco (2001) gave detailed and important patterns in the area of SL and teacher education. To address the impacts of SL on teacher education, Root and Furco (2001) reviewed a range of research which used methods such as quasi-experiments, standardised measures, interviews, journal analysis, multi-site studies, modification scales, and case studies. At the end of the review, the authors listed key areas where development is likely to occur in teacher education when SL is practiced. These areas

are: academic-intellectual development, personal development, professional attitudes and dispositions, teacher efficacy, attitudes towards diversity, moral development, awareness of ethical tensions in teaching and an ethic of care (Root & Furco, 2001, pp. 90-95).

In summary, following recommendations by Cress *et al.* (2010) indicate there is need for further research that can inform institutional practice and develop understanding of the possibilities and limits of SL as a strategy for producing benefits beyond improving student learning and civic outcomes particularly for increasing college access and success. With regards to teacher education, there is also a lot of research to be done on how SL enhances pre-service teachers' obligation to the "principle of care, social justice, addressing bias, and teaching culturally and racially diverse pupils" (Petersen, 2012, p. 52).

2.6 Critique of Service-Learning

As mentioned earlier in section 2.4, SL has its critiques and challenges despite its extensive reception by academics. Possibly, the most challenging confrontation to SL is that SL and volunteerism are the same (Cress *et al.* 2005). To counter this critique, Pacheco (2017) argued that in SL,

"The service offered to the community necessarily includes the learning that students gain as a result of their efforts. The aim of the SL is that the community benefits from the students' services, the students grow in knowledge and skills by addressing problems such as environmental conservation" (Pacheco, 2017 p. 59).

A second critique from Cress *et al.* (2005) which is on the involvement of higher education institutes in SL, stated that HEIs do not necessarily intend on providing social support to the communities as a lot of government, religious and non-profit organisations have taken up this position. A counter to this critique was seen in Sheffield's (2011) response saying that as the higher education institutes are seen as part of the broader community, they intend to connect with their respective communities, as good neighbours would do. Furthermore, Singh (2014) gave an account of the role of HEIs which showed that these institutions have had interest in public purposes and social support.

Another critique to be addressed is that from Eyler and Giles (1994) which indicated that SL has no conceptual framework, which among other things resulted in a call for a theory of SL as a guide for practice and as a body of knowledge (O'Brien, 2005). "This criticism seems unfounded as not only has research on SL continued to grow since its emergence, but also the experiential theory of Dewey (1938) that was adopted and popularised by Kolb (1984) contradicts and provides a suitable model for the practice and operation of SL.

Moore (cited in Pacho, 2017) questioned if experience is a suitable source of learning within the higher education context, and whether the existing pedagogical methods do realise the potential of experience. Furthermore, Moore identified two criticisms facing SL. The first criticism is a question on the primary purpose of higher education and if the purposes are met by students providing service in the community. Responding to this criticism will hugely "depend on the conception of the core functions of higher education" (Pacho, 2017, p. 76). While most higher education institutions have teaching, research and community service as their main mission, the conception of the mission of higher education institutes is still divided (Pacho, 2017). While some groups of thought believe that the higher education institutions are for the study of texts, pure science and theories which are unhindered by practical realities, another group of thought view that the higher education institute should be committed to democratic values, while serving practical social purposes (Moore, cited in Pacho, 2017). These divisions require the higher education institute to develop a balance between its primary mission in order to "bridge the gap between theory and practice, and the academy and the community" (Pacho, 2017, p. 77).

Generally, critique is viewed as a norm in higher education as it gives room for alternative directions and refinement to arise (Butin, 2010). In this light, these critiques of SL are seen positively by some SL scholars as a means of solidifying the SL pedagogy. For instance, Butin (2010) argued that critiquing SL allows for re-examining and re-thinking of SL as a form of pedagogy and research practices that allow for questioning and doubt that can warrant "students' rethinking of themselves and their views of the world" (Butin, 2010, p. xviii).

2.7 Models of Service-Learning

Reviewing SL literatures reveals a range of models and how SL is interpreted, which influences how it is practiced and implemented. While we keep in mind that South Africa is not obliged to entirely adopt any external model such as the American model, it will be valuable to look at the typologies of SL models differentiated in six types by the Campus Compact as it is one of the organisations that influences SL in USA (Mouton & Wildschut, 2005). The six types of models are namely; pure, discipline-based, problem-based, Capstone courses, Service internships, and Action research models. A brief description of the models as summarised by Mouton and Wildschut (2005) is as follows:

- ‘Pure’ SL: Programmes that fits into this model are those courses that involve students going into the community to serve.
- Discipline-based SL: This involves students having a presence in the community throughout the semester. The students will also have to make use of their course content to reflect on their experiences of the programme regularly.
- Problem-based SL: In this model, students and the community relate with each other as “consultants” and “clients” respectively. This model makes the presumption that students will draw from their knowledge of the community’s needs to make recommendations or rather formulate the solution to the problem.
- Capstone courses: Courses generally designed for final year degree majors of a particular discipline for exclusively final year students. These courses expect the final year students to use the knowledge they obtained from the entire course works done all through the course and combine it with community service.
- Service internships: Students in this model experience a more intensive service than SL programmes. They spend as much as twenty hours per week in community service. The students are usually expected to produce a service that is beneficial to the community. Contrary to the traditional internships, students in this model regularly reflect and analyse their new acquired experiences with their specific discipline theories. This model is also different from traditional internship through it focuses on reciprocity.

- Action research: This model even though new, is very much becoming popular. This model requires students to work with academics that will teach and help them learn research methodologies as they serve as advocates for that community. This model is effective both with small classes and with groups of students. It is an option for a highly experienced community work student who wants to conduct an independent study.

Another model of SL that needs to be discussed is the CHESP model of SL as it was adopted by JET to promote and support SL. In the CHESP model, emphasis is strongly placed on the three stakeholders; institution, students and community in the SL course design, development, and delivery. Also, according to the CHESP model,

“Each course will address a community development priority; should integrate teaching, research and service; will be developed in partnership between community, student, academics and service sector agencies; should be an accredited academic course, and students should spend at least 20% of the notional hours of the course in community-based learning experience” (Mouton & Wildschut, 2005, p. 122).

The quest to understand the notion of SL led to an analysis of over 100 narratives by Mouton and Wildschut (2005). Though the result of the analysis showed that there is no generally accepted view of the characteristics of SL, it is also essential that scholars understand what should be included or excluded in SL programmes/courses as this will reduce the danger of allowing anything that looks like SL to be added in the definition of SL (Mouton & Wildschut, 2005).

2.8 Service-Learning and Education

Educators and legislators believe that SL can improve the community and invigorate the classrooms by providing rich educational experiences for students at all levels of schooling (Kahne & Westheimer, 1996). SL is used from elementary schools to graduate schools and in a wide range of disciplines. The use of SL as an educational tool in schools helps educational institutes not to be seen as only a place where students go and learn, but also as a place that can be useful for community developments.

Most of the educational institutions that implemented SL in their courses, prospects the development of students' civic responsibilities and attitudes (Simons & Clearly, 2006;

Buch & Harden, 2011). Going by arguments from existing literatures, the fact that SL programmes helps apply academic content to real life situations, it aids educational goals by contributing to the academic and personal development of students that participate in it.

Given that this research is conducted under the context of higher education, the next discussion sheds light on SL in higher education with much emphasis on South Africa.

2.8.1 Service-Learning in Higher Education

In today's global world, Higher Education Institutions (HEIs) face the challenge of proving their relevance in community; and also new challenges associated with providing timely and appropriate responses to urgent needs for distributed learning opportunities for all, being held more accountable for their activities and are required to contribute to national economic development (Castle & Osman, 2003). In response to these challenges, HEIs became more intense in the way they are run, in establishing partnerships with industries and commerce, and in strengthening their social purpose through service (Subotzky, 1999).

The purpose of higher education has been debated over centuries, nevertheless it has been generally accepted that the goal of liberal higher education is to forewarn students to lead satisfactory lives and contribute to the common good of the society and otherwise (Colby, Ehrlich, Beaumont, & Stephens, 2003). HE, irrespective of social context and geographical location, undergoes change. The challenge for HE is to understand its history, articulate and accept its role with regards to diverse constituencies in society, and create an "appropriate future" within its social context (Bringle & Hatcher, 2007).

The institutionalisation of SL in HE really involves a complex process that is influenced by a range of factors (Furco, 2007). The inclusion of service is often seen in the mission statements of HEIs; however, the importance of service is rarely visible in the work of HEIs as are research and teaching (Holland, 1997). The role that service can play in HE has been under some revival of interest (Bringle & Hatcher, 2000). Suggestions have come from critical examinations that greater emphasis placed on SL scholarship can enhance faculty work, students' learning, and university community relationships (Boyer, 1996; Bringle *et al.*, 1999; Harkavy & Puckett, 1994; Rice, 1996). Boyer (1996)

emphasised on the importance for HE to develop scholarship in connection with community service. According to him,

“The academy must become a more vigorous partner in the search for answers to our most pressing social, civic, economic, and moral problems, and must reaffirm its historic commitment to what I call the scholarship of engagement” (Boyer, as cited in Bringle & Hatcher, 2000, p. 20).

It is presumed that taking part in community projects by the HEIs can create in the students a sense of identity with others in society, and implementing service in learning should be a lifelong activity that wasn't forced on students (Leung, Tsai, & Wang, 2010). SL is aimed at the use of one's skills in serving the community, in a way that relates to one's academic course; it has an objective of bringing the community concepts into the classrooms (Lin, Wu, Wu, Pan, & Liao, 2014).

2.8.1.1 Service-Learning in South African Higher Education

HE is one of the most important activities organised in modern societies. It creates a demanding but rewarding environment in which individuals may realise their creative and intellectual potential. Through high-level training across the disciplines, it equips people with the necessary knowledge, skills, and values to play a wide range of social roles and to become effective citizens. Through research and the production of knowledge, HE provides a society with the capacity to innovate, adapt, and advance.

“.....the ability of any higher education system to discharge these functions - to meet people's learning needs, to develop and transmit appropriate skills, and to create relevant and useful knowledge - is a key index of a society's cultural, social, and economic vitality and well-being. There is a high correlation, globally, between excellent HE and overall national achievements in development, growth, competitiveness, and welfare” (*Green Paper on Higher Education Transformation*, (DoE, 1996) p.2).

The existing HE system in South Africa is profoundly shaped by its past. A highly unequal society evolved during the centuries of colonialism and exploitation; it was stamped with extreme forms of segregation and discrimination during the decades of apartheid. Racial differentiation and discrimination within HE created a divided and

fragmented system (Green Paper on Higher Education Transformation, p.9). With these reasons, South Africa is faced with the crucial challenge of ensuring that HE can play the role of stimulating, directing, and utilising the creative and intellectual energies of the entire population.

Given the South African history of apartheid, South African universities are expected to respond to the social, political, economic, and cultural needs of the society through their academic programmes, lectures, and students. Growing discussions were on about linking SL and community engagement as a form of encouraging community-engaged teaching (Ellison & Eatman, 2008). This was the driving force for SL as a specific form of academically based community engagement (Osman & Petersen, 2013). A number of South African colleagues convened and with the support of JET services and CHESP projects, revolutionised approach to instruction and institutions' views towards off-campus communities.

Since the release of the White Paper, JET Education Services (formerly Joint Education Trust) has been actively involved in research and development initiatives to advance community engagement in South African HE resulting in release of two publications. In 1999, JET launched the Community Higher Education Service Partnership (CHESP) initiative. The aims of this initiative were:

- i. To support the development of pilot programmes that explores the potential of community engagement as an integral part of the core academic functions of Higher Education Institutes (HEIs).
- ii. To monitor and evaluate these programmes; and
- iii. To use the data generated through this process to inform HE policy and practice at a national, institutional, and programmatic level.

During this period and in response to the White Paper, HEIs developed mission statements which identified community SL to aid civic responsibilities (Subotzky, 1999). The Green Paper articulated the goals for HE and the need for co-operation and partnership between HEIs and the wider society. The South African Higher Education Act (1997) gives effect to the recommendation of the White Paper and makes provision for the establishment of the HEQC as a permanent subcommittee of the CHE. In return,

the HEQC gave effect to the goals of the White Paper with regards to the Community Service programmes.

To date numerous South African HEIs have conducted their own internal audits of community engagement activities. Some HEIs have developed institution-wide policies and strategies for community engagement, allocated resources for the implementation of these strategies and developed academic programme that include community engagement, particularly in the form of SL. According to the white paper, community service programmes should promote an awareness of the social and economic development role in HE and broaden participation in social interests and needs (DoE, 1997). SL as a pedagogy is an ideal means to promote such awareness.

Although developing good citizens is not a new role for HE as there are numerous pedagogical approaches for civic learning, for example, classroom instruction on civics, moderated discussions of current events, students' governance, community activities, and simulations (Levine, 2003), the emergence of SL has heightened attention to the nuances of the civic domain and social responsibility as a set of intentional educational objectives to be addressed seriously in HE (Astin & Sax, 1998).

SL may be included in HEI courses as a separate course with focus on SL (Anderson, Swick, & Yff, 2001) or as a strategy for academic concepts in disciplines like education (Chen, 2003; Swick & Rowls, 2000). The institution under this research implemented the latter as SL was for academic concept in a biology module in the school of education of the institution.

2.8.2 Service-Learning and Teacher Education

Schools of Education face the daunting task of equipping new teachers to function effectively in the schools they will be teaching in and they must be educated to take the lead role in improving the schools (Anderson *et al.*, 2001). SL has the potential to achieve these goals.

In the South African context, the ANC government during the 1990s introduced some educational policies that brought about a shift in the role of teachers and the school with regards to national development. This shift could be seen in the new *Norms and Standards for Educators (Government Gazette 2000)* and it is about linking social development to the whole school development (Castle & Osman, 2003). Amongst the

seven roles and competencies set out for educators is a “community, citizenship and pastoral role” (Castle & Osman, 2003, p. 108).

Some literatures have noted the pre-service teachers who participated in SL are more likely to have increased self-esteem, increased service knowledge, increased self-efficacy and increased knowledge with people (Yoder, Retish, & Wade, 1996).

Anderson and Hill (2001) cited some common reasons why SL is included in pre-service teacher education. The list of these reasons is as follows:

- **Preparation to use Service-Learning as pedagogy:** A pre-service teacher who received instructions and took part in a SL programme, is likely to use SL as pedagogy with her students.
- **Achievements of teacher education standards:** taking part in a SL programme can help a pre-service teacher meet a number of state and national standards of teaching.
- **Familiarity with education reform initiatives:** with SL, pre-service teachers get experience with several key components of educational reforms. SL also helps teachers develop a democratic classroom in which the teacher serves as a facilitator who engages students in decision making.
- **Personal and social development:** SL places pre-service teachers in direct contact with a real-world setting where they deal with challenging situations while serving the community. This aspect of SL can be an effective means for the enhancement of personal growth, self-awareness, moral and ego development.
- **Democratic citizenship:** Pre-service teachers are in the best position to prepare their students for informed, active citizenship by using themselves as living examples of active citizens.
- **Social justice and appreciation of diversity:** While implementing a SL project, pre-service teachers can gain increased respect for human differences and subsequently teach their students to live peacefully with people especially those that are different from them.
- **Critical inquiry and reflection:** The teacher education faculty can use pre-service teachers’ experiences to explore ethical dilemmas evident in teaching and social reconstruction.

- **Career exploration:** being involved in a SL project as a pre-service teacher can help clear any doubt of whether teaching is the right profession for them. (Anderson & Hill, 2001, p.6).

2.8.3 Suggestions for integrating Service-Learning into Teacher Education

From the discussion in 2.8.2, it is evident that SL is beneficial to teacher education; hence Erickson and Anderson (1997) gave some suggestions on how to integrate SL into teacher education programmes. Top on the suggestion list is spending time with the pre-service teachers to “develop an understanding of the key principles of effective service-learning practice” (p. 7) with particular focus on distinguishing among SL, service, internships, and field education (Furco, 1996) as this area contributes to the confusion in SL (Erickson & Anderson, 1997).

Another suggestion, is to give pre-service teachers the opportunity to have an input in determining details of their placements (Erickson & Anderson, 1997). In a flexible SL project, pre-service teachers are allowed some decision-making authorities, they may be allowed to choose their individual or group sites and choose their target groups. If the SL programme is highly flexible, the students may be allowed to decide on the amount of time to spend conducting the service for the SL project (Long, Larsen, Hussey, Shirley S. Travis, & Ann, 2001).

SL project with flexible choices normally operates with proper documentation of the students’ choices by the instructor. The students will thereafter document their progress in a log sheet signed by the students and site supervisor (Long *et al.*, 2001). Due to this, reflection diaries became the means by which faculty members monitor students’ use of their stipulated time (Cooper, 1998).

Next on the suggestion list is the emphasis on service in programmes with pre-service teachers, putting importance on helping others and problem solving as a part of citizenship. It was noted that most pre-service teachers’ placements are guided on experiential learning context, but not highlighting the principles of service (Erickson & Anderson, 1997).

Furthermore, integrating SL into various teaching courses results in positive experiences for pre-service teachers (Wade, 1995). For instance, as mentioned earlier,

the SL project under research is a part of a module in a teacher education institute. The institute also conducts a student-teacher experience which can be seen as SL as it gives the pre-service teachers both SL and teaching experience.

Last on the suggestion list is extending SL project implementation time on the sites. This argument is based on the view that quality SL projects takes time to be planned and implemented, so does relationships between pre-service teachers and community members (Erickson & Anderson, 1997). This time factor was one of the named challenges the pre-service teachers on the SL project under research complained about.

2.9 Service-Learning Projects

SL projects are hands on experience and learning uniquely blended (Jacoby, 1996), having reflection as a link between experience and learning (Eyler & Giles Jr, 1999). Students are made to work on site in a community that influences the skills, didactic and attitudinal aspect of their education (Parker-Gwin & Mabry, as cited in Long *et al.*, 2001) through service that benefits them and the service recipients (Furco, 1996).

From a review of difference SL programmes in various disciplines, Long *et al.* (2001) developed a multidimensional continuum to describe SL projects. This continuum is made up of four perspectives which are:

- The amount, duration and type of SL experience offered;
- The amount of choice students have in selecting experiences;
- The type and amount of supervision provided to students; and
- The amount of internal and/or external oversight applied to SL experiences.

Most of the SL projects fall in the middle range of this continuum as it is said to have very flexible and rigid ends respectively; one end of the continuum can be very rigid even though the other end is flexible (Long *et al.*, 2001). The SL projects under this study were skewed towards the flexible end. The pre-service teachers chose their respective placement sites and fit in their scheduled implementation hours according to their schedules. The service activities in the communities were done during the pre-service teachers' free periods and service hours ranging from 2 to 5 hours per week. Although the pre-service teachers are not given a formal training for the SL programme,

they have an orientation meeting whereby a guest speaker or a senior lecturer discusses what is expected of them before they embark on the SL programme.

2.10 Theoretical Approach

SL is a pedagogy that is grounded in experience and reflection as a basis that enables learning to occur; hence the theoretical framework of this research is based on the experiential learning theory. The experiential learning theory argues that experience is essential to any meaningful learning as it connects theory and practice. Boud, Cohen, and Walker (1993) on experiential learning theory, point out that; experience is the central consideration of all learning; learning builds on and flows from experience and that “learning can only occur if the experience of the learner is engaged, at least at some level” (p. 8).

2.10.1. Experiential Learning Theory

The quest to make experience educative goes back to John Dewey (1938) and David Kolb’s (1984) theory that is often cited in SL and will also be used in this research as a theoretical framework hence both theories are discussed simultaneously in this section. The theoretical and pedagogical roots of SL can be traced to Dewey’s theory of experience and education which includes his ideas of learning from experience and also linking school to community (Dewey, 2011). The influences of Dewey’s work on philosophy and epistemology led to new ways of thinking about education as actively connecting knowledge to experience through engagement and reflections on the world exclusive of classroom (Ash *et al.*, 2005). Although the phrase “service-learning” was not formed by Dewey, he has always been associated with SL pedagogy, which earned him the name “father” of SL (Zentner, 2011).

Similar to Dewey, the theoretical thoughts of David Kolb and Donald Schon on the importance of reflective thinking in experiential education have hugely influenced how pedagogy integrates reflection on service as integral to SL (Eyler *et al.*, 1996).

Kolb’s (1984) experiential learning cycle makes provision for a very strong theoretical framework for SL research. The learning cycle is influenced by interdisciplinary theorists like John Dewey (educational), Jean Piaget (developmental psychology) and Kurt Lewin (social psychology) (Petkus Jr, 2000).

According to Kolb's cycle process, reflection on concrete experiences, active experimentation, and thoughtful observation aids reflective activities prior, during and after SL activities (Kolb, 1984). He also believes that adults learn differently from children as most learning in adults occurs in natural settings rather than in a formal setting or institution.

The experiential-learning theory is coached along fundamental assumptions that include, but not limited to the following:

1. Students are involved in more than listening (Astin, 1999).
2. Reflection is necessary when students are to make sense of information (Silcox, 1993).

Correspondingly, Smith (1980, p.10) opines that Learning by doing (or experiential learning) is based on these assumptions:

1. people learn best when they are personally involved in the learning experience;
2. knowledge must be discovered by the individual if it is to have any significant meaning to them or make a difference in their behaviour (Smith, 1980).

This helps the student develop himself beyond what ordinary classroom experience would have offered. Using an active learning environment can enhance the integration of practice and theory in the classroom. Active learning may be viewed as using instructional activities involving students doing things and thinking about what they are doing.

In fact, professional programmes must prepare students to become professional practitioners in their chosen field of practice. The students should develop an appreciation of the importance of both classrooms, field educational experiences, and learn that there is nothing more practical than a good theory. While experience is a great teacher, it cannot replace what can be best taught in a classroom and vice versa. A case could be made that the best learning environment is created when these two learning modalities are integrated within a course rather than partitioned throughout multiple courses in the curriculum. What do we gain by integrating practical experience into a course primarily structured around the modality of classroom learning?

Emphasis should be made that through its humanistic connection of experiential-learning theory, the concept of experience also has an ideological function: faith in an individual's innate capacity to grow and learn. This is what makes it particularly attractive for education theorists and for the idea of lifelong learning. Kolb's theory of experiential learning is best known through the four stages model: concrete experience, reflective observation, abstract conceptualisation and active experimentation (Kolb & Plovnick, 1974).

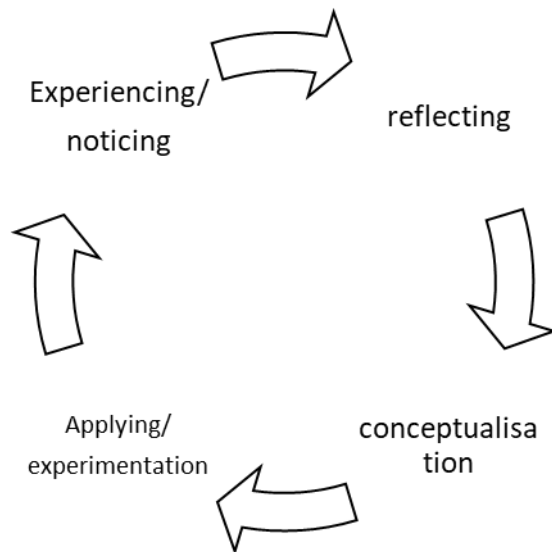


Figure 2. 3: Kolb's experiential learning cycle (Petkus Jr, 2000)

Fig. 2.2 above shows Kolb's experiential learning cycle which are in stages. Noting that in the context of SL, Kolb's experiential cycle is not linear as it is reflected on the Figure above but it is been conceptualise as iterative instead in this research. Though four learning roles are assigned to these stages, there is no definite starting point for the stages; however, Kolb noted that learning is most effective if the student goes through all points, irrespective of the students' starting point (Petkus Jr, 2000). Below is a detail of what the four stages of Kolb's experiential learning cycle involves:

- Concrete experience - Evokes feeling: sensory and emotional for some students in some activities.
- Reflective observation – making connections not necessarily of SL: watching, discussing, listening, recording, and elaborating.

- Abstract conceptualisation – in-depth thinking, integrating theories and concepts into learning process.
- Active experimentation – doing phase; trial and error process of all the accumulated sensory experience, reflection, and conceptualization in a given context.

(Petkus Jr, 2000, p. 31)

These four part learning cycle is used in various fields as a means to align learning and also to provide an assessment structure for the learning (Erickson & Anderson, 1997). The concept of SL thrives on Dewey's notion of "learning by doing" which was popular among educationists in the USA (Lin *et al.*, 2014). Consciously or unconsciously, SL reflects the influence of Dewey and it is important that we make the influence obvious so as to truly know how useful John Dewey's theory is (Giles Jr & Eyler, 1994). While reviewing the theoretical elements of John Dewey, Giles Jr and Eyler (1994) noted that the theory "can give specificity to service-learning research and theory", and it is a "very good fit with the general understandings and claims of service-learning" (p. 82).

John Dewey's experiential learning theory is centred on two guiding principles: the principle of continuity and principle of interaction. According to Giles Jr and Eyler (1994), The principle of continuity is the "linear dimension of experience and learning derived from the continuity of experiences" (p. 79), and the principle of interaction is "the lateral dimension of experience where the internal and objective aspects of experience interact to form a situation" (p. 70). Similarly, Kolb explains that "...concrete experience focuses on being involved in experiences and dealing with immediate human situations in a personal way" (Kolb, 1984, p.68). It can be deduced from Dewey (1934) that experience is a by-product of continuous interaction of self with the world, which results to participation and communication that leads to one being an active participant in the world rather than a spectator.

Dewey laid emphasis on the necessity of connecting institutes of learning with the communities. He suggested that for this to happen, there should be various points of contact between the community and the school socially (Dewey, 2011). This connection can be boosted through SL. In the HE field, some group of educators, faculty members, and administrators see experiential education as a way to revitalise the university curriculum and perhaps cope with the many challenges of HE. According to Dewey, the

essential purpose of education is to prepare students as adults that can function productively in a democratic society of equal opportunity irrespective of class, gender or race (Dewey, 1938).

2.10.2. Implication of Theory to Service-Learning

McEwen (1996) detailed three implications of Kolb's experiential learning theory for SL. Firstly, Kolb noted the importance of the SL involving all four stages of the learning cycle; and secondly, the model highlighted the importance of reflection for the learning process. Lastly, the model proposes the integration of "direct learning experience and the abstract generalization, with reflection as the linking function" ; SL can be applied to each stage in the cycle (Petkus Jr, 2000, p. 65).

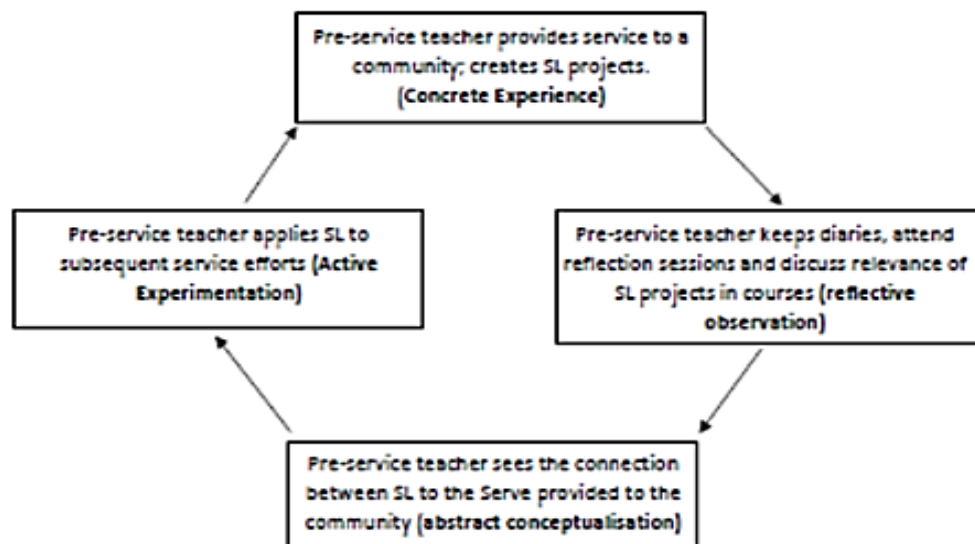


Figure 2. 4: An example of a pre-service teacher's progress through experiential learning cycle (Petkus Jr, 2000)

As the starting point for his philosophy of experience and education, Dewey stated the principles of continuity and interaction. The implication of this for SL is that all experiences influences future experiences in one way or the other (Dewey, 1938). Dewey's principle of interaction also builds on his principles of continuity and has an implication on the student and what is learned, shedding light on how past experience together with the present situation create a student's present experience (Dewey, 1938).

2.11 Service Learning In Higher Education Based On Experiential Learning

According to experiential learning model, learning is the process of creating knowledge through transformation of experience; knowledge is a result of combining the experienced grasped and the transformation of that experience grasped (Kolb, 1984). It is assumed that one rarely learns from experience unless the experience is assessed and meaning assigned to it with regards to ones' goals, expectations, aims, and ambitions (Smith & Mckitrick, 2010).

From the point of Dewey (1938), experiential learning intends that learning is done by direct participation in the activity. Emphasis is placed on the learning derived through experiences generated within and outside the classroom. Experience being “trying to do something and having that thing perceptibly do something to one in return” (Dewey, 2011, p.85). Dewey (2011) opines that education is not an affair of ‘instructing’ and being ‘instructed’, but rather an active and constructive process. Based on these, experiential education has become widely accepted as a method of instruction and a lifelong task necessary for personal development and career realisation in institutes of learning (Kolb, 1984).

The importance of experiential education is in its ability to offer “opportunity for facilitating transformative learning, teaching on social responsibility, citizenship, public policy, and the social economy, and for upholding a commitment to the principles of mutuality and reciprocity between schools and communities” (Smith & Mckitrick, 2010, pp. 57-58).

Singh-Pillay (2015) who focuses on technology pre-service teachers opines that engaging pre-service teachers in SL as form of experiential education will yield to pre-service teachers graduating with set values as they will not only be “technically competent but also disciplined in attitudes, values and behaviors that allow them to participate as critical citizens in our democracy. While developing their knowledge and skills pertaining to technology education, PSTTs will have been able to reflect on their roles as educators in a broader community and as agents of change in that community” (Singh-Pillay, 2015, p. 173).

SL is guided by the experiential learning theory which was originally inspired by Dewey but popularised by Kolb (1984). Dewey argued that:

“When education.... fails to recognize that primary or initial subject matter always exists as a matter of an active doing, involving the use of the body and the handling of material, the subject matter of instruction is isolated from the needs and purposes of the learner, and so becomes just a something to be memorized and reproduced upon demand. Recognition of the natural course of development, on the contrary, always sets out with situations which involve learning by doing.” (Dewey, 2011, p. 103)

Dewey’s position on experiential education is corresponds with Meyer’s (2017) who opines that information is better when it is integrated in our various activities and way of life; and it is bad when there isn’t any contact between information and experience.

According to Kolb (1984), experiential learning is a means to revive the HE curriculum and to cope with the numerous challenges facing HE. Kolb argued that:

“Experiential theory offers the foundation for an approach to education and learning as a lifelong process that is soundly based in intellectual traditions of social psychology, philosophy, and cognitive psychology. The experiential learning model pursues a framework for examining and strengthening the critical linkages among education, work, and personal development. It offers a system of competencies for describing job demands and corresponding educational objectives and emphasizes the critical linkages that can be developed between the classroom and the ‘real word’ with experiential learning methods. It pictures the work place as a learning environment that can enhance and supplement formal education and can foster personal development through meaningful work and career-development opportunities. And it stresses the role of formal education in lifelong learning and the development of individuals to their full potential as citizens, family members, and human beings.” (Kolb, 1984, pp. 3-4).

The implication of these opinions, is that modern curricula should incorporate experiential learning and also relate teaching to everyday life to make learning relevant to students (Pacho, 2017). Another implication of experiential learning to education and SL is that educators are challenged to equip students with quality experiences that will give rise to growth and creativity, while adhering to Dewey’s principles of continuity and interaction. Additionally, educators are urged to provide students with questions that will inspire them to reflect, conceptualise, and test ideas in situations (Kolb, 1984).

The growth and acceptance of experiential education as a method of teaching does not go without critics. “Some view it as gimmicky and faddish, more concerned with technique and process than content and substance, and often appearing too thoroughly pragmatic for the academic mind, which is dangerously associated with the disturbing anti-intellectual and vocationalist trends (Kolb, 1984, p. 3). There is also a growing concern around the development of theory that is specific to SL (O’Brien, 2005).

In addition, placing too much emphasis on hands-on activities can compromise the experiences generated through reflection. Therefore, it is important that a balance is placed on both practices (theory and practice) through reflection and critical thinking.

2.12 Principles of Service Learning

SL advocates noted a consistent articulation of criteria for SL to be legitimate and useful. Jacoby (1996) is of the view that “reflection and reciprocity are the key elements of SL” (p. 5). These elements which are considered as principles of SL are intended to bolster SL and civic responsibility, address community needs and support mutually beneficial university-community partnerships (Bringle & Hatcher, 1996; Butin, 2010; Eyler & Giles, 1999).

2.12.1 Reflection

There are various views that supports reflection in SL. Dewey (1938) views reflection as “the heart of intellectual organization and of the disciplined mind” (Dewey, 1938, p.87). He further opines that reflection is the ability to mirror back on what was done in order to sieve out the clear meanings. On the other hand, Schon (1983) posits that reflection is the ability to look back on an action to be able to engage in continuous learning. This view corresponds with Bringle and Hatcher’s (1997) view that reflection is when one intentionally considers an experience for the purpose of particular learning objectives.

According to Dewey (1933), reflective thinking is the “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends...” (p. 9). Reflection is a process in which students think about the service experience and analyse the situation and connect the experience with their coursework. It can be carried out through reading, writing, doing, or telling. It is a key ingredient in service learning as it connects the

service and the learning thereby differentiating it from other community-service programmes.

A number of SL scholars have emphasised on the necessity of reflection as a link between service and learning (Bringle & Hatcher, 1995; Jacoby & Associates, 1996; Eyler & Giles, 1999; Howard, 2001; Sheffield, 2011). Most definitions of SL emphasise that it is a teaching method or pedagogy that incorporates academic learning and organised community service experiences. According to Burnett, Hamel, and Long (2004), the ‘service’ in SL is integrated into the course and learning takes place through structured opportunities for students to connect their service activities to the course curriculum and to broader social issues through reflective methods. Similarly, Butin (2010) stated that if a course requires students to accomplish a given timeframe in service within a community and reflects on the experiences through either journal writing or essay, that course is therefore considered a SL course, noting that the service experience leads to academic learning through reflection (Eyler & Giles Jr, 1999; Hatcher, Bringle, & Muthiah, 2004b).

Continuous reflection prevents students from resisting the implications of inconsistencies in their assumptions and their current frames of reference. The value of students’ reflection during SL module is borne out of several literature studies. For instance, Mezirow (1994) wrote about the advantages of reflection in developing cognitive structures for understanding the world. He noted that reflection helps students to develop adequate meaning structures, which are divided into two categories: meaning schemes (beliefs, concepts, and judgements) and meaning perspectives. Similarly, Blanchard (2014) stated that reflection is a tool that SL uses to integrate critical and creative thinking in students, to evaluate and understand what they did, learned and how the service affected them and the community at large. This also corresponds to Saltmarsh’s (1996) view that reflective enquiry critically connects and breaks down the distinction between “thought and action, theory and practice, knowledge and authority, ideas and responsibilities”; it provides opportunity for the creation of meaning from associated experience (Saltmarsh, 1996, p. 18).

Dewey who laid the foundation of reflection in SL believed that students are always in the process of constructing new meanings as they move between reflection and action (Dewey, 1910) . In other words, through reflective enquiry actions are transformed into

experiences, which are in turn transformed into learning. While reason is at the forefront of the reflective process, Dewey also felt emotion plays a significant, but subtle role. According to Dewey, reflection might be triggered by a state of confusion, difficulty or doubt (Dewey, 1910). Dewey's model of the reflective process set a precedent for later theorists and practitioners such as Schon (1983) and Kolb (1984), proponents of reflection in teaching, practice, and research.

In SL, phrases such as reflection, reflective practice and reflective activity are commonly used in place of another to mean the same thing. For reflection to be a success in SL, there are a number of guidelines to follow. For instance, a well-designed reflection activity according to Bringle and Hatcher (1996) needs to have the following components:

- i. intentionally link the service experience to course-based learning objectives;
- ii. Be structured and include both private and public reflection;
- iii. Occur regularly within the programme;
- iv. Allow for feedback and assessment; and
- v. Include the clarification of values.

On the other hand, Eyler and Giles (1999) opine the framework of connection, continuity, context, challenge, and coaching otherwise known as the 5Cs, as an important guideline for an effective reflection in SL. In addition to the above criteria for good practice and for effective reflection, a reflection should foster civic responsibility, challenge the students and provoke more critical thoughts (Eyler *et al.*, 1996). These two guidelines suggested above by the SL scholars Bringle and Hatcher (1999) and Eyler and Giles (1999) accentuated the importance of providing feedbacks, regularity and connecting reflection to academic course (Hatcher *et al.*, 2004).

I believe reflection being a critical part of this SL project under research was not only because it was one of the criteria for SL programmes, but also because the pre-service teachers were mostly working within a rural community and are exposed to circumstances that can influence their lives in the future. This SL project under research involved a comprehensive approach to reflection that took place in the classroom and in the SL project sites.

2.12.2 Reciprocity

The notion of reciprocity is present in the three principles of SL offered by Sigmon (1990, p. 57) which are: “Those being served control the service/s provided; those being served become better able to serve by their own actions; and those who serve also are learners and have significant control over what is expected to be learned.” All the parties, whether the server or the served benefits.

Reciprocity is noted as a key feature both to SL programmes and to pedagogy that supports SL activities. Anderson and Hill (2001) list reciprocity as one of the principles for SL in teacher education. They argued “reciprocity and mutual respect should characterize the collaboration among teacher education programs” (p. 76). This process of reciprocity and mutual respect will enable the students to see the recipient community as one that has something to give rather than the one that only receives.

Reciprocity is hugely recognised and rooted in SL. It is said that if awareness of mutual benefit between the service giver and recipient is not recognised, that will be interpreted as SL falling short as an educational tool (Greene, 1998). In emphasising the importance of reciprocity, Dorsey (2001) stated that the university-community partnership in form of SL does not only benefit students in career-building experience, and community agencies who engage in assistance from universities to realise their project aims, but also the faculty that is seeking fulfilment of community service requirements as part of their academic duties.

Often, reciprocity in SL refers to reciprocal relationship among professionals across community agencies responsible for creating SL partnerships rather than the people providing and receiving service. This research focuses on reciprocity at the individual (pre-service teachers) level.

SL involves serving another and gaining from the service. It is designed to be a ‘win-win’ situation whereby students who serve gain, as well as the community served. Over the years, the notion of reciprocity as giving and receiving between SL parties has consistently featured in research the results of SL experiences (Gelmon, Holland, Seifer, Shinnamon, & Connors, 1998; Greene, 1998; Jacobi, 2001; Skilton-Sylvester & Erwin, 2000).

2.13 Conclusion

This chapter covered different literatures that address various aspects of SL. The literature reviews show that SL is built on service, reflection, learning, and reciprocity. From the above reviews, it was evident that SL models tend to put more emphasis on students than communities. Literatures reviewed noted that SL provides many opportunities for HEIs to enhance their public image, become socially responsive and engage with communities, while enhancing the quality and the learning experience for students. Outside the confines of a lecture room, students are given the opportunity to become responsible citizens. SL provides opportunities to integrate teaching, research, and service in HEIs and presents means to actualise the various national policies' aims at social construction and development levels.

Literatures reviewed in this chapter indicate that SL gives rise to growth and transformation in student development such as students' learning and personal development (Bringle & Hatcher, 2000; Conway *et al.*, 2009; Eyler & Giles, 1999). However, more research is needed in various areas of SL to boost the understanding and knowledge of SL among scholarship. Similarly, to grasp the complex experiences of service learners, studies need to include an expanded collection of qualitative methods of research. Recommendations for further research can influence the practice and understanding of the possibilities and limits of SL as a plan for producing benefits that goes beyond improving student learning and civic outcomes (Gerstenblatt, 2013). Whilst outcomes are good as they provide institutional support to SL programs, important information can be overlooked while trying to quantify experiences that might be farfetched (Gerstenblatt, 2013).

In the reviewed literatures, recommendations were also given for further qualitative research that are aimed at understanding the SL experiences both for students, community agencies and community members working alongside students. Attention on international SL and graduate programs was also recommended. Finally, further research need not lose focus on the roots and ideals of SL as the aims of a civic-mind education extends beyond what students benefit but to the greater good of a fair and just society (Saltmarsh, 1996). The next chapter provides the methodological framework for my research.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

Research, especially fundamental or basic is different from evaluation, as research has its primary aim to produce or test theory and contribute to the body of knowledge. Such knowledge generated and the theories may subsequently inform action and evaluation; nevertheless, action is not the main purpose of fundamental research (Patton, 2002).

This chapter explains in detail the research design and methodology used in the research. A research design and methodology are the philosophy or the general principles that guide the research (Dawson, 2009). The chapter describes the type of research, the method of data collection and analysis, and the techniques of sampling employed in the process of gathering the data, used to answer the two research questions. It also describes the ethical issues involved in the research, the limitation of the research and the credibility of the research methodology. In choosing the research methodology, the aims of the research and the questions to be answered needed to be at the forefront, since they influence the methodology to be used (Lewis & Ritchie, 2003).

3.2 Research Paradigm

A paradigm is a conceptual tool that frames the interpretation and beliefs of a social science research such as the current study. It is a “lens through which individuals see the world” (Neuman, 2006, p.13). For this research, the interpretivist paradigm was used because this research aims to understand the subjective world of human experience/s. The human experience/s in this instance is the SL project done by the student teachers. In order to analyse the SL projects, the researcher had to understand the projects and based on the student teachers’ point of view, generate meaning from the collated data (Neuman, 2006).

Bertram and Christiansen (2014) go further to contend that people behave and respond in more complex ways than plants or chemicals. The way in which a person responds in each situation depends largely on their experiences and circumstances. It is recognised that results are not “out there” waiting to be found or discovered by the researcher, but they are created through interpretation of data (Lincoln & Guba, 1989)

which then presupposes that a desire to understand the meaning that drives this human behaviour is apt.

According to Cantrell (1993) interpretive researchers are keen to understand the meaning people make of daily occurrences and how they interpret these within the contextual social and natural setting that they find themselves. Interpretive research regards people as agents of creation of meaning in their settings and these meanings are valuable and useful for research (Davis, Van Rensburg, & Venter, 2016). Such an approach acknowledges that people's interpretations and interactions with their situations create reality.

In addition, interpretivist paradigm focuses on the person or object so as to understand the phenomena that is investigated from the person or object (Cohen, Manion, & Morrison, 2007). With respect to this research, the phenomena investigated was the SL aspect of the SL programme conducted by the student teachers of Bio 420 module and the objects are the reflection journals, SL project reports and BIO 420 module outline. I selected this paradigm "to make sense of the object of research by iterating between understanding of the object as a whole and understanding of its parts" (Darke, Shanks & Broadbent, 1998, p. 13). In other words, I wanted to understand the SL projects as narrated in the pre-service teachers' SL project reports, and reflection journals by knowing what type of projects were conducted and why they were done in particular ways.

The interpretative paradigm supports the qualitative angle that the research took as expressed by Yilmaz (2013) that the interpretive paradigm offers a world-view consonant with qualitative research. Qualitative research explores socially constructed phenomena and treats reality as dynamic, flexible, holistic, and context sensitive; however, the interpretive paradigm sees the world as constructed through the social experience of subjects.

3.3 Research Approach

The qualitative and quantitative researches take different routes in methodologies. The quantitative research uses survey and demographic data that in turn yields quantitative data to seek for facts and causes with the intention of establishing a relationship between defined variables (Pacho, 2017). Contrarily, the qualitative research uses methods

which include the collection of data from people's experiences to produce descriptive data. Qualitative research provides a thorough understanding of the world as seen through the eyes of the people being studied and aims not to impose preordained concepts. According to Creswell (2008), Qualitative research is not generalizable to a population, but develops an in-depth exploration of a central phenomenon. In this context, the current research does not aim to generalise but will make purpose and intent paramount.

“The word qualitative implies an emphasis on the qualities and on processes and meanings that are not experimentally examined or measured. Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry. Such researchers emphasize the value-laden nature of inquiry. They seek answers to questions that stress how social experience is created and given meaning” (Denzin & Lincoln, 2013, p. 17).

This research used the qualitative approach because of the raw data generated in words, unlike the quantitative approach (Kreuger & Neuman, 2006). This research is also based on a qualitative design because it employs a deductive strategy which Creswell (2003) describes as based on predetermined or preconceived ideas and not on perspectives that emerge from the data itself. Similarly, data generated in this research from the written narratives (SL projects and Reflection Diaries) were interpreted with pre-decided themes.

While this research employed the qualitative approach, it also incorporated the case study design and the experiential learning theory to analyse data. Adopting the qualitative approach was suitable for the study as it was intended to make sense of people's experiences, behaviour, perception and attitudes in a particular cultural context (Clissett, 2008). The use of qualitative research method in this research to gather, record and analyze the data, yielded rich data and results which were possible through interpretation, rich descriptions and illuminating experiences on the SL projects done by the pre-service students. This supports the view that qualitative research attempts to collect rich descriptive data with regards to a particular phenomenon for the purpose of deep understanding of what is studied (Nieuwenhuis, 2007).

Since the current research aimed at providing an in-depth account of the SL projects as conducted in a given tertiary institution, a qualitative research method was imperative as this research used document analysis to collect data, which is both in-depth and naturalistic. It involved narratives of experiences in the form of diaries and projects from different sources and scenarios and could only be captured best in qualitative research.

Qualitative research makes use of labels or names to identify and distinguish categories. Though some categories can be labelled with numbers unlike in the quantitative approach, those numbers do not possess the characteristics of the numbering system. This implies that the numbers in qualitative research cannot be used mathematically but can be used to calculate percentages, for example, of a given category like the percentage of standard in terms of those that met the standard and those that did not. The presentation of data in qualitative research can be through various forms unlike in quantitative research whereby data presentation is narrowed down to charts, tables, and graphs in percentages and proportions (Pacho, 2017).

Qualitative research has its own tenets and can be downgraded, upgraded, or excluded per the quality of the evidence and sampling that they contain (Cohen, Manion & Morrison, 2011). Charmaz (2006) opines that qualitative research has one good advantage over quantitative research; that new pieces of information can be added or removed while gathering data or even when analysing the data. This flexibility allows the researcher to follow emerging leads (Charmaz, 2006). However, qualitative research is disadvantaged from limited sample size which affects its data from being generalisable beyond the selected sample (Boyce & Neale, 2006). Inversely, its counterpart, the quantitative research, uses statistical sampling technique to summarise its data which represents an entire population sample giving room for generalisation.

3.4 Research Style

A research style is expected to reflect useful ways a researcher can obtain his/her desired results (Bertram & Christiansen, 2014). With respect to styles and based on what the research is about, a research can take the form of ethnographic, action, participatory or case study research. Therefore, this research takes the form of a case study.

3.4.1 Case Study Research

A case study research can be broadly defined as a process of conducting a systematic and critical inquiry into a specific phenomenon of the researcher's choice to generate data to contribute to the knowledge of a specific field. Yin (2003, p. 2) defines the case study research as, "an approach allowing investigators to retain a holistic and meaningful characteristic of real-life events". However, according to Maree (2007), a case study research provides the richness and depth of descriptions from the participant's point of view. Leedy and Ormrod (2005) argue that a case study research allows for the pursuit of an in-depth data gathering for learning more about an unknown or poorly understood situation over a defined period. Furthermore, it is very instrumental when one wants to unearth new and deeper understanding (Lapan, Quartaroli & Riemer, 2012).

For the purpose and focus of this research, a case study research style was found suitable, as an analysis of case study research gives a "bird's eye" view that leads to the desired aim. Since it was the researcher's intention to understand the SL project on its own as done by a group of undergraduates and feeling that it is a unique programme that needs to be understood more; it became imperative that my research the study take the form of an intrinsic case study research that analysed the SL project taken in this Higher Education Institute (HEI) chosen.

In the same vein, Cohen, Manion and Morrison (2011) opine that case studies can establish cause and effect; indeed, one of their strengths is that they observe effects in real contexts.

Creswell (2007) explains that the case study research provides a comprehensive examination of a single example and delivers a unique illustration of real people in real situations.

According to Merriam (1998), a case study does not have any particular method of data collection; therefore, any method of data collection may be employed to address the research question posed. Case-based research leads to detailed data about phenomenon being studied, no matter the research method employed.

Simons (2009, p. 23) outlines some of the following strengths of using a case study research design:

- It can allow the researcher to document multiple perspectives, explore contested viewpoints and to explain how and why things happened.
- It is useful in exploring and understanding the process and dynamics of change, through closely describing, documenting and interpreting events as they unfold in the ‘real life’ setting; it can determine the factors that were critical in the implementation of a programme or a policy and can help analyse the pattern and link between them.
- Case studies are flexible, that is, neither time dependent or constrained by method. It can be conducted in a few days, months or several years and can be written up in different forms and length, appropriate to time and scale.

It is important as a researcher to acknowledge some potential limitation that case study research presents. These are highlighted by Simons (2009, p. 24) as follows:

- While the reports written cannot capture the reality as lived, much can be done, to highlight the timing of the research and the partial nature of interpretations so the readers can make their own judgements.
- The usefulness of the findings for policy determination is partly dependent upon the acceptance of different ways in which the validity is established and the findings are communicated in case study research.

3.5 Participants and Technique

According to Stinger (2007) the number and type of individuals participating in a research should be detailed and clear. In accordance to this, the total number of participants in this research is twenty-four. These participants are pre-service teachers who participated in the SL programme within the period 2007 to 2011.

Participant selection or sampling involves making decisions about which people, settings, events, or behaviours to include in the research (Bertram & Christiansen, 2014). According to Bryman (2008), a sample is a portion of a population that is selected for a research. In other words, a sample is a subset of the research population, which is necessary to gather data about a population. There are three main types of sampling used in qualitative research: purposeful sampling, quota sampling, and snowballing sampling. Qualitative studies often use purposeful or criterion-based

sampling, that is, a sample that has the characteristics relevant to the research question(s) (Cohen *et al.*, 2007; Coyne, 1997).

Since this research is qualitative, it made use of purposeful sampling which means that “people or other units are chosen, as the name implies, for a particular purpose” (Leedy & Ormrod, 2005, p. 15). Purposeful sampling gives the researcher a chance to use his/her research standards and purposes to choose people that are available and whose works will be relevant to the targeted group under research. The sample for this research comprised of 14 project reports (3 each from 2007, 2008, 2009, 2010 and 2 copies from 2011), 14 reflection diaries and 1 module outline. While the reflections were written individually, the project reports were either written in groups or as individuals. The number of students in a group ranged from 1 to 3 and the projects were written by a cumulative number of 24 students within 2007 to 2011.

In this research, the targeted relevant groups were the 3rd/4th year university student teachers who implemented the SL project as part of the BIO 420 module requirements which was a key element of this research. The researcher chose this module because it comprised the SL activities; therefore, capturing most of the issues the research was meant to address. The pre-service teachers’ BIO 420 project reports, Module outline, and reflection diaries were used as data sources. The SL project reports were selected using purposive sampling method through hand-picking the available projects to be included in the sample using the researcher’s judgement ensuring the projects possessed the desired characteristics (Cohen *et al.*, 2007). Furthermore it was considered that textual resources are produced beyond the control of the researcher (Gaborone, 2006).

The project reports sampled were 14 and below; they included the year and the placement site in which the projects were carried out.

Table 3.1: Summary of the research sample and participants

Project	No. of Stu.	Gender		Year of report	Project Topic
		M	F		
1	2	2		2007	Challenges faced by young adolescents of child-headed families.

2	2		2	2007	An investigation of the factors influencing the nutrition of infants aged 0-12 months in the Inchanga area.
3	1		1	2007	An exploration of learners' use of gateway science centre to develop an understanding of the content in the school curriculum.
4	1		1	2008	An investigative study of the journey of a dog from entry to exit of the S.P.C. A
5	1	1		2008	An exploration into the caregivers' and children's perception and management of HIV at a local Drop In-centre.
6	1	1		2008	The publics' awareness of domestic animal needs and rights in the Kloof area.
7	2		2	2009	An investigation into Teachers' and school managements' use of water and sanitation in rural eThekweni schools.
8	2		2	2009	An investigation into the Inchanga community's perceptions of teenage pregnancy.
9	1			2009	An investigation into factors that contribute to teenage pregnancy at the Inchanga area.
10	3		3	2010	Student teachers' experiences of Agricultural Practices with Gardeners at an old age home in Durban.
11	2		2	2010	Exploring and enhancing the diets and physical activities of children aged 6-17 at a local children's home.
12	2	2		2010	Exploring and developing children's perceptions and actions on their living conditions.
13	3	1	2	2011	Exploring and Developing University residence students' understandings and practices of Agricultural methods and nutritional requirements.
14	1	1		2011	Exploring and developing the gardeners' understandings and use of sustainable agricultural methods.

3.6 Research Questions (RQs)

To begin a research, McInnes and Hickman (2011) suggest that it is essential to know ‘what is to be found out’. This helps to identify appropriate methods. Shillingford (2006) and Kinmond (2012) note that questions are important as they enable the researcher and the readers to envisage the information that will model the data processes and systemise the investigation.

In view of the above, the research questions governing this research are:

1. What is the nature of the SL projects undertaken by student teachers over the year period 2007-2011?
2. Why did the student teachers undertake the SL projects in the ways they did?

3.7 Data Selection

A step to data selection involves deciding what information to select and why, and the best way to select it: when, how and from whom. In this research, the step of data selection included identifying the location of the SL projects and reflection diaries conducted by the undergraduate student teachers in the period 2007 to 2011. Another step in this research data selection was securing access to the data and building relationships where possible, to facilitate the data selection process.

The selection and storage of data was done comprehensively and systematically, in formats that can be referenced and sorted so that converging lines and patterns were uncovered. The documents were sorted in the order of availability, relevance year, and relevance topic as per the projects conducted in communities; given that the projects were mostly single copies, some copies were made to safeguard the originals.

Once the projects were selected and sorted, the reading and re-reading began for an overall understanding and familiarisation of the various contexts of the reports to identify major issues that eventually aided the development of themes for analysis. These pre-service teachers’ SL reports and diaries were the main data sources for the research, while the SL course outline was reviewed throughout the research.

3.8 Data Generation

There are different types of data generation methods involved when conducting research. Data generation involves the gathering of documents and in the case of qualitative research it entails the use of different techniques and methods, which includes documents and diaries (Cohen & Manion, 2011). In the context of data generation, good research relies on strong data, and a systematic organization of the data is important.

In this research, data that were generated from the BIO 420 pre-service teachers' SL project reports, reflection diaries and the course outline were analysed and interpreted. The researcher does not include the pre-service teachers' views through interviews, questionnaires, or observations, since assessing the pre-service teachers proved to be tasking considering the fact that they were no longer students in the institution.

Below is the summary on how data was generated from the data sources.

Document analysis: Document analysis is the research of documents with the aim of understanding their content or illuminating a deeper meaning (Ritchie, 2003). In addition, Creswell (2012) notes that documents provide valuable sources of data which help researchers to understand phenomena that centres on qualitative research. For qualitative research, documents are distinguishing in one aspect: documents exist before the researcher seeks to use them, unlike in interviews and observations. Contrary to focus group discussions where data are not yet generated, studies using document analysis makes use of post-hoc account of previously generated data (Gaborone, 2006).

In this research, all the documents for data which are the pre-service teachers' SL project reports, pre-service teachers' reflection diaries, and the SL module outline were all analysed using the themes from the conceptual framework to gain insight on the implementation of the SL projects. The data from each document source (project report, reflection diaries and module outline) is also expected to corroborate data from other documents.

When generating data using document analysis, there are certain questions to consider. These questions as suggested by Cohen, Manion and Morrison (2007) are basic questions that can assist the researcher in addressing issues such as trustworthiness and relevance. The questions are shown in table 3.2 below.

Table 3. 2: Documentary analysis questions to consider (Cohen, Manion & Morrison, 2007, p. 202)

Context of document	Documentary analysis in this research
Where was the document from?	From the sampled institution and faculty.
When was the document written?	Within the study period of 2007-2011
What kind of document is it?	<ul style="list-style-type: none"> • SL project report for BIO 420. • Reflection diaries for BIO 420 • Module Outline for BIO 420
What is the document about?	They are about the SL project implemented during the SL programme of the BIO 420 module.
Why was the document written?	<ul style="list-style-type: none"> • As a module requirement for BIO 420 module. • For reporting/ reflecting and reports for dissemination.

Like some forms of analysis, document analysis has both strengths and weaknesses (Bowen, 2009).

The strengths of document analysis:

- During document analysis, what is studied is not altered by the presence of the researcher, thus giving the document stability.
- It is cost-effective, as the data in the document is already gathered. Only the content and quality of the document is to be analysed.
- It is less time consuming which makes it more efficient than other research methods.
- It also requires data selection rather than data collection.

Weaknesses of document analysis:

According to Bowen (2009) document analysis most often does not provide sufficient details to answer research questions and this is seen as a limitation. However, Bowen (2009) noted that it is seen as a “potential flaw rather than a major limitation” (p. 31). From the above discussions, it is evident that the strengths of document analysis outweigh its weaknesses. In this research, different documents were analysed to level

out the issue of insufficient details, as well as generate in-depth information for the research questions.

In justifying the use of document analysis for this research with regards to fit for purpose and based on the views of qualitative researchers, Cohen *et al.* (2007) noted that “document analysis focuses on the language and linguistic features, meaning in context, is systematic and verifiable (e.g. in its use of codes and categories)” (p. 475).

Table 3.3: Summary of data generating methods and sources

Data Sources	Research questions (RQ).	Data generation method	Data analysis method
Bio 420 Pre-service teachers’ project reports	RQ 1 & 2	Document analysis.	Content analysis.
Bio 420 module outline.	RQ 2	Document Analysis	Content analysis
Bio 420 reflection diaries	RQ 1	Document Analysis.	Content Analysis.

3.8.1 Data Generation Instruments

In this research, qualitative information was collected by data tools from particular documents, which included:

- i. Pre-service teachers’ SL Research Project reports
- ii. Pre-service teachers’ SL Reflection Journals
- iii. SL Module outline

3.8.2 Data Generation Methods Fit For Purpose

The table below shows the data generation methods for this research and gives notable justification for selecting the methods using qualities of the chosen qualitative approach as a base, and as each method relates to the research questions guiding this research.

Table 3. 4: Summary of the data generation methods and reason for them

Data generating method	Purpose	Research question	Reasons for the method
Document Analysis of Reflection Diaries & Module outline.	To document, internalize and introspect on the SL projects and experiences, the pre-service teachers reflected on the entire SL programme.	RQ 1	“enables students to embrace the importance of perplexity in the learning process, and develop the ability to make meaning of personal experience” (R. G. Bringle & Hatcher, 1999, p. 118)
Document Analysis of Project reports.	The pre-service teachers project reports were analysed for insight on the SL project they implemented.	RQ 1 & 2	“to understand their substantive content or to illuminate deeper meaning”(Lewis & Ritchie, 2003, p. 35)

3.9 Data Analysis and Presentation Procedures

Analysis of data is a process of inspecting, cleaning, transforming, and modelling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making (Bertram & Christiansen, 2014).

Qualitative data analysis involves arranging and explaining the data generated (Cohen *et al.*, 2011). There are varieties of approaches to adopt when presenting and analysing qualitative data (Clandinin & Connelly, 2000). The implication of this is that the choice of adopting a data analysis procedure depends on the purpose and design of the research. Choosing a suitable data analysis procedure can be daunting for the researcher; however, it enables the researcher to reduce dense information generated to report the significance of the participants experience (Stinger, 2007). There is no wrong or right way to qualitative data analysis as long as the researcher abides by the rules of fit for purpose, which means, the data generated must be given a suitable type of analysis (Cohen *et al.*, 2007). Furthermore, Cohen and others suggested that the implication of deciding the purpose is that it will define the type of analysis done on the data and impact on the pattern of writing the analysis.

The following diagram illustrates that qualitative data analysis is not a linear process. It is according to Seidel (1998, p. 2), “iterative and progressive”. On this basis, data generated in this research was read and re-read to identify indicators that speak to the pre-decided themes for data analysis.

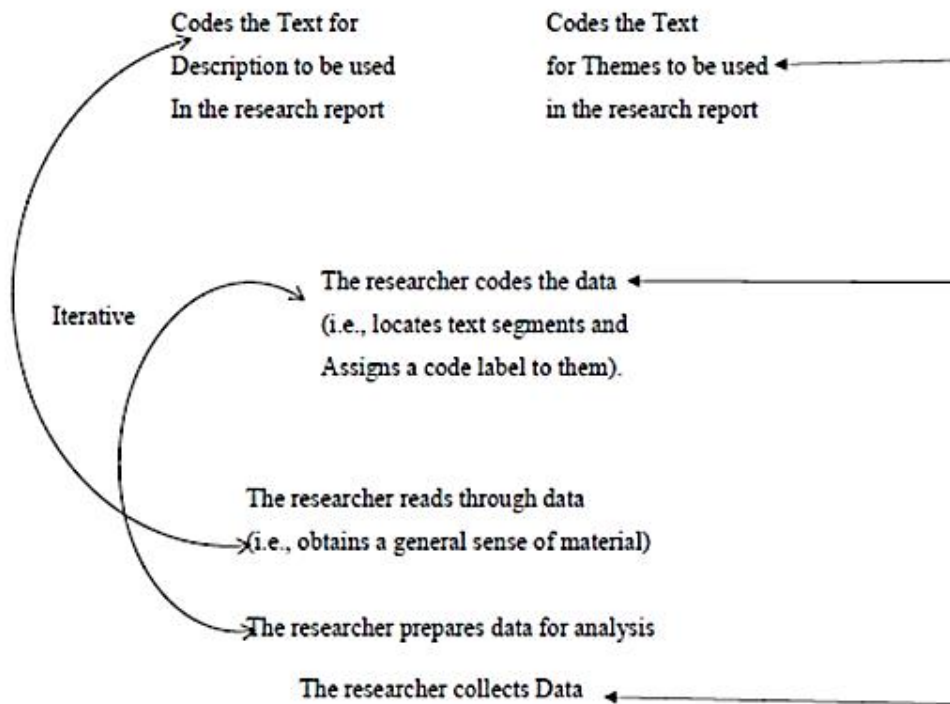


Figure 3. 1: Diagram showing steps of data analysis (Creswell, 2012, p. 237)

As mentioned earlier, this research made use of document analysis for its data generation and the data generated from the documents were analysed through content analysis. For document analysis, there are two kinds of analytical strategies for the analysis of the textual resources. These two analytical strategies are: content analytic strategy and context analytic strategy (Atkinson, Delamont, & Coffey, 2004). In view of this, the research made use of content analytical strategy for its textual resource analysis.

The term content analysis indicates a range of qualitative analytic strategies to “identify core consistencies and meanings” in a volume of qualitative data (Patton, 2002, p. 453). Content analysis can be used to describe a range of analysis techniques such as intuitive, interpretive or systematic textual analysis and can be conducted with any written material such as reports and diaries (Cohen & Manion, 2011). This research generated and interpreted its data from the SL project reports and reflection diaries written during the project. Qualitative content analysis aims to go beyond counting words, to examine

the language for meaning. Curtis (2011) claims that this type of analysis which is prominent in qualitative research is used to reveal the presence of and to categorise explicitly the concepts within the research. It is a research method that identifies and examines certain words, phrases, or expressions that point to a semantic foundation, and inscribes certain concepts and their relationships in a particular research content/text (Russell & Gregory, 2009).

Qualitative content analysis is one of the numerous research methods used to analyse text data. It is regarded as a flexible way of analysing data (Cavanagh, 1997). It is also probably the most prevalent approach to the qualitative analysis of documents and searching out of themes in the materials being analysed (Bryman, 2004). In more specific terms, Bryman (2004) defines qualitative content analysis as “an approach to document that emphasises the role of the investigator in the construction of the meanings of and in texts” (Bryman, 2004, p. 542).

Research using qualitative content analysis focuses on the characteristics of language as communication with attention to the content or contextual meaning of the text (Budd, Thorp, & Donohew, 1967; Lindkvist, 1981; McTavish & Pirro, 1990; Tesch, 1990). Similarly, in this research, the selection of documents for content analysis is generally based on purposive sampling strategy. Qualitative content analysis goes beyond merely counting words to examine language intensely for classifying large amounts of text into an efficient number of categories that represent similar meanings (Weber, 1990).

In this research, after the first stage of collecting large quantities of documents for data and purposively selecting the sample, the next stage was deciding how the data will be analysed and presented for the results. The daunting task of data analysis was to first make sense of the unstructured data of twenty documents which consisted of 14 project reports, 14 reflection diaries and one module outline. To analyse the data from this research, the data generating documents were read carefully, line by line, and categories were developed with meaningful words, phrases, and sentences. These categories can represent either explicit communication or inferred communication. The coding process for the categories was hugely rooted on the pre-service teachers' views of what was considered important; hence, repeated in several sections of either the project reports or reflection diaries. The coding process was also guided by the reviewed literatures on

the concepts of SL. The data generated from this research was deductively analysed using the following themes pre-decided by the conceptual framework:

- (i) Structure
- (ii) Reciprocity
- (iii) Relationship
- (iv) Reflection

As well as another theme that emerged from the data during analysis:

- (v) Sustainability

The data generated were interpreted and made sense of which includes noting regularities in the participants' writings to categorise them according to the above listed themes, while considering possible new recurring themes (Cohen *et al.*, 2007). Critical engagement with the data was necessary in order to establish links within the data. During this period of analysis, credible explanations on the SL projects were identified and answers to two research questions emerged.

Since this research was done using the qualitative approach, data was presented descriptively using expressions from the pre-service teachers' point of view. This corresponds with Orb, Eisenhauer, and Wynaden (2001) position that a qualitative case study should describe a phenomenon from the participants' point of view. Cohen *et al.* (2007) opine that the most suitable way of writing a case study might be as a descriptive narrative. It is also necessary to maintain the participants' accounts in the analysis text so that readers can connect between the findings and the data from which they were retrieved (Jones, 2002). This research also used verbatim description in its narrative. This means that the pre-service teachers were quoted word for word in the analytical narrative. One of the advantages direct quoting is that the flavour of the original data is not lost but maintained during the report. Another advantage to direct quoting is that it portrays the researcher's faithfulness in using exact words from the participants and thus meets the ethical obligations of the researcher to describe others experience in the most truthful way possible (Mills, Bonner, & Francis, 2006).

3.10 Context

As mentioned in chapter one, this research was conducted in a School of Education at a university in KwaZulu-Natal. The campus where the research is was located, is the

primary site for teacher education. It provides initial and in-service teacher education and offers university higher degrees in a wide range of specialisations in education.

Students in the School of Education who are also known as pre-service teachers are expected to work in educational contexts with children or other students and become educational, civic role models for the youths in the society. In this context, students benefit from the SL programme by enrolling in the Biology Science for Educators 420 (BIO 420) module.

The BIO 420 module and SL was introduced in the university in 2003, however it was not until 2007 that the proper implementation of SL started. This forms the basis on which the researcher chose 2007 as the starting year for the research study. The Research and SL module was designed amongst other aims, to ensure that students taking the module developed appropriate knowledge, skills, values, and attitudes about Research and Service-Learning (see appendix 2).

The SL programme provides pre-service teachers with the opportunity to explore the meaning of citizenship which helps them to question unjust issues. The 12/13- week module comprised of an on-campus, and off-campus (placement sites) work, supplemented by tasks and written assignments. The module is a concurrent module as students were registered simultaneously for other modules and hence cannot be full-time on placement sites. The course is a three ninety (90) minutes sessions without the placement site activities and its component which includes extensive SL project work in a community, specific assignments, a presentation, and an examination at the end of the semester. During the presentation, the students' give an oral account of their projects and their learning to a small panel comprising the students, module coordinator, the module tutors, and any other relevant personnel. Other students, lecturers, and staff can also attend these presentations.

The class meets three times a week (Tuesdays, Wednesdays, and Fridays) for a period of five weeks for each group of students. Once students choose their placement site and have presented a basic research proposal, for the next seven weeks the class time is often allocated for travel and service in the community either individually or in small groups. One 90 minutes session a week is allocated for reflections whereby the pre-service teachers are taught of the importance of reflection, how to reflect and on what to reflect

on. During these meetings, the class also conducts and reflects on various individual and group activities which centre on SL programmes, implementations, and research. Thereafter, the pre-service teachers are expected to write reflections which should be done at least once a week. Throughout the semester, a tutor was available face to face, via email and phone, and often accompanied students to the communities.

The course makes use of both formative and summative assessment plans in forms of tasks, exams and a report to assess and report students' progress and achievements. The value of critical reflection by pre-service teachers was emphasised in the module. The pre-service teachers compiled structured reflections in an individual reflection diary which was submitted at the end of the module. The course brings undergraduate students of Science Education to organisations/government organisations to work in partnership with communities.

The SL projects analysed in this research were part of the BIO 420 module conducted within 2007 to 2011. Pre-service students research their SL respectively. The SL project focuses on identifying and defining problems, designing solutions and thereafter, implementing a well-conceived plan for achieving those solutions. These are done by the pre-service teachers in collaboration with the placement site managers. The projects enable pre-service teachers to transfer theoretical concepts discussed in class into practice, while at the same time helping to meet the community needs. Working in either teams or individually, pre-service teachers planned and implemented various SL Projects which included working in children drop-in centres, gardens, pre-schools, fitness centres, etc. While on the project, the students were also able to reflect on the theoretical and applied literature concerning their specific placement sites critically.

This research was not to generalise to other SL pre-service teachers or module, but rather contextualise the SL projects of a group of pre-service teachers who participated in a SL programme of BIO 420 module from 2007 to 2011.

3.11 Research Rigour

Rigor in qualitative research terms are means of establishing trust or confidence in the findings of the research. It is very useful for the establishment of the research method and for the provision of accurate representation of the research population.

3.11.1 Trustworthiness

There is general agreement that all research studies must be open to critique and evaluation. “Failure to assess the worth of a research – the soundness of its method, the accuracy of its findings, and the integrity of assumptions made or conclusions reached could have dire consequences” (Long & Johnson, 2000, p.1).

Quality in case study research involves both criteria for judging quality and strategies for ensuring it. Some writers believe a case study is a research for particular phenomenon; they are limited because their findings cannot be generalised (Rule & John, 2011).

There are two concepts that are traditionally used to judge the quality qualitative research, which are trustworthiness and validity. Trustworthiness and validity in research gives the researcher the opportunity to explain the virtues of a study outside the parameters that are usually applied in research (Jeanfreau & Jack Jr, 2010). Validity and trustworthiness requirements are as important in case study research as in other areas of research. Validity is the extent the findings from the study represents the situation in the study accurately (Welman, Kruger & Mitchell, 2005). Similarly, Joppe (2000) opines that validity determines if the result from the study is truthful, in other words, if a research really measured that which it was meant to measure. “In qualitative data, validity can be addressed through the honesty, depth, richness, and scope of the data achieved, the participants approached and extent of triangulation, and the disinterestedness or objectivity of the researcher (Cohen *et al.* cited in Pacho, 2017, pg. 105). To this end, this research truly measures that which it intended to measure; it analysed the SL projects of the BIO 420 pre-service teachers of 2007 to 2011.

To establish trustworthiness in a research, the researcher needs to use an in-depth report of the findings from the research (Bertram & Christiansen, 2014). By so doing, the researcher provides a substantive amount of details for the reader to judge if the findings can be transferred to another context (Scott, as cited in Bertram & Christiansen, 2014). On this account, this research provides a thick description of the findings of the current study. Thick description refers to the responsibility of the researcher to describe and interpret social action or behaviour within a particular context (Ponterotto, 2006).

According to Cohen *et al.*, (2007), validity and trustworthiness are addressed by the use of different data instruments. This research was committed to triangulation as it involved the use of three data sources that compliment and balance each other to contribute to a stronger explanation, as well as enhance the validity and trustworthiness of the research rendering the data as reliable as possible.

To further increase the validity, trustworthiness and also to eliminate biasness, the sample included both genders and accommodated racial differences. The fact that the research sample were documents, the issues of positionality or power gradients were not a potential challenge. The project reports and reflection diaries used for data generation in this research were from genders, diverse race and cultural groups, hence the sample was not one sided.

3.11.2 Intellectual Rigour

As a qualitative researcher whose intention in this research is to analyse, it is important I understand how intellectual rigour speaks to credibility in qualitative research (Patton, 1999). I perused the data severally, re-reading them to make sure that the explanations and the interpretations of the data made sense (Patton, 1999). This corresponds with Patton (2002) view that there is no direct rule for intellectual rigour. The important thing is for the researcher to do his/her best to make sense of the data (Patton, 1999).

3.12 Ethics

Ethics is a critical part of the research process which should not be ignored (Beglar & Murray, 2009); from initial formulation of the research to the research issue, to the interpretation and reporting of the research findings. L. Cohen et al. (2007) noted that ethics refer to rules or behaviours which researchers have to consider and abide by before conducting research.

In conducting research, the issue of confidentiality of results, findings of the research and the protection of the participant's identities is crucial (Maree, 2007). Contextualising this to a university setting, "the researcher must find out whether his/her university has a human subject committee and what ethical guidelines are needed to be followed ... in many institutions, a researcher cannot conduct her research until the human subjects' committee has given a green light to proceed" (Beglar & Murray, 2009, p. 33).

The university under this research compels, through its research ethics policy, every staff member or student engaged in any research study in and about the school to apply and be bound by the ethical framework of the university. Colin (2007) notes that ethical issues in research should cater for questions such as: Will the research process cause harm to the participants or those from whom information is gathered? Are the findings likely to cause harm to others not involved in the research? Are you violating accepted research practices in conducting the research and data analysis, and drawing conclusions? Are you violating community or professional standards of conducts? Similarly, in the research of Appalsamy (2011) it could be deduced that the purpose of ethical planning is to protect the eudemonia of the research participants, research location or context and everyone else involved.

In lieu of the above, this research is a document analysis that did not place the researcher directly in contact with participants and as such no informed consent letters were used. A formal application was made and consent was received from Human and Social Sciences Ethics Committee (see appendixes 2 & 3) who are the persons directly responsible for the gatekeeper permission.

The findings from this research would not be used for any other purpose than for the qualification of a master degree and the data generated from the research will only be stored in the university for five years and thereafter discarded. These assurances were made in writing to the gatekeepers.

3.13 Limitations

Limitations in qualitative research are addressed through trustworthiness of the results generated from the research; this can be achieved by adhering to the methodological criteria of qualitative research (Armour, Rivaux, & Bell, 2009) . In that light, this research used the most suitable methodological approach for qualitative research.

Generally, considering the limitations of generating data through document analysis listed earlier in section 3.8, and because the sample size of this research is small, the result of this research could not to be fully generalisable. The researcher attempted to reduce the effects of these limitations on this research. Data was perused through carefully to get as much information as possible to give quality to the data and research. Cohen, Manion and Morison (2007) noted that a researcher needs to understand that

documents are selective and contextual products that do not need to be accepted without proper interrogation and interpretation. To this end, in-depth reading of the documents with particular concentration on the sections which discussed the SL projects conducted was necessary.

3.14 Strengths of This Research

Most of the research on SL were conducted using quantitative analysis and they focused on outcomes rather than experience (Gerstenblatt, 2013), hence qualitative case study approach and interpretivist paradigm was chosen as the method of analysis to analyse the SL aspect of SL project that the pre-service teachers experienced. The rules associated with qualitative research including a detailed content analysis of the reflection diaries and project reports were followed. Interpretivist approach seeks to understand a phenomenon; therefore, a major strength of this study is its provision of insights into the pre-service teachers' SL experiences and their interpretation.

3.15 Conclusion

This chapter explored the methodologies employed in this research. The chapter has shown how and why these methods were chosen according to the theoretical orientation of the research. The study as a qualitative research integrated the case study design and the interpretivist paradigm which were discussed. For data generation, interpretation, and analysis, document and content analysis were discussed.

The reasons for using purposive sampling in this research were also explored. In the final section of this chapter, the rigour and expectations of this research were described in detail. The ethical considerations were highlighted. The next chapter presents and analyses the data generated in this research.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

The theoretical and conceptual standings of SL were discussed in chapter two and thereafter the methodological aspect of this research was discussed in chapter three, it is appropriate to look at the data collected, analyse, and present it by answering and discussing the two critical questions that guide this research. This chapter presents and analyses the findings of this research based on the reviewed documents.

The approach to analysis drew on the technique of qualitative content analysis that underpins this research. This technique aims to derive meaning from text, by systemic classification and coding, to identify recurring patterns or themes. To reiterate, this research was conducted for the sole purpose of analysing the SL projects of BIO 420 pre-service teachers in a tertiary institute within a five-year period (2007-2011). The pre-service teachers implemented their services in various community-based organisations. The period of five years under research was from 2007 to 2011 and a total of 14 project reports and 14 reflection diaries were analysed. Content analysis was selected as the method of analysis most suitable to answer the research questions, since the data source provided was dense and in descriptive text.

The research questions informing this research are:

1. What is the nature of the SL projects undertaken by pre-service teachers during the year period 2007 to 2011?
2. Why did the pre-service teachers undertake the SL projects in the ways they did?

4.2 Data Analysis and Presentation of Findings

To analyse the pre-service teachers' SL project reports, reflection diaries and module outline responses that are related to the research questions are identified. Direct quotations from pre-service teachers' responses are presented in verification of the pre-decided themes.

The following abbreviations will be used to distinguish data generated from respective sources:

- Module Outline – MO
- Project Reports – PR
- Reflection diaries – RD

Noting that there is no link between these respective data generation sources especially as most of the Project reports (PR) were written by groups of 2-3 preservice teachers. In other words, PR 1 and RD 1 do not belong to the same pre-service teacher.

The BIO 420 module outline when analysed, revealed individual and group discussion, placement site visitation, pre-service teachers' presentations and SL research. All these and more on the module outline form part of the institution's curriculum to educate pre-service teachers in SL.

Although photographs and lecturer's comments were included in some of the pre-service teachers' project reports, this analysis did not include the photographs and comments. In the analysis, the focus was on text content that reveals the SL aspect of the pre-service teachers' project reports and reflection diaries.

4.3 The SL Projects Undertaken by Pre-Service Teachers

This section presents the findings for the research question:

What is the nature of the SL projects undertaken by the pre-service teachers during the period of 2007-2011?

For a detailed answer the question was sub-divided into two mini probing questions which are:

- What SL projects were undertaken by the pre-service teachers?*
- How were the SL projects undertaken?*
- Were the projects SL projects?*

4.3.1 What SL Projects Were Undertaken by the Pre-Service Teachers?

The 14 SL projects selected for this research and undertaken by the pre-service teachers are made up of various activities. The summary of the activities differentiated by their topics and contexts is listed below.

1. Assisting the Elderly

- Gardening in an old age home - PR1

2. Working in Youth and community centres

- Teaching children about diet and physical activities - PR5, PR8

- Creating awareness of teenage pregnancy - PR4, PR12
 - Creating awareness for HIV - PR11
 - Working at an animal centre - PR10, PR13
- 3. Assisting with education related activities**
- Teaching about sanitation - PR3
 - Providing understanding of Science centres - PR14
 - Providing understanding of agriculture - PR2
- 4. Assisting with community projects**
- Creating awareness for gardening - PR9
- 5. Helping individuals in their homes**
- Taking care of siblings of child headed homes - PR6, PR7

In addition to implementing and completing their SL projects, the pre-service teachers provided a written project report which covered the research aspect of the module and a 7-10 minutes oral reports/presentation of their project experience. The pre-service teachers witnessed poverty, hunger, scarcity, and diseases in the communities.

“The baby looks so tiny as if she hasn’t eaten for days” (RD 7).

“Being here has made me understand more about this disease (HIV)” (RD11).

What they saw, felt, smelt, heard and touched during the project implementation, amazed and baffled them.

“I was baffled when I saw conditions and state of these people” (RD 5)

“After carrying that sick baby and looking into her eyes, I was speechless as we were driving back to campus as the picture stuck in my brain” (RD8).

The nature of the SL project put the pre-service teachers in the position of interacting with people suffering from a variety of social, emotional, and financial problems. These interactions made the pre-service teachers no longer see all the issues encountered as abstract but rather that the issues are connected to real people with feelings. That is, they now know that poverty is real and is connected to real people. A pre-service teacher described going through this experience as follows:

“These issues are real, it is not like issues I have and know of, like my friend getting me angry, and I maybe go talk to someone else about it. These people are facing these real issues and can’t even do something about it” (RD1).

The SL project had the effect of a sense of personal responsibility on the pre-service teachers. This feeling, according to the pre-service teachers heightened when they came in direct contact with the face of poverty that the women and children at the centre experienced as described below.

“.... unlike when you see a homeless begging on the street, you have a choice to either give tips or not. But in this project, being faced with these people every day, makes you feel responsible. Like you don’t have a choice but to help. Sometimes, when you do help, it makes you understand them more....” (RD1).

“I must start by saying how extremely moved I was. They are literally asking for help I cannot ignore. I honestly believe I can be of help to this site and do meaningful research. Even if I don’t get to research here for my thesis I have decided to work with this organisation” (RD12)

The project was emotional for the pre-service teachers which contributed to their internal and emotional learning. This learning generates a sense of commitment and empathy which can influence civic responsibility. The pre-service teachers expressed compassion for the abused women, they wrote:

“Working with those people really made me realise something about myself. I now know myself better and I know being there played a role in my level of consciousness” (RD1).

“I felt sorry to see children sleeping on the floor, it was very sad to see that some children live their lives with difficult” this experience of visiting this site really touched my heart” (RD14).

“I was taken back by the condition of the church and the people that were around and in community. Hearing about 11-year-old children taking care of their families that included their dying mothers made me tear” (RD12).

The pre-service teachers also in their narratives wrote on the project aspects from which they learnt how to make sense of their SL experience. The project made them explore the cause of community issues and find solutions to these issues, using their skills. The pre-service teachers also learnt to understand the community peoples' life challenges through the service they (pre-service teachers) provided such as caring, cheering, supporting and listening to the people.

The project gave the pre-service teachers a strong connection to the community and a taste of a professional career:

“This project was very heartrending and made me realize that there is more out there than my own little world, it alerted me to the realities of the world, of South Africa and of our surroundings” (RD11).

“So, this programme made me aware of different context that are there in rural schools of region” (RD4).

“This project is really cool. It kinda prepares us for the things that we will probably see as we graduate and go to work” (RD3).

Finally, the project helped the pre-service teachers to connect with their colleagues and the community people through team work on the project implementation. Through stories and information provided about the community members, e.g. project managers, the pre-service teachers got to develop a stronger relationship and empathise with the people of the community on their life struggles.

4.3.2 How Were the SL Projects Undertaken?

In answering this question, the pre-service teachers' narratives on how they rendered service to the communities were used as indicators. The indicators were used to write a textual description of “How” the pre-service teachers undertook the projects. The pre-service teachers were candid in their descriptions of how they implemented activities for the communities. For instance, those that served in children Drop In-centres or Old Peoples' Homes listened, helped, and noted that serving in such places was more than making conversations with the staff or children. According to one pre-service teacher:

“I most times come in the morning at the time that happens to be the children feeding time, I help the nurses feed the younger children who can’t feed themselves and thereafter I help in doing the dishes” (RD 9).

“I help in the kitchen in washing the plates, spoons and glasses. When the food was ready in the kitchen, we went to dish up for the kids as well as for the old people” (RD6).

“I was so busy at the centre, I am always available to help the mothers carry their babies, I even help bath and feed the babies when the mothers are indisposed to do so” (RD2).

The pre-service teacher added that:

“Sometimes, I feel like their child as the mothers do not waste time to give me some advices, they even complain to me, when they have problems” (RD2).

“Being a shoulder to cry on was not what I expected to be to these women” (RD1).

Though performing the above duties was definitely not what the pre-service teachers expected or bargained for, it made them realise that this is what genuine SL entails. Some actually did and enjoyed what they planned to do as noted in this narrative:

“My partner and I did our part of service learning which is doing aerobics with the members of the community. I really enjoyed this section and I was greatly motivated by the enthusiasm that the community members had”. I really enjoyed my service learning because the people there enjoy taking part in aerobics” (RD5).

Another group of pre-service teachers were jolted by the challenge of figuring out how to assemble a section of their project:

“.... the tunnel was not properly provided with an assembling manual. There are many pieces to assemble.... ..it meant that we had to rely on using our own discretion in trying to assemble the tunnel” (RD3).

The reality of the hard work involved in projects such as this was overwhelming for one of the pre-service teachers who noted how exhausted he was at the end of one of the project implementation days. He stated

“Today marks the beginning of a very long period of hard work. On paper it looked easy but after today, I must say that I change my mind. Today we were removing the rocks and boulders that we found in the soil. I am very tired as I write this reflection, my hands are painful because I have blisters and my back is killing me” (RD2).

After expressing such pains, one would think that the pre-service teacher would consider opting out of the programme even though it is a compulsory aspect of the module. Nevertheless, this pre-service teacher went on to write,

“However, I must say that I am happy about doing so much hard work because it made me remember back home and realise how much coming to live at the residence has spoilt me” (RD2).

In the same spirit of resilience, other pre-service teachers wrote:

“I thought that even though this programme seems to be difficult, challenging and requires creativity and flexibility, but it is not impossible. Only dedication and hard work is required” (RD6).

“At first I thought of quitting the module because of the work I thought it will require from me. To my surprise I enjoyed each and every step of this module especially the service learning part” (RD3).

The pre-service teachers’ narrative of their farm projects reflected how proud they were in conducting and implementing their tasks. One pre-service teacher whose project was on community gardening remarked:

“I had to explain and demonstrate how to prepare the soil....in addition, I had to demonstrate on how to mix already prepared organic compost....” (RD4).

Another pre-service teacher wrote:

“Today we assembled 90% of the tunnel..... with the help of other participants, we planned the layout of the garden.... all in all, I can now say I have and I can assemble a tunnel” (RD3).

Another aspect discussed by the pre-service teachers in their diaries is the act of team play. Those that worked on the project as a group reflected as such,

“The overall assemble process went on successfully because all jointly participated in coming up with ideas on how to assemble the tunnel” (RD3).

“We jointly planned the layout of the rest of the garden. Which was an easy process because we had already made the bedding and the tunnel was complete” (RD3).

“I was so glad to be working with someone as hardworking and understandable as (name withheld) working with me as a partner” (RD11)

For entertainment in the Drop In-centres, some pre-service teachers’-initiated drama, dance, and story bonding sessions aimed at lightening the mood and bringing about laughter and joy onto gloomy and despairing faces. The project did not go without disappointments in one way or the other. Statements that expressed disappointments are as follows:

“I was disappointed about the fact that some of the gardeners have been provided with information on gardening. I was expecting that I would start from scratch and teach them” (RD 4).

“.....I had planned that I would show the gardeners how to prepare soil and how to plant sustainably. I was shocked that not even a single person came.....maybe it was caused about a hot weather. I was very disappointed” (RD4).

“Today was disappointing, I realised that today we also had to work with very few (2) people because some of the initial participants seemed to have dropped out” (RD3).

In another statement, a pre-service teacher directed his disappointment towards logistics from the tertiary institution:

“My main concern is transport to and from I am disappointed that the university couldn't help us out here” (RD12).

While many students focused their SL projects on young people and community centres and assisting with educational related activities such as teaching about hygiene and diet in a primary school, others did a one-on-one individual project such as minding children in child headed homes, while the child home header attends to other activities such as going to school or going to buy groceries.

Although the experiences as narrated by the pre-service teachers affected their professional and personal lives, the reflection diaries were the avenue through which the pre-service teachers could portray what they exactly gained from the implementation of the SL projects.

4.3.3 Were the Projects SL Projects?

The data generated from the questions were deductively analysed using the following themes pre-decided from the conceptual framework as indicators for SL:

- i. Structure
- ii. Reciprocity
- iii. Relationship
- iv. Reflection

And another theme which emerged during the data analysis:

- v. Sustainability

These themes were identified by checking the project reports, the reflection diaries, and the module outline. The findings are presented in the table below, followed by a detailed narrative presentation.

Table 4 .1: Project implementation of themes

Themes	Project reports	Reflection Diaries	Module outline
Structure	X	√ - RD3, RD2, RD5, RD7, RD11, RD14	√
Reciprocity	X	√ - RD1, RD4, RD3, RD6, RD7, RD11	N/A
Reflection	X	√ - RD4, RD7, RD8, RD11, RD12	√
Relationship	X	√ - RD1, RD2, RD3, RD4, RD6, RD11	N/A

- A tick (√) in the table above indicates that the narrative noted aspects of the theme during the implementation of the SL project.
- A cross (X) in the table indicates that the narrative did not note aspects of the theme during the implementation of the SL project.

4.3.3.1 Structure

The concept of structure indicates if the SL programme is attached to study/academic credit and designed to engage people in challenging and responsible actions for the common good.

The project was fully linked to academic course and was graded. The pre-service teachers were aware of the credit unit awarded to the project and its implementation. It was clear that the pre-service teachers were equipped and trained for the stages of the projects: Planning, implementation and conclusion (see Appendix 3).

With regards to assessment, the findings reveal that some of the BIO 420 module assessment criteria as extracted from the BIO 420 module outline are as follows:

Students show work in which they investigate Research in Biological Science, Biological Science education issues and Service-Learning at the placement site. Students show work where they have completed their theses and reports on their findings.

(BIO 420 Module Outline, 2011, pg. 3).

The above indicates that the SL project was part of the BIO 420 module assessments and the pre-service teachers were aware of this through their module outline.

Generally, in the SL projects, structure among key players yielded a better implementation of the projects.

“The tour around the exhibits by the facilitators was very helpful. He showed us many exhibits and made us have a hands-on experience. We learnt more about the exhibits and how to use them (RD14).

With reference to the choice of placement sites for the SL projects, the following extract from the BIO 420 module outline highlights how this is done:

Placement sites serve as suggestions. Any student who is passionately interested in a particular field of work could work in that field in a particular placement site (BIO 420 Module outline, 2011, pg. 4).

The above extract indicates that the choice of placement sites is mostly placed on the pre-service teachers. This corresponds to Erickson and Anderson’s (1997) suggestion, to give pre-service teachers the opportunity to have an input in determining details of their placements. Comments from pre-service teachers with regards to how the programme was structured, includes the following:

The project structure is a tight daily schedule with clear learning objectives, and structured reflection. She noted, “It is structured so that it is a learning experience” (RD 3).

It was also evident from the pre-service teachers’ report that communities/ organisations that were better organised were more involved as partners by providing significant assistance and support.

“This community is really organised. I was really happy to see the members in the community working together to provide a better future for the children” (RD14).

“After the tour, the facilitator conducted their science show for us. I enjoyed the science show as it is very educational and links with the school theory” (RD14).

One of the challenges discussed by the pre-service teachers was the issue of time constraint. The pre-service teachers wished that the project was assigned a longer time than it had. The pre-service teachers’ disappointments could be seen in writings like:

“During this project, (name withheld) and I felt we had so much to do and so little time even though we’ve been working from the start” (RD11).

“The time was so tiny since I was not doing this module only. Writing and compiling the research was so hard” (RD7).

“Due to time constraints, we had very little time to start and finish our projects.....” (RD 2).

The particular student that wrote this statement lamented over how the project was the most *“mentally and physically challenging”* task ever accomplished. Furthermore, the RD 2 pre-service teacher wrote on how the contextual structure of the project influenced her learning. She wrote:

“Meeting the abandoned and/or abused children and women in the centre and learning about the circumstances surrounding their existence. With all the abuse and sickness, I feel like they will carry the stigma with them all their lives, like they are stuck with no one to blame for their condition. It made me think about myself and made me realise how privileged I have been for having both my mum and dad taking care of me” (RD 5).

The findings reveal that the SL project is assessment based and linked to a course (BIO 420). Assessment of the SL programme is done at the end of the academic semester through formative and summative reports which are integrated in the module (BIO 420 Module Outline, 2011). The SL programme is strongly influenced by the concepts and

principles developed in the BIO 420 module. It also focused on having students demonstrate an awareness of SL as part of a dynamic field, which has great application for sustainable development of people with their environments (BIO 420 Module Outline, 2011).

4.3.3.2 Reciprocity

Reciprocity is one theme that emerged significantly from the data. To code responses for this theme, relevant phrases, words, and sentences about actions and activities which can be linked to the theme were manually labelled. The pre-service teachers described the importance of developing a reciprocal relationship with the community. The pre-service teachers acknowledged that though the community members received service from them, the community members also played a role in teaching them (pre-service teachers) some things too as expressed in the excerpt below.

“I used to think I know a lot about gardens, but the old people have thought me so much than I could imagine (RD 1)”.

Another pre-service student wrote,

“It is amazing but I don’t think that the (name withheld) people will ever understand how much impact they had on us students” (RD 4).

Some skills such as confidence, research writing, patience, and being attentive were listed by the pre-service teachers as the skills benefited from the SL project.

“I learnt many things about various types and ways of presenting as well as things that can and should be found in a research proposal; a general idea” (RD11).

“Today, my communication skills improved as I had to repeat the one and the same thing to a lot of people. My patience also developed because I had to beg the learners not to copy from each other while completing the forms” (RD 3).

“As a student teacher, I felt that this project made me understand how I see myself as a researcher, where I do lack the understanding of the research and

service learning. I felt like that this activity is very beneficiary as I also learned from other students” (RD6).

“I believe the schools that we conducted service learning programme benefited a lot from us and I also developed confidence in my skill to recite poems” (RD4).

Most of the pre-service teachers listed only their experiences with providing service to the community. Only very few pre-service teachers mentioned benefiting from either another pre-service teacher or by a member of the community they provided help to. This makes one wonder if there were not enough reciprocal relationships or that the pre-service teachers didn't feel comfortable being on the receiving end of the service, hence didn't discuss it in their project report or reflection diaries.

Amongst the few that noted the benefits they derived during the SL project, was one pre-service teacher who was humbled by the things he discovered about himself while on the project. He elaborately wrote:

“I think that conducting our project in this centre and working with people especially from rural background has developed to me some cultural values, psychological values, sociological values, educational values as well as spiritual values in every way. There is much that I learnt from community members, especially people living with HIV. I feel knowledgeable” (RD6).

After a day with bad weather, trying to plant crops, this pre-service teacher narrated:

“I am now aware of a different side of my personality that I wasn't aware of prior to this project. I feel like I have little amount of work compared to some people out there who works twice as hard as me” (RD 7).

The other few pre-service teachers that discussed the benefits they derived from the SL project, did so in vague writings. They were not elaborate enough in their discussion for one to understand the type of benefits they derived and in what format or circumstances the benefits were. For instance, one pre-service teacher wrote:

“I didn't expect to learn so much from this project, I am really shocked and humbled at the things I learned from the project.... this project is really powerful” (RD4).

From the above comment, it is evident that there is enormous benefit attached to this project for this pre-service teacher. Although no aspect of learning was mentioned, it can be seen that the pre-service teacher learnt something. Another instance of benefit is expressed in the excerpt below:

“This project has had a huge impact on how I view the world” (PR6).

One could deduce that the benefit for this pre-service teacher leans toward civic responsibility, but then there was no clarity on the type of “view”, whether positive or negative and in what instance his/her view changed.

4.3.3.3 Relationship

Working in partnership with/for the community was the focus of the module. Apart from the reciprocal relationship established during the SL projects, another form of relationship that was established and highly noted by the pre-service teachers was the personal relationships formed during SL project implementation. The findings indicate that the SL project gave the pre-service teachers the opportunity to develop meaningful relationships in a short period.

According to the findings from the pre-service teachers’ narratives, the presence of university students in some of the placement sites for the projects was new for some of the communities. In some sites, the students were viewed as “the experts”; hence, the community members over-relied on them to implement the projects without assistance. This was very challenging for the pre-service teachers as they had reports to hand in after the projects and without assistance, they would not be able to produce quality reports for their projects. They still needed to build a collaborative relationship; therefore, they developed the ability to listen to what the community people had to say about what they need in their community and from the pre-service teachers’ projects.

While some pre-service teachers struggled in their placement site due to the absence of cordial relationships,

“I had a hard time trying to get consents from volunteers, as the community has recently received negative publicity about the euthanasia of two bull terriers that were actually owned by people living in the community” (RD2).

“We went to the administration where they referred us to Who then referred us to who also referred us to It was clear that the people were reluctant to give us information....” (RD1).

Others had it smooth with conducting their projects on their project sites. This was evident in this acknowledgement:

“My sincere appreciation goes to who is the project manager at my placement site. He made endless effort in ensuring that my service-learning project went smoothly” (RD3).

“..... We spoke to the staff and then discussed plans for what we were going to do today and arranged how we were going to make a success of this. We received assistance from the facilitators and staff of the centre in carrying out our activities. With a lot of help from the centre and with lots of efforts, we were able to productively obtain our first piece of data” (RD11).

The pre-service teachers appreciated and discussed both the long-term and professional relationships they were able to form, courtesy of the SL projects. One pre-service teacher noted that she has kept contact with most of the staff at the centre she worked at after the project (RD6). Another pre-service teacher noted how surprised he was at the amount of friendship he got from the people from the community irrespective of the community seeming to have nothing (RD9). A very important form of friendship that developed during the SL project was with the elderly people.

“What was most interesting is that I became so close to the old people that I got some blessings from them when they say they wish me success and the best of luck in my studies” (RD6).

Pre-service teachers that rendered service to the elderly in old aged homes noted that their relationships with elderly people improved. They felt more empathetic and comfortable with the elderly people. Even though there were some barriers of the elders not being able to make meaningful conversations.

“The senior citizens looked expressionless when I first met them. I tried making conversation but they kept mum. I didn’t want to push, so I sat quietly with them and surprisingly one of them started talking to me” (RD4).

Another pre-service teacher in the old aged home wrote that she developed the ability to be gentle as she initially had the belief that old people were annoying, nagging, and rude but on the contrary, she observed that old people are mostly lonely and crave for company.

4.3.3.4 Reflection

The trademark of SL is its reflective component which enables students to take stock of their SL experiences and reflect on its impact on them personally and academically. This theme checks if adequate time were set up for structured critical reflection on the entire SL experience. The findings showed that during the SL program, the pre-service teachers kept records of their experiences while undertaking this module, starting from the first lecture through their entire SL project implementation. The pre-service teachers were required to reflect on their daily activities with regards to the module and the SL programme. As indicated in the following statement, a pre-service teacher really took the reflection activity seriously.

“Apart from the reflections of each visit I have reflections on days that I felt worth writing about” (RD12).

The pre-service teachers’ reflection was a narrative of the description of the activities done during the project as well as their emotive experience which includes their fears, personal learning, highlights, and the services rendered without leaving out things they would have done differently to make the SL project implementation better. In their own words, pre-service teachers wrote of receiving some learning opportunities that they had not and would not have been able to receive in the class. They wrote about their fears as expressed in the following statement:

“A concern I have are the diseases we might pick up although I’m sure safety measures will be taken” (RD12).

Their confusions, disappointments, joys, anxiety and even their sadness of leaving the community at the end of the project implementation were expressed. Most anxieties noted were during the beginning of the module, but the anxieties were quickly replaced by motivations derived from listening to former BIO 420 students present to them on their experiences, while conducting the SL programme. The presentations from former BIO 420 students ignited a lot of “*if they can do it, I also can do it*” feeling from the pre-service teachers.

The feeling of delight was noted in one of the pre-service teacher’s diary:

“The assurance from (name withheld) that the gardeners are willing to learn new things to improve their lives strengthened my hope that the participants will always be present during scheduled time research and service learning” (RD4).

The findings from this research collaborate with the opinion that reflection is an important aspect of SL. Most of the pre-service teachers, through their reflections, were able to choose their SL centres and research topics for their project reports. They were also able to find a link between their SL and academic course content.

Majority of the pre-service teachers admitted that the SL program/project was overwhelming and was an eye-opening experience while reflecting. One of the pre-service teachers whose project was on agriculture reflected as follows:

“I realized something interesting about crops. I now know that agriculture is a hard work” (RD7).

Another agreed that:

“when we were taken to the children and the house mothers, I must admit this was a very scary but eye-opening experience as we had to walk on sand oaths through low cost housing and informal settlements to get to the children” (RD11).

A pre-service teacher who assisted the elderly with their garden also noted how impressed he was with the amount of gardening knowledge the senior citizens had. According to him:

“I was impressed that this elderly people who look frail have so much knowledge about gardening and are still eager to participate in it”

From the reflection of one of the pre-service teachers, one could note a sense of apprehension that she feels the SL project will affect her performance in the other modules she registered for. The pre-service teacher wrote:

“I feel that this research is going to drain me in terms of the amount of work I am required to do. I am a bit concerned though that it will affect the other modules that I am doing and I will end up neglecting them when they are just as important to me as biology too” (RD 4).

Similarly, another pre-service teacher expressed her sense of apprehension in the project that has to do with uncertainty on how to engage the community,

“I am not sure on the best approach to take to get the old people involved in the garden project. I feel somehow disconnected” (RD8).

From the findings, it was evident that most of the pre-service teachers’ who conducted the SL programme reflected on their experiences, although the reflective practice reduced largely during the actual SL project implementation. The reason for this could be that the pre-service teachers focused all their attention on the research part of the project and neglected the reflections. Nevertheless, given that reflection is a compulsory aspect of SL and can be regarded as the ‘heart’ of SL, institutions considering or implementing SL should encourage any form of reflections by students.

The reflections were done in various ways and at different intervals. For instance, some pre-service teachers reflected on their experiences through listening to their senior colleagues talk about their SL experiences, visiting various possible centres for their SL programme, and implementing their actual SL projects. A lot of the pre-service teachers reflected on their experiences individually during the module lectures which were strengthened by their discussion with their coordinator, their peers, and through written project reports and making of posters and collages.

4.3.3.5 Sustainability

The pre-service teachers wrote extensively about the need for sustainability, clarifying expectations and the ways the community/site members perceived the youthful pre-service teachers. A pre-service teacher directed the sustainability towards self and institution, he wrote:

“.....I also need to ensure that the project is self-sustainable.....research and service learning is so very important and if all discipline in the tertiary institution are formatted in this way, I think that wonders in the economy....” (RD4).

Though only few of the pre-service teachers used the word “sustainability” they implied it in excerpts such as ,

“I had so much fun and wish this could continue”, “why can’t we do this in every year of our study.....”, “I will like to do a project like this again” (RD1).

“..... research and service learning should be done by every student at this campus because it’s the most fulfilling feeling that you get at the end, when you see everything coming together” (RD3).

“I have decided that even if I don’t get placed here that I will do voluntary work here after the course is over. The people around the area although in poverty had the most beautiful smiles” (RD12).

“I think projects like this should be encouraged to ensure that when elders and children desperately need help they know where to go” (RD4).

While the pre-service teachers support the idea of sustainability, they still noted how important volition was in the programme. The pre-service teachers were careful not to impose themselves or assert their voices over that of the community’s. One pre-service teacher wrote:

“Not getting the permission of the community before starting a project will basically forcing a project onto the community and that will not generate a good result” (RD2).

“I need to provide solution to what the troubles of the community have not what I think is needed by the community” (RD4).

Another pre-service teacher wrote on the importance of volition in the following sentence:

“The community need to be involved in deciding what they want from us students so that we don’t do what they don’t like” (RD10).

The findings from this research indicates that the SL programme conducted by the tertiary institute under research qualifies as a SL programme as it included aspects of the four themes indicated in the conceptual framework as basic characteristics of SL. The next section answers the research questions using the findings from this research.

4.4. Why did the pre-service teachers undertake the SL projects in the ways they did?

From the findings on this question, there are a number of reasons suggested by the pre-service teachers’ narratives why they undertook the SL project the way they did. These reasons include course requirement, concerns for others, personal motivation, religiosity, application of acquired knowledge and skills.

It was obvious from most of the pre-service teachers’ writing that they implemented the project in a certain way because they were pre-informed during the BIO 420 class session on the direction the project should take; which was listed in their course outline.

“I initially didn’t want to do this project but I had to because it was compulsory for us” (RD 6).

Another reason as derived from the pre-service teachers’ diaries is the feeling of doing service to the community people. This is evident in the following statements from the pre-service teachers’ diaries.

“Doing this SL course makes me feel good about myself” (RD2).

“I wanted to help someone less privileged than I am” (RD3).

“I brought in three packets of clothing and toys for the clinic. It felt good giving it to them” (RD12)

The religious and cultural reasons were seen in statements such as:

“In church, they always talk about giving. I want to give back to the community and I know doing this project gives me that opportunity” (RD1)

“I get exposed to and learn from other communities that have cultures different from mine” (RD2).

The pre-service teachers were also influenced by the partner/experts’ or colleagues’ presentations.

“When (name withheld) shared his experiences with this module, it gave me a fright and it made me wonder if I should [go] through with the module. He also said things that motivated me to stay and participate in the module especially the service-learning part of the programme” (RD13).

The project could easily be linked to the module.

“I did this project this way because I can link it to the biology perfectly” (RD4).
“I also thought about teaching the youth about drugs and link drugs to central nervous system” (RD4).

“I also viewed the exhibits and worked out if the exhibit is related to a subject in school and what process it links with e.g. physical science- electricity” (RD14).

The project was taken for the attainment of academic credits and for career experience.

“.....I am not capable for such complicated work but I had to do it otherwise my grades will be low” (RD1).

“I feel that BIO 420 is my tool to becoming a successful biology teacher since by researching, I will learn new things and this will broaden my knowledge and enable me to share my knowledge with my future learners (RD 14).

From the findings of the above question, the main reason for the pre-service teachers’ engagement in the SL programme is that they are students and it is a requirement by the tertiary institute and the coordinators of the module that students of the BIO 420 module

should undertake this SL programme for course completion. The nature of the SL programme intends that pre-service students give themselves willingly to the various communities they have chosen in the capacity of service besides their academic endeavours.

Notwithstanding the above reasons, some pre-service teachers gave some personal reasons why they conducted the SL project. The findings showed that some pre-service teachers saw the SL programme as an opportunity to experience and interact with people outside the tertiary institute. This is emergent in the following excerpts:

“I think my fears and stresses were outweighed by the curiosity I have and my willingness to participate in the service-learning programme” (RD13).

“I think this project will give me the opportunity to observe how other people in their community live, the challenges they are facing, the success that they have achieved and the possible solution that they believe can be established to eliminate the challenges they are facing” (RD4).

4.4 Pre-Service Teachers’ Experiences on the SL Project

SL experiences are mostly structured and planned prior to the implementation of the projects in order to ensure that students receive the desired exposure to a particular individual or setting that will aid the achievement of those experiences. The experience of being in a SL class was new to most of the pre-service teachers. Majority of the pre-service teachers wrote about how unique and educative the SL programme is:

“Being part of this course is surreal. Honestly, describing it is difficult” (RD 6).

“This was a scary experience for me! When we were told of the project, I was puzzled and confused..... this was foreign to me as I had never done it before. I think this was a very unique experience for all of the bio 420 students” (RD11).

“At first it was confusing on what we were doing because I didn’t know what the module is all about. I also didn’t know what the service-learning is about” (RD8).

“This whole experience was a very educational process for me as I had experienced many emotions and learnt new things” (RD9).

While the pre-service teachers acknowledged some difficulties they encountered during the implementation of the project, they also acknowledged that they now see themselves as positive agents of change and were proud of themselves for starting and completing the SL project.

To avoid repetition as noted from the pre-service teachers’ narratives, the experiences of pre-service teachers during the SL project implementation in relation to the pre-decided themes are summarised in the table below:

Table 4 .2: Summary of pre-service teachers’ experiences of the SL Project

Experience	Theme	Agreed
The course helped to develop my relationship skills	Relationship	PR 7, PR 11, RD 3, RD 2.
The course helped to learn how to plan and complete a project.	Sustainability and reciprocity.	RD 2,3,4
I benefited from a community member.	Relationship and reciprocity	RD 1, 3, PR 1, 7
The project helped me to define my strengths and weaknesses	Reflection	RD 1, 5, 10
The community appreciated the university involvement.	Reciprocity and relationship	PR 13, 14
The project benefited the community and the university.	Reciprocity	All
I won’t volunteer or participate in the community after this course.	Sustainability.	Nil
Community participation showed me how I can become more involved in the community.	Reflection.	PR 9, 11, 12, 14,

All universities should involve a community component.	Structure.	RD 2.
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The pre-service teachers' sense of civic responsibility was fostered through their experiences in the SL project sites. The SL projects provided the pre-service teachers with issues that they are likely to face in future, therefore getting them prepared and ready to be an advocate for SL pedagogy in their teaching career. Appreciation of the experiences derived from the SL project was clear in the pre-service teachers' writings:

"The class activities, the actual SL project, the presentation was a creative and interesting way to work in the community. I really enjoyed it" (RD 2)

"Overall, the project was great, it made us active in the community and gave us a chance to work with children of child-headed homes and understand their situation. It was really fulfilling" (RD1).

"I really love this project, I feel I am now connected to those children and I really wish I can continue to see them" (RD4).

In addition to the above experiences, most of the pre-service teachers expressed that the SL projects were time consuming and required more time for successful implementation.

4.5 Conclusion

The findings of this analysis provided a description of the SL that occurred during the implementation of the SL project of BIO 420 module during 2007 to 2011. For instance, those that served in children drop-in centres or animal care centres were sensitive because they listened, helped, and noted that serving in such places was more than making conversations with the staff or children. The evidence from the data shows that reflection is a very important aspect of SL as without the reflection diaries, it would not have been easy to understand the experiences of the pre-service teachers and the learning that occurred during the SL project implementation.

The research findings suggests that challenging student with real-life situations and framing a curriculum that addresses social/civic problems, SL contexts provides

students with challenging situation which is similar to what Dewey calls “forked-road dilemmas” (John Dewey, 1938, p. 14). Nevertheless, this finding implies that to understand and encourage students learning in SL, the relationship between the structural, reciprocal and relationship factors should be analysed in detail and should probably influence the SL programme planning.

From the model indicators discussed in section 2.7, the SL project analysed in this research can be considered as “Pure”, “Discipline based” or CHESP model. This is because the SL project requires the pre-service teachers to go into the community to serve; the community feels their presence during the semester and they spend almost 24 hours of the course in the community serving.

It is important to note that there were no sufficient data generated from the data generating tool: Project Report and Reflection diaries. This is because most of the pre-service teachers’ writings were not detailed. There were a lot of general comments and not enough comments that speak to an idea/theme directly.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The BIO 420 pre-service teachers' SL projects were analysed in this research. In this chapter the main findings that emerged from the deductive analysis of the data are discussed using the pre-decided themes from the conceptual framework and another theme that emerged from the data. The findings were used to answer the research question while considering the experiences of the pre-service teachers. A summary of the key findings with regards to each research question is discussed in a broader context. The link between literature and findings is also presented. Finally, the chapter ends with a conclusion, discussion of the recommendations and future research.

5.2 Nature of Service Learning

The nature of SL projects conducted by the pre-service teachers was complex. The pre-service teachers conducted SL projects in placement sites where issues related to HIV/AIDS, gender violence, old aged homes, and poverty are evident. Generally, all the projects had a complex and ambiguous nature.

The SL programme implemented key principles of reciprocity and reflection which had a mutually beneficial result for students, universities, and communities, while assisting the HEIs to achieve civic mission in a larger scale. Guided by the SL typology of Furco (1996) discussed in chapter two (see section 2.3), the project implemented and analysed in this research can be identified as Service-Learning, as both service and learning outcomes were visible and in equilibrium.

The SL projects provided the pre-service teachers with knowledge and skills gaining opportunity. Initially, the decision-making process and foundation stages of the project proved challenging for the pre-service teachers. This made some of the pre-service teachers re-strategise to achieve success. Dewey (1916) opines that education should offer students real life experiences that will build their capacity to contribute to the society. Engaging and relating with the community, youth, children and the elderly provided a real-life platform for the pre-service teachers to develop a sense of civic

engagement. The complexity of SL projects provided the pre-service teachers with guided real-life experiences which forced them out of their comfort zones, compelled them to confront their ‘other side’, and in turn influenced their civic responsibilities.

While the SL experiences were difficult for some pre-service teachers, it was manageable for others who seemed to have grasped the idea and actions. The pre-service teachers truthfully acknowledged the challenges met during the projects, but were proud for completing the projects as they see themselves being agents of change who made an impact in people’s lives. The pre-service teachers expressed time constraint as one of their challenges when undertaking their projects in record time. They believed that the time frame allocated for the projects were not sufficient, which corresponds with Erickson and Anderson (1997) opinion that high quality SL projects take time to plan and execute.

One of the principles of SL is reciprocity which brings about a mutual beneficial relationship for all the parties involved (Bringle & Hatcher, 1996). This SL project proved to be rewarding for all the parties involved. It was a ‘win-win’ situation as the pre-service teachers were able to apply theory to practice; and have a direct experience of reciprocal community engagement that fostered their personal growth, which wouldn’t have been possible in a traditional classroom context. The community members benefited from the project, since they had the pre-service teachers who were very eager to make use of their knowledge and skills to provide services that catered for various needs. Through positive awareness the tertiary institute enjoyed the benefits of the SL partnerships with the surrounding community and an enhanced community-university relationship. This is in agreement with Gerstenblatt (2013), who opines that SL is an opportunity to provide both “macro and micro” relationships between communities and universities (p. 175).

Lastly, instructors benefit from the SL project by having a sense of fulfilment that goes with seeing students grasp the concept of SL. The pre-service teachers learnt about SL programmes through the classroom activities, which was heard for the first time by some of them. Furthermore, the pre-service teachers developed the ability to link their academic research to the wider society during the SL project in the community.

5.3 Reasons for Undertaking Service Learning

The pre-service teachers discussed their motivation for undertaking the SL project. The knowledge and understanding of the motives behind pre-service students' participation in the programme can aid in more effective planning of SL.

While some pre-service teachers conducted their SL projects individually, most of them worked in groups and expressed that listening to their senior colleagues and peers discuss issues linked to SL motivated their participation. Working in groups, according to the pre-service teachers was an opportunity that made it possible for them to work on their SL projects effectively and confidently. The pre-service teachers saw working in a group important because most of them had no initial knowledge of SL or even conducting such a project before. Working in a group gave the pre-service teachers opportunities for conversations, which is an essential aspect within an experiential learning theory. Conversation involves interpreting and understanding ideas which can be described as the roots of experiential learning (Baker, Jensen, & Kolb, 2002). The pre-service teachers were able to learn from their colleagues through group work and this enhanced their knowledge of SL. The nature of collaboration among group members enabled learning to occur (Turuk, 2008), thereby influencing the pattern of the SL projects. This is also in line with Burdett (2003) view who noted that working in a group not only promotes effective learning, but also exposes students to the atmosphere of future work.

Another important aspect of motivation for the pre-service teachers was the idea of learning new cultures and meeting new people outside the institution environment. This was deduced from one of the participants' expression "I am feeling excited about the research and service-learning as something new and refreshing from indoor learning" (RD). It was also evident from the findings of this study that faith/spirituality influenced some of the pre-service teachers' participation in the type of SL project. This type of influence is supported in literature (Jacoby, 2014; Traub, 2008; Hatcher et al., 2004) where faith is seen to have an impact on the expression of compassion, empathy and care to the poor and needy.

In this research, the findings suggest that the pre-service teachers showed heightened sensitivity to the importance of service. An important aspect of SL is the identification of the community needs by the community members (Furco, 1996), and this need is

respected and recognised by the service providers who in this case are the pre-service teachers. The pre-service teachers' understanding of SL was heightened as they recognised their own emerging competence in successfully meeting the challenges of working with people of the community. They were somehow surprised that they could make a difference in someone's life and their own, using their skills and abilities, previously unknown to them. Skills such as interpersonal communication, patience, and empathy were often mentioned as acquired outcomes of their SL experiences. This evidence corresponds with Pacho's opinion that "aspects of Service-Learning would bridge the gap between theory and practices; soft skills and hard skills; and the academy and the community, while producing well-rounded and productive graduates" (2017, p.166).

Pre-service teachers who conducted their SL in places such as Old Age homes were shocked at the degree of isolation faced by many elderly persons. They often expressed emotional experiences in reflection diaries concerning their observations of elderly persons receiving no visitors. Some also reflected on their enjoyment during the SL programme and wished the project could be extended over a longer period.

5.4 Connecting Findings to Experiential Learning Theory

As discussed earlier, the experiential learning theory of Kolb guided this research. Each of the pre-service teachers that implemented the SL project went through four stages of the experiential learning cycle: concrete experience, reflection, conceptualisation, and active experimentation. All the pre-service teachers that implemented the SL project under research had a concrete experience in their various communities chosen as placement sites for SL. Reflection and awareness of the teacher's experiences in the service communities made learning possible. They reflected on their daily activities, emotions, experiences, and motivations during the entire SL project. They were also able to provide detailed, descriptions and explanations of what they had learnt in their reflections. The pre-service teachers internalised the experiences, realised the changes in their personal world views, while conducting SL projects and identified ways to use what they learnt in their prospective teaching careers.

Figure 5.1 illustrates how Kolb's (1984) four stage experiential learning cycle can be adapted and applied in future research.

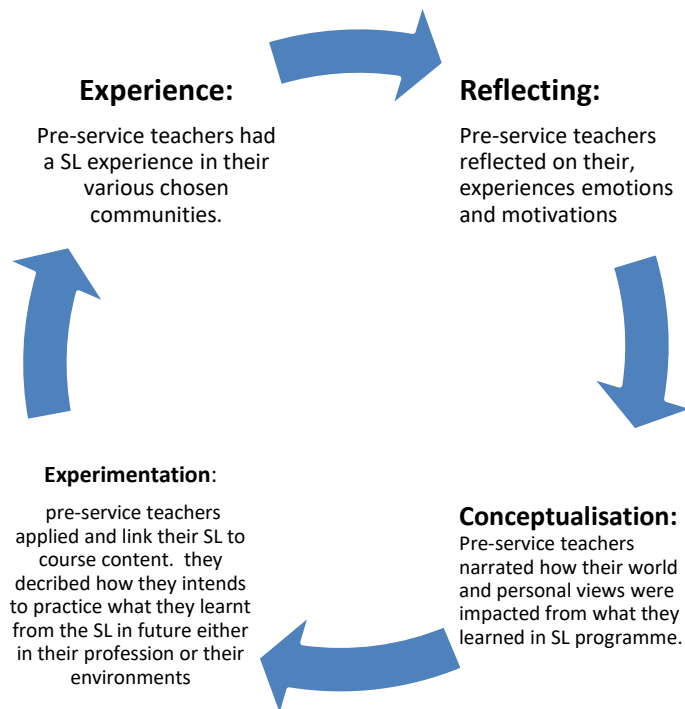


Figure 5.1: Application of the Experiential Learning Theory

5.5 Discussion

It is evident from literature that SL influences HEIs and there is a high possibility that the influence will increase. The integration of SL throughout a range of higher institution curricula using experiential learning provides students with a great opportunity of real world experiences and way of applying theory to practice, as it merges what students are taught in the classroom with the real-world.

The opportunity for students to design a project based on their passions contributes to their personal and professional development, especially when they encounter a lot of trial and error during the project implementation, and are faced with defeat from the reality of community-based service (Stoecker, Loving, Reddy, & Bollig, 2010).

Even though it was evident that the experiences of the pre-service teachers in this SL project was very positive, it is important to acknowledge the complexity of SL. Service-Learning proved to be time consuming for the pre-service teachers and for those that were registered for other modules, as it is an added commitment to their schedules. Furthermore, the time constraints are heightened with circumstances beyond their control such as bad weather (as noted in one (RD) quote “I am feeling nervous that I am

a little behind and time is not on my side. The bad weather today made it impossible for us to work on our project”). The circumstances that they experienced forced them to think outside the box in order to get back on track with their projects. The instructors also got their own share of the discomfort, as they needed to take time out to establish and retain relationships with the communities, as well as conduct a regular follow up on the pre-service teachers.

While reflecting on their diaries during the SL project implementation, the pre-service teachers noted how much they have developed personally and professionally during the project. The RD 2 pre-service teacher noted how shocked she was to discover the discrimination involved with people in old aged homes from members of the community, since she always thought that they were loved and cared for.

5.6 Recommendations and Future Research

This research expands the knowledge base on SL in tertiary institutions. Findings from this study may be used to inform and guide SL programme coordinators on the planning, implementation and evaluation process of SL. Based on the findings of this study the following recommendations are presented.

In the near future, this research should be expanded to include SL as practiced in other South African Institutions, as well as include other aspects such as students’ expectancies and frustrations that could play an important role in the implementation of SL projects. More studies on SL projects and programmes in HEIs are necessary for an extensive in-depth analysis. These studies will inform on the models, challenges, success, and outcomes for SL implementations in HEIs in order to increase the possibilities for SL integration. This recommendation is inspired by the indication that SL programmes are important in supporting the mission of most universities, which is service to the communities (UNESCO, 2010).

The importance of reflection in SL cannot be over emphasised. It is noted as important for learning to occur during service. The findings from this research indicate that the pre-service teachers tend to focus more on the research part of the programme and less on writing their reflections; hence for some, scanty reflections were produced. Therefore, it is recommended that reflection should be encouraged and practiced across all settings - reflective deliberations among students, between students and the service

communities, as well as students and lecturer to address the needs of all the partners effectively.

Another recommendation is that students who implement SL should not lose the relationships they have developed with their peers and people they worked with in the communities, during the module. The findings of this study indicate that the pre-service teachers valued and appreciated the interactions they engaged in during their SL experience. Additionally, in line with the view of Vogel and Seifer (2011) the result suggested that it is ideal for SL programme to include a sustainability plan, which is a semester to semester continuity plan by embedding the program within a bigger structure of university-community partnership projects; the students are likely to acknowledge the importance of the programme and not withdraw at the end of the semester.

Lastly, it is recommended that future research on SL combine both qualitative and quantitative methods for adequate research. This recommendation is supported by Bringle and Hatcher (2000) who insisted that quantitative methods be supplemented with qualitative efforts.

5.7. A personal reflection on conducting the research; An analysis of the Service-Learning projects undertaken by Biology pre-service teachers at a Tertiary Education Institution: 2007-2011

As mention in Chapter 1 of the research, I began this research as a novice in the area of Service-Learning and Community Engagement. I come from a background where community service in some parts of the country does not receive the level of awareness it should, and in other parts where it is practiced, it is looked down upon. Until this research, I was of the view that community service, volunteerism and Service-Learning are similar and had not imagined that it could be relevant in education. In other words, “I learnt on the job”.

When this topic was introduced to me by my Supervisor Dr. Angela James, it sounded strange and complicated especially as I knew I was going back to my home country shortly after. However, she simplified the concept and made it exciting so much so that

she got my attention and I took her up on her challenge to research on this topic for my Masters. Hence the beginning of the research.

While conducting this research I experienced ranges of feelings/emotions at different stage of the research. I will narrow the feeling down to three for easy explanation. At the beginning of the research, I experienced the feeling of confusion (which way to go) as I was struggling to really understand the concept of SL and at the same time to understand what is expected of the research. To combat this feeling of confusion, I basically dedicated the first year of this research to reading and acquiring as much knowledge as I can about SL and conducting a SL research.

After I have gotten “enough” knowledge as I think and written so many drafts with concrete corrections from my Supervisor, then came the feeling of “that is the way” where I basically felt that I now know what SL is and what is expected of me during this research. I was also at this level while analyzing the data for this research and it made me think of the various possible reasons as to why the pre-service teachers reflected and conducted their SL projects the way that they did. However, it wasn’t until I interacted/ tutored the module under this research that fully understood the pre-service teachers’ real feelings as reflected in their reflection diaries.

Lastly, I experienced the feeling of “I have arrived” this feeling came from seeing myself at the completion of the research where I felt so proud of the work I did and I couldn’t help but pat myself at the back saying “congratulations Cassy, you did it”!

5.8. Conclusion

The SL project implemented by the pre-service teachers proved to be challenging. This made the pre-service teachers question their personal identities, emotions, and characters. This is coherent with Ash, Clayton and Atkinson’s (2005) stance that states task and activities carried out by students are very important for their personal, social, and professional development., The SL project carried out by the pre-service teachers helped them research and analyse their development.

The pre-service teachers became aware of who they are, their capabilities and potentials including the possibilities of what could be done in communities for the enhancement of all, while conducting this SL project. They also developed an understanding of the

intricacies of conducting SL and the research itself. From these experiences, they also learnt how to implement SL in their future classrooms.

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APPENDICES

APPENDIX 1: GLOSSARY OF TERMS

Civic Engagement

Civic engagement means working to make a difference in the civic life of our communities, and developing the combination of knowledge, skills, values and motivation to make that difference. It also means to promote the quality of life in a community, through both political and non-political processes. A morally and civically responsible individual recognises himself or herself as a member of a larger social fabric and therefore considers social problems to be at least partly his or her own; such an individual is willing to see the moral and civic dimensions of issues, to make and justify informed moral and civic judgements, and to take action when appropriate (Ehrlich, 2000, pp. vi; xxvi).

Civic Responsibility

Civic responsibility is the to actively participate in the public life of a community in a constructive, informed and committed way focusing on the common good (Gottlieb & Robinson, 2006).

Community

In the SL context, ‘community’ refers to those specific, local, collective interest groups that participate in the SL activities of the institution (Bringle, Hatcher, & Jones, 2012).

Community service

These are programmes or projects that are linked to HEs which involve students in activities intended to benefit a particular community in ways that teach the students to work jointly towards achieving a common goal (Perold & Omar, 1997).

Education

Education is that reorganisation or reconstruction of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience (Dewey, 2011, p. 45)

Learning

According to Dewey, learning is the accomplishment of continuous activities or occupations which have a social aim and utilise the materials of typical social situations. For under such conditions, the school becomes itself a form of social life, a miniature community and one in close interactions with other modes of associated experience beyond school walls. All education which develops power to share effectively in social life is moral. It forms a character which not only does the particular deed socially necessary but one which is interested in that continuous readjustment which is essential to growth (Dewey, 2011, p. 196).

Reflection

Reflection is a key element and a tool of SL that integrates creative and critical thinking by the students with the intention to understand and evaluate what the students did, learned, how they were affected personally and how their services affected the society at large (Blanchard, 2014).

Service-Learning

SL is a credit-bearing educational experience in which students participate in an organised activity that not only meets the needs of a particular community but also reflects on the service activity in a way that further understanding of the course content is achieved and sense of civic responsibility is enhanced (Bringle & Hatcher, 1995, p. 112).

**APPENDIX 2: RESEARCH AND SERVICE-LEARNING MODULE
OUTLINE - 2011**

**UNIVERSITY OF KWAZULU-NATAL
EDGEWOOD CAMPUS
BIOLOGICAL SCIENCE
FOR EDUCATORS 420**

**RESEARCH AND SERVICE-
LEARNING MODULE OUTLINE -
2011**

University of Kwa-Zulu Natal Pact

**We, the staff and students
of the University of KwaZulu-Natal
agree to treat each other with respect,
to abide by the rules and regulations of the institution
and to commit ourselves to excellence in research-led
teaching and learning.**



CONTENTS

- 1. Module Purpose**
- 2. Module Outcomes**
- 3. Module Programme**
- 4. Assessment**
- 5. Key References**

1. Module Purpose

Students taking this module should develop appropriate knowledge, skills, values and attitudes about research in Biological Science and Biological Science Education and Service-Learning.

2. Students will develop the following critical outcomes:

- ☞ Work effectively with others (colleagues and community members) as a member of a team, group;
- ☞ Organise and manage themselves (personal attributes and behaviours) and their activities (roles in the research and service learning module on campus and in the placement site) and responsibly and effectively;
- ☞ Collecting, analyzing, organising and critically evaluating information (data on their experience in and of the research and service learning module);
- ☞ Contributing to the full personal development of each student and the social and economic development of the society at large by making it the underlying intention of the Biological Sciences for Educators 420 module to make each individual student aware of the importance of:
 - ⊗ Reflecting on and exploring a variety of strategies to learn more effectively;
 - ⊗ Participating as responsible citizens in the lives of local communities;
 - ⊗ Being culturally and socially sensitive across a range of social contexts.

3. Specific Learning Outcomes for the module:

1. Develop a conceptual understanding about Research and Service - Learning; the research process – research proposal writing, research methodology, data collection and analysis, and the application of the research findings to life; service learning process focusing on the different models and constructing the model that each student teacher will be working with.
2. Use process skills to access Research, Science Education and Service-Learning journals, evaluate published research, investigate research issue/s (foci), critical questions, design and use appropriate paradigm/s, methodology and data collection instruments to collect data, analyse data,

present findings and to make conclusions; plan, manage, reflect and evaluate the Service-Learning activities/actions and process.

3. Apply acquired knowledge and skills to conduct research in the placement site.
4. Prepare a mini thesis (report) and present the research in a student research day seminar.
5. Demonstrate an awareness of Research and Service-Learning as parts of a dynamic field which has great application for sustainable development of people with their environments.
6. The development of social responsibility and personal growth (inter- and intrapersonal learning) of the student teachers.
7. To evaluate a relationship with a community group and service organisation for the purpose of pursuing service- learning in the module.
8. Have experienced Service-Learning as a learner.
9. Have reflected on your learning processes and outcomes in this module.

4. List of module descriptors/study units/themes (content topics)

Content topics

a. Introduction to Research, Service-Learning and related issues

Developing a meaning for Research and Service-Learning
Exploring Research journals and readings in Biological Science
Biological Science Education and Service- Learning.

b. The Research process and the Service-Learning process

Steps of the Research process; Research proposal development,
Research methods and data collection and analysis tools and
techniques, and making conclusions.
Models of Service-Learning

c. Research into selected topics (Service-Learning placement site)

Formal student conducted research into selected topics;

Preparation of mini-thesis

Presentation of mini-thesis – publication, seminar poster

5. Modes of Presentation

Class and group discussions; tutorials; seminars; poster presentations; video-tasks; self-directed study, fieldwork (fieldtrips), proposal and thesis presentation and examination.

6. 1. Assessment

Both formative and summative assessment will be integrated in the module. The formative assessment will be used “to monitor students’ progress during the module...summative assessment will be used primarily for determining the extent to which students have achieved the module outcomes” (Bender et al, 2006, p.79).

The summative assessment entails an examination and comprises 40% of the total module mark. The examination will be a 2.5 hr paper in November for a total of 150 marks. The students will be given the examination questions two weeks before the exam date and they are expected to hand in the examination responses on the day of the examination (can be viewed as a hand in exam).

The formative assessment entails the coursework and comprises 60% of the final mark. Students must obtain a minimum of 40% for the module mark in order for them to be given a duly performed certificate and permission (entry) into the examination process.

The pass mark for the module is 50% on the coursework and examination mark. (See assessment schedule)

6. 2. Assessment criteria

Students show work that demonstrates an understanding of the concepts, principles and knowledge developed in this module.

Students show work where they use process skills -
designing critical questions and appropriate research methodology for data collection, recording, analyzing data, making conclusions, reporting and disseminating the findings; developing and recording reflections.

Students show work in which they investigate Research in Biological

Science; Biological Science education issues and Service -Learning at the placement site.

Students show work where they have completed their theses and report on their findings

(Work is used as a broad term to describe opportunities and activities during the module where students can demonstrate outcomes they have achieved. These include participation in group discussions, seminars, completion of tasks etc).

6. 3. Assessment Guidelines

Each student is expected to **complete all assessment tasks** and to **submit by the due date** decided by the lecturer/negotiated by lecturer and students. A **Written report**, where stipulated should be handed in at the **end of the planned session**. Any **assessment tasks** handed in '**late**' will have **marks deducted** – 5% for 1 day, 10% for 2 days etc. to a total of 5 days. Late submissions will only be accepted if there is a '**valid reason**' and a letter to motivate for my acceptance of the late submission.

Some assessment tasks require of students to work in groups of 2/3. It is in the interest of students to choose and work with students who 'carry themselves equitably in the task'. If a student in your group is not making an equitable contribution, this needs to be reported to me so that I can give that student a 'zero' for the task. For group work to be effective it is the responsibility of every group member to participate and to communicate any concerns that he/she may have with the group.

The grouping of students and group work is and can be a contentious issue. We as a class group need to decide on the student grouping strategy/strategies that will be followed in this module.

Each student will be provided with an assessment planner.

7. Timetable

Biological Science for Educators 420 sessions are 90 minutes, except the Placement site activity. The sessions are: Tuesday 3 and 4; Wednesday 5 and 6; Friday 9 and 10.

Discussion about time organisation re- placement sites will take place and we will negotiate the time frames and management thereof.

8. Placement sites

Placement sites serve as suggestions. Any student who is passionately interested in a particular field of work could work in that field in a particular placement site.

Placement Site 1 – Childrens' Drop In-centre

Name: Mrs Ronita Mahilall; Position: Manager

Organisation: Community Outreach Center St Mary's Mariannhill

Placement Site 2

Name: Dawn Leppan/Terry Wiles Title: Mrs/Dr

Position: Manager/Secretary

Organisation: 1000 Hills Community Helpers

References

Research readings – separate handout

APPENDIX 3: BIOLOGICAL SCIENCE FOR EDUCATORS 420 PLANNER

BIOLOGICAL SCIENCE FOR EDUCATORS 420 RESEARCH AND SERVICE-LEARNING MODULE SEMESTER 2 – PLANNER (2011)

Time frame	Focus	Student Activity
Week 1 15 August	Finding our way in research and service-learning (SL) <ul style="list-style-type: none"> Drawing of student perceptions, Interpreting a cartoon, completing questionnaire and class discussion on Research and SL, teaching quotes So what is research and SL why do we do it? <ul style="list-style-type: none"> Student presentations (Activity 1); Research presentations and discussion Present Activity 2	Complete a student questionnaire and drawing Interpret cartoon and discuss Locate and access science and service-learning journals in the library and use a computer to access information - Activity 1 Presentation of activity 1 Readings – groups to read and discuss. Activity 2
Week 2 22 August	SL Sites and Research projects – decisions and choices with tentative plans Research, SL process - Flow chart and details Orientation – placement sites Research Article	Who will do what? How, when and why? Visit site; reflect and motivate on site Activity 3
Week 3 29 August	Literature Review, Research Paradigms and Methodology, SL process	Reading of handouts and group discussion

	Explore meanings and construct knowledge and skills. Individual consultation Placement Activity	Student teachers at sites
Week 4 5 September	Literature Review Research Methodology, SL Models Proposal Presentation	Reading relevant articles and writing a literature review Activity 4
Week 5 12 September	Research progress Designing and discussing data collection instruments Consultation – individual and work groups Work in placement site	Student inputs - Class discussion Individual and group interviews Student teachers at placement site
Week 6 19 September	Research and SL concerns and issues Data collection progress Literature review Consultation Work in placement site	Student presentations and discussions (reflections and experiences) Refining and completing Individual and group interviews Work in placement site
Week 7 26 September Mid-term break 10 -14 October	Research and SL concerns and issues Data collection progress Literature review Consultation; Work in Placement site	Student presentations and discussions (reflections and experiences) Refining and completing Individual and group interviews; P S
Week 8 17 October	Fieldwork (SL) and individual/group activity; Recording and completing data analysis; Findings and Conclusions	Individual and group project work Class meetings and discussions Individual consultations

Week 9 24 October	Fieldwork (SL) and individual/group activity Recording and completing data analysis Findings and Conclusions	Individual and group project work Class meetings and discussions Individual consultations
Week 10 31 October	Fieldwork (SL) and individual/group activity Recording and completing data analysis Findings and Conclusions	Individual and group project work Class meetings and discussions Individual consultations Activity 6
Week 11 5 November	Submission of Research Thesis	Students to hand in completed research project Activity 7
AND	Undergraduate Student Research Day Seminar	Individual/group presentations Activity 8

APPENDIX 4: BIOLOGICAL SCIENCE FOR EDUCATORS 420 ASSESSMENT SCHEDULE.

BIOLOGICAL SCIENCE FOR EDUCATORS 420

SEMESTER 2 – ASSESSMENT SCHEDULE (2011)

DATES	ACTIVITY
Week 1	<p>1 – Individual Activity - The meaning of Research and SL</p> <p>Access the internet and search for websites and journal articles to answer the following question:</p> <p><i>What is research? What is SL? And why do we do it?</i></p> <p>Submit the activity with the following information</p> <ul style="list-style-type: none"> - One website address and one journal article for the meaning of Research; and one website address and one journal article for the meaning of SL. - Reflect on your experiences of doing this activity? Why should you reflect? <p style="text-align: right;">Assessment - 4 x 4 + 3 = [19]</p>
Week 1	<p>2 – Public understanding of Research in Biological Science and Biological Science Education and Service-Learning</p> <p>You are expected to access media that the general public is exposed to. Look for Research/Service-Learning linked articles etc. Be creative develop a collage/poster of the text, visual evidence.</p> <p>Interview any four students on campus on their understanding of Research and Service-Learning.</p> <p>Assessment criteria – See attached Assessment grid for the details. [30]</p>
Week 2	<p>3 – 2 Group Activity – Research and Service Learning Articles</p> <p>Access science journals and the internet for two research articles - One with a Biology focus and one with a Service-Learning focus.</p> <p>For each article work out the focus, research question, method, a finding and a conclusion. (5 x 2) + (5 x 2) (20)</p> <p>Submit a hard/electronic copy of each paper. 2 x 2 (4)</p>

	[24]
Week 3/4	4 – Individual/Group Activity Research proposal presentation Each individual/group is/are expected to (a) develop a research proposal and to submit a reviewed hardcopy; (b) present the research proposal to the class group with the following information – Title, Information/background, Problem statement, Methodology and implementation. <i>Check assessment schedule for details.</i> Assessment - Hard copy [50]; Presentation [20] [70]
Week??? (in organisation).	5 – Individual – Fieldwork activity We will attend a research seminar and you are expected to respond to questions based on the presentation. [20]
Week (ongoing)	6 – Individual – Reflective journal You are expected to reflect on critical incidences that you experienced during your research experience. Make a booklet/ purchase - to record your reflections. [20]
Week 11	7 – Individual/Group – Research thesis Refer to the Information booklet and assessment schedule [100]
Week 11	8 – Individual/Group – Research seminar Refer to the assessment seminar presentation [50]

APPENDIX 5: GATE KEEPER PERMISSION FOR THIS RESEARCH



11 August 2016

Mrs Ifeoma Cecil Deca-Anyanwu
School of Education
College of Humanities
Edgewood Campus
UKZN
Email: decaifeoma@yahoo.com

Dear Ms Deca-Anyanwu

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN), towards your postgraduate students, provided Ethical clearance has been obtained. We note the title of your research project is:

"An analysis of the Service-Learning projects undertaken by Biology education undergraduate student teachers at a Tertiary education institution: 2007-2011".

It is noted that you will be constituting your sample by performing interviews and/or focus group discussions with undergraduate student teachers on the Edgewood Campus.

Please ensure that the following appears on your notice/questionnaire:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;

- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

You are not authorized to contact staff and students using 'Microsoft Outlook' address book.

Data collected must be treated with due confidentiality and anonymity.

Yours sincerely

MR
REGISTRAR

SS

MOKOENA

Office of the Registrar

Postal Address: Private Bag X54001, Durban, South Africa

Telephone: +27 (0) 31 260 8005/2206 **Facsimile:** +27 (0) 31 260 7824/2204 **Email:** registrar@ukzn.ac.za

Website: www.ukzn.ac.za



APPENDIX 6: PERMISSION TO CONDUCT THIS RESEARCH

The Dean
School of Education
University of KwaZulu-Natal
Edgewood Campus
P. Bag X03
Ashwood 3605, Durban

Dear Professor Msibi

Re: Request for permission to conduct research at your school

I am a student in the School of Education, University of KwaZulu-Natal. I plan to undertake a study titled: *"An analysis of the Service-Learning projects undertaken by Biology education undergraduate student teachers at a Tertiary education institution: 2007-2011"*.

I hereby request your permission to conduct a study at the Edgewood Campus. The participants in the study will be students from your school. They will be required to participate in individual interviews that are expected to last between 90-120 minutes in one session. I also request to collect data by the processing of documentation which we hope will produce rich data and contribute to the study.

Please note that

- The school and participants will not receive material gains for participation in this research project.
- The students will be expected to respond to each question in a manner that will reflect their own personal opinion.
- The school and the participant's identities will not be divulged under any circumstance.
- All student responses will be treated with strict confidentiality.
- Pseudonyms will be used (real names of the participants and the institution will not be used throughout the research process).
- Participation is voluntary, and therefore, participants will be free to withdraw at any time without negative or undesirable consequences to them.
- The participants will not, under any circumstances, be forced to disclose what they do not want to reveal.
- Audio-recording of interviews will only be done if the permission of the participant is obtained.
- Data will be stored in a locked cupboard at the University for a maximum period of five years, thereafter it will be destroyed.

I thank you.

Ifeoma Deca-Anyanwu

CONSENT FORM:

Applicants Name: Ifeoma Deca-Anyanwu

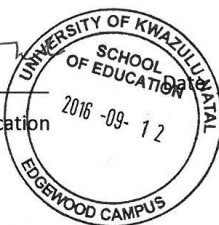
Study Title: "An analysis of the Service-Learning projects undertaken by Biology education undergraduate student teachers at a Tertiary education institution: 2007-2011"

If permission is granted to conduct the research at your school, please fill in and sign the form below.

I, Thabo P. Msiu, (Full Name) hereby confirm that I understand the contents of this document and the nature of the research project. I hereby grant permission for the researcher to conduct the research project at the Edgewood campus. I understand that learners are free to withdraw from the project at any time, should they so desire.

Signature: _____

Dean & Head of School: School of Education



12, 09, 2016

APPENDIX 7. ETHICAL CLEARANCE



8 November 2016

Mrs Ifeoma Cecil Deca-Anyanwu 212558502
School of Education
Edgewood Campus

Dear Mrs Deca-Anyanwu

Protocol reference number: HSS/1915/016M

Project title: An analysis of the Service-Learning projects undertaken by undergraduate student teachers at a Tertiary Education Institution: 2007-2011

FULL APPROVAL-NO RISK

In response to your application received 4 November 2016, 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 discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

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

Yours faithfully

Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee
/pm

Cc. Supervisor: Dr Angela James
Cc. Academic Leader: Dr SB Khoza
Cc. School Administrator: Ms Tyser Khumalo

Humanities & Social Sciences Research Ethics Committee
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Website: www.uukzn.ac.za



Resolving Centres: Edgewood Howard College Mkandaweni School Pietermaritzburg Westville

APPENDIX 8. EDITORS CERTIFICATE



Barbara Mutula
Associate member

Membership number: MU1001
Membership year: March 2018 to February 2019

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www.editors.org.za

31 July 2018

TO WHOM IT MAY CONCERN

This is to confirm that the dissertation written by **Ifeoma Cecil Deca-Anyanwu**, titled '**An analysis of the Service-Learning projects undertaken by pre-service teachers at a tertiary education institution: 2007-2011**' was copy edited for layout (including numbering, pagination, heading format, justification of figures and tables), grammar, spelling and punctuation by the undersigned. The document was subsequently proofread and a number of additional corrections were advised.

The undersigned takes no responsibility for corrections/amendments not carried out in the final copy submitted for examination purposes.

A handwritten signature in blue ink, appearing to read 'Barbara Mutula-Kabange'.

Mrs. Barbara L. Mutula-Kabange

Copy Editor, Proof reader
*BEd (UBotswana), BSc Hon Psychology (UKZN),
MEd Educational Psychology (UKZN)*

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