

**INFORMATION AND COMMUNICATIONS TECHNOLOGY LITERACY IN ADULT
EDUCATION AND TRAINING IN A DISTRICT OF TSHWANE**

by

JOHANNES RENALDO MOKOTEDI

Submitted in accordance with the requirements

for the degree of

MASTERS OF EDUCATION: DIDACTICS

at the

UNIVERSITY OF SOUTH AFRICA

Supervisor: Professor G van den Berg

2016

DECLARATION

I declare that this dissertation is my own unaided work. It is being submitted for the Degree of Masters in Education: Didactics at the University of South Africa, and has not been submitted before for any degree or examination at any other tertiary educational institution.

JOHANNES RENALDO MOKOTEDI

ABSTRACT

The purpose of this study was to investigate ICT literacy in adult education and training within a public adult learning centre. A literature study was conducted to identify a theoretical framework for a comparative study of different national ICT policies. A qualitative research design was used to conduct an empirical investigation through the use of data collection instruments such as focus group interviews, semi-structured interviews, questionnaires and non-participant observation. Data analysis was conducted, during which various themes emerged, which led to the findings and conclusions regarding the study. Recommendations were made with regard to improving the ICT literacy level in adult education and training. Limitations of the study were described and recommendations for future research were made.

KEY TERMS:

ICT literacy, public adult learning centres, adult learners, adult educators; national policies.

DEDICATION

I would like to dedicate this study, firstly, to my beloved late father, Mr Sello Mokotedi.

Secondly, I dedicate this dissertation to all my mentors who believed and invested in me. These men and women who found potential that was worthy of their time.

Thirdly, I would also like to dedicate this study to all adult learners and educators, who strive every day to better themselves, so that they can contribute productively to South Africa and Africa in general.

ACKNOWLEDGEMENTS

I would like to acknowledge the following people:

- Professor Geesje van den Berg, for her tolerance, guidance, willingness to listen, honesty, constructive criticism, positivity and brilliant assistance, as well as her two assistants, Ms Magda Botha, for always asking about my progress, and Ms Lizette van Rensburg, for always offering to make coffee for me. Baie dankie.
- Retired Dr Ranko-Ramaili, who first started this journey with me.
- Siphon Malefo, without whose guidance I would not be here.
- My Stlogolo Zeeb
- The participants in the study.
- My dearest friend Charmaine Mokotong, thanks for the support.
- Tonny Matjila, for his computer skills and friendship, and Dr Wells, for his positive attitude towards other people's progress.
- Caroline Ditinti, who was a great help on rainy days, even if the rain has not stopped yet.
- My sisters, who never gave up on me - you know who you are.
- My friend, Lesley Lekalakala, who had a problem with (phafana), but persisted in his quest to register for his Master's Degree with Tshwane University of Technology, and my other friend, Gregory Kgaladi, you will get there.
- All the lecturers in the Department of Adult Basic Education and Training at Unisa, you encouraged me even if you did not know me. We met at masters and doctoral research workshops and in the corridors. Special thanks also go to Mma Mokoena, my former high school and biblical studies teacher.
- Dorothy Moale, thank you for being there when I needed unconditional love and support. I LOVE YOU.
- Unisa library staff, I thank you.

Table of Contents

CHAPTER 1	12
INTRODUCTION AND OVERVIEW.....	12
1.1 INTRODUCTION.....	12
1.2 BACKGROUND TO THE STUDY.....	14
1.3 RESEARCH PROBLEM.....	17
1.4 RESEARCH QUESTION	19
1.4.1 Sub-questions.....	19
1.5 AIM OF THE RESEARCH	19
1.5.1 Objectives.....	19
1.6 RESEARCH DESIGN.....	20
1.6.1 Research Paradigm	20
1.7 RESEARCH METHODS	23
1.7.1 Population.....	23
1.7.2 Data Collection Techniques.....	24
1.7.3 Data Analysis	26
1.8 ETHICAL CONSIDERATIONS.....	26
DECEPTION AND CONSENT	27
PRIVACY AND CONFIDENTIALITY	27
1.9 MEASURES TO ENSURE TRUSTWORTHNESS	27
1.10 DEFINITION OF TERMS IN THE CONTEXT OF THE STUDY	29
1.10.1 Adult Education and Training	29
1.10.2 Adult Educator	29
1.10.3 Adult Learner.....	30
1.10.4 Challenges/Barriers.....	30
1.10.5 Curriculum	30
1.10.6 Information and Communication Technologies	31
1.10.7 Learning.....	31
1.10.8 ICT Literacy.....	31
1.10.9 Non-formal Education.....	32

1.10.10	Public Adult Learning Centre.....	32
1.11	CHAPTER DIVISION.....	32
1.12	SUMMARY	33
CHAPTER TWO.....		35
LITERATURE REVIEW.....		35
2.1	INTRODUCTION.....	35
2.2	THEORETICAL FRAMEWORK.....	35
2.2.1	KNOWLES' THEORY OF ANDRAGOGY	36
2.2.2	CONSTRUCTIVIST LEARNING THEORY	37
2.2.3	TRANSFORMATIVE LEARNING THEORY.....	41
2.2.4.	Daloz's Psychodevelopmental Perspective	44
2.2.5.	Freire's Social- Emancipatory Philosophy.....	44
2.3	INTERNATIONAL DEVELOPMENTS IN NATIONAL ICT POLICIES.....	45
2.4	THE BENEFITS FOR ADULT LEARNERS AND EDUCATORS IN THE USE OF ICT	58
2.5.1.	BENEFITS OF ICTs IN NON-FORMAL EDUCATION FOR ADULTS AND YOUTH	62
2.6	CHALLENGES TO ICT USE IN EDUCATION.....	63
2.7	Summary	65
CHAPTER 3.....		66
RESEARCH DESIGN AND METHODS		66
3.1	INTRODUCTION.....	66
3.2	Rationale for the empirical study.....	67
3.3	RESEARCH DESIGN.....	69
3.4	RESEARCH METHODS	72
3.4.1	Selection of participants	72
3.4.2	Data collection	73
3.5	Data Analysis	77
3.6	TRUSTWORTHINESS	78
3.6.1	Credibility.....	78
3.6.2	Transferability	79
3.6.3	Dependability	79

3.6.4	Confirmability	79
3.7	ETHICAL CONSIDERATIONS.....	80
	Informed consent	80
	Anonymity and confidentiality	81
	Ethical clearance from Unisa	81
3.8	Summary	81
CHAPTER 4	82
DATA PRESENTATION, ANALYSIS AND DISCUSSION OF DATA	82
4.1	INTRODUCTION.....	82
4.2	Questionnaire analysis	84
4.2.1	Themes and categories.....	85
4.3	Semi-structured interview analysis	99
4.3.1	Discussion of themes of the semi-structured interview	99
4.4	Non- participant observation.....	102
4.4.1	Size of the classroom	102
4.4.2	The positioning of the ICT equipment	103
4.4.3	General comments.....	103
4.5.	Summary	104
5.1	INTRODUCTION.....	105
5.2	SUMMARY	105
5.2.1	The literature review	105
5.2.2	SUMMARY OF EMPIRICAL STUDY	108
5.3.	Discussion of themes.....	109
5.3.1	Understanding of ICT.....	110
5.3.2	AET curriculum	110
5.3.3	Use of ICT devices.....	111
5.3.4	Challenges.....	111
5.3.5	Benefits	112
5.3.6	Recommendations	113
5.4	SYNTHESIS OF RESEARCH FINDINGS.....	113
5.5	CONCLUSIONS	115
5.5.1	What is the core content of the AET curriculum?.....	116

5.5.2	What is the need for the inclusion of ICT literacy in the AET curriculum?	116
5.5.3	What are the challenges that impede ICT literacy in AET?	117
5.6	LIMITATIONS	118
5.7	RECOMMENDATIONS	118
5.8	SUGGESTIONS FOR FURTHER RESEACH	122
5.9	CONCLUSION	122
6.	BIBLIOGRAPHY	125

LIST OF TABLES

TABLE 1:	Focus group interview and questionnaire analysis for adult educators	60
TABLE 2:	Focus group interview and questionnaire analysis for adult learners	61
TABLE 3	Semi-structured interviews with the DHET official	61
TABLE 4	Themes and categories	62

LIST OF FIGURES

FIGURE: 1	Questionnaire responses from the participants	60
FIGURE: 2	Questionnaire responses in relation to the use of ICT	65

LIST OF ACRONYMS

ABE	Adult basic education
ABET	Adult basic education and training
AET	Adult education training
DOE	Department of Education
DHET	Department of Higher Education and Training
FET	Further education and training
GETCA	General Education and Training Certificate for Adults
ICT	Information and communications technology
ILT	Internet learning trust
IT	Information technology
NASCA	National Senior Certificate for Adults
NEPAD	New Partnership for Africa Development
NGO	Non-governmental organisation
NICE	Network initiatives for computers in education

OBE	Outcomes-based education
PALCS	Public adult learning centres
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNISA	University of South Africa
USA	United States of America
WSIS	World Summit on Information Society

CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

Information and Communications Technology (ICT) integration in the curriculum is the apparent goal of an extensive array of educational initiatives (Proctor, Burnett, Finger & Watson, 2006: 1). However, ICT integration is neither value-neutral nor universally understood. Luke (2001) states that educators were trained in earlier times to try to forecast and prepare themselves and others for future times, but appear not to be interested in ICT integration. Ask and Bjorke (2010: 216-221) mention that educators are hampered by their own background and traditions in learning and teaching, as there is a lack of training from their tertiary education and a lack of professionalism in education. More of these challenges will be discussed in detail in the literature review.

In contrast to the challenges mentioned above, there are benefits associated with the integration of ICT in the curriculum. These benefits apply both to educators and learners, and although general benefits are mentioned here, they will be fully discussed later in the study. ICT integration in adult education will bridge the digital divide, assist in removing barriers to the access of information, and create a more learner-centred approach to education. Furthermore, ICT has the potential to create an ICT literate learner who is versatile and adaptable to the workforce, and lastly, ICT can increase educator knowledge and skills, and bring about a change in attitudes and beliefs about teaching and learning through technology.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) estimates that there are over 850 million illiterate people throughout the world, constituting 27 per cent of the adult population over 15 years of age in developing countries (United Nations Literacy Decade 2003-2012). Therefore, there is a need for the full participation of adults in all spheres of education.

In light of the findings of UNESCO mentioned above, there is an important relationship between literacy and ICT. This relationship can be examined according to the following approach: firstly, ICT is viewed primarily as a set of potential delivery and instructional

tools that can be used to help people acquire the skills associated with traditional notions of literacy. In this approach, computer-assisted tutorials and other technology-supported resources can make education more accessible, and help adults to enhance their ability to decode and comprehend text, thereby increasing their literacy, employability, and their continued use of literacy skills to become lifelong learners. With this approach, literacy is defined as a broader set of text and technological skills that include not only decoding and comprehension of text, but also the ability to access, analyse, evaluate, communicate and use information to solve problems and create new knowledge (Educational Testing Services (ETS), 2000; International Society for Technology in Education (ISTE), 1998; OECD/Statistics Canada, 2000; Quellmalz & Kozma, 2003).

With regard to the impact of ICT use in teaching and learning, Mikre (2011: 1) states that ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for businesses and the poor. One of the main hardships endured by the poor, and by many others who live in the poorest countries, is their sense of isolation. ICTs can open up access to knowledge in ways that were unimaginable up till now. From this perspective, ICT is not merely a means for delivering literacy skills, but can be regarded as an integral part of an information literate society and knowledge economy. Individual participation in this society not only involves text literacy, but also necessitates skills that use technology as a means to access, disseminate and create new information technology products for the benefit of the individual and society.

Information and communications technology (ICT) is needed to gauge readiness to pursue higher education and enter the workplace, and also plays a role in acquiring new skills and knowledge, as well as creating self-awareness. Furthermore, ICT plays a critical role in development efforts around the world. According to a survey conducted by the World Bank (2006) in 56 countries, it was found, for example, that those countries that use ICT grow faster, invest more and are more productive and profitable than those that do not (Guislain, Qiang, Lanvin & Swanson, 2006: 3). ICT could therefore be used to alleviate severe problems such as starvation, homelessness, and lack of basic education

and health services. In addition, it is an essential component of broader efforts to harness the free flow of information, in order to strengthen people's voice, as well as to enhance accountability and economic development (Guislain, Qiang, Lanvin & Swanson, 2006: 3). Dwyer (1999: 300) states that technology-based learning environments could help students to acquire the type of knowledge, skills and attitudes (KSAs) needed for success, and goes on to argue that students do not only need to know how to learn, but also how to analyse and summarise data, make decisions, work in teams, plan solutions to complex problems, and adapt to unexpected changes. According to King (2003: 50), technology is assimilated into so many aspects of our lives and work that an urgent need arises for it to be incorporated into adult education settings as well. The learning environment has changed dramatically, as the technological revolution developed a once-limited communication grid into a network so vast and efficient that it is difficult to grasp its capacity. Most adult learners are already in service and do not have the opportunity to give their time exclusively to studying (teachers are no exception). The most effective manner to study is therefore to make use of the extensive network established by information technology (La Cock, 2014: 9). The background to this study will be discussed in the next section.

1.2 BACKGROUND TO THE STUDY

This study deals with information and communications technology literacy in adult basic education in South Africa, and focuses specifically on a district in Tshwane, which is part of the Gauteng province. This district is regarded as a historically disadvantaged area.

Czerniewicz, Ravjee and Mlitwa (2006: 104) pose the question as to whether or not information and communications technology (ICT) and learning can be considered an emerging domain of research inquiry in South Africa. The same authors then ask the following question: "What would the answer be in the South African literature?" A recent analysis of South African higher degree research output on the pedagogical integration of ICTs suggests that only a tiny proportion of dissertations and research reports in this area are concerned with the actual teaching and learning processes in ICT (Moll & Matshana, 2006).

Based on the question posed by Czerniewicz, Ravjee and Mlitwa (2006: 104), the South African Department of Higher Education introduced a National Adult Basic Education and Training (ABET) Framework in 1995, which was aimed at improving the level of literacy and reskilling people. In 1996, the Department of Education (DoE) proposed the National Policy Act, in conjunction with the South African Qualifications Act of 1995, through its Adult Education and Training (AET) Directorate, in order to upscale an ABET system that enables ABET provision. The ABET system would be based upon the principles and practices of equity, redress, development, reconstruction, access, integration, partnership, sustainable use of resources, flexible curriculum, outcomes-based standards of attainment, recognition of prior learning, and cost-effectiveness (DOE, 2004). Adult basic education (ABE) is aimed at promoting the principles of cooperation, critical thinking and civic responsibility, and equips people for participation in a high skills economy and society as a whole (DoE, 2004).

Adult basic education (ABE) responds to the wide range of political, economic, social and cultural adjustments that enhance the importance of having the knowledge and skills to participate fully in all educational, social and economic transformations. ABE supplements mainstream education, in that it helps to shape an informed and knowledgeable citizenry.

Darkenwald and Merriam (1982:2) note that adult basic education (ABE) is not concerned with preparing people for life, but rather with helping people to live more successfully. The overarching function of the adult education enterprise is to assist adults to increase their competence or negotiate transitions in their social roles (workers and retired persons), in order to help them gain greater fulfilment in their personal lives, and to assist them in solving community problems (cited from Nafukho, Amutubi & Otunga, 2005:5). In view of the fact that this study is focused on ICT literacy, it is necessary to highlight the significance of having an adult education and training (AET) system which will be able to assist learners in becoming ICT literate.

ICTs have grown rapidly all over the world, and are adaptable and powerful. They change the world we live in and how we live. In this regard, South Africans should take the opportunity to frequently use ICTs and become aware of the impact of the use of ICTs in enhancing their lives, especially in relation to teaching and learning. The latter is clearly

stated and emphasised in the White Paper on e-Education, which indicates that there should be participation in the information society, access to ICTs, investment in ICTs and the quality of education, and integration of ICTs into teaching and learning processes (DoE, 2003: 8).

In 2013 and 2014, the researcher spent some time observing the use of ICTs in teaching and learning at public adult learning centres (PALCs), and discovered that there were shortcomings, such as the lack of ICT equipment, educator training and so forth, in terms of the use of ICT as a tool to enhance teaching and learning. The same problems occurred in the researcher's field of work, where he used to facilitate adult learners in the manufacturing and logistics industries, which motivated him to conduct this study. ICT literacy is a lifelong learning skill that can bring many benefits, some of which were identified by UNESCO (2006) as the following: enhancing learning, broadening access to literacy education, creating local content, facilitating the professional development of teachers, and cultivating a conducive environment for literacy. These benefits will be discussed below.

Enhancing learning: ICT can be used as a tool for the acquisition of literacy skills. For example, radio, when used in combination with printed course material, can make literacy lessons more realistic and interesting. In addition, this combination of audio and visual stimuli is more effective than visual stimuli alone in enhancing vocabulary and sentence construction skills, and can aid information processing and memory.

Broadening access to literacy education: Access to literacy education may be limited or denied, for a number of reasons. These include social, cultural, political and geographical factors, as well as lack of time to attend classes, lack of qualified teachers, lack of materials in local languages, and issues such as a delay in the receipt of feedback and results.

Creating local content: ICTs can enable the rapid and cost-effective creation and distribution of socially, culturally and linguistically appropriate learning content. For example, word processing software can be used to modify literacy education material that has been developed elsewhere, in order to make it available in local languages and locally

relevant subjects. In another example, La Cock (2011) indicates how the Microsoft Office Word tutorial downloaded from the Microsoft website helped teachers in Mpumalanga, by introducing them to the word processing programme.

Facilitating the professional development of teachers: Qualified and trained teachers represent the key to quality teaching and learner motivation. ICTs can supplement and support teachers by reducing their workload and enhancing their lessons.

Cultivating a conducive environment for literacy: For literacy to become widespread in a society, written material should be readily available in daily life and accessible to all. Such an environment cultivates opportunities for coming into contact with, and creating, written material, thereby reinforcing and promoting the development of literacy skills.

ICT literacy has some incredible benefits in education, but there are also some challenges that need to be overcome in order to enhance ICT literacy in adult education and training in South Africa.

Based on the background information provided in the previous sections, the research problem of this study will be discussed in the next section.

1.3 RESEARCH PROBLEM

Since 1995, the University of South Africa's (UNISA) ABET Institute, which was tasked with making basic education available and accessible to youths and adults, especially in rural and disadvantaged areas, providing learner-centred teaching with support to equip clients with basic knowledge and skills for job creation and self-employment, and engaging in community engagement and research activities for community development, has trained over 20,000 adult educators (most of them from the Southern African Development Countries (SADC) region) through distance learning (Quan-Baffour, 2006: 41). However, the question arises as to what the content of the curriculum was and if it covered ICT literacy. According to Quan-Baffour (2006: 41), the South African National Literacy Initiative (SANLI) employs almost all the graduates from the ABET Institute, and these students teach literacy. However, it is again not clear whether ICT literacy was included in the curriculum.

Furthermore, Quan Baffour states that adult learners are equipped with entrepreneurial skills, which enable them to start their own small to medium projects (2006: 41). However, these projects tend to focus on the establishment of spaza or tuck shops, preschools, weaving, knitting and sewing shops in their respective communities. One may agree with these initiatives, but since today's world is technology-driven, educators and learners should also be ICT literate, so that they can be competitive and contribute towards the economy.

Educational Testing Services (EST) (2001) conducted a study on the growing importance of the existing and emerging ICTs and their relationship to literacy, and it made the following recommendations regarding how technology can be used as a transformative tool:

Firstly, ICT fundamentally changes the way in which we live, learn, and work. As a result of these changes, technology tools and the creative application of technology have the capacity to increase our quality of life, by improving the effectiveness of teaching and learning, productivity of industry and governments, and the well-being of nations. Secondly, there should be an accepted definition that reflects a broader understanding of the critical components of ICT literacy, in order to stimulate transformation in the skills and knowledge that must be acquired through education and training, thereby improving the quality of education for the workforce of the future. Thirdly, ICT will continue to evolve rapidly, and technology should therefore not be limited by cultural, economic, gender, geographical, linguistic, or physical barriers.

In 2004, the National Department of Basic Education (before AET was incorporated into the Department of Higher Education and Training in 2014) published the *Draft White Paper on e-Education: Transforming Learning and Teaching through Information Communication Technologies (ICTs)*. This draft white paper embraced the view that ICT is a tool for development; tool for effective management; administrative tool to increase productivity; resource for curriculum integration; communication tool; and collaborative tool for teachers and learners. With the use of ICT, a learning environment that advances productivity, creativity, communication, collaboration and engagement can be created. The problem in this study can therefore be stated as follows:

The lack of proper structures in AET to assist educators and learners to become ICT literate

1.4 RESEARCH QUESTION

Based on the research problem above, the following question can be posed:

What is the status of ICT literacy in AET in a district of Tshwane?

1.4.1 Sub-questions

From the main research question, a number of sub-questions emerged:

- What is the core content of the curriculum in AET centres?
- What is the need for the inclusion of ICT literacy in the AET curriculum?
- What are the benefits and challenges associated with ICT literacy in AET?
- What are the attitudes of AET teachers, learners and officials of the DHET towards the use of ICT in teaching and learning?
- What recommendations can be made for enhancing ICT literacy in AET?

1.5 AIM OF THE RESEARCH

The primary aim of the study is to provide research-based, documented evidence of the status of ICT literacy in AET centres. From this aim, the following objectives emanated:

1.5.1 Objectives

The objectives of this study are to:

- Determine the core content of the curriculum in AET centres.
- Determine the benefits of ICT to teaching and learning in AET.
- Determine the challenges that hinder ICT literacy in AET.
- Identify the attitudes of AET teachers, learners and officials of the DHET towards ICT in teaching and learning.
- Make recommendations for enhancing ICT literacy in AET.

1.6 RESEARCH DESIGN

Creswell (2014: 12) maintains that research designs are types of inquiry within qualitative, quantitative and mixed methods approaches that provide specific direction for research procedures. In addition, Denzin and Lincoln (2011), cited by Creswell (2014: 12), refer to research designs as strategies of inquiry. Furthermore, Babbie and Mouton (2011: 74) state that a research design is a plan or blueprint of how you intend conducting the research. For the purpose of the study qualitative research design is employed.

1.6.1 Research Paradigm

A paradigm is the idea that at any specific point in time, all those working in a particular area, field or subject adopt common ways of working and looking at issues (Newby, 2010: 44). In research, there are different paradigms that can be used, but it depends on the study and what the researcher wants to achieve. Paradigms can be grouped into four types: positivist, transformative, interpretivist and pragmatist. In this study, an interpretivist/constructivist paradigm was employed and will be discussed below. However, prior to discussing the interpretivist/constructivist paradigm, the aforementioned paradigms will be briefly discussed.

Positivist paradigm

McKenzie and Knipe (2006: 2) refer to positivism as a 'scientific method' or 'science research', which is "based on the rationalistic, empiricist philosophy that originated with Aristotle, Francis Bacon, John Locke, August Comte, and Emmanuel Kant" (Mertens, 2005: 8). Positivists aim to test a theory or describe an experience "through observation and measurement in order to predict and control forces that surround us" (O'Leary, 2004: 5). Based on the definition, this paradigm is aligned with quantitative methods of data collection and analysis, hence the researcher did not choose this paradigm for the purpose of the study.

Transformative paradigm

This paradigm highlights the importance of the study of the lives and experiences of diverse groups that have traditionally been marginalised (Creswell, 2014: 10).

Pragmatic paradigm

This paradigm focuses on the non-commitment of one system of philosophy or reality (Creswell, 2014: 10). Pragmatist researchers look specifically at the 'what' and 'how' of the research problem (Creswell, 2003: 11).

As previously mentioned, the interpretivist/constructivist paradigm is employed in this study, and will be discussed below.

1.6.1.1 INTERPRETIVIST/CONSTRUCTIVIST PARADIGM

Interpretivist or constructivist approaches represent a learning process in which we build an understanding of the world (our reality) out of our experiences of functioning in that world and examining the lives, actions and statements of people. There are three schools of thoughts in this paradigm that are concerned with human interactions and experiences, namely: phenomenology, ethnography and symbolic interaction, which will be briefly described below.

1. Phenomenology states that human beings attach meanings to human beings, ideas and actions based on their interaction and experiences with these constructs or meanings.
2. Ethnography focuses more on culture and human experience of the 'life-world'
3. Symbolic interaction focuses on people's practices and lived realities, and human interactions with the world are mediated through the process of meaning-making and interpretation (Gray, 2014: 24).

In this study, a phenomenological approach has been employed because the researcher explored, described and analysed the meaning of individuals' lived experiences.

1.6.2 Research Approach

There are various approaches that can be employed in research, such as quantitative, qualitative and mixed research approaches, but only two of them will be discussed here. The quantitative approach is used for testing objective theories, by examining the relationship among variables. These variables, in turn, can be measured, typically by

means of instruments, so that numbered data can be analysed using statistical procedures (Creswell, 2014: 4). In addition, Charmaz (2006: 101) states that in the quantitative approach, quantitative researchers focus on using data to make statistical inferences about their target populations, and are focused on testing preconceived hypotheses.

For the purpose of this study, a qualitative approach was employed because it emphasises the gathering of data on naturally occurring phenomena. Most of this data is in the form of words and not numbers, and in general, the researcher must search using a variety of methods until a deeper understanding is gained (McMillan & Schumacher, 2010: 23). Qualitative research goes directly to the social phenomenon and observes it as completely as possible. It is appropriate for the study of those attitudes and behaviours within their natural setting, as opposed to a somewhat artificial setting (Babbie, 2011: 287). Qualitative research places the researcher as an observer in the world of the participants, and puts value on studying human experiences and clarifying issues in a specific environment (Tierney 2008: 1). Qualitative data can be collected by asking questions using interviews, open-ended questionnaires, document analysis, or first-hand observation (Creswell, 2014: 185-186). The researcher's choice of a qualitative research approach for this study was influenced by the following characteristics, as indicated by Creswell (2014: 185-186): natural setting, researcher as a key instrument, multiple sources of data, inductive data analysis, reflexivity, holistic account, emergent design, and participant meanings.

A case study was employed for this study, because it entails studying adult educators and learners in an adult education and training centre in Winterveld, which forms part of the Tshwane West district. The choice of the case study approach was influenced by a phenomenological approach, which is described as an inquiry that attempts to understand people's perceptions, perspective and understanding of a particular situation (De Vos, 2005: 264). In addition, Creswell (2014: 14) describes this approach as a design of inquiry coming from philosophy and psychology, in which the researcher describes the lived experiences of individuals with regard to a phenomenon, as described by the participants.

This description culminates in the essence of the experiences of several individuals in relation to the phenomenon.

In light of the above definitions of a case study, this approach was deemed appropriate for this study, since it will be able to answer the research question, namely: *What is the status of ICT literacy in AET centres in Tshwane West district?*, and also because the researcher has personally engaged with adult educators and learners who are involved in adult education, and therefore have first-hand experience in this regard.

1.7 RESEARCH METHODS

For the researcher to achieve the desired results, the following aspects with regard to the research methods will be discussed in this section, namely the population and sampling procedure.

1.7.1 Population

A population is a group of elements or cases, whether individuals, objects or events, that conform to specific criteria, and to which one intends to generalise the results of the research (McMillan & Schumacher, 2006: 119). According to De Vos (2002: 223), the population is the totality of persons, events, organisations, units, case records or other sampling units with which the research problem is concerned. In this study, the population included adult learners, adult educators and officials of the Department of Higher Education.

1.7.1.1 SAMPLING

Babbie and Mouton (2011: 164) describe sampling as a process of selecting, and state that a sample is a unit of analysis that is selected from a bigger population (Babbie & Mouton, 2011: 174). In this study, purposive sampling was chosen, which can be defined as a sample composing elements that contain the most characteristics, representative or typical attributes of the population, in order to best serve the purpose of the study (Grinnell & Unari, 2008: 153).

The researcher decided to use purposive sampling because he wanted to gain insight into the minds of adult educators and learners, who are representative, informative and involved in the field of AET.

1.7.2 Data Collection Techniques

According to McMillan and Schumacher (2010: 343), there are various methods of collecting data. Therefore, a researcher should understand how he or she is going to match these methods with the research questions, so that the most appropriate data for answering the research question will be gathered and analysed. Data collection is a detailed description of the data-gathering procedures for the planned investigation. This description covers the specific techniques to be employed (De Vos, 1998: 100). The following data collection techniques were used in this study and will be briefly discussed below: focus group interviews, semi-structured interview, open-ended questionnaires and non-participant observation.

1.7.2.1 FOCUS GROUP INTERVIEWS

Focus group interviews refer to a means of collecting data from a group of people; members are selected to represent a particular interest or a set of interest that are significant for the research (Newby, 2014: 350). The researcher interviewed several participants at the same time, and he put one question to the group with the intention of receiving different responses from the participants. The interaction between participants usually reveals more about the subjects' point of view and the interaction enables the researcher to see how the participants incorporate the view points of the others in sharing their own understanding.

The researcher wanted to understand the perceptions of the participants as individuals and as part of a group. Twelve participants were interviewed, the six adult learners and six adult educators.

1.7.2.2 SEMI-STRUCTURED INTERVIEW

Researcher employed this kind of an interview because he believes it is effective when used to elicit individual and personal experiences about specific issues. A semi-structured interview was employed to interview an official from the department of higher education

and training (DHET) and the essence of the interview was to capture the perspectives of the participant through verbal interaction between the interviewer and interviewee (Mugenda & Mugenda, 2003: 90; Saunders et al. 2007: 394). An interview guide was prepared before and sent to the interviewee to indicate the type of questions that will be asked. This type of interview was employed because the researcher wanted to clarify misunderstandings, reflect on the research questions, allow questioning to explore issues and receive as rich data as possible (Newby, 2010: 342).

1.7.2.3 OPEN-ENDED QUESTIONNAIRES

The researcher employed an open-ended questionnaire to ask questions to the participants with the hope of allowing the participants freedom to answer a question in their own words in whichever way they think appropriate (Bertram & Christiansen, 2014: 74). The researcher chose to use an open-ended questionnaire because one would want to use a coding process when interpreting the meaning of responses and opening the possibility of misunderstanding and researcher bias (Babbie, 2010: 256). The researcher employed questionnaires because he wanted to be able to triangulate by comparing the responses of the participants from non-observation, interviews and questionnaires. The researcher employed this tool because he wanted to foster frank disclosure that a participant might not have wished to make during the interview and the researcher acknowledged the non-fluency of majority of the participants in speaking in English therefore hoping that the participants will be more comfortable when they write during the answering of questionnaires and be able to take their time when responding to the questions. The questionnaires were distributed after the focus group interview because the researcher wanted to allow the participants sufficient time to complete them.

1.7.2.4 NON-PARTICIPANT OBSERVATION

Non-participant observation was employed because the researcher wanted to capture the social interaction and interaction of the learners and educators when using ICTs during the teaching and learning process in the classroom. Non-participant observation is a means of data collection in which the researcher observes behaviour and lifestyle of the individual(s) or group(s) in which he or she is interested (Newby, 2010: 659). Furthermore Liu and Maitlis (2010: 2) define non-participant observation as a data collection method

used extensively in case study research in which the researcher enters a social system to observe events, activities, and interactions with the aim of gaining a direct understanding of a phenomenon in its natural context. As a non-participant, the observer does not participate directly in the activities being observed. The researcher observed the participants at their setting but did not actively participate during the use of ICTs in teaching and learning. The technique will be fully discussed in chapter 3, section 3.4.2.

1.7.3 Data Analysis

The process of data analysis is one of shaping data into a form where it can be interpreted in such a way that it at least contributes to an understanding of the research issue (even if it does not wholly answer the research question) and this interpretation is accepted by at least a proportion of the professional audience (Newby, 2010: 459). This definition is divided into four stages, namely; preparing data, identifying basic units of data, organising data and interpreting the data. The recorded interviews and questionnaires responded to and the non-participant observation results were recorded in the following order: collected data was coded through a process of grouping responses into categories that brought together similar ideas, concepts of themes one had discovered. After coding was completed, data was grouped into categories that allowed for comparison of what different participants said, what themes were discussed and how concepts were discussed and understood.

1.8 ETHICAL CONSIDERATIONS

Ethics in research are the principles of right or wrong that a particular group accepts (Bogdan & Biklen 1992: 49). Ethical codes are developed with the intention of serving as guidelines for practice to ensure that participants in research projects are protected from harm and deceit. The participants were informally asked if they are willing to participate, they were asked to sign permission and assent letters to make sure that they are willing to participate. They were informed that at any stage should they want to withdraw from the study; they do have that option and are guaranteed confidentiality. Ethical clearance was obtained from the College of Education at Unisa.

DECEPTION AND CONSENT

Gaining informed consent of participants is crucial for the ethical conduct of research. The ethical principles underlying informed consent are that participants are as fully informed as possible about the study's purpose and audience, they understand what their agreement to participate entails, they give consent willingly, and they understand that they may withdraw from the study at any time without prejudice. This means that the participants are not deceived about the study and that their participation is voluntary. Informed consent also serves to protect the identities and privacy of participants. Participants were made aware that their names and/or identifying information such as specific roles would be kept confidential and would not be revealed in any discussions or written documents about the research.

PRIVACY AND CONFIDENTIALITY

The researcher made sure that participants' privacy was protected and kept in confidence. The researcher informed and reminded participants that their words would be used as direct quotes in a written report.

1.9 MEASURES TO ENSURE TRUSTWORTHINESS

According to Babbie and Mouton (Guba & Lincoln, 1985: 290) trustworthiness is simple as it says how an inquirer can persuade his or her audience (including him or herself) that the findings of an enquiry are worth paying attention to or worth taking account of and that the research is of high quality. Two concepts will be used to assess the strengths and weaknesses of research processes, namely validity and confidentiality and they will be discussed next.

Firstly, validity refers to the extent to which an empirical measure adequately reflects the meaning of the concept under investigation (Babbie & Mouton 2011: 122). Creswell and Miller (2000: 125) suggest that validity is affected by the researcher's perception of validity in the study and the researcher's paradigm assumption. Validity for this study was achieved by means of triangulating different data sources of information and clarifying the bias the researcher brought to the study.

Secondly, reliability refers to the extent to which methods or findings are likely to yield similar results if the study, were to be repeated in similar circumstances using similar methods (Kitley & Stogdon, 2014: 8). Reliability of the study will be achieved by the relationship between the researcher and the sample group, established by clearly identifying the study, the role of the researcher, the role of the sample and the research process was described.

Furthermore according to Newby (2010: 121), the dimensions to ensure trustworthiness in qualitative research are credibility, dependability, confirmability and transferability. De Vos, Strydom, Fouché and Delport (2005: 345-347) explain the fore-mentioned dimensions as follows: Credibility is ensured when the participants and end-users in the research agree that the data collected is believable from the perspective. The study will be credible in the sense that accuracy is identified by identifying participants who are directly involved in the field being studied, dependability can be established if the background of the research is explained in a manner that it is sufficient to convince the audience that the conclusions reached through the study are reliable and correct and if the study is repeated will yield the same results, confirmability is the assumption that when subsequent studies are done on the same issue, similar conclusions will be reached. The emphasis on confirmability is on the replicability of the study by others (Miles & Huberman 1994: 278). If someone else undertakes this research, using the same participants or participants from the same area and using the same methods, the findings can be confirmed. The study will be based on the facts gleaned from the participants' perceptions (feelings and beliefs) about ICT literacy in adult education and transferability is the burden of demonstrating the applicability of one set of findings to another context. The findings of the study will be demonstrated in such way that they can be applied to solve other related studies or context. Ridenour and Newman (2008: 40) describe transferability is a process in which the researcher infers how the findings might relate to other situations cited from (Baloyi: 2012). They literally "transfer" the results from the situation to other situations.

1.10 DEFINITION OF TERMS IN THE CONTEXT OF THE STUDY

To make sure that the readers of this study understand the terminology used it is of great importance to clarify them within the context of this study because they are going to be used in the coming chapters.

1.10.1 Adult Education and Training

Adult Basic Education and Training (ABET) referred to as Adult Education and Training (AET) is training in skills that adults need as foundation. AET is not about literacy, numeracy nor indeed illiteracy. It is training adults in essential skills that they need for all other learning in South Africa. Without this foundation training people and therefore communities, cannot develop further, grow economies nor sustain themselves (DoE: 1995).

Adult Education and Training is the general conceptual foundation towards lifelong learning and development, comprising knowledge, skills and attitudes required for social, economic and political participation and transformation applicable to a range of contexts (DoE: 1995). AET implies more than just literacy. It is intended to serve a range of social, economic and developmental roles and it is also viewed as fundamental to bring about the dignity and self-esteem of the learner (Ibid).

1.10.2 Adult Educator

An adult educator refers to any person who teaches, educates and trains other persons or who provides educational services including professional therapy and psychological services, at any public school, Further Education and Training institution, departmental office or adult education centre who is appointed in a post or any educator's establishment (Act 25/2010).

According to the Multi-Year Implementation Plan for Adult Education and Training: Provision and Accreditation (1997: 120) an adult educator is a person whose work involves educating adults at all levels of education, in any type of education or training context, including formal and informal, for an example teacher, educator, lecturer, parent, youth counsellor. The educator needs to acquire an approach, a qualification and relevant skills to teach. For the purposes of this study, an educator is regarded as an AET

programme implementer who needs skills in delivering and implementing AET programmes successfully. An adult educator refers to a person who applies the curriculum practically at the micro level. He or she reports to the centre manager to whom other stakeholders might refer to as a supervisor, who in turn reports to the AET officer in the case of state sectors, or the rector and relevant boards in the case of colleges.

1.10.3 Adult Learner

An adult learner can be described as an adult who finds himself or herself in a complex world and a multiplicity of situations which involve one being a family person, a career person, social person, a person who is part of the economy and happens to be studying as well (Crous, Roets, Dicker & Sonnekus 2000: 4).

1.10.4 Challenges/Barriers

A barrier can be defined as any condition that makes it difficult to make progress or to achieve an objective (Schoepp 2005: 2). According to Shelly, Cashman, Gunther and Gunther (2006: 366) barriers can be divided in primary and secondary barriers. And primary and secondary barriers can be described as being intrinsic and extrinsic. Primary barriers include lack of access to computers and software, insufficient time to plan instruction, and inadequate technical and administrative support. Secondary barriers include beliefs about teaching, beliefs about computers, established classroom practices and unwillingness to change. For the sake of the study the term challenges will be employed.

1.10.5 Curriculum

A curriculum can be described as an organised set of intended learning outcomes presumed to lead to the achievement of educational goals (Posner & Rudtnisky 1992: 16). The word curriculum is Latin for a race-course, or a race itself and applied to education, it is that series of things which children and youth must do and experience by way of developing abilities to do things well that make up the affairs of adult life; and to be in all respects what adults should be (Flinders & Thornton, 1997: 11).

Furthermore curriculum can be defined into two ways: (1) it is the entire range of experiences, both undirected and directed, concerned in unfolding the abilities of the

individual, or (2) it refers to the series of consciously directed training experiences that schools use for completing and perfecting the unfoldment (Flinders & Thornton, 1997: 11).

Based on the definitions given, curriculum refers to a defined programme of study aimed at specifically identifying the content of the programme of adult education and training.

1.10.6 Information and Communication Technologies

The term Information and Communications Technologies ICTs refer to forms of technologies that are used to transmit, store, create, share or exchange information (Dighe, 2006: 189). The broad definition of ICTs include technologies such as radio, television, digital video disc (DVD), telephone (both fixed and mobile), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as video conferencing and electronic mail (Dighe 2006: 189). Gallow and Norton (2011: 22) further refer to ICT in education as both a curriculum subject and a tool for learning in other subjects, an academic discipline and a service subject such as handwriting one that enables learning.

1.10.7 Learning

Heinech, Molenda, Russel and Smaldino (1996: 8) describe learning as the development of new knowledge, skills or attitudes when the individual interacts with information and the environment. Kozma (1994: 8) states that learning is an active, constructive, cognitive and social process by which the learner strategically manages available cognitive, physical and social resources to create new knowledge by interacting with information in the environment and integrating it with information already stored in the memory. According to Killen (2000: xiiia) learning is a process of acquiring new information and abilities.

1.10.8 ICT Literacy

ICT literacy is a set of skills and understandings required by people to enable meaningful use of ICT appropriate to their needs (Oliver, 2000: 4). Furthermore ICT literacy in the context of education refers to a relative measure of the student's capacity to make

appropriate use of ICT for educational and learning purposes (Oliver, 2000: 4). ICT Literacy can be defined as the ability to use digital technology communication tools or network to access, manage, integrate, evaluate and create information in order to function in a knowledge society (ETS:2002: 2).

1.10.9 Non-formal Education

Non-formal education is mentioned in the literature review; hence it is necessary to be defined. There is a comparison of various national policies of countries in ICT and this terminology is used in those countries so it is necessary to mention. Non-formal education may be defined as any organised and sustained educational activities that do not correspond exactly to the formal education systems of schools, colleges, universities and other formal educational institutions, it may take place both within and outside educational institutions and cater to persons of all ages (PCW, 2010: 1). Furthermore Coombs (1968) and Coombs and Ahmed (1974) cited in PCW (2010) define NFE as an alternative form of education for adults and children that occurs outside the traditional classroom environment.

1.10.10 Public Adult Learning Centre

To be successful, adult education and training will need a conducive infrastructure where the teaching and learning process will take place; hence a public learning centre is needed to accommodate adult educators and learners. A public adult learning centre means a public centre established in terms of section 23 which offers adult training and education (Adult Education and Training Act, No 52 of 2000).

1.11 CHAPTER DIVISION

The research will comprise of five chapters that will be discussed in the study.

Chapter one provides the introduction, background, rationale, and aims of the study. The research question, the theoretical frameworks as well as the research design, methodology and intended analysis is explained. A brief classification of concepts is given. The introduction and background highlight the historical data of the study and its importance. The research design highlights which design was employed for the purpose

of the study and why was chosen and the aims of the study are highlighted in order to show what is it that is intended for the study.

Chapter two provides the theoretical framework for the research and covered recent literature pertinent to the study. The chapter begins by providing an overview of the theoretical framework that was employed in the study and provides a justification for why this theoretical framework was deemed appropriate for the study. The chapter continues with an overview of highlighting the national policies of other countries with regard to ICT literacy in AET. The researcher also highlighted the challenges to the use of ICTs in AET and the benefits of ICT use in AET.

Chapter three describes the rationale of the study, research design employed, methods employed in data collection such as focus group interviews, semi-structured interview, open-ended questionnaires and non-participant observation. It also focuses on selection of participants and sampling and the research site. Furthermore focuses on data analysis, validity and reliability and trustworthiness. The chapter also focuses on ethical considerations.

Chapter four provides the discussion of data analysis and presents the findings that emerged from the empirical study. During the empirical study themes emerged which were also grouped into categories and are discussed. The findings of the research are presented and interpreted in the light of the conceptual framework of the study, what is the status of ICT literacy.

Chapter five consists of the summary, conclusions and recommendations. It also focuses on the summary of empirical study, the literature review, synthesis of research findings in which comparison of the literature review and the empirical study is discussed, limitations are acknowledged, recommendations which were suggested by educators, the official from the DHET and the researcher, suggestion of further research and conclusion which is drawn from the research questions from the study.

1.12 SUMMARY

The chapter has outlined the study focus on ICT literacy in AET. The chapter has introduced the background, the need for the study and has identified the research problem. The chapter further state the research questions as well as the aim and objectives, as well as the motivation and rationale of the study. An overview of the planned research is provided, the theoretical framework perspective and the research paradigm are explained and lastly the research design and methodology, data collection techniques, analysis and definitions of the key concepts related to the study are discussed.

The next chapter will provide the literature review for the research.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

“Every person, child, youth and adult shall benefit from educational opportunities designed to meet their basic needs” (World Conference on Education 1990; article 1).

Advanced ICT solutions can serve as agents of change, reforming and improving educational practices (Suhonen, de Villiers & Sutinen, 2011: 288). According to UNESCO (2006), ICTs play an important role in promoting literacy by enhancing learning, broadening access to literacy education, professional development of teachers hence the ICT literacy in adult education should be a priority.

In order to understand or enhance ICT literacy in adult education, the researcher did a literature study to understand the underlying components of this subject. And some of the results were that ICT literacy plays an important role in education and that its use helps in improving student learning and adds value to the curriculum.

This chapter aims to provide a theoretical framework for this research, as well as discussing the various learning theories such as andragogy, constructivist learning theory, transformative learning theory, Daloz’ Psychodevelopmental perspective and Freire’s social-emancipation philosophy. The benefits and the challenges to enhance the role of ICT literacy in AET centres and It also goes further to compare various national policies of ICT in adult education and training of various developing countries in Africa.

2.2 THEORETICAL FRAMEWORK

In order to understand the theoretical framework to be discussed, there is a need to understand what the concept “*theory*” is and how it helps in explaining the theoretical framework.

Theory can be seen as a set of interrelated and abstract concepts, constructs, ideas, definitions, statements, principles and propositions that present a systematic view of

phenomena by specifying logical relationships among variables, with the purpose of explaining, predicting and verifying the particular phenomena by establishing data in the social world (Babbie 2007: 4; Marlow 2005: 6; Monotte et al. 2005: 27; Neuman 2003: 7; DePoy & Gilson 2008: 236; Unrau, Gabor & Grinnell 2007: 11; Welman, Kruger & Mitchell 2005: 12). A theory provides the general principles or ideas that relate to a particular subject. A theory is a belief, policy, or procedure proposed or followed as the basis of action (Merriam Webster, 2014).

For the purpose of this study the researcher shall focus on the following theories of andragogy, constructivist learning theory, transformative learning, Daloz' Psychodevelopmental perspective and Freire's social-emancipation philosophy. The justification of employing these theories will be discussed in the next sections.

2.2.1 KNOWLES' THEORY OF ANDRAGOGY

The study is focused on adult educators and learners hence the theory of andragogy is introduced to highlight how and why adult learners learn.

The fundamentals of andragogy as a theory of adult learning, was created in the 1970s and 1980s by Malcolm Knowles, an eminent American practitioner and theorist of adult education. Knowles, who defined andragogy as "the art and science of helping adults learn" (1980: 43), coined several assumptions that characterise and distinguish the adult learner from a child learner that are pertinent when addressing adult learning.

According to Knowles (1980: 39) assumptions are that as a person matures

- His/her self-concept moves from one of being a dependent personality toward one of being self-directed human being.
- He/she accumulates a growing reservoir of experience that becomes an increasing resource of learning.
- His/her readiness to learn becomes orientated increasingly to the development tasks of his/her social roles.

- His/her time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from being subject-centred to being problem-centred.

Furthermore, Conner (1997-2004: 12) refers to andragogy as the art and science of helping adults to learn. In the andragogical model there are five assertions: 1) Letting learners know why something is important to learn; 2) Showing learners how to direct themselves through information, and 3) Relating the topic to the learners' experiences 4). In addition, people will not learn until they are ready and motivated to learn. 5) This requires helping overcome inhibitions, behaviours, and beliefs about learning (Conner, 1997: 2).

Andragogy calls for learner control, measures of knowledge acquisition based upon performance standards, and the voluntary involvement of students in the learning activity (Pew, 2007: 18).

Based on the assumptions mentioned, andragogy thus considers the learner as the real subject of his/her learning process, because firstly, learners will have the potential to become more self-directed in their learning and using ICTs in their learning. Secondly, the educators could change their methods of teaching for an example; educators can be facilitators and focus more on introducing ICT use in their teaching.

2.2.2 CONSTRUCTIVIST LEARNING THEORY

The previous section, andragogy was discussed and this section constructivism theory will be discussed next. The researcher chose to employ constructivism as a theory in his study because he needs to know the nature of knowing in teaching and learning of adult educators and learners. Constructivism is relatively a recent development that gained prominence since the early 1900s like most learning theories; it has multiple roots in philosophical and psychological view points of the past, especially the theories of prominent thinkers such as Piaget, Vygotsky and Bruner (Ertmer & Newby 1993: 62, Newby et al. 2006: 34, Feldman & McPhee 2008: 54 & Schunk 2008: 235).

Constructivism is a theory that suggests that learners learn through their experiences. Newby et al. (2006: 34) define the constructivist learning simply as a change in meaning constructed from experience. Meaning in this case is defined as a subjective interpretation of experience, as opposed to cognitivism's definition of knowledge as an objective representation of experience (Jonassen 1991b: 28-29).

Constructivism claims that human learning is constructed and built upon previous knowledge. It encourages learners to be active creators of their own knowledge (Tam, 2000: 2). The role of a learner is to select and transform information, construct ideas, and make decisions, while relying on a cognitive structure (Brandon & All, 2010: 90).

Constructivists depict the mind as a builder or maker as meaning. Knowledge is seen as something that individuals construct for themselves using their previous experiences, derived knowledge and understanding as the building blocks. The theory of constructivism maintains that knowledge is acquired through an active process in which the individual continually structures and restructures experience through a self-regulated mental activity (Brower, 1996; Derry, 1992 cited from Reader for MED Adult Education (MEDAE1-R), 2002: 40).

Constructivism represents the current status of a shift that is evident in history of learning development. This shift started with the advent of cognitivism which disputed the claims of behaviourism that stimuli, responses and consequences are adequate to explain learning. Cognitivism emphasises learners' processing of objective information as the central cause of learning. However, some researchers have felt that cognitivism fails to capture the complexity of human learning. Their focus shifted to how knowledge is constructed, rather than how it is acquired (Jonassen 1991a: 5-6, Ertmer & Newby 1993: 62 & Schunk 2008: 235).

A basic assumption of constructivism is that learners actively construct, reconstruct, create, invent and develop their knowledge (Marlowe & Page 1998: 10, Schunk 2008: 237 & Feldman & McPhee 2008: 56) through interactions with other humans and artefacts of the world in effort to make sense of the world around them (Jonassen et al. 2000: 108). Learners construct their own reality or at least interpret it based on their perceptions of

experiences. A learner's knowledge is a function of his/her prior experiences, mental structures, and beliefs that are used to interpret objects and events. The mind, the agent of knowing (and learning), filters input from the world in making those interpretations. What someone knows is grounded in the physical and social experiences that are comprehended by the mind. The mind produces mental models that represent what the knower has perceived and experienced. These models are then used to explain, predict or infer phenomena in the real world (Jonassen 1994: 34-35).

Our prior experiences, knowledge, and schemata affect how we interpret and experience new events (Marlow & Page, 1998: 10). Our interpretations of these new events define our new learning and affect the construction of new knowledge structures and/or the reconstruction of existing knowledge structures (ibid). Attaining knowledge is, therefore, a dynamic process, subject to multiple revisions, elaborations and interpretations (Jonassen et al. 2000: 108).

Jonassen, Peck and Wilson (1999) describe a number of basic assumptions of constructivist learning that are summarised next:

In constructivist learning knowledge is constructed, and not transmitted. Constructivists believe that knowledge cannot be simply transmitted by the teacher or instructional system to the learner but a learner should be part of the process of construction. A knowledge construction result from activity, in other words, knowledge is embedded in activity. With knowledge learners construct and develop skills and information about the context and this is based on their experiences.

Through knowledge meaning is constructed, and the meaning process includes looking at perceptions of external and physical world of the individuals. The individuals have unique experience and beliefs that construct their knowledge and meaning in their world. Meaning-making is prompted by a problem, question, confusion, disagreement, or dissonance, and involves personal ownership of that problem and meaning making can also be created by knowledge sharing with other individuals through conversation.

The afore-mentioned assumptions of constructivist learning are synthesised into five constructivist principles of learning because it represents the nature, character and

essence of constructivist learning. The five constructivist principles are based on the characteristics of meaningful learning described by Jonassen, Howard, Marra and Crismond (2008: 2-5) as active, constructive, intentional, authentic, and cooperative. The value of such principles is that it can be used as guidelines in designing and implementing constructivist learning events.

To add on Jonassen's principles as indicated above, Muirhead (cited from Brandon & All, 2010: 90) formulated four assumptions of constructivism as the constructs are the foundations of the learning process in the student. Firstly, the student knows the world through their existing mental framework, and new information is transformed and interpreted based upon previous learning. Secondly, assimilation and accommodation processes lead to a new constructs. Information that is incongruent with the student's existing mental framework cannot be assimilated; therefore, a new zone of cognitive development or higher learning transpires through the accommodation processes. Thirdly learning is an organic process of invention, it is not mechanical, and constructivists place the student's ability to hypothesize, predict, manipulate, and construct knowledge as more meaningful learning than the memorisation of facts. Finally, constructivists assume that meaningful learning occurs through reflection and by linking new knowledge to an existing framework of knowledge (ibid).

2.2.2.1 *Constructivist view of the role of technology*

In the previous section constructivism was discussed and the constructivist view of the role of technology will be discussed next.

Jonassen et al. (2008: 5-7) describe the constructivist view of the role of technology as learning with technology, as opposed to the behaviourist view of learning from technology. The latter assumes that information (learning content) can be recorded or embedded into technology in order to communicate, transmit and deliver it to learners who have to passively assimilate it. In this way learners learn from technology what technology knows, just as they learn from teachers what they know (ibid).

In contrast to the view above, the constructivist view of learning with technology is described as using technology as learning or cognitive tools to support, enhance and

extend learners' abilities to construct their own knowledge. In particular, Jonassen et al. (2008: 7-8) identify the following roles of technology in constructivist approaches: Technology as tools to support knowledge construction, technology as information vehicle for exploring knowledge to support learning by constructing, technology as authentic context to support learning by doing, technology as social medium to support learning by conversing and technology as intellectual partner to support learning by reflection.

Based on all facts mentioned above the constructivist theory is regarded as relevant in teaching and learning in adult education because it puts emphasis on learners as the people who construct their knowledge.

2.2.3 TRANSFORMATIVE LEARNING THEORY

The previous two sections andragogy and constructivism theories were discussed now in this section a transformative learning theory will be discussed. In transformative learning theory, there are various proponents that advocate this learning theory such as Daloz's Psychodevelopmental perspective and Freire's social-emancipatory philosophy and will also be discussed next.

In transformative learning learners undergo a major change in their understanding of a phenomenon as a result of particular learning or activities (Njiro, 2014: 481). There are various authors who made a contribution such as Jack Mezirow, Laurent Daloz, Robert Boyd and Paulo Freire who specifically focused on the individual in adult learning. For better understanding, the four contributors will be mentioned but more emphasis will be put on Jack Mezirow's work because he is regarded as the founder of this theory in the 1970's in Columbia University when he came about the 10 phases of transformation process during transformation (Njiro, 2014: 482).

Transformative learning is about dramatic and fundamental change in the way we see ourselves and the world in which we live (Merriam 2007: 130). Transformative learning occurs when there is transformation in one's beliefs or attitudes (a meaning scheme), or a transformation in our entire perspectives (habit of mind) (Mezirow, 2000).

According to Mezirow (2000: 8) transformative learning is a process by which we transform our taken-for-granted frames of references (meaning schemes, habits of mind,

mind sets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action.

O' Sullivan (2012: 164) describes transformative learning as experiencing a deep, structural shift in the basic premises of thought, feelings and actions. It is a shift of consciousness that dramatically alters our way of being in the world. Such a shift involves our understanding of ourselves and our self-locations; our relationships with other humans and the natural world; our understanding of relations of power in interlocking structures of class, race and gender.

The transformative learning theory was firstly popularised in the 1970s in the Columbia University by Jack Mezirow who focused on the importance of rational thought and reflection in transformative learning process (Njiro, 2014: 482). He went on to describe a 10-phase transformation process which emerged during transformation: a disorienting dilemma, a self-examination with feelings of guilt or shame, a critical assessment of epistemic, socio-cultural, or psychic assumptions, recognition that one's discontent and the process of transformation are shared and that others have negotiated a similar change, exploration of options for new roles, relationships, and actions, planning a course of action, acquisition of knowledge and skills for implementing one's plan, provisional trying of new roles and building of competence and self-confidence in new roles and relationships (Ibid).

From these 10-phase transformation processes, three key components of transformational learning emerged, namely: experience, critical reflection and development which will be discussed next.

Experience is constructed in ways which can be used in learning such as a teacher linking explanations and illustrations to the prior experiences of learners and experience as one of the assumptions of andragogy is that adults bring with them a depth and breadth of experience that can be used as resource for their and other's learning process (Knowles, 1980). In critical reflection effective learning does not follow from a positive experience but from effective reflection (Criticos, 1993: 162). To my understanding the latter

statement refers to what do you do and what you have learned with your past experience. The most prominent adult educator writing about critical thinking or critical reflection is Brookfield (1987, 1994). He presents a rationale as to why critical thinking is important and how adults can become critical thinkers in his model by stating that: there is a trigger event, unexpected happening which prompts a sense of inner discomfort and perplexity (Brookfield, 1987: 25).

Brookfield (1987: 25) presents that for adults to be critical of themselves, they should do self-appraisal and self-examination of the situation. Adults should always look for alternatives for their development by trying new roles, new ways of behaving, new ways of thinking and new ways of being problem solvers and this can lead to gaining self-confidence. According to Mezirow (1991: 155), development is the process of perspective transformation, “the central process of adult development” in which adults decide what is beneficiary for them and what is not and based on this they can come with conscious decisions.

Another scholar of adult development, Taylor (2000), discusses five dimensions of development to highlight that development is an outcome of transformative learning: learners should move toward knowing as a dialogical process, they learn how they construct knowledge and reconstruct knowledge in light of new experiences and reflections. Learners should move forward a dialogical relationship with one-self by learning who they are and that they can choose to be another way, individuals should move toward being continuous learners. They become aware that learning is up to them, learners should move toward self-agency and authorship, where they increasingly recognise their responsibility for their actions, choices, and values and for the decisions they may make based on those values (ibid).

Mezirow (2000: 22) differentiates between three types of reflection, one of which can lead to transformative learning such as the following: 1) Content reflection, the first type, is thinking the actual experience itself, while 2) process reflection is thinking about ways to deal with the experience that is, problem-solving strategies and lastly 3) premise reflection involves examining long-held, socially constructed assumptions, beliefs and values about

the experience or problem. From the three types of reflection mentioned it clearly shows reflection is a cognitive and ongoing process.

2.2.4. Daloz's Psychodevelopmental Perspective

The previous section discussed transformative learning theory focusing specifically on Jack Mezirow but in this section Daloz's Psychodevelopmental perspective will be discussed next.

Psychodevelopmental perspective provides a central or organising framework for understanding transformative learning as growth (Dirkx, 1998: 5). Cited from Merriam and Caffarella (2007: 138-139), Daloz views transformative learning as lifelong learning personal development, and states that people need to make meaning of their experiences and that individuals are often in a developmental transition. In conclusion this perspective is relevant for the study because the adult learners and educators by being ICT literate are personally and psychologically developing themselves because they will be departing from a point of being non-literate in ICT to a different point of being literate.

2.2.5. Freire's Social- Emancipatory Philosophy

From the previous section Daloz's Psychodevelopmental perspective in transformative learning was discussed now the focus turns to Freire's social-emancipatory philosophy. Merriam and Caffarella (2007: 138-139) citing (McLaren, 2000) that this philosophy is based on a social-cultural approach to transformative learning and was derived when Freire was involved with literacy work in Brazil with the Brazilian farmers in the mid-twentieth century. Freire's approach focuses on personal empowerment and social transformational.

Freire emphasises the fact that individuals should be conscientised, should be aware of the negative forces surrounding them, deal with them and self- emancipate and promote positive social change. This social-emancipatory framework is used because if a person who was previously not literate for an example a learner or an educator who was ICT illiterate and later on becomes ICT literate, the person becomes emancipated. With regard to social transformation especially from the South African context if one person

becomes successful in their own right for an example if a person from a village becomes a medical doctor that translate to the whole village in terms of motivation.

Table 1 Summary of the theories discussed

Theories	Andragogy	Constructivism	Transformative Learning	Freire’s emancipatory philosophy	Daloz’s Psychodevelopmental perspective
Key principles	Adults have an independent self-concept and are self-directed learner	Experience	Fundamental change	Emancipatory	Personal development
	Life of experience	Construction	Reflection	Personal empowerment	Meaning of experiences
	Readiness to learn	Knowledge	Experience	Social transformation	
	Problems centred		Development		
	Motivation				

2.3 INTERNATIONAL DEVELOPMENTS IN NATIONAL ICT POLICIES

ICT as a global phenomenon is rapidly growing and its growth is observed by education, hence many countries have decided to develop national policies on ICT in education. For the purpose of this study, international developments in national ICT policies of Kenya, Botswana and South Africa will be briefly discussed next.

2.3.1 NATIONAL POLICIES AND PRACTICES OF ICT EDUCATION IN KENYA

Kenya was identified as an example to be used in the study because it is one of the developing countries in Africa and it emerged from a colonial past like South Africa.

Kenya's economy is mostly focused on agriculture but due to the ever changing developments in the world and education, the government saw a need to focus more on education hence the introduction of ICT policies in education to diversify the economy.

Various researchers (Odera 2002; Farrell 2007; Inyega & Mbugua 2008), report on Kenyan Information Communication and Technology policies and implementation. According to Farrell (2007: 4), the Ministry of Education and the National ICT Strategy for Education and Training in June 2006 came with a document, referred to as the ICT policy for the education sector, consisting of objectives and expected outcomes such as ICT in education, digital equipment, connectivity and network infrastructure, access and equity, technical support and maintenance, harnessing emerging technologies, digital content, integration of ICT in education, training (capacity-building and professional development), and research and development.

In addition the Ministry of Education, Science and Technology (MoEST) in 2008 was established to provide education to its citizen (Ministry of Education, 2008) who will be responsible for several sectors in education including the following:

- Early Childhood Development and Pre-Primary Education
- Primary Education
- Special needs Education
- Secondary Education
- Teacher Education (Primary Teacher Education, Diploma Teacher Education and In-Service Training Program;
- University Education
- Non-Formal Education and Adult Education and
- Technical and Vocational Education and Training.

The education system of Kenya is divided into three components as described by Farrell (2007: 6). The first component, Kenya ICT Trust Fund, facilitates mobilisation of resources to provide ICT to schools and communities. The second component, the Kenya Institute of Education has a mandate to prepare syllabi, publish, and print materials; develop digital curriculum content; provide educator in-service training; develop and

transmit programmes via mass media support educational development; prepare distance learning materials; and conduct research on educational matters. The third component is the Non-Government Organisations Network Initiates for Computers in Education (NICE) which is involved in the introduction and use of ICTs schools.

Secondary school (adult education) education in Kenya is aimed at meeting the needs of the students who terminate their education after secondary including adult learners and also those proceed onto tertiary institutions (Education Info Centre, 2006), this could be equated to the South African PALCs because they serve the same client (students who are youth and have along their formative years of study dropped attending school but later on when they need to come back they are accommodated). Hence, the 8-4-4 curriculum focuses on job-orientated courses which focus on business and technical education (Kinuthia, 2008:6).

To encourage the use of ICT and improve ICT literacy, the Kenyan government introduced a Ministry of Youth Affairs “Youth Enterprise Fund” in 2008 and the objective was to start digital villages which connect rural and urban areas with ICT (Wanjiku, 2008 cited by Wanjiru, 2008: 13). Furthermore Wanjiru (2008: 13) states that those digital villages’ projects are important for the following reasons: as means to enhance sustainability for the local communities, it uses cross-sectoral approach in its funding; it uses a cross-sectoral approach in its funding.

It also uses an integrative governmental cross-sectoral approach in its use of ICT, it integrates the use of ICT in formal education and non-formal education and training and it uses a community approach to development (ibid)

Wanjiru, (2008: 12) citing Ford (2007) states that Kenya has 4000 secondary schools with 85% located in rural areas, and that 65% of those secondary schools have electricity. Furthermore, only about 750 schools have an average of 10 computers each, although connectivity is limited. With regard to the afore-mentioned statement, Kenya has serious challenges to integrate ICTs or even ICT curricula due to lack of resources. In the next part challenges faced by Kenya will be briefly discussed: perceptions of educators toward

ICT use in education, lack of pre-service and in-service training, lack of ICT curricula at secondary level (adult education) and lack of internet connectivity.

Perceptions of educators toward ICT use

Johnstone (2005) states that for most developing nations, the dynamic nature of technology is difficult to keep up with and often Kenyan educators are forced to use traditional teaching methods and less effective instructional techniques (Wanjiru, 2008: 13). The researcher appreciates Johnstone (2005)'s observation about the perception of educators but one would like to believe that in some cases there are educators who would behave like that without keeping up with recent and modern teaching and learning methods, which include the use of technologies. There has been paradigm shift by many educators toward ICT use. Many nations have invested in both pre-service and in-service training for their educators to keep up with worldwide trends in education.

According to Wanjiru (2008: 13) there is a lack of educators who are well trained in ICT hence the government of Kenya in their Kenya Vision 2030 is aiming at increasing the rate of enrolment of students in technical colleges and higher education by 8% to increase well trained students in ICT literacy.

Furthermore, Ford (2007) conducted a study and determined that there is a lack of ICT curricula and technology integration in many secondary schools but that it is available at teacher-training colleges (Wanjiru, 2008: 12).

Ford (2007) continues to mention that there is a an ICT policy in education but the challenge is in many secondary schools even in some teacher-training colleges, there is a lack of connectivity (Wanjiru, 2008: 12).

Based on the literature there is an ICT policy in education which covers all spheres of education from primary, secondary (adult education) to tertiary education. But there are various obstacles that impede the proper implementation or integration of ICT in education. From the literature there is a political will to enhance ICT literacy in Kenyan education system because the government has come with mechanisms to digitalise the country and education such as the Kenya Vision 2030 (Wanjiru, 2008: 18).

2.3.2 NATIONAL POLICIES AND PRACTICES OF ICT IN BOTSWANA EDUCATION

In the previous section a national policy of Kenya and the status of adult education with regard to ICT literacy in the country was discussed and in this next section Botswana's national policy in ICT will be discussed next and the researcher will also look at the status of adult education in Botswana with regard to ICT literacy in the country. Botswana is a country in the Southern part of Africa bordering South Africa and Zimbabwe, with a population of 1.7 million with a rapidly growing education system. In 1997 a Presidential Task Force was formed to introduce a national development strategy called Vision 2016 to make sure that Botswana matches other countries in this information age and create access to all students to state of the art ICT to support learning processes (Mpoeleng, 2016: 32). Vision 2016 integrated various strategies such as Education and Training Strategic Sector Plan (ETSSP), Informational For All Programme (IFAP ICT Literacy Report), Thuto-Net to transform the education system to the one that includes the use of ICTs in education at different levels from early childhood, primary, secondary, higher education, inclusion, and adult literacy and cover both formal and non-formal education (Mpoeleng, 2016: 32)

A brief discussion of these strategies will be discussed next:

ETSSP is a five year medium term strategy 2015 to 2020 which is designed to transform education from pre-primary to tertiary level (Mpoeleng, 2016: 30). ETSSP plans to initiate activities that will work towards supporting teaching practices in classroom and improving professionalisation, teaching skills, subject content knowledge and ICT skills of teacher through life-long learning opportunities (ibid).

The current report also support transformation of education from pre-primary to tertiary level but they are also focused more on identifying current Botswana ICTs in education environment and practices, review the current country Education Policies and Literature that focus on ICT Education and ICT in Education.

The report also wants to identify Botswana practices of ICT in Education, comparing Botswana practices on the use of ICT in Education with global practices, highlighting

gaps; strength and opportunities of Botswana ICT literacy and making recommendations to IFAP member states in line with IFAP ICT literacy agenda (Mpoeleng, 2016: 11).

Thuto-Net, just like the fore-mentioned strategies, share the same ideas of education transformation but it is more focused on transforming education such as focusing on development of adult basic education, continuing education, education for out of school youth and adults and extension of education (Mpoeleng, 2016: 36).

2.3.2.1 *ICT's USE AND TRAINING PROGRAMMES IN BOTSWANA'S EDUCATION.*

The use of ICTs in Botswana's non-formal and adult education is based on people of age 21 and older. As a result non-formal and adult education was incorporated in Botswana College of Distance and Open Learning (BOCODOL) in 1998. It was incorporated to dictate the use of ICTs as an enabler in widening outreach to non-formal and adult education to students scattered across the country Mpoeleng (2016: 36).

Mpoeleng (2016: 47) completed a study comparing the use of ICTs in primary schools, junior secondary schools, secondary schools and non-formal adult education. The results indicate that teaching of ICTs at primary schools is patchy, inconsistent and not compulsory. In junior secondary education it is significantly more than at primary and secondary level and there is a moderate use of ICTs. However, in non-formal and adult education institutions the use of ICTs is the largest among the three even if the focus of non-formal and adult education is mainly on service delivery such as online applications but not the pedagogical activities other subjects offered.

Although there are successes, Botswana just like in many developing and under developed countries, experience several challenges that impede the effective use and implementation of ICTs such as the lack of connectivity, the lack of teacher training, the lack of an ICT curriculum and the lack of resources. These aspects will be briefly discussed next.

In Botswana telecommunications structure is robust and considerable amounts of money has been invested in telecommunications fibre complemented by mobile phone

companies in providing fast wireless technologies such as 3G and 4G. However, the challenge is advantage is not taken to improve connectivity in schools and other centres of learning (Mpoeleng, 2016: 47). Furthermore, there is a lack of training of teachers who can use or integrate ICTs in teaching and learning, for example, teaching of learners using ICTs is inconsistent. In addition, ICTs are not used to enhance teaching and learning in other subjects and there is no use of ICTs to support the pedagogy and delivery of other non ICTs subjects (ibid) because there are no ICT trained teachers. There is also a lack of a tailored ICT curriculum for different levels of education. As a result, there is a call to the ministry of education to integrate ICTs into curriculum of different subjects and across all levels from pre-schools, primary, secondary, vocational, and tertiary levels in education as well as in open and distance learning (Mpoeleng, 2016: 48). Mpoeleng (2016: 48) further recommends that the government should provide for soft learning resources of high quality to provide for electronic textbooks to all learners, the integration of e-books, interactive ICT resources, DVDs as well learning resources for learners with special needs because there are adult learners with special needs for example learners with blindness.

2.3.3 NATIONAL POLICIES AND PRACTICES IN ICT IN SOUTH AFRICAN EDUCATION

The previous sections discussed the national policies and practices in ICT in Kenya and Botswana. In this section the national policy and practices of South Africa with regard to use of ICT in teaching and learning will be discussed next.

Since 1994 the South African education landscape has undergone major transformation. At the core of this transformation the government introduced a Draft White Paper on e-Education Transforming Learning and Teaching through Information Communication and Technologies (ICTs) (DoE: 2004). The premise to this draft is that there is a global revolution taking place in education and training. It was driven by the changing nature of work, the realities of the information age, new global partnerships and awareness of the need for equal distribution of educational opportunities, the obligation by education systems to deliver on public expectations of quality education for economic growth and social development and in the heart of all the changes ICT is evident. In 2012 an

Implementation Strategy for e-Education in South Africa for 2013-2025 guided by the White Paper on e-Education (Transforming Learning and Teaching through Information Communication and Technologies (ICTs) in 2004 to implement the strategic objectives of the White Paper on e-Education (DoE: 2004).

Hence according to the DoE (DoE, 2003: 17):

“Every South African learner in general and further education and training bands will be ICT capable (that is, use ICT confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013”.

The South African system of education has three bands, namely the General Education and Training (GET) band, which includes Adult Education and Training (which was previously called ABET (see section 1.10.1) the Further Education and Training (FET) band and the Higher Education and Training (HET) band. GET runs from grade 0 to grade 9, whereas FET runs from grade 10 to 12 (DoE: 1995). For the purpose of the study the focus will be on AET which was incorporated in the DHET in 2015. In 1997 a Policy Document on Adult Basic Education and Training was drawn to facilitate the adoption of ABET in South Africa with the premise of the policy helping practitioners and planners to promote, implement, monitor and evaluate robust ABET practice in order to ensure that ABET occupies a central place in the development of the education and training system. However, the DOE did not provide for a curriculum or syllabi containing AET learning areas specifically or the broader organising fields (DoE: 1995). Since the incorporation of AET into DHET a Draft Paper of an AET curriculum called NASCA ITC has been drawn to see to it that an AET curriculum which includes ICT is implemented.

In 2015 the DHET circulated a NASCA ITC Draft Curriculum that presents the subject ICT to adult learners with required skills and acumen to achieve the relevant exit level outcomes of the Senior Certificate for Adults as well as the critical cross level outcomes as specified by the South African Qualifications Authority (SAQA) 91672 qualifications document (DHET, 2016: 2). The DHET introduced this curriculum which will be presented in a phased staggered cognitive development approach and consists of the following:

introduction, exposure, induction, application, knowledge and proficiency all these will be discussed next (DHET, 2016: 2). This cognitive development approach has been divided into two stages:

Stage 1 provides for the platform to which learners with no background relating to the use and implementation of ICTs are (1) introduced to the various concepts of encapsulated within the ICT domain, (2) exposed through theory and practical concepts (DHET, 2016: 4-5). .

Stage 2 presents learners with basic ICT skills and knowledge to progress to become proficient ICT workers and digital citizens with sufficient understanding of the interrelated technologies and domains that encompasses the digital knowledge economy. This is achieved by presenting the learner with an (1) induction into various ICT domains through, (2) the application of skills and various interrelated technologies which lead (3) knowledge generation to become (4) proficient digital citizens (DHET, 2016: 4-5). .

Prior to discussing the contents of the curriculum the DHET describes the subject ICT as a study of the various interrelated physical and non-physical technologies used for the capturing of data, the processing of data into useful information and the management presentation and dissemination thereof. (DHET, 2016: 4). It also includes activities that deal with the solution of problems through logical and computational thinking. It incorporates the study of integrated components of a computer system (hardware and software) and the practical techniques for the efficient use and application to solve everyday problems. The solutions to the problems are designed, managed and processed via end-user applications, software development tools and communicated using appropriate ICTs. ICTs are the combination of networks, hardware and software as well as the means of communication, collaboration and engagement that enables the processing, management and exchange of data, information and knowledge.

From the definition given by the DHET, the learners are supposed to learn the following in ICT as a subject:

- Use end user software applications proficiently to produce software solutions to solve within a defined scenario,

- Understand the concepts of ICTs with regard to the technologies that make up a computing system, understand the various technologies, standards and protocols involved in the electronic transmission data via a computer- based network,
- Use the internet and the W.W.W and understand the role that the internet plays as part of the global information superhighway,
- Find authentic and relevant information, process the information to draw conclusions, make decisions and communicate the findings in appropriate presentation media;
- Recognise the legal, ethical environment, social, security and health issues related to the use of ICTs and learn how use ICTs responsibly,
- Use appropriate techniques and procedures to plan simple solutions and algorithms to solve problems using suitable techniques and tools,
- Appreciate and comprehend the various systems technologies used in the developing of a computer based-system and,
- Understand that all ICT encompasses various domains and carriers and provide an appreciation of each of these (DHET, 2016: 4-5).

Based on the definition of the afore-mentioned, the following main subject topics of ICT according to the DHET are identified in the ICT curriculum: solution development, systems technologies, network technologies, internet technologies and applications, information systems and social implications. These subjects will be discussed in the table below.

The table below shows the topics and the sub-topics in the ICT curriculum

Main topic Area	Sub-Topics	Sub-topic weightin g	Weightin g (Volume)	Resources
Solution development	<ul style="list-style-type: none"> • Word processing • Spread sheets • Databases • Presentation software 	<p>8%</p> <p>14%</p> <p>10%</p> <p>3%</p> <p>20%</p>	55%	Computers Textbook Internet access <ul style="list-style-type: none"> • Web browser • Search engine Office suite

	<ul style="list-style-type: none"> • Problem solving and Introduction to Computer programming 			<ul style="list-style-type: none"> • Word processor • Spread sheet • Presentation • Database • Introductory Programming Language Programming environment (Scratch) Test Based editor for HTML editing (Notepad +++) Typing Tutor Security software (Anti-virus/internet security)
System technologies	<ul style="list-style-type: none"> • Concepts of computing • Hardware • Software • Computer management 	10%	10%	
Network technologies	<ul style="list-style-type: none"> • Introduction technologies and communication • Use of networks 	5%	5%	
Internet technologies	<ul style="list-style-type: none"> • Internet and World Wide Web • Internet Service technologies 	7%	7%	
Information systems	<ul style="list-style-type: none"> • Data and Information Presentation • Principle of logic and systems • Principles of Information Systems and software engineering • Theory of computing Programming and programming languages 	6%	18%	
Social implications	<ul style="list-style-type: none"> • Impact on society • Legal and ethical considerations 		5%	

	<ul style="list-style-type: none"> • Health and Ergonomic issues • Environmental issues • Careers in ICT 			
--	---	--	--	--

Table 5: The topics and the sub-topics in the ICT curriculum

Based on the literature there is a Draft ICT policy in adult education which covers the ICT curriculum but it is not yet implemented (DHET. 2016: 1-64).

2.3.3.1 CHALLENGES TO THE USE OF ICT IN SOUTH AFRICAN EDUCATION

In the previous section various international ICT policies of various countries were discussed and in this section challenges will be discussed but in this case they will be in the context of South Africa. It is well documented that Information and Communication Technologies (ICTs) play an important role in education and that its use is associated with improving student learning and adding value to the curriculum (Nkula & Krauss, 2014: 241-261) such as the following challenges: teacher attitudes and pedagogical beliefs, lack of access to resources, lack of professional development and teacher training, educator self-efficacy.

Teacher attitudes and pedagogical beliefs

According to Hermans et al. (2008) and Liu (2011), teachers enter the teaching setting with their personal theories about teaching and learning, for example they each have their own personal interpretations of the instructional situation and set of beliefs on how students learn. Teachers may view and perceive teaching situations differently and based on their beliefs, they make judgements and decisions on how to act, which strategies to implement and which materials to use. The decision to use technology in the classroom depends on the teachers' beliefs about teaching and learning and the role of technology (Ertmer, 2005; Hew and Brush, 2007; Hermans et al., 2008; Liu, 2011) (ibid).

Lack of access to resources

(Ertmer, 2005; Hew and Brush, 2007) cite lack of access to resources as one of the main barriers. Wilson-Strydom and Thomson, (2005: 1-22); Hew and Brush, 2007 refer to resources as either access to ICTs, access to available ICTs, time, or technical support.

Access refers to the correct amount and type of ICTs in places where teachers and students can use them, in order to ensure that ICTs are integrated into lessons (ibid). However access to resources does not mean that one will always use or integrate ICTs in their teaching and learning or with students especially in their learning. For an example at UNISA there are ICT resources for students to use in their learning but some of them hardly use them (personal engagement with students). Furthermore technical support can be a barrier because there are various types of support that can influence the use or integration of ICTs such as administrative, technological, professional, and peer support (Ertmer et al., 2012) (ibid).

Lack of professional development or teacher training

Educators need to access to multiple types of training where technology and pedagogical needs are addressed (Ertmer, 1999). Educators need pre-service training and in-service training to be ICT literate (ibid).

Educators' ability to use ICTs affects their willingness to integrate them into classroom. If educators do not have the knowledge and skills to use ICTs they will not integrate them (Ertmer, 2005; Hew and Brush, 2012; Etokleous, 2008) (ibid).

Educator self-efficacy

Hennesy et al. (2010: 39-54) refer to educator self-efficacy as an intrinsic factor that refers to educator' perception of the ability to teach. If an educator has a low self-efficacy they will not be able to use or integrate ICTs in their lessons because would have self- doubt but if an educator has high level of self-efficacy will be confident to teach the subject or infuse ICTs in teaching (Sang et al., 2010). Educator computer efficacy refers to their belief and perceptions of their capability to apply computers (ibid).

The challenges that impede the successful use of ICTs by educators and learners were discussed but now in the next section the benefits for adult learners and educators will be discussed next.

2.4 THE BENEFITS FOR ADULT LEARNERS AND EDUCATORS IN THE USE OF ICT

ICTs, when successfully integrated into teaching and learning can through meaningful engagement and facilitation bring about meaningful interaction of learners with information. ICTs can advance higher-order thinking skills such as comprehension, reasoning, problem solving, and creative thinking. ICT literate teachers can help learners to find appropriate instructional paths by guiding them to search on the Internet for possible career options, teachers can also help by encouraging learners to explore the use of ICTs on their own so that they can be able to conduct independent research on the available webs on their own.

Teachers can help learners to evaluate their progress by giving themselves targets or tasks to complete independently and look at how they managed to complete or achieve the particular outcomes.

Teachers can also encourage and put more emphasis on encouraging learners to use ICTs as a communication tool to communicate with other learners to improve their communication skills.

Learners become more active because today's students live, work, and play with others in digital settings, this interaction is known as their social network (Shelly, Gunter & Gunter, 2012: 257). Learners can now learn at school and outside school by engaging in multimedia rich content anywhere and anytime connected to the Internet (Shelly, Gunter & Gunter, 2012: 298).

ICT in education can help in promoting team work or collaboration and from the constructivist view learners work together as peers, applying their combined knowledge to the solutions of the problem, the resulting dialogue provides students with ongoing

opportunities to explore alternative interpretations and to test and refine their understanding (Newby, Stepich, Lehman, Russell & Leftwich, 2011: 35).

The use of ICTs promotes the asking of questions, as students no longer accept anything and everything from the teacher. They have a source of reference by connecting to the Internet and find answers to questions that create high interest on them (Sansanwai, 2010: 22).

Sansanwal, (2010: 21-26) refers to the following as the benefits of the use of ICTs: ICTs develop understanding and application of the concepts, students and teachers can develop to apply various ICTs tools such as iPhones in their process of teaching and learning.

The use of ICTs further helps in developing judgement and decision making power, students need to investigate data using critical thinking skills, figure out what the data means and be able to synthesise, evaluate, and create new information once they have determined its quality (ibid).

ICTs used properly improve comprehension, speed and vocabulary. Furthermore, technology translates speech into text that the computer can manipulate and can also help in translating handwritten notes into text that can be saved and edited on the computer (ibid).

ICTs with its use promote collaborative learning because for the students to progress in life or at the workplace they should be able to work in teams, share ideas and communicate to each other especially when they work on projects (ibid).

Mikre (2011: 10) highlights the following benefits of the use of ICTs in teaching and learning for both teachers and learners:

The use of ICTs offers the opportunity for more student-centred teaching; the students can be independent to their teacher and ICTs can provide them with additional resources to assist resource based learning.

There is a greater opportunity for teacher to teacher and student to student communication and collaboration, teacher and teacher and student and student can have a broader communication within their borders with the use of ICTs. ICTs can increase both teacher to teacher and learner to learner the international dimensions of educational services.

Learners can receive greater exposure to vocational and workforce skills through the use of ICTs. Learners can be capable of working and participating in the new economies and societies arising from ICTs and related developments (ibid).

With the use of ICTs educators are provided an opportunity to multiple technologies such as the use of SmartBoard which is an interactive whiteboard used for professional teaching and learning. Furthermore ICTs can assist educators in facilitating curriculum development (ibid).

Learners tend to be more enthusiastic for learning when they use ICTs in their learning and can be stimulated to be willing to learn because they can explore many things online. ICTs can produce ICT literate learners who in the future can to be ICT literate citizens (ibid).

Educators are provided with sources of information and knowledge through the use of ICTs. Educators are afforded the opportunity to explore, navigate and search for new information and knowledge regarding they subjects they teach, for instance mathematics educators can search for ways on how to make mathematics simple and enjoyable to teach (ibid).

Educators can use ICT is a medium for teaching and learning. This refers to ICT as a tool for teaching and learning itself, the medium through which educators can teach and learners can learn. It appears in many different forms, such as drill and practice exercises, in simulations and educational networks (ibid).

ICTs provide distance learners country-wide with online educational materials. Currently education is regarded as a basic right, and one cannot be denied education because he or she is in a geographically remote area, and one can always study through distance

learning. For instance in South Africa there is UNISA which is a distance learning institution; anyone who qualifies for higher education can study with UNISA irrespective of the geographically area. Furthermore it can provide a balanced combination of work, family life and education (ibid).

With ICTs, efficiency of educational administration and management of the schools can be improved, for instance administration of reports of learners and capturing of students' portfolios can be improved and done effectively and efficiently unlike manually which is time consuming (ibid).

The quality of educational services of the students can be improved, for instances if the learners are ICT literate they can always search for study materials especially from the school library from their tablets or any ICT device. Furthermore learners can always use ICTs for applying to higher learning institutions without bothering the librarians to help or the guidance teacher (ibid).

Developmental challenges can be met through the use of ICT in many ways such as enabling information and knowledge to travel faster and further. Through the use of ICT information can be distributed on a large scale and received very faster, for example one can use video conferencing to reach students. Through the use of ICT Distance Education is accessible and has invigorated both adult education and training and learning (Maguire & Zhang, 2007: 1-5).

Just-in-time information and knowledge for learning is available through the help of ICT. Just-in-time learning means acquisition of knowledge and skills as they are needed (ibid). Educators and learners usually participate in education and training programs to acquire knowledge and skills that may have future applications but they need available information just in time (ibid). For instance if students need information to complete their assignments, they need to access the internet now and search for the information needed.

ICT use helps in significantly reducing the costs. Through the use ICT learning costs have been reduced, through smartphones and tablets learners can access study material at

less costs (ibid), for an example students can access educational information by standing next to a place where there is free Wi-Fi and easily access the internet.

2.5.1. BENEFITS OF ICTs IN NON-FORMAL EDUCATION FOR ADULTS AND YOUTH

Adults and youth in non-formal education are provided an opportunity to access information and knowledge to provide perspective in their communities through ICTs. Many people can access information and gain knowledge through ICTs outside the formal school system (PCW, 2010: 1).

ICT in NFE attempts to encourage full and effective participation because ICT forms a central part of current educational and economic policy to create knowledge based countries (PCW, 2010: 4). UNESCO (2005) cited in PCW (2010) highlights the following benefits of use or integration of ICTs in NFE:

ICTs are used to develop Livelihood Skills which refers to capabilities, resources, and opportunities for pursuing individual and household economic goals; in other words, income generation (Population Council, Kenya) thus has the potential to contribute to Poverty Alleviation. For an example a youth who has dropped out school or have been to jail and do not have any skills to provide for themselves or to be a productive, with these skills such learners can be helped to be a better person by equipping them.

The use of ICTs as a tool in training youth or adults in programmes such as computer programming for an example is an engaging way of learners to develop these Livelihood skills (UNESCO 2005).

The use of ICT can be used as a tool for capacity building more specifically it can be used as an effective and affordable tool in the professional development of non-formal educators who are from the researcher's experience are those unqualified people who volunteer to teach at non-formal education institutions, for an example an engineering graduate volunteering to teach youth and adults in his or her township mathematical literacy.

With ICT, study materials and information sharing can be facilitated for successful implementation of non-formal programmes by printing and video documentation for dissemination of information about successful non-formal projects conducted, furthermore the process of networking among organisations who are engaged in the design and delivery of non-formal programmes can be facilitated through ICT.

2.6 CHALLENGES TO ICT USE IN EDUCATION

In contrast of the benefits there are challenges as well that should be dealt with to address the status of ICT literacy in AET.

Prior to discussing these challenges, I believe one should look at challenges involved and distinguishing between educators and learners and the (structural) technology related challenges.

Educator related challenges: educators' attitude, low self-efficacy, computer anxiety, motivation, and will be discussed next.

The attitude of an educator plays an important role in teaching and learning because an educator to be able to deliver quality teaching should be positive in what they do. The educator should be knowledgeable of the subject, should be able to translate the content to the learners with confidence. Furthermore educators need to have clarity about how far technology can be beneficial for the facilitation and enhancement of learning (Mikre, 2011: 12).

Bandura (1986) describes self-efficacy as an individual's opinion of capabilities to organise and perform courses of action to achieve particular types of performances cited in Mikre (2011: 12). Some educators tend to feel that they are under qualified to teach ICT or use ICTs in their course of teaching so they refrain from engaging themselves in using ICTs.

A number of educators lack motivation because they tend to think that they are old so it will not benefit them if they use ICTs in teaching and learning and there are no incentives for them (ibid). Falasca (2011: 586) states that some adults feel demotivated to learn more or new things because they are forced to attend training for job security.

Anxiety is another problem for educators because they feel that they do not have basic skills and afraid of trying to use ICTs in class for instance if they experience a problem with the computer and fails to solve the problem they will be embarrassed (ibid).

Learners' related challenges: Learners 'behaviour

Challenges faced by educators were discussed in the previous section and in this section challenges faced by learners are highlighted: appropriate use of computer and internet, over reliance on ICT, physical side effects, will be discussed:

Learners tend to use computer and internet inappropriately, by misusing technology, Yousef and Dahmani (2008) cited in (Mikre 2011: 12) students will spend time on online gaming, on chatting on Facebook and other communication channels and all these are perceived as drawbacks. Furthermore the students who misappropriate the use ICTs may be easily distracted from their learning and visit unwanted sites.

Learners tend to over rely on ICTs which limits critical thinking and analytical skills (ibid), because they tend to accept everything that they receive from the internet without trying to analysing the concepts by themselves, from personal experience as a tutor, I would give the learners a task to complete and ask them to contact other sources from the library unfortunately they will all use information from the internet. Learners can develop superficial understanding of the information they are downloading (ibid).

Computer based learning can have physical side effects on the learners such as a vision problem that may impede their use of ICTs (ibid).

Educators and learners challenges were discussed but there are challenges such as structural challenges notably the following: learning content, policy planning, infrastructure, capacity building and financing and political commitment (Tino, 2002) cited in Mikre, 2011: 12) that will be discussed next.

Falasca (2011: 586) identifies two challenges that are faced by adult learners and distinguishes between internal and external challenges. Internal challenges tend to be associated with those which reflect personal attitudes, such as thinking one is too old to learn or forgetting which answers are right and wrong (Merriam & Caffarella, 1999: 57).

Furthermore, Falasca (ibid) continues to state that adults fail to focus on one thing at a time, for example, failing to see a stimulus in reading a novel, being anxious and concerned about not being able to succeed in a new learning situation or seeing the value of education in this case it is the benefit of the use of ICT.

The external challenges are defined as influences more or less external to the individual or at least beyond the individual's control and continues to mention the challenges as the effects of aging, such as loss of vision and hearing, changes in health and certain life events which indirectly influence adults' ability to learn (Merriam & Caffarella, 1999: 99 cited in Falasca, 2011: 586).

Technology implementations, interface design of technology are reasons that an aging population bucks against utilization and learning of the technology (Githens, 2007: 336). Specific struggles for adult learners in their later life such as physical limitations like diminished hearing or vision can limit them to pursue learning. Additional stressors caused by activities such as "inappropriate sequencing of courses and undesirable features can result in frustrated students" (Githens, 2007: 336).

In conclusion, barriers to adult learning occur at certain life stages and as a result it is often hard to understand these barriers therefore further research is needed on this matter.

2.7 Summary

The purpose of the chapter was to contextualise current understandings of learning by reviewing learning theories and how the theories can assist in teaching and learning in adult education and training. Furthermore, the contribution of ICT literacy, the challenges and the benefits to teachers and learners were discussed. The development of ICT literacy in developing countries in Africa namely South Africa, Kenya and Botswana were discussed.

All theories discussed in the chapter have shown the contribution in advancing the field of adult education such as Knowles showing the difference between teaching and learning of a child and that of an adult, Vygotsky emphasising that adult learning comes from one's personal experiences and especially an adult learner would always want to

have a purpose and motivation in getting involved in academic studies. Informal learning was explained and its relevance was demonstrated by showing the benefits of ICT use in the sector which generated an interest from the research.

Chapter two was discussed and the following chapter to be discussed will be chapter three which contains the research design and methods discussion.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

The previous chapter discussed the theoretical framework and the literature review of this study. It contained the discussion on important aspects related to this study which is ICT literacy in adult basic education. The purpose of this chapter is to discuss the research design and methods employed and how they were employed in the study to help addressing the main research question, which states: *what is the status of ICT literacy*

AET? From the main research question the following sub-questions emerged (as indicated in Chapter 1, see section 1.4).

- What is the core content of the AET curriculum?
- What is the need for inclusion of ICT literacy in AET curriculum?
- What are the challenges that impede ICT literacy in AET?
- What are the attitudes of AET teachers, learners and officials of DHET toward ICT in teaching and learning?
- What recommendations can be suggested in enhancing ICT literacy in AET?

3.2 Rationale for the empirical study

Adult education and training (AET) responds to a wide range of political, economic, social and cultural adjustments that enhance the importance of having the knowledge and skills to enable people to participate fully in education, social and economic transformations (DoE: 1995). AET supplements mainstream education in that it shapes an informed and knowledgeable people (ibid).

Darkenwald and Merriam (1982: 2) note that adult education is concerned not with preparing people for life, but rather with helping people to live more successfully. Thus, if there is to be an overarching function of the adult education enterprise, it is to assist adults to increase competence, or negotiate transitions in their social roles (such as worker, parent, retired person), to help them gain greater fulfilment in their personal lives, and assist them in solving and community problems (Nafukho, Amutubi & Otunga, 2005: 5). In view of the fact that the researcher's study is focused on ICT literacy in adult education it is very important to highlight the significance of ICT literacy in this field, as ICTs have grown increasingly universally, and are adaptable and powerful. They change the world we live in and how we live. In this regard, adult learners should take the opportunity to frequently use and know the impact of the use of ICTs to enhance their lives and use them especially in enhancing teaching and learning in education. The latter is clearly indicated and emphasised in the White Paper on e- Education in South Africa, stating that there should be participation in the information society, access of ICTs, investment

in ICTs and quality of education and integration of ICTs into teaching and learning processes (DoE 2003: 8).

Based on what the White Paper on e- Education says about participation in the information society, access of ICTs, investment in ICTs and quality of education and integration of ICTs, Hawkrige (1990: 1-6) discerned four rationales that drive policies related to the integration of ICT and the use of computers in education: an economic, a social, educational and catalytic rationale and these will be discussed next.

ICT use can bring about economic rationale through the development of ICT skills. ICT skills are necessary to meet the need for a skilled workforce, as it can lead to future jobs and careers. Currently it is more economical to use ICTs because they are easily accessible such as using your smart phone to access information. (Galloway & Norton, 2011: 24).

The use of ICTs can bring about social rationale, this can build on the belief that all learners should know about and be familiar with computers in order to become responsible and well informed citizens. It promotes thinking about how ICT has changed lives and will do so in the future, including social, ethical, and cultural implications, as well as the need to be safe and responsible ICT users (ibid).

ICT is seen as a supportive tool to improve teaching and learning. ICT can assist in promoting communication and collaboration by enabling learners and educators to share ideas and information with others across the world, working together, being creative and generating new knowledge (ibid).

ICT can work as a catalyst to accelerate educational innovations. ICT can also assist with new educational innovations especially to learners with special needs such as computers with assistance for the visually impaired or blind learners (ibid). As an example, NonVisual Desktop Access (NVDA) which is a free screen reader which enables blind and vision impaired people to use computers (NVDA, 2016) and Job Access With Speech (JAWS)

which is a screen reader developed for computer users whose vision loss prevents them from seeing screen content or navigating with a mouse (JAWS, 2016)

To add to the four rationales mentioned by Hawkrige (1990: 1-6), ICT use helps to pursue higher-order and problem-solving skills, ICT foster collaborative learning and flexible opportunities independent from time to time. To note these four rationales are dated back but still relevant today.

Galloway and Norton (2011: 23-24) explore the use of ICT in teaching and learning as to build capability in using a variety of tools and applications to address questions and problems and to generate ideas and solutions of value, as well as using new technologies as they emerge and transfer skills into other situations, to explore ideas and manipulate information, to improve critical evaluation about the information presented with and to question validity and usefulness, as well as reflecting on the outputs.

In 2013 and 2014 I took some time to observe the use of ICTs in teaching and learning at AET centres, and discovered that there were shortcomings regarding the use of ICT as a tool to enhance teaching and learning. The same problems occurred in my field of work where I used to facilitate adult learners in the manufacturing and logistics industries hence undertaking the study. I discovered that when I gave these learners assignments and asked them to type, they would have a problem with that and state that majority of them do not have access to computers, they cannot type and they could not as well conduct research on the internet.

3.3 RESEARCH DESIGN

The chapter discusses the research design that was followed in order to collect and interpret the data that were necessary to respond to the research question that is guiding the study. This study employed a qualitative research design for its empirical investigation. According to McMillan and Schumacher (2001: 395) qualitative research describes and analyses people's individual and collective social actions, beliefs, thoughts, and perceptions. The researcher interprets the phenomena in terms of the meanings people bring to them (McMillian & Schumacher, 2001: 395). Based on the philosophy of

qualitative research as constructivist meaning the philosophy assumes that reality as multi-layered, interactive, and a shared social experience interpreted by individuals. As a result the researcher sees fit to employ qualitative research for the current study (McMillan & Schumacher, 2006: 313-316). The researcher's choice of qualitative research approach was influenced by the following characteristics (Creswell, 2014: 185-186): natural settings, researcher as a key instrument, multiple sources of data, inductive data analysis, reflexivity, holistic account, emergent design and participants' meanings.

- **Natural settings**

The researcher collected data in the field at the site (an adult learning centre in Winterveld) where participants (adult educators and learners) experience the problem under study. The second setting was at the offices of the Department of Higher Education where an official was individually interviewed.

- **Researcher as a key instrument**

The researcher was the primary data collector of data and used focus group interviews, questionnaires, semi-structured interview and observation.

- **Multiple sources of data**

The researcher gathered multiple forms of data by using interviews, questionnaires and observation in which I reviewed the data and organised it into themes that will be discussed in chapter 4.

- **Inductive data analysis**

This type of analysis was employed by the researcher because it gave me the chance to work back and forth between themes and the database until I have established a comprehensive set of themes.

- **Reflexivity**

As a researcher I did reflect in my personal background, my attitude toward the study so that I can create meaning of all data collected.

- **Holistic account**

The researcher decided to bring a holistic approach after analysing data about the study and this will be highlighted in chapter 5.

- **Emergent design**

The researcher did not get involved in this qualitative research with a prescribed and predetermined plan, because I deal with individuals and as a result the process may change during the course of the research such as questions that I may ask may change.

- **Participants' meanings**

The progression of qualitative research is not meant to promote the researchers' ideas and meaning or the ideas from the literature review, but rather to discover the meaning that the participants have regarding the research problem. I conducted the research with an open mind wanting to know what the participants say about their experiences and not what I think.

For the sake of the study the researcher chose a qualitative approach rather than quantitative because in quantitative research, researchers want to use their data to make statistical inferences about their target populations and are focused on testing preconceived hypotheses (Charmaz, 2006: 101). However, in this qualitative study the researcher studied participants' perceptions, experiences, attitudes, the way people live and my interaction with them in their own setting.

A case study was employed for this study and was about adult educators and learners in adult education and specifically those involved in the training centre in the Winterveld district in Tshwane. A phenomenological approach was followed in the case study which is described as an inquiry that attempts to understand people's perceptions, perspectives and understanding of a particular situation (De Vos, 2005: 264). Additionally Creswell (2014: 14) describes the phenomenological case study as a design of inquiry coming from philosophy and psychology in which the researcher describes the lived experiences of individuals about a phenomenon as described by the participants; this description culminates in the essence of the experiences for several individuals who have all experienced the phenomenon. Atkins and Wallace (2012: 108) citing (Yin, 2003: 13)

define a case study as an empirical enquiry that investigates a contemporary phenomenon within a real life context especially when the boundaries between phenomenon and context are not clearly evident. It goes further to say that it provides a means for the researcher to capture or interrogate the real world, be that a situation, an organisation or a set of relationships; in all its complexity, in a way that quantitative approaches cannot do (Atkins & Wallace 2012: 108). In light of the above definition of a case study by Atkins and Wallace this approach was deemed appropriate to employ because it will be the best approach to answer the main research question of this research. The researcher will be personally engaging and probing questions to adult educators and learners who are involved in adult education and have first-hand experience.

3.4 RESEARCH METHODS

The study drew upon qualitative approach using a case study of adult educators, learners and an official of the DHET, hence various data collection methods were employed, namely interviews, open-ended questionnaires and non-participation observation.

3.4.1 Selection of participants

The participants for this research study were selected using purposive sampling. Purposive sampling in qualitative inquiry refers to a sample that is composed of elements that contain the most characteristics, representative or typical attributes of the population (De Vos 2002: 207). This type of sample is based on the judgement of the researcher. The researcher seeks out participants with particular characteristics, according to the needs of the developing analysis and emerging theory. Thus, purposive sampling involves the intentional seeking out of research participants who will be in a position to yield information-rich data on a topic.

Participants for this research were limited to the adult learning centre in the Winterveld district in Tshwane and an official of the Department of Higher Education. The researcher

chose to conduct the study as at this centre because looking at the demographics of the centre it was evident that the researcher will gather rich and valuable information (see table 2), for instance majority of educators employed at the centre have minimum of over five years involved in teaching and learning in adult education and training sector. The participants were six adult educators and six adult learners. The learners were selected based on age as learners who are in Grade 12 and selected based on gender, (both male and female; see table 2). The adult educators were selected based on their experience in teaching and learning of adult education and were also selected based on their gender to include both males and females (see table 1). However, within the focus group of adult educators there was only one male selected because there were no other males available. This male educator was selected because he was the only one from the males' staff who was using ICTs in his lessons. An official from the department of higher education was selected based on his experience in staff development of educators and as a senior member of the DHET.

Purposive sampling was deemed appropriate for this study because the researcher was interested in finding out specific information about the topic under investigation. It therefore made sense to select people who were in a position to provide such information. The type of purposive sampling selected was snowball sampling because according to De Vos (2002: 208) snowballing involves approaching a single case that is involved in the phenomenon to be investigated, in order to gain information on other similar persons. In turn, this person is requested to identify further people who could make up the sample. In this study the researcher managed to request some of the participants to recommend any other person who could share more information. The researcher was also influenced by the fact that this centre was the only one that offered basic skills in ICT to adult learners and the educators and had a positive view about ICT literacy in adult education and its importance in bettering the lives of their adult educators and adult learners.

3.4.2 Data collection

For the purposes of this study, the case study relied on focus group interviews, a semi-structured interview, the use of questionnaires with open-ended questions and non-

participant observation. McMillan and Schumacher (2014: 6) state that semi-structured questions are fairly specific interview questions that allow for individual, open-ended responses. Open-ended questions were considered suitable for this research study because the nature of the open-ended questions provided the interviewees with freedom during the interview, although the aim of the questions ensured that the research questions were answered.

The different data collection methods will be discussed next.

3.4.2.1 *Focus group interviews*

The researcher chose to employ focus group interviews because there was a need to choose a group with the same characteristics and being involved in some collective activity. The researcher managed to interview two groups: one consisting of six adult learners and one of six adult educators; each participant being involved in adult education. De Vos (2002: 306) defines focus group interviews as carefully planned discussions designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment. In the process of interviews, the participants started to self-disclose, which led to the communication channels being opened and information being shared about their experiences. The researcher was able to compare information among the various members, which were the adult educators and learners. In the interviews the researcher had interview guides (see appendix D & E) but it happened that questions emerged on the spot and therefore the interview guide was not the only source of probing. An interview guide can be regarded as a list of questions or topics the researcher intends to cover in the interviews (Atkins & Wallace, 2012: 88). The researcher chose to use the interview guide because it helped to reflect on wording and sequence, to avoid asking leading questions or closed questions requiring a one word answer which could just be asked via a questionnaire. Furthermore, it served the purpose of being an aid to memory and helped the researcher to estimate practical issues such as timing (Atkins & Wallace, 2012: 88-89).

The participants were asked for permission to record the interviews using an audio recorder, and permission was given. The interviews took place in a quiet space in the library. Both focus group interviews took 30 minutes. The researcher arranged the seating by letting both groups sit in front of me with the audio recorder so that I could face them and for the audio to be able to record everything properly. The interviews happened approximately at 10h00 in the morning as this was the convenient time agreed upon. Focus group interviews were the main method of data collection but other instruments such as semi-structured interview, open-ended questionnaires and non-participant observation were employed for triangulation purposes.

3.4.2.2 *Semi structured interview*

A semi-structured interview was conducted with an official of the department of higher education at their offices at the department. The participant was asked if the interview could be recorded using an audio recorder of which permission was given (see appendix F). The interviewee was sent the interview guide beforehand to make him aware of the questions. The researcher spent 45 minutes with the DHET official in his office interviewing him.

3.4.2.3 *Open-ended questionnaires*

The researcher employed two different open-ended questionnaires for adult educators and for learners respectively. The purpose of the questionnaires was to ask questions with the hope of allowing the participants freedom to answer a question in their own words in whichever way they think appropriate (Bertram & Christiansen, 2014: 74). The researcher chose to use an open-ended questionnaire because one would want to use a coding process when interpreting the meaning of responses and opening the possibility of misunderstanding and researcher bias (Babbie, 2010: 256). The researcher employed questionnaires because he wanted to be able to triangulate by comparing the responses of the participants with non-participant observation, the interviews. The researcher employed this tool because he wanted to foster frank disclosure that a participant might

not have wished to make during the interview. Furthermore, the researcher acknowledges the non-fluency of the majority of the participants in speaking in English therefore he was hoping that the participants would be more comfortable to write and be able to take their time when answering the questions (see appendix G & H). Questionnaires were handed out to all the participants to complete before the focus group interviews so as to prepare them for the interviews and later the same day the questionnaires were collected personally.

3.4.2.4 *Non-participant observation*

According to McMillan and Schumacher (2010: 350) observation is a method the researcher uses to see and hear what is occurring naturally in the research place. Non-participant observation was selected in this study with the intent to watch, listen and find information about the ICT literacy of the educators and learners and features of the learning centre. The researcher spent time observing the teaching process and observing the conditions of the classes (see appendix I). The observation checklist was used to look at the physical structure features of the learning centre such as the size of the classroom, the lighting and ventilation in the classroom, the positioning of ICT equipment, seating arrangements, the operability of the ICT equipment and the computers connected to the internet.

The researcher observed two classrooms which have computers for a period of thirty minutes each to observe the teaching and learning process and observe if ICTs were integrated in the teaching and learning. In one class the seating arrangement was arranged in such way that learners sit face to face with computers in front of them and the other classroom desks were arranged in such way that they face forward to face the educator who was in front of them.

Natural lighting was used in classrooms. All computers observed were operating normally but were not connected to the internet because there is no internet connectivity.

3.4.2.5 *Triangulation*

Atkins and Wallace (2012: 111) refer to triangulation as the comparison of information provided by more than one data source, but using the same method. McMillan and Schumacher, (2014: 7) refer to triangulation as cross validation among data sources, data collection strategies, time periods and theoretical frameworks. It is to find regularities in the data and the researcher compares different sources, situations, and methods to see whether the same pattern keeps recurring. The researcher employed triangulation because multiple methods were used and this ensured that the study is verifiable, trustworthy and credible. As a result the researcher can be confident of the results. The researcher used the data from the questionnaires, focus group interviews, semi-structured interview and non-observation methods.

3.5 Data Analysis

All the data that were gathered before or after collection should be analysed or else would be worthless thus a need for data analysis. Data analysis can be described as a process of bringing order, structure and meaning to the mass collected data (De Vos, 2005: 333). The data collected were analysed separately per collection method, namely the focus group interviews, semi-structured interview, questionnaire and non-participant observation. Each participant's response was organised separately and later compared with the other information received from other participants. Inductive analysis was used because the researcher could work back and forth between the themes and database until a comprehensive set of themes was realised (Creswell, 2014: 186). For this study certain steps were followed to show the whole process of data analysis (De Vos, 2005: 338):

- Organising data
Data was collected and organised into various notes and labelled such as data from interviews and data from observations in order for it to be manageable when analysing data.
- Themes, patterns were generated and data was coded.

Data collected was classified to look for themes and categories so that data could be reduced to a small and manageable set of themes to write in the final narrative

- Coding of data

The researcher read through the data several times and identified more than one occurrence of responses of participants and decided those occurrences should be coded.

Various steps of data analysis were briefly discussed and next section of measures to ensure trustworthiness will be discussed next.

3.6 TRUSTWORTHINESS

The concept of trustworthiness was conceptualised by Lincoln and Guba (1985: 301), who indicate that the research results should be credible, transferable, dependable and confirmable to prove trustworthiness. These aspects will be discussed next.

3.6.1 Credibility

Credibility is ensured when the participants and end-users in the research agree that the data collected is believable from the perspective. The study is credible in the sense that accuracy was identified by identifying participants who are directly involved in the field being studied. Credibility is measured through the following procedures: prolonged engagement, which implies spending adequate time with the participants in order to get to know them, to build trust and rapport and concurrently gather data until saturation is reached of which the researcher did during data collection, persistent observation was conducted where the researcher went to the site of study which was the centre and observed two computer laboratories (computer classes) (Bertram & Christiansen, 2014: 84).

Triangulation was conducted by comparing data from the collection of data instruments. Triangulation refers to cross validation among data sources, data collection strategies, time periods and theoretical frameworks (Babbie & Mouton, 2012: 277). Peer briefing, is

a process of involving a person (a peer debriefer) who reviews and asks questions about the qualitative study so that the account will resonate with people other than the researcher (Creswell, 2014: 202). In the study my study supervisor who is more knowledgeable was always being briefed to comment on the study.

3.6.2 Transferability

Transferability refers to the extent to which the findings can be applied in other contexts or with other respondents (Babbie & Mouton 2011: 277). The findings of the study will be presented in such way that they can be applied to solve other related studies or contexts. In this study the aim of the researcher was to attempt to make it likely that other public adult learning centres may be experiencing the same challenges.

3.6.3 Dependability

Dependability can be established if an inquiry provides its audience with evidence that if it were to be repeated with the same or similar respondents in the same context, its findings would be similar (Babbie & Mouton, 2011:278). If this study is repeated using purposive sampling it will yield similar results because the same research methods and techniques would be accurate and reliable to establish the status of ICT literacy in AET.

3.6.4 Confirmability

It is the degree to which the findings are the product of the focus of the inquiry and not of the biases of the researcher. Lincoln and Guba (1985: 318) refer to confirmability as an audit trail, for example, an adequate trail should be left to enable the auditor to determine if the conclusions, interpretations, and recommendations can be traced to their sources and if they are supported by the inquiry. Conducting such a trail involves reviewing at

least the data collection techniques being used. The researcher in this case used transcripts from the interviews, original questions from the questionnaire and observation checklist to show the confirmability of the study.

3.7 ETHICAL CONSIDERATIONS

Ethics is a set of moral principles which is suggested by an individual or a group, is subsequently widely accepted, and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects (De Vos, 2007:57).

This code of ethics is prepared with the aim of devising the role that elicits cooperation, openness and fosters good relationships between the participants and the researcher (McMillan & Schumacher, 2010: 338). The relationship should encourage participants to be honest in divulging information. The guidelines pertaining to ethical considerations include the following roles: The different roles will be briefly discussed below, avoidance of harm, informed consent, anonymity and confidentiality and ethical clearance from Unisa.

Avoidance of harm

The researcher made sure that all participants are not subjected to harm in any form either emotionally or physically during the study. De Vos (2007: 58) mentions that it is responsibility of the researcher to protect respondents against harm because harm goes further than mere efforts to repair; or attempt to minimise. De Vos (2007:58) continues to say that respondents should be thoroughly informed beforehand about the potential impact of the investigation.

Informed consent

Informed consent refers to a possible demonstration of respect for individuals' autonomy since they are able to make a more objective personal decision about the implications of participating and in some cases, about withdrawing from the study if they come to feel that they no longer wish to participate (Atkins & Wallace 2012: 32) (see appendix C). The researcher endeavoured to ensure that participation was voluntary by handing out a letter

of consent and a confidentiality contract. The researcher handed out informed consent forms and a confidentiality contract to the participants to guarantee their anonymity, privacy and voluntary participation.

Anonymity and confidentiality

The principle of anonymity is linked with confidentiality. A participant's data must not be associated immediately and obviously with his or her name or other identifier (Bless, Higson, Smith & Kagee, 2006: 143). The researcher guaranteed the participants that their identity will be kept confidential and anonymous and a confidentiality form was signed by the participants and the researcher. (See appendix C).

Ethical clearance from Unisa

The researcher obtained ethical clearance from the College of Education at Unisa (see appendix I).

3.8 Summary

This chapter provided an account of the research design employed, which was a case study because the researcher intended to acquire as much rich data as possible from the participants. Purposive sampling was used to identify the participants. The researcher employed a qualitative approach because it had the elements of dealing with human nature. Data collection was conducted by means of focus group interviews, semi-structured interview using an interview guide, questionnaire, and non-participation observation. The researcher discussed validity and reliability and ethical measures were also discussed to show trustworthiness.

The next chapter presents the analyses and discusses the data collected during the empirical investigation of the study.

CHAPTER 4
DATA PRESENTATION, ANALYSIS AND DISCUSSION OF DATA

4.1 INTRODUCTION

This chapter presents the findings from the questionnaires, interviews and non-participant observation that were conducted with the 13 participants as indicated in Chapter 3 section 3.4.2. The focus group interviews and the responses from the questionnaires as well as the observation were conducted at the selected adult learning centre in Winterveld at the Tshwane West District. The semi structured interview with the official from DHET was conducted at their offices.

The tables below present the profiles or demographics of the participants who were involved in this study.

Table 4.1: Adult educators (Focus group interview and questionnaire analysis)

This table presents the number of participants, the gender, the grade level that they teach and the level of experience of the participants who took part in the focus group interview and who completed the questionnaire in the study. The Grades mentioned in the study are provided for by the National Qualifications Framework (NQF) Act 67 of 2008.

Participant	Gender	Grade	Experience in years
Educator A	Female	12	0-5
Educator B	Female	ABET Level 4 (Skills)	0-5
Educator C	Female	Not specified	0-3
Educator D	Female	12 & Level 4	0-5

Educator E	Female	12	0-5
Educator F	Male	ABET Level 4 (skills)	0-5

In table 1, the profile of adult educators who participated in the focus group interview was presented and in the following table, adult learners' profiles are presented.

Table 2: Adult learners (Focus group interview and questionnaires analysis)

This table presents the number of participants, the gender and the level of education of the participants who took part in the focus group interview and who completed the questionnaire.

Learner A	Male	Level 4
Learner B	Female	Level 4
Learner C	Female	Level 4 skills
Learner D	Female	Level 4 skills
Learner E	Female	Level 4 secretarial
Learner F	Male	12

Table 3: An official from the department of higher education and training (semi-structured interview) (see Appendix F)

Participant	Gender	Designation
An official from the DHET	Male	Senior member of DHET

4.2 Questionnaire analysis

The researcher employed questionnaires because he wanted to be able to triangulate by comparing the responses of the participants with other instruments employed (see section 3.4.2). The participants who completed the questionnaires were selected according to specific criteria. Firstly, gender was taken into account to represent the participation of both women and men in the field of AET, secondly the grade they were teaching and also the years of experience in the field of adult education, because AET is a specialised area. Of the 12 questionnaires distributed 11 were sufficiently completed. The remaining one had some parts that were not fully completed. This resulted in a 98% response rate, which is presented in the figure below.

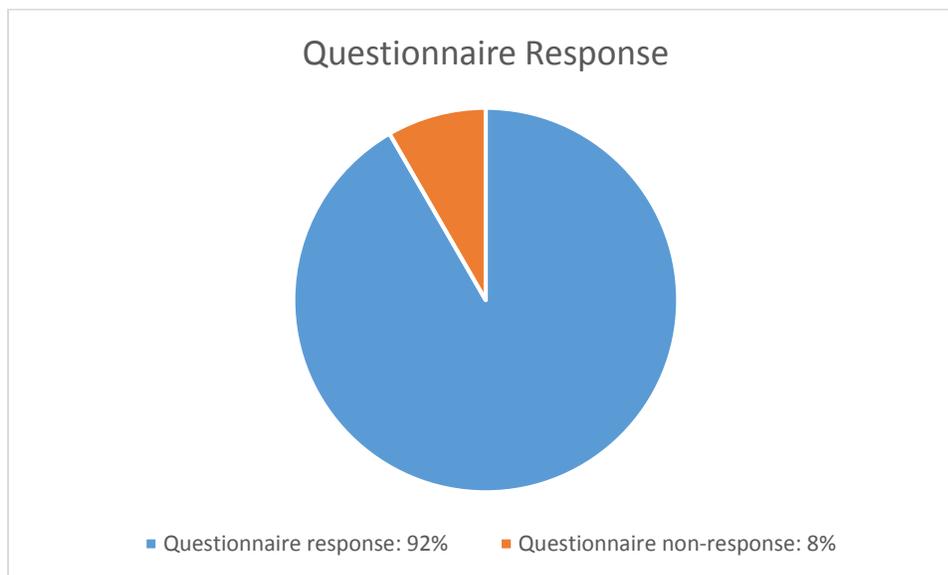


Figure: 1

The researcher preferred to use open-ended questions during the interview to collect data. After collecting the data, it was read and analysed in order to get a sense of similar issues between this participant and the other participants. The information received was reduced into a limited set of attributes with common issues or themes and the data was

then coded. Based on the information in the above tables, it is clear that all the participants were involved in adult learning and teaching.

Based on the responses of the participants who participated in the study the following themes and categories emerged and will be discussed next.

4.2.1 Themes and categories

Based on the participants in the study and from the different instruments indicated in chapter three, section 3.4.2 to collect data, the following themes emerged and are summarised in the table below.

Table 4: Themes and Categories

Themes	Categories
Understanding of ICT	A basic understanding of ICT
AET curriculum	No customised AET curriculum Main stream curriculum
Use of ICT devices	Use of computers for teaching and learning Use of computers for administrative purposes Use of any various devices and Frequency of the use of ICTs
Challenges of using ICT	Lack of resources Lack of commitment from the department (lack of support) Lack of financial incentives
Internet access	Lack of Internet access
Recommendations	More support from the department
Benefits of ICT	The achievements

Table 4 presents the themes and categories that emerged from the empirical study and they will be discussed below.

4.2.1.1 Discussion of themes and categories

The different themes and categories gathered from the study will now be discussed and coding is being used and participants are presented as EA – EF (Educator A to Educator F), LA- LF (Learner A to learner F) and HI (Official from DHET) to keep the identities of the participants confidential and anonymous. The coding was done to differentiate between the educators, learners and the official of the DHET. Coding was done manually because it deemed most appropriate.

4.2.1.1.1 Understanding of ICT

ICT literacy addresses the key challenges of information access, information overload, and information quality faced by students and workers alike (Ali & Katz, 2010: 5). During the interviews and questionnaires the participants were asked about their understanding of ICT, and it was found that 4 educator participants had an understanding of ICT and 2 participants responded but did not seem to understand the question because of the responses given.

In this regard participant EE (educator) stated:

“It is Information Communication Technology whereby learners use computers”.

While Participant EA (educator) said:

“ICT is the use of computers so as to become computer literate. It is our need to be literate so as to make life easier.”

With regard to responses from the participants (educators), there was a limited understanding of ICT. The participants understood that ICT was about the use of computers only. The educators interviewed indicated that ICT is being able to use the

computers and being computer literate (see appendix K). These responses from the educators show that they know about ICT but they need more understanding that ICT is not only about computers or about the use of computers.

Participant LE said:

“My understanding of ICT is that we use computers here at school and we cooperate and we also have access to the internet.”

Furthermore, Participant LF said the following when asked what his understanding of ICT was:

“Is learning of the computer system”.

The learners interviewed responses show that there is a partial knowledge of ICT but they demonstrate that their understanding is limited to ICT as only computers where else ICT is more than that. Both educators and learners demonstrate a limited understanding of ICT (see appendix J) as a result there is more to be done to educate both educators and learners about ICT and its use in education.

The next theme that will be discussed is the AET curriculum.

4.2.1.1.2 AET curriculum

On the question of AET curriculum educators and the official from the DHET were interviewed if there is an AET curriculum. Participant EA stated that:

The AET curriculum is the same curriculum as the main stream curriculum because we are writing the same question papers.

Participant EC confirmed this by stating that:

The curriculum of AET is the same as the main stream curriculum.

The educators stated that the curriculum being used are those used in the General Education and Training (GET) which comprises of grades R to 9 and focuses on literacy and numeracy. Further Education and Training (FET) which comprises of grades 10 to 12 focuses on general academic and general vocational needs as well as basic literacy. The curricula are main stream and fall under the National Qualifications Framework NQF bands.

Participant HI said the following:

“The DHET has embarked on drafting new curricula called the National Senior Certificate for Adults Information and Communication Technology (NACSA IT) and General Education and Training for Adults Information and Communication Technology (GETCA IT) which are qualifications on NQF level 4.”

Participant HI further stated that:

“General and Further Education and the Training Qualifications Sub-Framework will be implemented to address the integration of ICTs in the AET curriculum.”

Furthermore participant HI stated:

“We are busy developing this NACSA curriculum including ICT.”

The above comments from both educators and the official from the DHET indicate that there is no a tailored AET curriculum and ICT is not integrated in teaching and learning of adult learners. Since the educators and the official from the DHET indicated that there is no an AET curriculum, it is clear that there is a need for one.

4.2.1.1.3 Use of ICT devices

During the analysis of the findings from the focus group interviews and questionnaire with the help of the use of Microsoft Excel it was found that only 33% of educators and learners (33%) do not use ICT devices both at the centre and home (see figure 2).

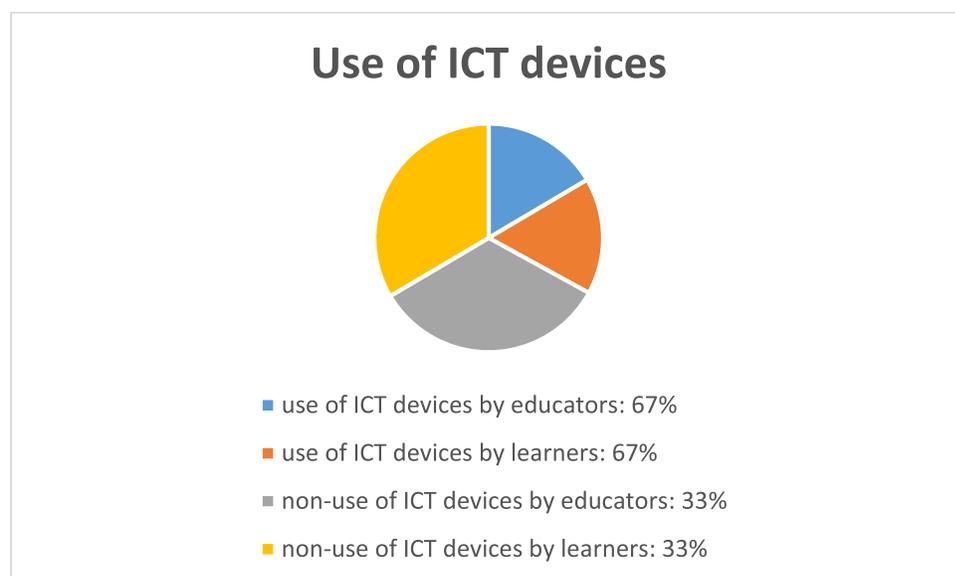


Figure: 2

From the responses in the study it became clear that 67% of both educators and learners use ICT devices in both their real lives and for educational purposes. Educators interviewed use ICTs in teaching and learning and some indicated that they use ICTs for administrative purposes, for instance to capture learners' marks and reports.

Educators, who use ICTs for educational purposes, use computers for accessing Microsoft software such as Ms Word, Ms Excel, and Ms PowerPoint and also use an adult education program from a private organisation which provides adult learners with English literacy and mathematical solutions. Some educators indicated as well that they use ICTs at their homes after work.

Participant EE stated that:

“We are using computers for Office Programs and Media Works which is the special Program for Adult learners”.

Participant ED stated that:

“I only use computer to capture information”.

Learners when asked about the use of computers and how frequent do they use ICTs, they responded by saying the following:

Learners LE and LF indicated that they use ICTs for learning, but other learners indicated that they do not, because there was no need in their field of study such as those who were studying welding as a skills program. For instance, LD stated:

“I have a smartphone but I use it to check for welding skills”.

Some learners indicated that they use smartphones to access the Wi Fi to access the internet because they do not have access to Wi Fi to access internet at their centre. LF stated that:

“Yes, I only access it while at home”.

LE stated that:

“I have a smartphone”.

It is evident that there are those learners who use ICTs but mostly at home where they use their smartphones not equipment from the centre where they are studying.

During the observation in the two computer classrooms observed, the educators were using ICTs devices such as computers only in their teaching. The researcher observed that there was no Wi-Fi to access the internet in the centre.

4.2.1.1.4 Challenges of using ICT

The success of enhancing ICT literacy in adult education and training depends on the challenges faced by the educators, learners and the DHET that have to be overcome. During the interviews, response to the questionnaire and the non-participant observation, the following challenges emerged: lack of resources, lack of commitment from the DHET, lack of training and lack of salary parity between adult educators and mainstream educators (this response came from an informal conversation after the focus group interview from one educator).

It emerged that in the findings from the interviews and responses to the questionnaire, educators, learners and the DHET experienced challenges with regard to ICT. These challenges will be discussed next.

Lack of resources:

Educators who participated indicated that there were no resources such as laptops and no access to Wi Fi, to access the internet. As a result, educators were not able to access the required academic materials that can be used in teaching and learning

EA stated that:

“I should have used it but due to lack of resources we are unable. The only chance I got is to go to the internet café to search information”.

Another EC stated that:

“We are not even having laptops and we are supposed to have laptops as educators so we don't have”.

Furthermore ED stated that:

“We use improvised materials, the educator has to go out and liaise with other educators to get left overs that they sometimes they don’t give us and that is a problem”.

The learner indicated that the centre does not have tablets to use for their learning that the centre did not have access to Wi Fi to access the internet and as a result they cannot conduct research for their assignments. LF stated that:

“I think computers and tablets must be given to each and every learner so that they can have a better understanding”.

During the non-participant observation it was found that there was no Wi-Fi to access internet in computer classrooms, so educators and learners could not access the internet.

The official from the DHET indicated that at a most of the PALCs there is no electricity because of their geographical areas; therefore ICT infrastructure cannot be facilitated. The official from the DHET generalised about the majority of the PALCs that they are in the rural areas and do not have electricity. However, in this case the centre is in a semi-rural area and has electricity.

Participant HI stated:

“So far I think the resources, untrained educators, infrastructure especially in rural areas, you see because you find there is no electricity sometimes and it affects the teaching of ICT in AET centres.”

Lack of commitment from the DHET:

The educators indicated that there was no effective and efficient communication between the DHET and the centre. For example, the centre has requested resources before from the DHET but to no avail.

Participant EA stated:

“No the department is slow when coming to the AET section”

Participant ED stated:

“Not much concerning ICT”.

Lack of training:

The educators indicated that a lack of training puts them at a disadvantage because they cannot be at par with new technological trends. The educators indicated that the training programs in general take two days and sometimes three days which is not sufficient for them to master the use of ICT in teaching and learning. Participant EF stated with regard to challenges faced by educators for an example of training:

“Only a workshop for two days or one day it is not enough.”

The DHET official indicated that there weren't a sufficient number of qualified educators in AET and that there was no sufficient training because of budgetary constraints. He further indicated that there was a plan to integrate AET into community colleges in the future. He further indicated that there might be a delay because they would want to invest more resources in these community colleges.

Participant HI stated:

“One of the biggest challenges of the ICT in AET centres is that one; there are no educators so that is one of the biggest challenges.”

Lack of salary parity: (this response came from an informal conversation after the focus group interview from one educator EF). This comment from the educator was not verified by the researcher.

Educator indicated Participant EF stated the following:

“The salaries between mainstream educators and adult educators are not the same and the mainstream educators earn more than adult educators”.

Participant EF continued to state that:

“This in turn left adult educators feeling demoralised and unmotivated. However, because of the love of teaching the participant indicated that they would continue to be involved in teaching adult learners”.

The participant EF continued to state another perception of educators being demoralised and demotivated, again the researcher could not verify the perception. In the researcher’s opinion conditions at the centre suggest there might be some truth because the centre has challenges such as lack of resources, lack of training and lack of proper communication between the centre and the DHET but one can conclude by saying may be there is a need for further investigation regarding this claims from the educator.

Subsequent to the challenges faced, the research shows that there were benefits of the use of ICT and these will be discussed next.

4.2.1.1.5 Benefits of using ICT

ICT is a powerful tool for promoting educational opportunities (Bindu, 2016: 26). It is transforming the process of the teaching and learning environment by including elements of vitality to the learning milieu (ibid). ICT brings more rich material to the classrooms and libraries for the teachers and students. It has broken the monotony and provided variety in teaching-learning situations, (Sansawai 2009: 5).

It has changed how educators and learners communicate, learn and has helped in meeting developmental learning challenges in education. It emerged from the focus group interviews and questionnaire that there are various benefits of using ICT, such as access to information, empowerment, easy to use and use for administrative purposes. During the study it emerged that learners, educators and the official from DHET highlighted that there were benefits. The benefits mentioned were: access to information, computers are easy to use, prospects of furthering studies.

Participant EE stated that:

Firstly, access to information.

“I think Information Technology, when learners need information they must be able to access information from the internet so with the ICT they are giving them basic of how to operate and how to get information, they can even use their own data”

Participant ED stated:

“But I think it wise to use computers because everything is there even on Grade 12 level; we are able to Google to do some research so it is wise to use computers.”

Despite the absence of resources such as lack of Wi Fi and tablets, educators indicated from their responses that they do know and understand that the use of ICT has benefits for both educators and learners. In line with the quotations from the educators it is clear the use of ICT can enable both themselves and educators to access information through the use of Google to search for information.

Secondly, teaching with computers is easy

“Teaching with computers its very simple for the learners because what they see most of time if you something is better than just hearing , they see may be from

the overhead projector what we are teaching and experience that and do that practically on their own so it's simple, fast for learners.” (Educator E)

From this comment from EE it is evident that teaching with ICTs creates interest and learners gain knowledge visually if they see what they doing from the projector.

Participant EB stated that:

“It is good to use computers in teaching and learning because it empowers learners with knowledge”

Participant LF stated that:

“I think it is a good strategy because it enables the learners to get more informed and it helps with the better understanding easily”

Participant LE stated said:

“I think it's a good thing that we use ICT because you will be able to access information you need”.

It is indicative that learners who use computers in their learning, they tend to be self-empowered, can learn to be independent and can work on their own.

Thirdly, prospects of furthering their studies

An official from DHET stated that:

“If they are qualified in the use of ICT then at least they can go further they can study in the TUTs if they for instance pass”.

From the response of the official from the DHET it is clear that the use of ICTs can assist learners to pursue further studies applying to higher learning institutions for instance if a learner wants to apply to Unisa a learner should be able to use the internet because applications are online only.

Due to the fact that the centre studied, there is a lack of resources such as Wi Fi to access internet, tablets and laptops; both learners and educators cannot really enjoy the benefits of using ICTs hence the benefits mentioned may seem not sufficient see section 4.3.1.4.

4.2.1.1.6 Recommendations

The recommendations listed below are those of the educators and learners to the DHET and these recommendations are suggested to try to answer this question “*what is the status of ICT literacy in the Tshwane West district*”. Furthermore, there are those from the official which he indicated that he will recommend to the department. Some of the recommendations from the educators, learners are the same.

The majority of participants indicated that there should be equal provision of resources such as sufficient ICT devices (laptops, tablets) to both main stream and adult education be allocated. The centre where the study was conducted did not have laptops for the educators to use. Furthermore, from the observations it became clear that the centre did not have Wi-Fi which made it impossible for both learners and educators to access the internet and learners did not have tablets to use for their learning. During the observation there were computers in the computer laboratories but there was no internet access for them to access educational information.

Educators involved in the study indicated that there should be co-operation between individual centres, the DHET and the business sector. The PALCs should start to take initiative to liaise with private businesses for sponsorships and mentorship programmes. For instance, the centre studied has a co-operation between private adult education providers which provide them with study aids.

The DHET officials should be conscientised about adult education and training, they should view it as a gateway to empower other people who never had the opportunity to go through main stream education or those who could not finish their studies but decided to go back to complete their studies.

The DHET should embark on continuous training of educators in order to transfer the knowledge to the learners. There should be pre-service training in ICT, meaning there should be training during the course of the studies of educators and in-service training in ICT. This implies that there should be continuous training after completion of their studies and during the course of their employ.

The educators suggest that there should be more communication between the DHET and the PALCs. There was a believe from the participants that they are not the only centre which is suffering from neglect and for the fact that the department communicated later during the year that AET falls under the department of higher education and training, communication is important and needed. Participant EE stated that:

“The department is slow when coming to AET solutions”.

Human resources development is needed. There is a need to recruit and equip well-qualified personnel for the teaching and implementation of ICT literacy programs in AET. ED stated that:

“If a teacher uses a tablet in a class but she is not computer literate it is difficult because after school I have a friend who teaches somewhere in a certain school, I have to help her because she does not know how to operate it”.

An AET curriculum is needed to achieve the goals of the government of all people young or adult to have basic literacy and to be ICT literate. This, in turn, will enable them to participate as productive members of the society. The department should recognise that the training of adult learners is different from young learners or those in the main stream

schools. Adult educators indicated that the DHET does not have a tailored curriculum that best accommodate both adult educators and learners. Participant EA stated that:

- *“The AET curriculum is the same curriculum as the main stream because we are writing the same question papers”*

4.3 Semi-structured interview analysis

An appointment was arranged with the official at his office at the department of higher education and training. The interview session lasted for 45 minutes and the interview guide was sent to the official beforehand to have an idea of the kind of questions and the information the researcher was looking for (See appendix F).. The participant was asked permission to record the interview and permission was granted.

Educators’ and learners’ themes from the focus interviews and questionnaires were discussed in Section 4.2, and this section will only deal with the themes emerged from the semi-structured interview with the official from the DHET that were different from the themes already discussed. It will cover the participant’s ICT experience in adult education and training, the attitude of learners, educators and the official towards ICT literacy and the department’s support towards the PALCs.

The interview was conducted with the official from the DHET because the researcher needed to ascertain and understand the views of the department regarding policies towards ICT literacy in adult education and training.

4.3.1 Discussion of themes of the semi-structured interview

The primary aim of the interview was to determine the participation and commitment of the official as representative of the DHET through its policies regarding ICT literacy in adult education and training. Two themes emerged during the interview, namely the benefits and the challenges related to the use of ICTs and these were discussed in section 4.2 (see sections 4.2.1.1.4 and 4.2.1.1.5). In addition to these themes, the following themes emerged: the participant’s ICT experience in adult education and training, the attitude of learners, educators and the official towards ICT literacy. The last theme that

emerged was the department's support towards the PALCs and these themes will be discussed next.

4.3.1.1 *The participant's ICT experience in adult education and training*

A question was asked about the experience of the participant, because the researcher was interested in determining the level of experience in the field. This could add to the credibility of answers if the participant could be regarded as having experience in the specific field of ICT in AET. In the researcher's finding It was found that the participant was not directly involved in AET but that he was involved in educator development. In his response the participant indicated:

"I am responsible for educator development ja but maybe through experience that is why the director recommended me, because I have been longer involved in curriculum issues but I am responsible for educator development".

4.3.1.2 *The attitudes of AET educators, learners and the department toward ICT.*

The participant was asked about the attitudes of AET educators, learners and the department of DHET towards ICT. The participant did not clearly answer the question but implied that there might be different attitudes. However, he was not sure if the attitudes were positive or negative. The official continued by giving an example and said:

"He had experience firstly? Please add. Whereby some educators would falsify their experience in teaching ICT in AET so that they can be involved in training programs and asking the department to introduce ICT in their centres so that they can teach it" (This example is based on the participant's previous experience as a training specialist for educators).

With this response it became clear that there are educators who are interested in ICT literacy and this can translate to the learners.

Furthermore the official mentioned another example by stating that the following:

“Some educators feel negative about getting involved because there are no incentives. Furthermore, age plays a role and some educators feel that they are too old and cannot continue with training or studying”.

The official further indicated that the department was positive about the use of ICT in teaching and learning because it will create many benefits for both learners and educators. In his response the participant stated that:

“If learners are qualified in the ICT then at least they can go further, they can study in the TUTs if for instance pass this ICT”.

Furthermore the participant indicated that:

“It will be for instance a good benefit because now this is a time of iPads, educators will not use computers”.

With regard to the response of the participant, the researcher does not think the participant clearly understood the question which was about the benefits of using ICT because computers are also regarded as part of ICTs. Furthermore the researcher would like to interpret the answer as saying the participant wanted to highlight that currently ICTs such as iPads are the ones that are more convenient because one can probably walk around with anywhere and access may be the internet anywhere and anytime.

4.3.1.3 Support from the department of higher education and training

The participant was asked about the level of support the department offers to the PALCs. The official indicated that the department is doing much by drafting policies of new curricula in AET that incorporate the use of ICTs. He further indicated that:

“There were curriculum developers who were designing tailored curricula for AET including ICT”, He further indicated that “ICT was introduced in the ABET centres that is level 1 to 2, level 4 again you know to show that we are serious.

There is a new for instance a new curriculum which is being developed you know for instance NASCA”.

The official conceded that besides all the policies being drafted, currently there was no sufficient support for PALCs. The reason was that there was no sufficient budget and AET has been recently incorporated and so they were still putting systems in place. In addition the official concluded by stating that:

“In the next few years when community colleges are introduced AET would receive the necessary support”.

The DHET in the next coming years has written a draft in which guidelines on how to incorporate the PALC into community colleges will be examined.

4.4 Non- participant observation

In the empirical study various instruments were used to obtain data and non-participant observation was one of them. This instrument was used to gather further information that was used for triangulation purposes. Non-participant observation was guided by the observation checklist (see appendix I) to guide the researcher in collecting data. Some comments were made earlier, but next the researcher will deal with themes that were different from those already discussed. The following themes emerged from the non-participant observation: size of the classroom and positioning of the ICT equipment.

4.4.1 Size of the classroom

Two classrooms (computer laboratories) were observed. The researcher observed the seating arrangements, availability of chairs, tables and computers being used. The researcher observed the lessons and spent 30 minutes (duration of a class period) in

each class, observing the teaching and learning. The researcher spent one day at the centre.

During the observation it emerged that the tables and chairs were properly arranged, that they were put in rows facing the front of the class where the educator was presenting the lesson. There was sufficient space for the learners and the computers, which was conducive to effective teaching and learning. Furthermore, there was sufficient lighting both from natural light and electric lights. The bulbs used were energy saving bulbs. The learners and the educator were dependent on opening the door and small windows for ventilation.

4.4.2 The positioning of the ICT equipment

The computer classrooms or the computer laboratories are those classes that have computers inside were visited during the cause of the lesson to observe teaching and learning and from the observation it became clear that they were busy working on a programme called Media Works which is a special educational programme that has programmes in mathematics, mathematics literacy and communication. The only ICT equipment found were computers. The positioning was well organised. Two computer classrooms were observed. In classroom A the computers were arranged in rows facing the educator in the front of the classroom. In classroom B, the computers were arranged differently and learners were facing each other. This seating arrangement in this classroom has the potential to promote group work and interaction among the learners. All the computers in the two classrooms were operational.

4.4.3 General comments

Apart from the lack of Wi Fi to access the internet, lack of resources and lack of support from the DHET, a sufficient number of computers were available. Furthermore, from the observation it became clear that the classrooms were clean, that there was sufficient lighting in the classroom and that the seating was well arranged.

During the observation there was no internet access which hindered the educators and the learners to access information. To enhance the use of ICTs, the centre partnered with a private institution to have ICT software that can assist their learners, and the software used did not require any internet connection. The software has special educational programmes such as programmes in mathematics, mathematics literacy and communication. The software contains a facilitators' guide and a learners' guide, and the software is visual and audible. Software programmes such as Ms Word, Ms PowerPoint, Ms Access and Ms Excel were used as well.

4.5. Summary

This chapter focused on the data analysis and presentation. It discussed research findings after conducting focus group interviews, completing the questionnaire analysis, a semi-structured interview with the official from the department of higher education and training and non-participant observation analysis. In the analysis of the focus group interviews, questionnaires, semi-structured interview and non-participant observation certain themes emerged. These were the understanding of ICT, the AET curriculum, the use ICT devices, the challenges of using ICT, benefits of using ICT and recommendations made by the participants. After the analysis of the data, the researcher managed to have an idea of the lived experiences of the participants.

The next chapter (chapter 5) will discuss the summary, conclusions and recommendations.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Adult education and training was designed to address the past injustices in education. Furthermore, it was aimed at improving the quality of the lives of the people who failed to complete their studies along the way within the education system or who never had the chance to participate in formal schooling. It was based on improving basic literacy and numeracy but because of the changes in the world economy and the ever growing importance of ICT, governments and the private sector were forced to invest in ICT hence the need for ICT literacy on all levels of education to create an ICT literate society that can be productive and self-reliant. The main aim of the study was to investigate the level of ICT literacy in adult education and training at a public adult learning centre in the Tshwane West district with the intention of establishing the content of the AET curriculum and the benefits and barriers of ICT literacy in adult education and training.

In this chapter the researcher summarises the literature review and empirical study, addressed the research questions, and states the limitations to the research. The chapter concludes with recommendations.

5.2 SUMMARY

The following sections (literature review and empirical study) are summarised to provide a basis for the conclusions and recommendations.

5.2.1 The literature review

This section offers a summary of the literature review of the study with relevance to the research questions of the study. Knowles's theory of adult learning, constructivism and

the transformative theory, as well as the benefits, barriers of ICT use in education, and the developments of national ICT policies were discussed.

Firstly Knowles's theory of andragogy was discussed, which refers to the art and science of helping adults to learn and later coined the assumptions regarding this theory that characterise and distinguish the adult learner from a child learner (see chapter 2, section 2.2.1). Knowles assumes that an adult learner moves towards being self-directed. Additionally, an adult learner gets involved in adult learning to be able to develop and lastly an adult learner needs to be seen as a problem solver because of the experience and knowledge acquired during the process of learning (Knowles 1980: 39).

Secondly the theory of constructivism and the assumptions were discussed. Newby et al. (2006: 34) define constructivist learning as a change in meaning constructed from experience (see chapter 2 section 2.2.2). Based on the definition of constructivism, Jonassen, Peck and Wilson (1999: 234) describe a number of basic assumptions of constructivist learning that are summarised below.

In constructivist learning knowledge is constructed, not transmitted, meaning that the adult learner does not need to be given knowledge but need to create, reconstruct, and needs to know that he or she is part of the process. Knowledge construction results from activity, therefore, initiated by a dissonance (a need to desire or to know), and between what is known and what is observed to the world. An adult learner is generally inquisitive and always probes. . For knowledge construction, learners need not only to become actively involved, but they also need to reflect on what they did and articulate what it means. This articulation, expression, or representation can be in a verbal, written, visual, or auditory format (Jonassen et al. 1995: 5) (see chapter 2 section 2.2.2).

Furthermore a constructivist view of the role of technology was discussed (see chapter 2 section 2.2.2.1) which describes the use of technology as learning or cognitive tools to support enhance and extend learners' abilities to construct their own knowledge. In particular, Jonassen et al. (2008: 7-8) identify the following roles of technology in constructivist approaches: technology as tools to support knowledge construction, technology as information vehicle for exploring knowledge to support learning by

constructing, technology as authentic context to support learning by doing, technology as social medium to support learning by conversing and technology as intellectual partner to support learning by reflection (see section 2.2.2.1).

Subsequently the researcher deliberated on the transformative learning theory which refers to dramatic and fundamental change in the way we see ourselves and the world in which we live (Merriam 2007: 130) (see section 2.2.3). According to Mezirow (2000) transformative learning occurs when there is transformation in one's beliefs or attitudes (a meaning scheme), or a transformation in our entire perspectives (habit of mind). Based on Merriam and Mezirow 's understanding of transformative learning as fundamental change of one's self (see section 2.2.3), the researcher deduced that in the transformative learning process adult learners turn to do introspection in order to reflect on themselves, plan a course of action of their lives that is to decide what the way forward is, build self-confidence and start to create relationships with people and with the environment, acquire knowledge and skills and later want to implement what was learned, experiment with playing new roles and apply the competences acquired.

Three countries were discussed because they are all developing and African countries (South Africa, Botswana and Kenya) (see section 2.3). The benefits of the use of ICT such as to develop judgement and decision making power, to help students to investigate data using critical thinking skills, improve comprehension, speed and vocabulary, promote collaborative learning, figure out what data means and be able to synthesise, evaluate, and create new information once they have determined its quality(see section 2.4).

The barriers were also discussed that impede the development of ICT literacy in adult education and training in the three African countries mentioned above and are: Educator related challenges, which are educator's attitude, low self-efficacy, motivation and computer anxiety, and learner related challenges, student behaviour, appropriate use of computer and internet, over reliance on ICT and physical side effects. Furthermore there are other challenges identified by Becta (2003: 10) such as: lack of ICT equipment and the cost of acquiring, Using and maintaining them, Access to ICT equipment due to organisational factors, such as the deployment of computers in ICT suites rather than in classroom, Technical, administrative and institutional support, Involvement of teachers,

as well managers in implementing change, Training differentiated according to the teachers existing ICT skills; and training that focuses on integrating technology in classroom rather than simply teaching basic skills (see chapter 2 section 2.5). The study of these challenges was undertaken in 2003 but it still relevant today in the African countries.

5.2.2 SUMMARY OF EMPIRICAL STUDY

In this chapter the rationale of the study (see chapter 3 section 3.2), research design (chapter 3 section 3.3), research methods (see chapter 3 section 3.4), data analysis (chapter 3 section 3.5) concept of trustworthiness (see chapter 3 section 3.6) and ethical considerations (see chapter 3 section 3.7) were described.

Prior to discussing the themes that emerged during the study the researcher needs to explain the research design and methods. A qualitative research approach was employed because qualitative approach describes and analyses people's individual and collective social actions, beliefs, thoughts, and perception (McMillian & Schumacher, 2001:395). The researcher interpreted the phenomena in terms of the meanings people bring to them (McMillian & Schumacher, 2001: 395). Based on the philosophy of qualitative research as constructivist meaning, the philosophy assumes reality as multi-layered, interactive, and a shared social experience interpreted by individuals (McMillan & Schumacher, 2006: 313-316) (see chapter 3 section 3.3). The researcher's choice of a qualitative research approach was influenced by the characteristics of natural settings, the researcher as a key instrument, multiple sources of data, inductive data analysis, reflexivity, a holistic account, an emergent design, and participants' meanings (Creswell, 2014: 185-186) (see chapter 3 section 3.3). The researcher employed this approach because he needed to understand the perceptions and attitudes of adult educators, adult learners and an official from the DHET regarding ICT literacy in adult education and training.

A case study employed for this study was about adult educators and learners in an adult education and training centre in Winterveld in the west district of Tshwane. The choice of the case study was influenced by a phenomenological approach which can be described as an inquiry that attempts to understand people's perceptions, perspective and

understanding of a particular situation (De Vos, 2005: 264) (see chapter 3 section 3.3). The sample selected consisted of 13 participants whom six were adult educators, six adult learners and an official of the DHET. The learners were selected based on Grade 12 they enrolled for and selected based on representation from both genders (see chapter 4 section 4.2 table 2). The adult educators were selected based on their experience in teaching and learning of adult education and they were also selected on representation from both genders (see chapter 4 section 4.2 table 1). An official from the department of higher education was also selected (see chapter 4 section 4.2 table 3). The participants for this research study were selected using purposive sampling, which in qualitative inquiry refers to a sample that is composed of elements that contain the most characteristics, representative or typical attributes of the population (De Vos, 2002: 207) (see chapter 3 section 3.4.1). Thus, purposive sampling involves the intentional seeking out of research participants who will be in a position to yield information-rich data on a topic.

Chapter 3, sections 3.4 consist of various data collection instruments, namely focus group interviews, a semi-structured interview, open-ended questionnaires and non-participant observation. Triangulation was also described. Data collected were analysed using the following steps to show the whole process of data analysis: organising data, themes and coding of data (De Vos, 2005:338) (see chapter 3 section 3.5). Trustworthiness was also described in terms of credibility, transferability, dependability and conformability (see chapter 3 section 3.6). Finally ethical considerations were observed to protect the participants such as guaranteeing anonymity and confidentiality, getting informed consent from participants and obtaining ethical clearance from UNISA for the researcher to be able to conduct the empirical research (see chapter 3 section 3.7).

5.3. Discussion of themes

From the empirical research the following themes emerged: understanding of ICT, an AET curriculum, the use of ICT devices, challenges of using ICT, benefits of using ICT and recommendations, and these themes were fully discussed in chapter 4 (section 4.2.1). The following sections will summarise the findings according to the themes.

5.3.1 Understanding of ICT

ICT literacy is defined by Samudhram (2010: 844-851) as the skills and abilities that will enable the use of computers and related information technologies to meet personal, education and labour market goals. During the interviews the participants were asked about their understanding of ICT, and from the interviews and the questionnaires it became clear that the majority of the participants have a basic understanding of ICT, meaning that they are able to use computers see section 4.2.1.1.1. Based on the answers from the interviews and the questionnaires, it became evident that there was only a limited understanding of ICT. Based on the demographics, specifically the years of experience, the researcher was expecting educators to have a better understanding and knowledge of ICT (see section 4.2.1.1.1), mainly because of the number of years they were involved in adult education and training. However, from the findings it is evident that the participants were only recently exposed to the world of ICT (see chapter 4 section 4.2 table 1). Apart from this, from the empirical research it became clear that the participants do not have adequate resources (see chapter 4 section 4.2.1.1.1), the centres does not have Wi-Fi to can access the internet, they do not have laptops and the learners do not have tablets (see section 4.2.1.1.4). More importantly there was a lack of sufficient training for the educators and as a result they could not translate their knowledge to the learners (see section 4.2.1.1.4). Furthermore, the findings revealed that educators did not have sufficient support from the authorities (see section 4.2.1.1.4).

5.3.2 AET curriculum

With regard to the AET curriculum, one category emerged, referring to what the AET curriculum entails. The researcher found that in this particular adult learning centre the curriculum was broad and that there was not a tailored AET curriculum. Instead, two types of curricula were followed: there was the General Education and Training (GET) and the Further Education and Training (FET) curricula and both were designed for mainstream educators and learners (see chapter 4 section 4.2.1.1.2). In the GET curriculum learners were studying soft skills and hard skills (NQF level 4) and in the FET curriculum the

learners were studying the more technical subjects such as sewing and welding (see chapter 4 section 4.2.1.12).

From the empirical research it further became clear that there was no tailored curriculum catering for adult education and training. During the interview with the official from the DHET (see chapter 4 section 4.2.1.1.2), it emerged that a new curriculum, namely NASCA IT and GETA IT was in the process of being developed. These curricula will focus on equipping learners with the necessary skills and knowledge to become digital citizens, to give them sufficient knowledge and skills to gain entry into institutions of higher learning. It was also indicated that they will be published before the end of 2016 in the government Gazette (see chapter 4 section 4.3.1.3). It is clear that although currently there is no AET curriculum; there seem to be a will to implement a curriculum tailored for this sector.

5.3.3 Use of ICT devices

The empirical study indicated that there was a general use of ICT devices. Educators indicated that they used computers for teaching and learning and for administrative purposes (see section 4.2.1.1.3). Learners indicated that they use ICT devices such as smartphones and cell phones and those that have access to the Internet. However, it became clear that they use all these devices outside the scope of the centre or after school hours and they access the internet mainly for both educational and social media purposes (see chapter 4 section 4.2.1.1.3). It was clearly indicated that the majority of learners and educators use ICT devices (see figure: 2 section 4.2.1.1.3).

5.3.4 Challenges

All the participants selected at the PALC indicated that they had challenges. The common challenges discovered were the lack of resources, the lack of commitment from the department and the lack of access to information. Firstly participants highlighted their frustrations by stating that there were no resources such as ICT devices. They referred to tablets; study material for both learners and educators, laptops for individual educators

and most important there was no access to Wi-Fi to access the Internet (see section 4.2.1.1.4). Secondly the official of the department stated that AET has recently been incorporated into the DHET, so that they were still busy putting proper systems in place, meaning that there was no working system at the time of the research (see section 4.3.1.3). Thirdly, with regard to the lack of access to information, participants indicated that they could not access information because they did not have access to Wi-Fi. As a result, adult educators felt demoralised and unmotivated, but because of the love of teaching they indicated that they would continue to be involved in the system (the third response came from an informal conversation after the focus group interview from one educator).

5.3.5 Benefits

During the study it emerged those learners, educators and the official from the DHET highlighted benefits of using ICTs in teaching and learning; such as access to information. Firstly they indicated that if they were able to access the internet it would be easy for them to access search engines for information that may be educational. It would further enable them to collaborate with other educators and learners on social media and it could assist them in understanding how to communicate effectively with each other. Furthermore, it could assist learners in accessing information about pursuing higher education (see section 4.2.1.1.5).

Secondly, ICT literacy can empower learners and educators by improving their problem solving skills and vocabulary. Furthermore it can help in curbing developmental learning challenges, basically creating self-reliance (see section 4.2.1.1.5). Thirdly, it is easy to access and inexpensive to use Wi Fi because the Gauteng department of education has connected all the schools in the Tshwane townships with free Wi Fi connection. Fourthly, ICT use can help educators with their administrative tasks, for instance by allowing them to capture the learners' test or examination marks, their portfolios and generally their records and for the learners to type their assignments and save any important data (see section 4.3.1.4).

ICT has a critical role to play in the development efforts around teaching and learning. It has changed how educators and learners communicate, learn and has helped in meeting developmental learning challenges in education.

5.3.6 Recommendations

From the empirical study the participants had recommendations to make. They recommended that there should be equal provision of resources, more co-operation with the business sector, more training for educators, decentralisation, and professionalisation of adult educators, the development of an AET curriculum and more support to the PALCs see (section 5.5.2.4) where these recommendations are fully discussed.

5.4 SYNTHESIS OF RESEARCH FINDINGS

The synthesis of the research findings will look at the similarities and the contradictions between the literature review and the findings from the empirical study but will focus only on the three African countries because they are all from a colonial past and developing countries see (section 2.3). From the literature review and the empirical study, various similarities and contradiction were identified. The discussion will begin with similarities between the literature review and the empirical study. In discussing and comparing the three African countries, the researcher referred to secondary schools in the case of Kenya because it is where their adult learners are located. In Botswana currently they are using non-formal and adult education centres to cater for their adult learners and in the South African context adult learners are catered for in public adult learning centres. Adult education and training in Kenya is linked to secondary schools.

The first similarity from the empirical study and literature from the three countries is that they all want to enhance ICT literacy in their respective countries by introducing policies that will address the enhancement of ICT literacy to improve the status of ICT literacy in AET. For instance, in South Africa a Draft paper of NASCA IT has been gazetted for further discussion by curriculum developers and the public (see section 4.3.1.3). In Botswana a Presidential Task Force was formed to introduce a national development

strategy called Vision 2016 to make sure that Botswana matches other countries in this information age and create access to all students to state of the art ICT to support learning processes (see section 2.3.2).

In Kenya the Ministry of Education and the National ICT Strategy for Education and Training in June 2006 came with a document, referred to as the ICT policy for the education sector. The document consists of objectives and expected outcomes, such as ICT in education, digital equipment, connectivity and network infrastructure, access and equity, technical support and maintenance, harnessing emerging technologies, digital content, integration of ICT in education, training (capacity-building and professional development), and research and development. In addition, in 2008 Kenya established a Ministry of Education, Science and Technology (MoEST) will incorporate all the spheres of education including Adult Education (see section 2.3.1).

Secondly the three African countries have challenges in the use or integration of ICTs in teaching and learning such as: Challenges from educators' perceptions toward ICT use, lack of training, lack of educator self-efficacy and students' behaviour toward the appropriate use of ICTs. Furthermore, there is lack of training; lack of internet connectivity and lack of resources (see sections 2.3.1, 2.3.2, 2.3.1 and section 4.2.1.1.4).

Thirdly all three countries have national policies but they are not yet implemented. The three countries do not have a specific AET curriculum tailored to adult learners and educators. South Africa has a draft proposal called NASCA IT. In Botswana currently they use secondary curricula but at non-formal and adult education centres and Kenya uses secondary school curricula as part of their adult education training (see 2.3.2, 2.3.1, 4.2.1.1.2 and 4.3.1.3).

Fourthly there are partnerships or co-operation between the private sector and the centres and schools. For instance, in the centre studied there is co-operation or a partnership with the private institution that provides educational services of adult education and training (see section 4.2.1.1.3). In Botswana the ministry has a partnership with an international organisation that is assisting with expertise to integrate ICT policy

which is called the Information for All Programme, under the auspices of UNESCO (see section 2.3.2 and in Kenya the ministry is in partnership with the Non-Governmental Organisations Network Initiates for Computers in Education, which assists in introduction and using of ICTs. see 2.3.1).

Fifthly all the countries are very concerned about the integration of ICTs in education as a result they are investing a lot of money in making sure that the integration of ICTs becomes successful and their communities become part of the digital world (see section 2.3).

A singular contradiction was identified in the literature review and empirical study, in the sense that Botswana as a developing country and a country with a small population in comparison to Kenya and South Africa has continuous training of educators with regard to ICT literacy. It seems as if there is continuous ICT training for teachers to prepare them for the information age through an established Mochudi Media Centre which provides in-service training, support and advice through ICT coordinators, computer integration teachers (CIT), schools senior management teams and education officers (Maitlamo, 2004) (see 2.3.2.1). Findings in South Africa indicated that there is limited training for educators and untrained educators and usually training takes one to two days which proved to be insufficient (see 4.2.1.1.4 and 4.3.1.2).

In conclusion the information above highlights the links between what was discovered in the literature review and the findings from the empirical study.

5.5 CONCLUSIONS

The aim of the study was to investigate Information Communication and Technology literacy in Adult Education and Training. Based on the findings from the literature review and the empirical study it was evident that there is a lack of ICT literacy in AET. The conclusions will be based on the researcher answering the main research question and sub-questions.

Main research question:

What is the status of ICT literacy in AET in a district in Tshwane West?

Sub questions:

5.5.1 What is the core content of the AET curriculum?

The researcher regarded it necessary to pose this question “*what is the core content of the AET curriculum*” because he believes that the enhancement of ICT literacy in AET cannot be properly addressed if the content of the curriculum cannot be clearly identified. The benefits and challenges of AET should also be clearly identified so that the implementation of the government policies to enhance ICT literacy in PALCs (see section 3, section 4.2.1.1.2 and section 4.3.1.3) can be improved. From the empirical research all participants made it clear that there was no tailored curriculum for adult education and training. Instead there were two curricula that were used at the time of the research: (1) the General Education and Training (GET) curriculum, catering for Grade R to Grade 9, and (2) the Further Education and Training curriculum, which focuses on vocational training, starting from Grade 10 to Grade 12 (see section 4.2.1.1.2). Furthermore, during the gathering of data the official from DHET stated that new curricula, namely the NACSA and the GETCA were being developed (see section 4.2.1.1.2).

5.5.2 What is the need for the inclusion of ICT literacy in the AET curriculum?

The participants indicated ICT literacy is a tool for accessing information, a tool for empowerment, it is easy to use and can be used for administrative purpose. Learners and educators indicated that they can access information through the internet by using ICTs; they can use different search engines for information which can be educational or for entertainment. The ability to use ICTs can help both learners and educators to collaborate with one another; it may be on social media or on any other online platform. The ability to use ICTs can further assist the learners to search for information in pursuit for higher education admission.

ICT literacy can empower learners and educators by improving their problem solving skills, improving vocabulary; it can help in curbing developmental learning challenges and create self-reliance and independence.

From the research it further became clear that ICTs are easy to use and inexpensive because learners and educators can use these devices in their homes. Lately, free Wi-Fi has been connected to schools around the townships so learners can easily go next to schools and access Wi-Fi. Finally, ICTs can enhance teaching and learning (see section 4.2.1.1.5).

5.5.3 What are the challenges that impede ICT literacy in AET?

This section addresses one of the central questions in the study because it gave rise to challenges regarding the use of ICT. Firstly the participants indicated that there were challenges such as a lack of provision of resources, lack of commitment from the department and lack of training. With regard to the lack of resources the participants indicated that there were no laptops for educators, there were no tablets for the learners and more important there was no Wi Fi to access the internet. Secondly it was indicated that there was a lack of commitment from the DHET which results in a lack of communication and collaboration between the PALCs and the department and lastly it was also indicated that there was insufficient training for educators which translate to ICT illiterate learners and untrained educators (see section 4.2.1.1.4).

Furthermore, the findings indicated that there is a lack of commitment from the department, and as a result a lack of training. From the empirical study it became evident that the educators and learners need the DHET to start with pre-service and in-service training for adult educators.

5.5.4 What are the attitudes of AET educators, learners and officials of the DHET?

The attitudes of both educators and learners in this study were positive for the fact that they suggested certain recommendations that show how ICT literacy can be enhanced in teaching and learning. There was a positive attitude from the department because they

were currently in the process of developing a tailored AET curriculum that integrates ICT in teaching and learning in a form a new curriculum called NACSA IT (see section 4.3.1.2). From the findings it also became clear that the DHET is developing a new National Qualifications Framework for AET through a Policy on Minimum requirements for Programmes leading to Qualifications for Adult Educators and Community Education and Training Lectures (DHET: 2015) (see section 4.3.1.3).

5.6 LIMITATIONS

The researcher acknowledges that the study had certain limitations. The first limitation was the sample. A population size of 13 participants was interviewed, consisting of six adult learners, six adult educators. Besides the educators and learners, an official from the DHET was interviewed. Although their views do not represent the views of the whole adult education and training sector, this was not the purpose of this qualitative study which is to investigate the status of ICT literacy in AET centres in Tshwane west district. Secondly, another limitation was the language barrier, because the majority of the learners who were interviewed were not fluent in English because they were not used to speaking it. The majority of the learners interviewed are not used to speaking English and as a result the researcher had to allow them to answer questions in their home language and later translate the sections in English. However, despite the above limitations, the researcher is of the opinion that this research study can make a contribution to the literature and practice in terms of enhancing ICT literacy in adult education and training in South Africa, particularly in view of the fact that no research on this topic could be found. The research during literature review of the study struggled to collect ample data regarding the topic discussed because there were only plans from the government in place but no implementation of the ICT literacy in AET curriculum.

5.7 RECOMMENDATIONS

Based on the findings of the empirical study and literature review the researcher suggests the following recommendations to PALCs management, educators and the DHET to enhance ICT literacy in adult education and training.

In Chapter 4 (section 4.2.1.1.6) recommendations suggested by learners, educators and an official of the DHET were discussed and to note, a few of the recommendations are the same as those of the researcher.

Recommendations to PALCs management and educators

From the findings in the study, it is imperative that the management and the educators be advised on what and how they can contribute to enhance ICT literacy in AET hence the following recommendations.

Training

Adult education and training practitioners should strive for professionalisation of their field or career so that they can be equated to main stream educators. Persons who are not well qualified should be discouraged to teach in the PALCs and rather be encouraged and supported to study further at higher learning institutions to acquire the necessary qualifications. Adult educators should further require continuous training in ICTs so that they can transfer the knowledge to the learners. There should be both pre-service training and in-service training.

Attitude

A change of attitude of both learners and educators is necessary by shifting from the mentality of education for ICT to the use of ICT for education. During the empirical study the researcher found that many educators and learners see ICT as only using the computers to type reports, letters and so forth but ICT is more than that. With ICT one can study and create communication and collaboration with other people involved in AET.

Decentralisation

The management of the PALCs should strive for authority to implement structures that will be beneficiary to them, for instance having the authority to do their own needs analysis regarding their ICT needs. Secondly the management can ask for autonomy to manage the funding in collaboration with the DHET because it is believed that it takes a lot of time for the department to respond to their financial requests.

Recommendations to the DHET

Provision of resources/ ICT infrastructure development

The DHET has a huge role to play in enhancing ICT literacy by providing the required infrastructure such as building computer laboratories, building telecommunications infrastructure, installing Wi-Fi in all the public adult learning centres so that both learners and educators can access the Internet. There should be provision of ICT devices such as laptops and tablets for both educators and learners.

Collaboration

There should be more communication between the department and the educators from the PALCs because there is a believe that they are not the only centre which is suffering from neglect. Educators were surprised that they were informed late that adult education and training falls under the DHET. The DHET needs to implement an information management process whereby access to information and data on all PALCs can be accessed.

More collaboration with non-governmental organisations (NGOs) is needed. For instance, the centre being studied had collaboration with an adult education and training service provider which provided adult education ICT software. The government, NGOs and the education sector should make sure that access to technology is not limited by cultural, economic, gender, geographical, linguistic or any physical barriers. ICT literacy should be inclusive of all the people who need to study such as women and people living with disabilities.

The DHET should collaborate with higher learning institutions in improving research in the status of ICT literacy in adult education and training to enhance the field of adult education and training and to discriminate this field from general education of primary to higher school because adult education and training is a specialised field.

Professionalisation of adult educators

There is a clear need for investment in capacity development, having full, adequately paid and well trained professionalised staff, and increasing the demands for adult education professionals.

Policy implementation

The DHET should fast track the implementation of the GETCA and NASCA which are aimed at specifically addressing the adult education and training curriculum. The department should recognise that the training of adult learners is different from young learners or those in the main stream schools.

Programmes in indigenous languages

There is a need to develop relevant, locally produced content such as developing programmes in indigenous languages. South Africa has various languages and one believes that if some programmes could be presented in the most spoken languages such as IsiZulu, Setswana and Afrikaans. This could greatly have an impact on improving both literacy and ICT literacy because these learners can effectively learn in their own language or mother tongue. For instances Farrell and Isaacs (2007) express the need to develop materials in indigenous languages because the predominant use of English in the internet is not only constraining but exclusive to those who are familiar with the language.

ICT should be included within the formal curriculum both as a separate subject and as taught across the curriculum.

Decentralisation of PALCs

The DHET should consider decentralising PALCs so that efficiency in management and governance can be improved. For instance, they could have the power to purchase according to their needs and so that they could be able to identify their problems and

solve them. There should also be commitment from the DHET to strengthen the governance of PALCs in implementing the policies at a local level.

5.8 SUGGESTIONS FOR FURTHER RESEARCH

The significance of the study will be to further investigate the status of ICT literacy in AET and conduct research on the development of an AET curriculum with the integration of ICT. “Adult basic education is a desert of neglect” (Dean: 2011:1), meaning that adult basic education does not get the amount of research it deserves. The focus currently is only on training in teaching literacy, language and numeracy, but training in ICT there would have benefits such as well-equipped and motivated educators.

The research has been conducted in one centre in Winterveld, therefore the results could not be generalised to the whole country. It is therefore a necessity to conduct more research in different parts of the country. For instance, in rural areas electricity and ICT infrastructure might be needed first before bringing ICT education to centres. In urban areas it might be a different case because electricity and ICT infrastructure are already available. It is believed that the more research is conducted and gaps identified in the system, the more the government will get to professionalise adult educators in adult education and training.

5.9 CONCLUSION

The aim of the study was to determine the status of ICT literacy in AET centres in Tshwane west district. The literature review and the empirical study highlighted the need for ICT literacy in AET. The study employed a qualitative research approach and a case study was employed and various instruments of collecting data were used, namely focus group interviews, semi-structured interviews, a questionnaire and non-participant observation. Thirteen participants were involved in the study and data were collected at a public adult learning centre to validate the study. Interviews conducted were transcribed, a coding process was used and themes were generated.

From the study several findings were established. It is clear that there is a need for enhancement of ICT literacy in AET and the DHET should continuously focus on training in ICT, pre in-service and in-service training because it will equip the educators to be more ICT literate as a result knowledge can be translated to the learners.

The study further revealed that there should be more provision of resources to the PALCs, especially in ICTs in order to enable adult educators and learners to be part of the digital era and to close the gap between main stream educators and learners and adult educators and learners. Furthermore in the findings it was discovered that adult educators are not professionalised therefore there is a need for professional development. Educators and the official of the DHET suggested recommendations that will enhance ICT literacy in AET and finally based on findings it is evident that there is a need for further research in the field of AET especially with regard to ICT literacy.

In conclusion it should be stated that millions of South Africans are unemployed and illiterate, either ICT illiterate or illiterate in numeracy, reading and writing. This means that these people cannot contribute positively in the society and growth of the economy; therefore they cannot get better jobs or start their own business and cannot pursue further studies. Hence they depend on the government through grants which will not be sustainable in the foreseeable future. ICT literacy can halt and contribute to the reduction of poverty, increase job prospects, create self-sufficiency, people become self-employed either by opening businesses in the country or doing business overseas which can improve the living standards and the economy of the country. The learners, educators and the DHET can be active in participation of enhancing ICT literacy; can be constructive in building positivity in one self, intentionally so that they can accommodate them, authentic, meaning something attributed to you, and cooperative giving the DHET a chance to come with solutions that you can all agree with and enhance the profession.

South Africa with its huge number rate of unemployment and illiteracy especially in adults there is indeed a need for a tailored AET curriculum that will help to enhance adult literacy and ICT literacy among adults and probably help in improving other people's lives.

6. BIBLIOGRAPHY

- Ali, R. & Katz, I.R. 2010. Information and Communication Technology Literacy: What Do Businesses Expect and What Do Business Schools Teach? (Online). Available at: www.onlinelibrary.wiley.com/doi/10.1002/j.2333-8504.2010.tb02224.x/full [Accessed 13 March 2015].
- Aitchison, J. & Harley, A. 2006. South African illiteracy statistics and the case of the magically growing number of literacy and ABET learners. *Journal of Education*, 36 (90): 90-108.
- Aitchison, J. & Alidou, H. 2009. *The statement and development of adult learning and adult education in Sub-Saharan Africa – Regional Synthesis*. Germany: UNESCO Lifelong Learning.
- Atkins, L. & Wallace, S. 2012. *Qualitative Research in Education*. London: Sage Publications Ltd.
- Ary, D., Jacobs, L.C. & Sorensen, C. 2010. *Introduction to research in education*. 8th Edition. USA: Wadsworth/ Cengage Learning.
- Babbie, E. & Mouton, J. 2011. *The practice of social research*. South African Edition. Southern Africa: Oxford University Press.
- Babbie, E. 2011. *Introduction to social research*. 5th Edition. USA: Wardworth/ Cengage Learning.
- Babbie, E. 2010. *The practice of social research*. 12th Edition. USA: Cengage Learning.
- Baloyi, G.P. 2012. Learner support in open and distance learning context: A case study of ABET programmes at the University of South Africa. Unpublished Doctoral thesis. Pretoria: Unisa.
- Barkhuizen, A.S. 1999. Teaching and learning processes in the ABET classroom: A case study. Unpublished MEd Dissertation. Johannesburg: University of Johannesburg. [Accessed 10 June 2014].

- Bertrams, C. & Christiansen, I. 2014. *Understanding research: an introduction to reading research*. South Africa: Van Schaik Publishers.
- Bindu, C.N. 2016. Impact of ICT on teaching and learning: a literature review. *International Journal of Management and Commerce Innovations*, 4 (1): 24-31.
- Bogdan, R.C. & Biklen, S.P. 2007. *Qualitative research for education: an introduction to theory and methods*. 5th Edition. Boston: Allyn & Bacon.
- Brandon, A.F. & All, A.C. 2010. Constructivism Theory Analysis and Application to Curricula, 31 (2), 89. (Online). Available at: https://www.researchgate.net/.../44585346_Constructivism_theory_analysis_and_app [Accessed 13 March 2015].
- Bushati, J., Barolli, E., Dibra, G. & Haveri, A. 2012. *Advantages and Disadvantages of Using ICT in Education*. (Online) Available at: <http://www.itu.int/ITU-D/ICT/statistics> [Accessed 6 April 2015].
- Chijioke, J., Evoh, & Mafu, N. 2007. How basic is basic education? Restructuring basic education in post-apartheid South Africa within the context of EFA. *International perspectives on education and society*, 8:427-451.
- Clardy, A. 2005. *Andragogy: adult learning and education at its best?* Maryland: Townson University.
- Creswell, J.W. & Miller, D.L. 2000. Determining validity in qualitative inquiry, theory into practice, 39:3, 124-130, (Online). Available at: www.tandfonline.com/doi/abs/10.1207/s15430421tip3903_2 [Accessed 05 January 2016].
- Creswell, J.W. 2012. *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. 7th Edition. Boston, MA: Pearson.
- Creswell, J.W. 2014. *Research design: qualitative, quantitative, and mixed methods approaches*. 4th Edition. Thousand Oaks. CA: Sage Publications.

- Crous, S.F.M., Kamper, G.D. & Van Rooy, M.P. 2002. *Adult Learning Facilitation: A Reader*. Pretoria: UNISA.
- Czerniewicz, L. & Ngugi, C. 2007. *ICTs and higher education in Africa*. Centre of Educational Technology, University of Cape Town.
- Dejan, D. & Radovan, M. 2013. Adult learning and the promise of new technologies. *New directions for adult and continuing education*, 138. (Online) Available at: www.wileyonlinelibrary.com [Accessed 10 January 2015].
- De Vos, A.S. 2002. *Research at grassroots*. Pretoria: Van Schaik.
- De Vos, A.S. 2007. *Research at grassroots*. Pretoria: Van Schaik.
- De Vos, A.S. 2011. *Research at grassroots*. Pretoria: Van Schaik.
- Department of Education. 1995. *Policy Document on Adult Basic Education and Training*. (Online) Available at: www.dbe.org.za [Accessed 9 February 2015].
- Department of Education. 2003. *National Curriculum Statement Grades 10-12 General: (Overview)*. (Online) Available at: www.dbe.org.za [Accessed 9 February 2015].
- Department of Education. 2004. *White paper on e-education: Transforming learning and teaching through Information and Communication Technologies (ICTs)*. (Online) Available at: www.dbe.org.za [Accessed 9 February 2015].
- Dirkx, J. 1998. Transformative learning theory in the practice of adult education: An overview. *Pace Journal of Lifelong Learning*, 7:1-14.
- Dighe, A. 2006. *Use of ICTs in literacy and lifelong learning*. UNESCO.
- Drever, E. 1995. *A teacher's guide*. (Online). Available at: <http://eric.ed.gov/?d=ED394990> [Accessed 8 November 2014].
- Ellis, M.E. 2012. "Managing a private higher education institution within the current higher regulatory context in South Africa". Unpublished MEd Dissertation. Pretoria: Unisa.

- Educational Testing Services. 2002. *Digital Transformation: a framework for ICT literacy: A report of the International ICT literacy Panel*. ISkills. (Online). Available at: https://www.ets.org/research/policy_research_reports/ict-report [Accessed 25 January 2015].
- Falasca, M. 2011. Barriers to adult learning: bridging the gap. *Australian Journal of Adult Learning*, 5(3):586.
- Flinders, D.J. & Thornton, S.J. 1997. *The curriculum studies reader*. New York: Routledge.
- Ford, M. & Botha, A. 2010. *A pragmatic framework for integrating ICT into education in South Africa*. (Online) Available at: www.IST-Africa.org/Conference2010 [Accessed 5 November 2014].
- Galloway, J. & Norton, H. 2011. *ICT for Teaching Assistants*. 2nd Edition. NY: Routledge.
- Gray, D. 2014. *Doing research in the real world*. 3rd Edition. SAGE.
- Grinnell, R.M. & Unrau, Y. 2008. *Social Work Research and Evaluation: Foundations of Evidence-based Practice*. New York: Oxford University Press.
- Guislain, P., Qiang, C.Z., Lanvin, B., Mingos, M. & Swanson, E. 2006. *Information and Communications for Development: Global Trends and Policies*. (Online) Available at: www.worldbank.org [Accessed 31 March 2015].
- Hennessey, S., Harrison, D. & Wamakote, L. 2010. Teacher factors influencing classroom use of ICT in Sub-Saharan Africa. *Itupale Online Journal of African Studies*, 2:39-54.
- Hennink, M., Hutter, I. & Bailey, A. 2011. *Qualitative research methods*. London: Sage.
- Husen, T. 1988. Research paradigms in education. *Interchange*, 19(1):2-13.
- PWC. 2010. ICT in Non-Formal Education, Essay, V. 2010. (Online) Available at: <http://infordev.org>. [Accessed 8 November 2014]

- Isaacs, K.P. 2011. *Barriers to Adult Education Participation, Distance Education and Adult learning*. (Online) Available at: www.igi-global.com/chapter/barriers-adult-education-participation-distance/46629. [Accessed 18 March 2015]
- Isaacs, S. 2007. *Survey of ICT and education in Africa: South Africa Country Report*.
- JAWS. 2016. (Online). Available at: www.freedomscientific.com/Products/Blindness/JAWS [Accessed 24 January 2017].
- Kinuthia, W. 2008. Educational Development in Kenya and the Role of Information and Communication Technology, 1-19. (Online). Available at: www.ijedict.dec.uwi.edu/include/getdoc.php?id=4372 [Accessed 6 June 2016].
- Kortlik, J.W. & Redman, D.H. 2005. Extent of technology integration in instruction by adult basic education teachers. *Adult Education Quarterly*, 55 (3):200.
- Kozma, R. 2008. Comparative analysis for policies in ICT in education: *International Handbook of Information Technology in Education*.
- La Cock, Y. 2014. Facilitating the self-efficacy of primary school teachers in Mpumalanga: A perspective from lifelong learning. Unpublished MEd Education Dissertation. Pretoria: Unisa.
- Lincoln, Y.S. & Guba, E.G. 1985. *Naturalistic Inquiry*. Sage Publications Inc.
- Liu, F. & Maitlis, S. 2010. The Encyclopaedia of Case Study Research. (Online). Available at: <http://dx.doi.org/10.4135/9781412957397> (Online). [Accessed 13 February 2015]
- Livingstone, S. 2012. Critical reflection on the benefits of ICT in education. *Oxford Review of Education*, 38 (1): 9-24. (Online) Available at: <http://www.tandfonline.com/loi/core20> [Accessed 11 January 2015].
- Maquire, C. & Zhang, J. 2007. Benefits of using ICT in learning for development. *Working paper on "Effective Blended Learning for Development"*. (Online). Available at: www.igi-global.com/ViewTitle.aspx?TitleId=178686 [Accessed 13 March 2015].

- Makhanu, E.S. 2010. "Principal's literacy in Information Communication and Technology: Towards improving secondary school performance in Kenya". Unpublished Doctoral thesis. Pretoria: Unisa.
- Marshal, C. & Rossman, G.B. 2006. *Designing qualitative research*. 4th Edition. USA: SAGE.
- McKenzie, N. & Knipe, S. 2006. Research dilemmas: paradigms, methods and methodology. *Issues in Educational Research*, 16. Charles Sturt University. (Online) Available at: <http://www.iier.org.au/iier16/mackenzie.html>. [Accessed 15 April 2015].
- McMillan, J.H. & Schumacher, S. 2010. *Research in education: evidence-based inquiry*. 7th Edition. Boston: Pearson.
- McMillan, J.H. & Schumacher, S. 2014. *Research in education: evidence-based inquiry*. 7th Edition, Pearson new international edition. Essex: Pearson Education Limited.
- Merriam, S.B., Caffarella, R.S. & Baumgartner, L.M. 2007. *Learning in adulthood: a comprehensive guide*. 3rd Edition. San Francisco: Jossey-Bass Publishers.
- Merriam, W. 2014. Dictionary. (Online) Available at: www.dictionary.com. [Accessed 10 July 2016].
- Mikre, F. 2011. The roles of Information and Communication Technologies in Education: Review article with an Emphasis on the Computer and Internet. *African Journals Online*, 6 (2): 2-16.
- Mpoeleng, D. 2016. ICT Literacy Policy- Botswana: study report by Botswana IFAP Committee 9th session of the Intergovernmental Council for the IFAP. (Online). Available at: www.unesco.org/new/.../intergovernmental...ifap/.../9th-session-of-the-ifap-council/ [Accessed 14 January 2017].

- Mutual, S. 2007. ICT integration in Botswana Secondary Schools: Digital Divide Factor and Implications for Information Literacy. *African Journal of Library & Information Science*, 17 (2):133-143.
- Mutula, S.M. & Van Brackel, P. 2007. ICT skills readiness for the emerging global digital economy among small business in developing countries: Case study of Botswana. 25, (2):231-245. (Online). Available at: www.emeraldinsight.com/073-8831.htm [Accessed 2 October 2014].
- Nafukho, F, Amutabi, M. & Otunga, R. 2005. *Foundations of adult education in Africa: African perspectives on adult learning*. Cape Town: Pearson Education SA.
- National Research Foundation. 2005. *Focus area: Information and Communication Technology and the Information Society in South Africa*. (Online) Available at: <http://www.nrf.ac.za> [Accessed 2 October 2014].
- Newman, M. 2014. Transformative learning: mutinous thoughts revisited. *Adult Quarterly*, 64 (4): 345-355.
- Newby, T.J., Stepich, D.A., Lehman, J.D., Russell, J & Leftwich, A.O. 2011. *Educational Technology for Teaching and Learning*. 2nd Edition. Boston, MA: Pearson Education Inc.
- Njiro, E. 2014. Moving transfer to transformative learning: A curriculum model for adult educators in open distance learning (ODL). *Journal of Education and Social Research*, 4(3): 479-485.
- Nkula, K. & Krauss, K.E.M. 2014. The integration of ICTs in marginalised schools in South Africa: Considerations for understanding the perceptions of in-service teachers and the role of training. (Online). Available at: www.developmentinformatics.org/conferences/2014/papers/20-Nkula-Kirsten.pdf. [Accessed 7 May 2016].
- NVDA. 2016. (Online) available at: www.nvaccess.org: <http://www.nvaccess.org> [Accessed 24 January 2017].

- Oliver, R. 2002. The role of ICT in higher education for the 21st century: ICT as a change agent for education. Available at: <http://elrond.scam.ecu.edu.au/oliver/2002/he21.pdf> [Accessed 10 March 2015].
- O' Sullivan, E. 1999. *Transformative learning: educational version for the 21st century*. Toronto: University of Toronto.
- PCW. 2010. *Essay V: ICT in Non Formal Education*. Price WaterHouse Cooper.
- Pew, S. 2007. Andragogy and pedagogy as foundational theory for student motivation in higher education. *Insight: A Collection of Faculty Scholarship*, 2:14-23.
- Pelgrum, W.J. & Anderson, R.E. 1999. *Benefits of ICT literacy in adult education*. (Online) Available at: www.elsevier.com/locate/compedu [Accessed 12 January 2016].
- Pelgrum, W.J. 2001. Obstacles to the integration of ICT in education: results from a worldwide educational assessment. *Computers and education*, 37:163-178. (Online) Available at: www.elsevier.com/locate/compedu [Accessed 12 January 2016].
- Quan-Baffour, K.P. 2006. Adult basic education and training in ten years of South African Democracy. *West African Journal of Educational Research*, 9 (1&2): 40-44.
- Ramorola, M.Z. 2010. "A study of effective technology integration into teaching and learning: A case study". Unpublished Doctoral thesis. Pretoria: Unisa.
- Reddi, U.V. (No Year). Role of ICTs in education and development: potential, pitfalls and challenges. (Online). Available at: kutej.edu.ng/163-182%20Sunusi%20Kani.pdf [Accessed 10 October 2015].
- Republic of South Africa. 2000. *Adult Education and Training Act 52 of 2000*. (Online) Available at: www.dhet.gov.za. [Accessed on 10 November 2015].
- Samudhram, A. 2010. *Building ICT literate human capital in the third world: A cost effective, environmentally friendly option*. Sydney: Monash University.

- Sansanwal, D.N. 2009. *Use of ICT in teaching, learning and evaluation*. New Delhi: NCERT.
- Schoepp, K. 2005. *Barriers to Technology integration in a Technology-Rich Environment*. Abu Dhabi: Zayed University.
- Serfontein, C.P. 2010. "The information and communication technology requirements of the national curriculum statement: implications for implementation in schools". Unpublished Doctoral thesis. Pretoria: Unisa.
- Seyed, A.H., Hayati, D. & Hashemy, Z. 2012. A survey of the application of information and communication technology in education. *International Journal of Information and Educational Technology*, 2 (1):1-60.
- Shelley, G., Gunter, G. & Gunter, R. 2012. *Teachers Discovering Computers: Integrating Technology in a Connected World*. 7th Edition. USA: Cengage Learning.
- SmartBoard. (Online) Available at: www.smartboard.com. [Accessed 16 September 2016].
- Stapelberg, T. 2016. Free wi-fi for Tshwane pupils. (Online). Available at: <http://www.iol.co.za/news/south-africa/freewififorTshwanepupils> [Accessed 01 November 2016].
- Suhonen, J, de Villiers, M.R. & Suinen, E. 2011. *FODEM: multi-threaded research and development method for educational technology*. *Association for Educational Communications and Technology*. (Online) <https://www.reserachgate.net/.../230886244>. [Accessed 20 February 2016].
- Tondeur, J., Van Braak, J & Valcke, M. 2007. Curricula and the use of ICT in education: Two worlds apart? *British Journal of Educational Technology*, 38(6):962-976.
- UNESCO. 2006. Educational for All Global Monitoring Report. (Online). Available at: <http://unesdoc.unesco.org/images/0014/001497/149780E.pdf> [Accessed 8 November 2014].

Weiner, S. 2011. Information literacy for the workforce: a review. *Educational libraries*, 34, (2):7-14.

Appendix A: Request for permission to conduct research at an AET centre

345 Moeletsi Street
Zone 16
Ga-rankuwa
0208
21 May 2015

The Centre Manager

Dear Sir/Madam

RE: Request for permission to conduct a research in this Adult Centre

I wish to request to conduct a research in the above mentioned school. I am a Master's degree student at UNISA; the topic of my study is Information Communication and Technology Literacy in adult basic education.

The research requires interviewing adult educators and learners in adult education and observing the lessons in class and the facilities. The interviews may be conducted after school hours, only observations will be conducted during lessons and the facilities.

All the participants' responses will be treated confidential and the completed research will be submitted as part of my masters' dissertation.

Your co-operation and assistance will be highly appreciated. Thank you in anticipation.

Regards

JR Mokotedi (Mr)

Signed.....

E-mail: 50190350@mylife.unisa.ac.za

Cell: 0724544632

Appendix B: Letter of Consent for informed participants

Topic: Information Communication and Technology literacy in adult education and training in a district in Tshwane.

Dear Participant

You are invited to take part in a research study. The aim of the study is to explore and describe ICT literacy in adult education and training in the Tshwane West District, by so doing I wish to learn more about your experiences and challenges you are faced with in your use of ICTs. You have been specifically selected because the research study is based on your involvement as an adult basic educator, adult basic education learner and official of the Department of Higher Education involved in adult basic education. The information above highlights that there are links between what was discovered in the literature review and the findings of the empirical study.

Your participation in the research study is voluntary and confidential. You will not be asked to reveal any information that will allow your identity to be established, should you declare yourself willing to participate in these interviews, confidentiality will be guaranteed.

My supervisor is Professor G van den Berg, is available for explanatory information concerning this study and her number during office hours is 012 429 4895 or e-mail address is vdberg@unisa.ac.za.

Please sign this letter as a declaration of your consent to indicate that you participate willingly.

FOCUS GROUP/INTERVIEW ASSENT AND CONFIDENTIALITY AGREEMENT

I _____ grant consent/assent that the information I share during the group discussions (focus group interviews) may be used by the researcher, [name of researcher], for research purposes. I am aware that the group discussions will be digitally recorded and grant consent/assent for these recordings, provided that my privacy will be protected. I undertake not to divulge any information that is shared in the group discussions to any person outside the group in order to maintain confidentiality.

Participant's Name (Please print):
print):

Researcher's Name: (Please

Participant Signature:
Signature:

Researcher's

Date:

Appendix C: Focus group interview schedule to learners

The researcher arranged the physical setting to maximise interaction and comfort, a tape recorder was used and during the process of the focus group interview the researcher adhered to the set questions since information may emanate from the participants which was not anticipated by the researcher.

The questions set for the applicants:

1. Are you all in the same class?
2. How do you feel being part of this AET group?
3. What is your understanding of ICT?
4. Do you use computers in your lessons?
5. What do you generally use the computers for in your lessons?
6. How is the experience of learning with computers?
7. Do you receive any assistance from your educators during ICT lessons?
8. Are there any problems that you experience?

Appendix D: Focus group interview schedule to learners

The researcher arranged the physical setting to maximise interaction and comfort, a tape recorder was used and during the process of the focus group interview the researcher adhered to the set questions since information may emanate from the participants which was not anticipated by the researcher.

The questions set for the applicants:

1. Are you all involved in teaching AET?
2. How long have been involved in AET teaching?
3. What is your understanding of ICT?
4. Do you use computers in your lessons?
5. What do you generally use the computers for in your lessons?
6. How is the experience of teaching with computers?
7. Are there any problems that you experience?
8. Do you receive any support from the district office?

Appendix E: Semi-structured interview schedule to an official of the DHET

1. What is your understanding of ICT?
2. What is the content of the AET curriculum?
3. In your opinion, what are the attitudes of AET educators, learners and the department toward ICT?
4. What kind of support with regard to ICT literacy does the department offer to the AET centres?
5. What are the benefits for the inclusion of teaching and learning of ICT literacy in the AET curriculum?
6. What are the barriers that impede the development of ICT literacy in AET do you generally use the computers for in your lessons?
7. What recommendations can be suggested in enhancing ICT literacy in the AET curriculum?

Appendix F: Questionnaire to educators

GENDER (tick please)

MALE		FEMALE	
------	--	--------	--

EXPERIENCE

0 to 3 years		0 to 5 years	
--------------	--	--------------	--

GRADE YOUR TEACHING IN (please fill in)

GRADE	
-------	--

1. All these years of teaching were you involved in AET? If yes, is it fulfilling?

.....

.....

.....

.....

.....

.....

2. What is your understanding of ICT?

.....

.....

.....

.....

.....

.....

3. Would you briefly tell what does the AET curriculum entail?

.....

.....

.....

.....

.....

.....

4. Do you make use of computers in your lessons? If you do not say no, if yes, explain.

.....

.....

.....

.....

.....

.....

.....

5. If you said no to the above question so how do you use them?

.....

.....

.....

.....

.....

.....

.....

6. Are there any challenges that you experience as an educator who uses ICTs in your teaching and learning? If so what are they?

.....

.....

.....

.....

.....

.....

7. Do you receive any support from the district office or the department?

.....

.....

.....

.....

.....

.....

8. What is your overall opinion of the use of ICTs in teaching and learning?

.....

.....

.....

.....

.....

.....

9. What improvements would you suggest for the effective integration of ICTs in teaching and learning?

.....

.....

.....

.....

.....

.....

Appendix G: Questionnaire to learners

GENDER (tick please)

MALE		FEMALE	
------	--	--------	--

GRADE YOUR IN (please fill in)

GRADE	
-------	--

1. Do you have a computer, laptop, smart phone or a cellular phone?

.....

.....

.....

.....

.....

.....

2. What is your understanding of ICT?

.....

.....

.....

.....

.....

.....

3. How often do you use ICTs in the centre or at home?

.....

.....

.....

.....

.....

.....

4. Do you make use of computers in your lessons? Yes or No, if yes explain for what.

.....

.....

.....

.....

.....

.....

5. Do you have access to internet? If yes what do you use it for?

.....

.....

.....

.....

.....

.....

.....

6. Are there any challenges that you experience as a learner who uses ICTs in learning? If so what are they?

.....

.....

.....

.....

.....

.....

7. Do you receive any support or assistance from the educators? Yes or No, if no why?

.....
.....
.....
.....
.....
.....
.....

8. What is your overall opinion of the use of ICTs in teaching and learning?

.....
.....
.....
.....
.....
.....

9. What improvements would you suggest for the effective integration of ICTs in teaching and learning?

.....

.....

.....

.....

.....

.....

Appendix H: Observation checklist of the adult learning centre

Physical infrastructure features:

Size of the classroom

.....
.....

The lighting and ventilation in the classroom

.....
.....

The positioning of the ICT equipment

.....
.....

Seating arrangements

.....
.....

Is ICT equipment operational?

.....

.....

How many computers are connected to the internet?

.....

.....

General comments

.....

.....

.....

.....

.....

.....

Appendix I: Ethical clearance certificate



COLLEGE OF EDUCATION RESEARCH ETHICS REVIEW COMMITTEE

17 June 2015

Ref #: 2015/05/13/50190350/16/MC

Student #: Mr JR Mokotedi

Student Number #: 50190350

Dear Mr Mokotedi

Decision: Ethics Approval

Researcher

Mr JR Mokotedi
Tel: +2712 703 2793/+2772 4544632
50190350@mylife.unisa.ac.za

Supervisor

Prof G van den Berg
College of Education
Department of Curriculum and Instructional Studies
Tel: +2712 429 4895
vdberg@unisa.ac.za

Proposal: Information Communication and Technology (ICT) Literacy in Adult Education and Training: A case study in the Tshwane West District

Qualification: M Ed in Didactics

Thank you for the application for research ethics clearance by the College of Education Research Ethics Review Committee for the above mentioned research. Final approval is granted for 2 years.

For full approval: The application/ resubmitted documentation was reviewed in compliance with the Unisa Policy on Research Ethics by the College of Education Research Ethics Review Committee on 17 June 2015.

The proposed research may now commence with the proviso that:

- 1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
- 2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Education Ethics Review Committee.



University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Open Rubric

An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

- 3) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

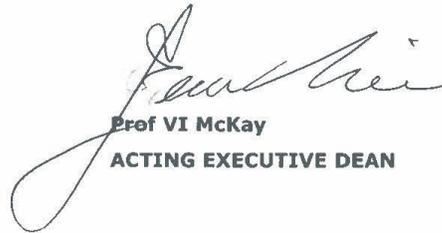
Note:

The reference number **2015/05/13/50190350/16/MC** should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the College of Education RERC.

Kind regards,



Dr M Claassens
CHAIRPERSON: CEDU RERC
mcdtc@netactive.co.za



Prof VI McKay
ACTING EXECUTIVE DEAN



University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Appendix I: Transcription of the focus group interview with adult learners

I: Morning, people and thanks for your time and it is highly appreciated.

R: Morning too (the whole group respondent).

I: I would like to ask you a few a questions and please be free to answer them as you wish (pause).

I: Ok

I: What is your understanding of ICT?

R: LA, according to myself eer it is the use of cell phones, computers eer and then in order for us to access information.

I: Ok, anyone else with the understanding of ICT?

R: LF, nna (me) my understanding its mmh ICT is most basically used for an example calling finding information as in you know whatsapp, Facebook.

I: OK, abuti (brother) your understanding

R: LC, me it's to get information.

I: What kind of phones do you use?

R: LF, smartphones.

I: Do you use computers in your lessons.

R: LB and LF, respond both at the same time yes.

R: LD No, not all for us.

I: Not all of you?

I: What do you generally use for computers for in your lessons? Those who are using computers in their lessons?

R: LF for me, when I use computer I open question papers so that I can be able to (pause)

I: Interviewer interrupts ok basically you are searching for information?

R: LF yes.

R: LE some, in my class we use computers for Microsoft Word, Microsoft Excel, Microsoft Access and some for PowerPoint.

I: Ok, so far how is the experience of learning with computers? How is your experience? How do you find learning with computers?

R: LF we find it interesting because we able to get information.

R: LE and it's also easy every time because when we start to learn it's difficult but when it goes on you know how to use it (coughing)

I: Ok, do you receive any assistance from your educators during the lessons?

R: LB Yes.

I: Ok, do you and what kinds of assistance do you get?

R: LB mmh there is a point when we do not understand what is going may be they have set some page layout and then they will show us how they set up for us.

I: Basically what you are saying is there is support and assistance from your educators.

R: Yes in a group.

I: Are there any problems so far that you are experiencing in accessing ICTs? (There is silence)

Appendix J: Transcription of the focused group interview with adult educators

I: Morning again, thanks for your time eer firstly I would like to appreciate you guys giving me this chance to come and conduct this interview.

I: To educators, I would like to ask a few questions and they are eight of them; number 1 I will be basically eer I am asking you because I need your understanding of ICT and how you are using it here at school.

Respondent: Ok (as a group)

I: What is your understanding of ICT?

R: EA, it is to operate computers, tablets and laptops

I: Anyone else

R: ED, Not every learner can know how technology works, like for instance if ICT at school here, we are using Media Works for the learners, for communication mmh mathematics. ICT also we are using them to know the programs like Microsoft Word, PowerPoint, Access.

I: What is Media Works?

R: ED, it is a special program for adult learners

I: Ok

R: ED, continues yes we have got level 1 until level 4 and then we have got also books from Media Works then on that program, then they start with alphabets for communications, how to write a sentence until they pronounce everything on English; and then for mathematics then you pass level 1 you go to level 2, you are doing the level 2 program, level 3, level 4 and then even for mathematics it is the same thing.

I: Good enough, anyone else?

R: EB, ja mmh I am one of the educators who is not teaching ICT but to my understanding it is a kind of eer eer a system that you use to access a certain information from it.

I: Ok, mama in your case

R: EE, I think eer Information Technology, when learners need information they must be able to eer access information from the Internet, so with the ICT they are giving them the basic of how to operate and how to get information eer, they can even use their own data.

I: Ok, we can go on, do you use computers in your lessons?

R: ED and EC answers together some of us but not all of us.

I: Ok, not all of you?

R: ED, but I think it is wise to use computers because everything is there even on Grade 12, we are able to Google to make some research so it is wise to use computers.

I: What do you generally use the computers for in your lessons those who are using computers in their lessons?

R: ED, we are using Microsoft office, the Word program, Excel, Access for those who are adult and for those who are doing secretarial.

R: ED, we also eer create our own data for keeping the records of the learners.

I: How is the experience of teaching with computers, for those again who are using computers in their lessons?

R: ED, mmh teaching with computers it's very simple for the learners because what they see most of the time eer if you see something is better that just hearing, they see may be from the overhead projector what we are teaching and experience that and do that practically on their own so it's simple, fast for the learners.

I: Are there any problems that you have experienced?

R: ED, the problem we experience is that most of learners know computers from home they just want to browse anything on the computer.

I: Anyone else

R: EC, we do not have tablets and laptops because nowadays every school has tablets.

I: Basically you lack resources

R: Yes in a group, lack of resources

R: ED, and again if a teacher uses a tablet in a class but she is not computer literate it is difficult because after school I have a friend of mine who teaches somewhere in a certain school, I have to help her because she does not know how to operate it. If they distribute this without giving her a proper training not only a workshop for two days, a workshop for two days a person is able to open it but a person cannot go to other pages.

I: Ok, basically your problems if I summarise them are lack of resources and

R: EF, interrupts lack of training

I: Continues lack of training, ok but now do you get any support from the district office regarding training and provision of resources?

R: EF, only workshop for two days or one day

I: Of which is not enough ne?

R: EF, ja it is not enough

I: Anything that you need to add?

R: EC, I think it's wise if you can just organise us computers especially for the educators so that we can be competent and another thing may be you can make some research on how we can get the tablets.

I: Anything else from any one again

R: ED, I think on insufficient resources it is because, they provide all those tablets at the main stream, and it is being used most especially this year may be in the future they will think of us.

I: Basically what you are saying its ok, the government seem not to be serious regarding adult education, there is a lack of commitment from their side.

R: EF, ja at the end of the year the main stream and adult learners they write the same question papers, we don't have a specific question paper that this one is for adults, the

question paper is the same as the as the main stream learners. Coughing in the background.

I: Ok, so but now how do you survive this because the main stream people are having tablets and

R: EC, interrupts, we are not even having laptops and we are supposed to have laptops as educators so we don't have

R: ED, interrupts we use improvised materials, the educator has to go out and liaise with other educators to get left overs that they have sometimes they don't give us and that is a problem.

I: So, but now how do you survive, as I am saying how do you survive because you are saying the learners are writing the same question paper with those in the main stream so how do you help learners cope with that?

R: ED, you have to be active as an educator, network ja and get whatever help you can get from outside.

I: Basically you improvise all the way

R: EC, ja all the way at the end of the day we produce some good results

I: Interrupts, that is good

R: EC, continues what if we get the resources.

I: No, good people thanks and thanks again.

Appendix K: Transcription of the semi-structured interview

I: Morning, Mr Moloji, thanks for your time and it is highly appreciated.

R: Ok welcome.

I: I would like to ask you a few a questions six of them they are open-ended questions (pause)

R: Ok

I: What is the content of the AET curriculum?

R: Ja wa itse (do you know) Mr Mokotedi I get to start with just to explain, I am responsible for educator development ja but may be through

I: Ok

R: (continues) experience that is why the director a go neile nna (recommended me) because I have been longer and involved mo dinthong tseba (in this field) the curriculum issues maar exactly I am responsible for educator eer development ja.

I: No problem

R: Ok

I: I will go to the next one

R: Coughing

I: In your opinion what are the attitudes of AET educators, learners and district officials toward ICT

R: Ja one of the biggest problem and I also prepared something here, one of the biggest challenge of the ICT in AET centres is that one, educators are not trained ja that is one of the biggest challenges secondly there are no enough resources because ICT in the AET you know centres it is a bit new you know it is only three years ago ICT was introduced as a new eer subject therefore you know and the resources especially in the rural areas now very few selective for instance centres whereby ICT is taught because you know there was a section ja which was saying (pause) which was issued to to provinces for condition for ICT to be taught in the PALC s you see now eer district officials were forced to go to all these centres who want to teach because to be honest many centres or many educators they wanted to and learners ICT but at the same time you know you will find that resources are not there educators are not trained ba bang banka di chance (chance takers) with you know all those things now we had to issue from the national department to all the provinces a section now which says before a centre can

teach ICT, you know district officials must assess whether the resources are there, educators you know are trained you see ja now ok that was also the challenge that the resources that no trained educators.

I: Ok, fair enough number three what kind of support with regard to ICT literacy does the department offer to the AET centres?

R: Ja, eer as I have said Mr Mokotedi that it was introduced three years ago as a new what you call you know a subject in the centres you see encourage even if you know the department is aware that the resources are very scarce but to start gradually introduce ICT for instance because ICT is very very important this is a period of what we call digital era for instances it must be introduced and again eer Mr Mokotedi I think you are when we talk of an AET centre (knock on the door) you know we have what you call for instance AET centres from level 1 to 2 ABET level to level 4 and again we also have FET AET which is grade eer 12 now this ICT has it was introduced in the ABET centre (noise in background and the door closes) that is level 1 to 2 level 4 again you know to show that we are serious there is a new eer for instance a new curriculum which is developed you know for instance NASCA you aware of NASCA

I: Yes

R: Continues for an example this is a curriculum and also ICT is part of that ja currently we are busy for instance developing for instance this NASCA curriculum including the ICT then later when we finally for instance next week or on the 7th 8th you know that the developers are going to finalise for instance, what we call subject or learning areas including ICT from there we will be distributing that is the material for instance to to regions we are no more calling them provinces regions all over the country and then from there we will be training for instance, as I am saying that eer I am responsible for educator development then we would be training I have developed a strategy for this thing for training for instance you know educator after developing this curriculum we' ll be training for instance you know I have developed for instance you know this a draft strategy (a document shown to the interviewer) also in our training of our educators we will also include for instance educators for ICT in both that is level 1 to level 2 and then again NASCA and GETC.

I: Interviewer interrupts can I have this?

R: Pardon this is just a strategy draft you can look at it but it is just a draft but when it is finalised I will send you one.

I: No thanks, now could you tell us about the benefits of including ICT literacy in teaching and learning in the AET curriculum.

R: Eer, it will be for instance a good benefit because now this is a time of Ipad now educators computers the question of Ipad and very soon digital for instance eer eer what do you call, TV will be introduced it is very important that our AET for instance learners should also be involved you know especially at higher level in the what do you call NASCA level you know even for job for instance advantage because if they qualified in the ICT then at least they can go further they can study in the TUTs if they for instance pass this ICT.

I: Ok, I think this one we have touched before but I would like you to elaborate more, my question would be what are the barriers those impede the development of ICT literacy in AET so far?

R: so far I think the resources, untrained educators, infrastructure especially in rural areas, you see because you find there is no electricity sometimes it affects the teaching of ICT in AET centres.

I: Ok, as a specialist or an educator development what would you recommend to the department for enhancing ICT literacy in AET curriculum.

R: what is very important I think is training educators, I think we should start there, you know train our educators I think that is very important so that they can have that is confidence in manipulating for instance ICT then that confidence can be transferred you know to the learners because for instance if educators who are teaching ICT they are not confident in manipulating for instance computer or whatever ICT it is going to be very very difficult for me for instance you know as somebody responsible for educator development, I think the training of what do you call you know for educators is very very important then there after that a second step again again resourcing for instance the centres because

so far in our centres not all the centres are teaching for instance you know ICT for an example I have been talking to a specialist in North West region for instance he is saying only three centres, Bojanala and Sisters of Mary very few centres which only three you can just imagine in the whole region you see and in the Eastern Cape also I tried also I to interview to get more information also there are very very few because of no educators who are trained because of lack of infrastructure and resources. Training for the centres teaching ICT for me is key in this subject ICT. Mr Mokotedi we are having a strategy in place but it still has to be finalised.

I: Ok, let me take you back according to you what is your understanding of ICT?

R: ICT for instance as I have said you know television, computers, manipulating for instance computers, communication technology ja.

I: Thanks, I think you have been helpful and I appreciate you giving me time.

R: Thanks Mr Mokotedi anytime.

Appendix L: Questionnaire responses (Learners)

LE

Appendix H: Questionnaire to learners

GENDER (tick please)

MALE		FEMALE	✓
------	--	--------	---

GRADE YOUR IN (please fill in)

GRADE	Secretarial
-------	-------------

1. Do you have a computer, laptop, smart phone or a cellular phone?

I have a smartphone

2. What is your understanding of ICT?

My understanding of ICT is that we use computers here at school and we operate and also have access to internet

3. How often do you use ICTs in the centre or at home?

I could say every weekdays except the weekends, because we come to school everyday

4. Do you make use of computers in your lessons? Yes or No, if yes explain for what.

Yes because each and every day we learn

Something new. Sometime you learn for yourself
without a teacher

5. Do you have access to internet? If yes what do you use it for?

Yes. I apply online, search for Scholarship
and social media.

6. Are there any challenges that you experience as a learner who uses ICTs in learning? If so what are they?

Yes. When you start learning it's so difficult
but while you get more used to it you
become smart and know what you're doing.

7. Do you receive any support or assistance from the educators? Yes or No, if no why?

Yes

8. What is your overall opinion of the use of ICTs in teaching and learning?

I think it's a good thing that we use
ICT because you'll be able to access
information you need.

9. What improvements would you suggest for the effective integration of ICTs in teaching and learning?

To access internet and come to school
6 days per week because some teachers
are not smart as others:

CF.

Appendix H: Questionnaire to learners

GENDER (tick please)

MALE	✓	FEMALE	
------	---	--------	--

GRADE YOUR IN (please fill in)

GRADE	12
-------	----

1. Do you have a computer, laptop, smart phone or a cellular phone?

Smart phone

2. What is your understanding of ICT?

is a learning of computer system.

3. How often do you use ICTs in the centre or at home?

We don't use it because we don't
 have it at the centre and also at
 school.

4. Do you make use of computers in your lessons? Yes or No, if yes explain for what.

NO

Because we are not allowed, it only used by those who study computer.

5. Do you have access to internet? If yes what do you use it for?

yes → I only use it to google information and

6. Are there any challenges that you experience as a learner who uses ICTs in learning? If so what are they?

No because but yes because his don't know how to use it

7. Do you receive any support or assistance from the educators? Yes or No, if no why?

yes because they help us to access information and obtaining knowledge

8. What is your overall opinion of the use of ICTs in teaching and learning?

is good because computer it has more information that we can obtain from it

9. What improvements would you suggest for the effective integration of ICTs in teaching and learning?

→ TO BE CAN BE HAPPY IF WE OBTAIN
TICKETS ON OUR SCHOOLS

Appendix M: Questionnaire responses (Educators)

TA

Appendix G: Questionnaire to educators

GENDER (tick please)

MALE		FEMALE	X
------	--	--------	---

EXPERIENCE

0 to 3 years		0 to 5 years	X
--------------	--	--------------	---

GRADE YOUR TEACHING IN (please fill in)

GRADE	12
-------	----

1. All these years of teaching were you involved in AET? If yes, is it fulfilling?

I've got 5 years experience in teaching but what I can say is we are still struggling with the necessary resources

2. What is your understanding of ICT?

ICT is the use of computers so as to become computer literate. It is our need to be literate so as to make life easier.

3. Would you briefly tell what does the AET curriculum entail?

AET curriculum is the same curriculum as the main stream course we are writing the

Some question papers

4. Do you make use of computers in your lessons? If you do not say no, if yes, explain.

I should have use it but due to lack of resources we are unable. The only choice I got is to be internet cafe to search informas

5. If you said no to the above question so how do you use them?

I don't use it but I'm suppose to use it. See the above explanation

6. Are there any challenges that you experience as an educator who uses ICTs in your teaching and learning? If so what are they?

lack of resources e.g. Computers, tablets, laptops, study material etc.
 lack of training especially to educators.

7. Do you receive any support from the district office or the department?

Support is there but not sufficient only one day workshop which are not fruitful. Department don't take us seriously

8. What is your overall opinion of the use of ICTs in teaching and learning?

To be donated with tablets, laptops for educators like they are doing in main stream.

9. What improvements would you suggest for the effective integration of ICTs in teaching and learning?

We need to improve our centre by having the necessary resources eg. tablets, laptops, and study materials.

TE

Appendix G: Questionnaire to educators

GENDER (tick please)

MALE		FEMALE	X
------	--	--------	---

EXPERIENCE

0 to 3 years		0 to 5 years	X
--------------	--	--------------	---

GRADE YOUR TEACHING IN (please fill in)

GRADE	12
-------	----

1. All these years of teaching were you involved in AET? If yes, is it fulfilling?

It is fulfilling because I am teaching ICT with Technology learners are going out and explore

2. What is your understanding of ICT?

It is Information Communication Technology whereby learners uses Computers

3. Would you briefly tell what does the AET curriculum entail?

AET curriculum entails empowering Adult Learners.

4. Do you make use of computers in your lessons? If you do not say no, if yes, explain.

We are using Computers for Office Programs and Media Works which is the special Programs for Adult learners

5. If you said no to the above question so how do you use them?

6. Are there any challenges that you experience as an educator who uses ICTs in your teaching and learning? If so what are they?

Some of Adult Learners dont know how to operate a computers and dont even have smart phones.

7. Do you receive any support from the district office or the department?

No the department is slow when coming to AET Section.

8. What is your overall opinion of the use of ICTs in teaching and learning?

It is simple for learners to grab what they see.

9. What improvements would you suggest for the effective integration of ICTs in teaching and learning?

I suggest it because learning
from the class and doing it
practically on the computer.