

THE TRANSFER OF EDUCATIONAL ICT KNOWLEDGE AND SKILLS FROM THE UNIVERSITY
COURSES TO SCHOOL PRACTICE

by

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DEDICATION

In dedication to my late family members

Mrs Ramasela Movalo

Mr Lienga Kleinboy Movalo

Mr Mpapa David Jazzy Movalo

and

Mrs Hunadi Elena Matsetela

Whose unconditional love and tireless devotion
enthused me through my years of study.

No sacrifice was too great, they were always there
when I needed them most.

My greatest sorrow is that they did not live to see
the completion of this work

I was in fact sanctified with these greatest parents

Thank you

Bathokwa and Mošitwa!!!

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CHAPTER 1

1.1. Introduction

In this study, issues surrounding the transfer of knowledge and skills of graduates in CBE are explored. The problem statement, motivation of the study, aims and objectives, research design and method, research topic as well as the research question will also be given. Lastly, the main concepts and the study plan are provided.

1.2. Background to the study

The revolution of Information and Communication Technology (ICT) has resulted in people using computers to share information at a fast rate and at long distances. Computers are used at home for completing different tasks, for personal development, as communication tools (e-mails) and for playing games. The use of the Internet has resulted in people all over the world accessing and exchanging vital information, news, sports, and communications. Computers are also being used at higher institutions of learning to facilitate distance education which is referred to as online education

In Higher Education Institutions (HEI), like colleges, universities and technikons, computers are used in communication technologies such WebCT, chat rooms, blogs, to increase access to faculty members, helping them to share useful resources, and affording joint problem solving and shared learning which can usefully used to augment face-to-face contact in and outside of class meetings (Chickering, W & Ehrmann, SC, 1996: Online).

Initially, in schools, computers were used for managerial and administrative tasks to assist in improving the efficient and professional look of the work and doing away with an old way of manual work.

Recently, in South African schools, the introduction of Outcomes-Based Education (OBE) and the National Curriculum Statement (NCS) as a new curricula necessitated a change of approach to education. Due to its learner centred approaches, OBE and the NCS made computers an important medium for learning and teaching the curriculum.

The White Paper on e-Learning (2000) as well as the Gauteng Department of Education's driven initiative of Gauteng Online has also added more impetus on the usage of computers (GDE, Online: 2000). According to Malelle Petje, CEO of Gauteng Department of Education (GDE), every South African learner in the GET and FET bands will be ICT capable (that is, use ICT confidently and creatively to help develop the skills and knowledge needed to achieve personal goals and to be full participants in the global community) by 2013 (GDE, Online: 2002).

The Gauteng Department of Education (GDE) initiated Gauteng Online (GOL) to teach ICT in schools and to move away from the traditional method of teaching. According to the recent statistics, an approximate of 1100 computer laboratories have been built in the Gauteng Province (online). Each laboratory is fitted with 25 computers, 25 chairs, a multi- function printer, air conditioner, server room, an alarm system, a television set with a DVD and VCR combo, security door and supplied with an armed response (GDE, Online: 2002).

This initiative was to make very learner access computers in Gauteng schools (GDE, Online: 2002)

By virtue of these factors, the number of computers in schools has grown dramatically from an average of one to several per classroom in 2005. This has put more major challenges on the skills and knowledge of educators in teaching and learning as they have to devise a new approach to education and use different strategies to enhance the quality of teaching and learning by using new resources such as computers in education. Therefore this has necessitated educators to

acquire adequate technical skills to use ICT productively, as well as to instruct and guide the students to use ICT purposefully and generatively.

As such, to deal with this approaches and changes in education and for learners to be able to utilize technology at school and compete globally in careers and job placement, first-hand quality computer courses and effective learning should be provided for educational practitioners and educators.

To address these challenges, the University of Johannesburg (formerly Rand Afrikaans University) offers a qualification for educators' professional development that equips them with a good knowledge and skills of operating and utilizing computers for their daily tasks both at school and at home as well as integrating computers with their teaching. It is the learning from these courses that are the subject of study in this research project.

1.3. Rationale for my study

In South Africa, current researches on the use and implementation of computers in education have been done but institutions have failed to investigate what happens to educators and their acquired skills and knowledge after completing their courses. While these studies focuses on the implementation and utilization of computers already in a school settings with emphasis on the different types of uses, such as in management, teaching by educators and learning by students, my research will be based on the educators' transfer of skills and knowledge in order to inculcate a high level of cognition.

Cormier and Hagman (1987) explains transfer of learning as the application of skills and knowledge learned in one context being applied in another context. They further explained that for this transfer to happen, there are very important factors to be considered. A distinction is also made between near and far transfer as well as their respective applications. Bransford, Brown and Cocking (2000) also

emphasized that measures of transfer play an important role in assessing the quality of people's learning experiences.

It is in this context in which Donald Kirkpatrick (1994) described four levels that assess the amount of learning that has occurred in any given situation. According to his model, each successive level is built on information provided by the lower level. Therefore, in this study, it will be determined how teachers, who were enrolled for courses in ICT at the particular university, make use of their knowledge and skills in their respective work environments. This would therefore shed light on the transfer of knowledge between the institute of learning and the workplace, and may even give a limited indication of the "success" of these courses and whether they contribute to improved practice in the school situation.

1.4. The Research Problem

The problem is to determine whether, and how, educators who have graduated in Educational Computing courses at UJ, (as well as the former RAU), transfer the knowledge and skills at the schools where they are employed and where they stand in practice.

1.5. The Aim and Objectives

The aim of the study is to:

1. Create awareness about transfer of learning and highlighting factors that affect transfer of learning.
2. Explain other factors of transfer of learning in South African context with regards to ICT learning.
3. Recommend, through data analysis, solutions that can be implemented to improve these factors.

1.6. The Research Design

The design type of this study is a generic qualitative inquiry. Mouton (2001:161), defines a qualitative approach as the use of predominantly qualitative research methods to describe and evaluate the performance of programmes in their natural settings focusing on the process of implementation rather than quantifiable outcomes. Furthermore, Creswell (2003:18) defines a qualitative approach as one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives. According to the constructivists, learning is based on students' participation in problem-solving and critical thinking regarding a learning activity (Otec, Online: 2006).

The unit of analysis (Henning, 2004:71) will be educators who transfer the computer knowledge and skills into their teaching practice which they gained in the course. The participants will be educators who studied computer-based education at UJ and who have completed their diplomas and degrees at this institution.

Face-to-face interviews will be conducted with the educators who have graduated in Computer-based Education (CBE) at UJ. Patton states (1990) that the central strength of an interview is that it provides a means for doing what is very difficult or impossible to do any other way-finding out "what is in" and on someone else's mind.

Creswell (2003: 188) informs us that these interviews involve unstructured and generally open-ended questions that are few in number and intended to elicit views and opinions from the participants. As a researcher, one is required to ask guiding questions to informants to probe into areas that arise during the interview. Probing questions are designed to encourage informants to go more deeply into the topic, and they can be used to reshape the direction of an interview segment (Hatch, 2002). Notes and tape recording will be done during the interview to intensify and support what has transpired. Questions will only be formulated in English and 10

educators both female and male will be interviewed. However, the ratio in terms of gender will never be considered as this enquiry is not gender based.

Observation to the computer lab will be done and the number of computers and educators per school will be calculated. Only computers which serve as learning and teaching material in the chosen school will be used. Hatch (2002: 72) states that the goal of observation is to understand the culture, setting or social phenomenon being studied from the perspectives of the participants. In addition, Merriam (1998: 87) states that collecting data from observing phenomena of interest is commonly referred to as participant observation.

Documents such as computer subject policies, allocation of periods and subjects and specialization of educators will be scrutinized to ascertain whether the qualified, computer literate educators transfer knowledge and skills to their respective schools.

Data collected using these methods will be analysed and validated using different methods of analysis as explained by Glesne (1999:130) that data analysis involves organising what you have seen, heard and read so that you can make sense of what you learned. This enquiry is based on the lived experience of the participants on which meaning will be constructed from primary sources in order to gain coherence and subjective reality.

The aim of these data methods is to ensure validity and reliability to the information collected, captured and coded using open coding codes. Reliability refers to the extent to which the obtained scores may be generalised to different measuring occasions, measurement/test forms and measurement/test administrators (Welman & Kruger, 2001: 139).

Data collected will be collated and combined to form a coherent and readable data analysis. Then these data will be categorised and connections will be made between the found concepts and a new description will be formulated.

1.7. The structure of the research

The chapters will be structured as follows:

Chapter 1: Introduction of the study.

It provides an overview to the whole study and through the use of multiple literature reviews an understanding to the study will be made. This study will reveal problems to the implementation of computers in schools looking at other obstacles emanating from literature and findings.

Chapter 2: Transfer of learning

In this chapter the most relevant literature with regard to the inquiry paradigms and Kirkpatrick's Evaluation Model for evaluating the concept 'transfer of learning' is reviewed. The conceptualisation of the topic as well as factors affecting transfer is explained.

Chapter 3: Research Design

In this chapter, the research design, the research methodology, the data collection, the description of different data-gathering methods and techniques of data analysis for this study are explained.

Chapter 4: Analysis of data

In this chapter, data analysis is undertaken and the finding results of the evaluation with regard to the research topic are reported.

Chapter 5: Overview of the study, limitations and recommendations.



Chapter 5 contains an overview of the study, limitations of the study and recommendations for successful transfer of learning. Deficiencies of the research and recommendations for further research are also considered.

1.8. Ethical Considerations of the research.

English as a medium of communication will be used. Age and gender will not be considered when participants are selected. Due to financial constraints, GDE public and private schools will be chosen based on the availability of educators who have done CBE. Respondents will be expected to answer questions posed to them by the researcher.

An explanation of the purpose of the research will be made and anonymity will be guaranteed for the educators. Again, they will be informed that the information is only for research purpose and cannot count or be used against them.

A letter requesting permission will be written to the schools and educators to obtain their informed consent and after approval has been granted, and then the research will be conducted.

Participants will be informed of their rights of refuse to participate in research and to withdraw their participation at any stage.

Information obtained in the course of research that may reveal the identity of an educator or an institution will be treated as confidential unless the educator or institution agrees to its release.

Research findings relating to specific educators and institutions will be reported in a way that protects the personal dignity and right to privacy of participants.

1.9. SUMMARY

This chapter presents a conceptual framework and the rationale for the study. The research question “How do educators who have graduated in ‘Educational Computing’ qualifications at the institute of higher learning transfer the knowledge and skills to their workplace?” is clearly stated. The aim and the objectives of the research are defined. A brief research design for the study is given. An evaluation generic study based on qualitative data will be researched. The brief description of the data collection methods and ethical considerations are explained. Chapter two will describe the research design in detail.



Chapter 2

Transfer of Learning

2.1. Introduction

The importance of the literature review is to present different perspectives on the topic, as well as to provide a framework for the study (Creswell, 2003:30). In this study, a theoretical framework will be developed that will be used to interpret the empirical data that are collected. This chapter reviews what scholars and educational scientists have written about transfer of learning and discusses factors that need to be taken into account when thinking about transfer of learning. The purpose of this chapter therefore is to theoretically frame the inquiry in the context of the research questions that was asked in chapter 1.

2.2. Conceptualisation: transfer of learning

Transfer of learning has long been an important topic in the field of cognitive psychology and educational research (Cormier & Hagman, 1987; Bransford et al., 2000; Holton & Baldwin, 2003:4). Transfer of learning has been defined from different perspectives by different authors. Although much of the research has been done, the main question has been similar and the point of reference has been the same. The question that was normally asked was which factors affect transfer of learning? (Bransford et al, 2000); which kinds of transfer are found? and how the learning of a certain phenomenon affects the subsequent phenomenon? (Haskell, 2001).

Transfer of learning is to apply what teachers learn in new and different contexts, and to recognize and extend that learning to significantly new situations (Haskell, 2001:3). Transfer of learning is best understood when studied from the

perspectives on learning theories as these perspectives have a great effect on how learning transfer is viewed. Considered as useful for this study, the theories of constructivism, behaviourism and situated cognitive learning will be discussed, as a clear understanding of these theories will help understand how transfer of learning may be viewed.

2.2.1. Constructivist theory and transfer of learning.

Constructivism is a perspective on learning that holds that reality is our individual interpretation of what we perceive and knowledge is not received but constructed (Alessi and Trollip, 2001: 31).

Constructivist learning is based on students' active participation in problem solving and critical thinking regarding learning activity which they find relevant and engaging (Otec, Online: 2002). Also, the constructivists believe in context based learning, where knowledge is based on the context in which it is taught.

According to Leonard (2002:37), learning is based on the belief that learners possess some prior knowledge and use it to solve a particular set of problems. From this, one might decree that knowledge is constructed out of individual or as a result of cognitive abilities.

Cognitive constructivism is based on the work of Jean Piaget. Piaget's theory focused on two major parts: an "ages and stages" component that predicts what children can and cannot understand at different ages, and a theory of development that describes how children develop cognitive abilities. He emerged with constructivist pedagogy when he was conducting an intelligent test where he notices that children of the same age make mistakes when answering questions. For our study more emphasis will be on the theory of development because it is the major foundation for cognitive constructivist approaches to teaching and learning (Maureen Epstein, 2002: online).

Piaget's theory of cognitive development emphasizes construction of knowledge from experience. Children build their knowledge through experience. Through experiences they create mental images (schemas) in their head. The constructivist theory acknowledges that individuals are active agents, who engage in their own knowledge construction by integrating new information into their schema, and by associating and representing it in a meaningful way. These schemas are changed, enlarged, and made more refined through two complimentary processes: assimilation and accommodation.

This led to Piaget to conclude that children are not only acquiring the knowledge but they are also actively constructing it. (Leo and Subramaniam, 2006: 498).

In contrast to cognitive constructivists who believe that learning is an active process in which learners construct new ideas or concepts based on current and past knowledge (Bruner, online: 1996), the social constructivists believe that learning depends more on the social context.

This theory identifies knowledge as being the product of social interaction, interpretation, and understanding with language as the mediating key. It is prevalent and explored because it assumes knowledge as dependent on the social environment (Leo and Subramaniam, 2006: 501).

The bases of social constructivist theory were laid down by Vygotsky (Leo and Subramaniam, 2006: 501). Vygotsky's socio-cultural theory of learning emphasizes that our intelligence as humans comes from our society or culture and that as individuals our cognitive gain happens initially through our interaction with the environment first as compared to amongst people (Jy Wana Daphne Lin Hsiao, online: nd). This theory regards the educator as a guide who should be actively involved to ensure that the learners grasp concepts and ideas which are difficult for the learners to understand. In contrast to cognitive theory which emphasizes learning by discovery, this theory encourages shared learning, collaboration and learning through language as a means of communication. The teacher serves as a

guide to learners when they encounter problems, encouraging and supporting students during the lesson.

Whether educators adapt strategies learned in one context to the other context depends on whether the social contexts value or invite interaction and actively engage thinking. Vygotsky explains that through peer collaboration and interpersonal discourse, educators can devise new strategies. Bransford et al. (2000:78) explain that transfer across contexts become simple if learning is taught in multiple contexts. This is to make transfer understandable and meaningful.

In addition, Garrison and Archer (2000: 11) explain that constructed knowledge emanates from a variety of social experiences of learners and ensures continuous development. These social experiences include the environment in which one grows and experienced life. Therefore, this environment is situational in that no two or more environments are the same due to the religion, culture and practices emanating there. As such, situated constructivism as a theory also influences transfer of learning because one constructs knowledge based on the experience attained due to context.

Situated constructivism, is the theory that expresses learning as context based where context affect learning. (Alessi and Trollip, 2001: 33). Situated learning emphasizes that a proper situation in learning enhances transfer of knowledge not only to the present situation but to other situations where it might deem necessary. Similar to the radical constructivism view, this position sees our world as comprised of complex and ill-structured environments where there is no reality in any absolute way. Transfer of learning occurs and develops through interacting with one's environment, exploring this environment and the active construction of knowledge from these experiences.

On the contrary, radical constructivism explains that knowledge is acquired as an adaptive process as a result of the uniqueness of an individual due to experience in which knowledge is not tied to an external reality (Leo and Subramaniam, 2006: 501). This theory is an alternative approach to the problem of knowledge and knowing. Radical constructivism assumes knowledge as unique and internal, and

that thinking depends on people as they are different and where one construct knowledge according to his own experience (Association Oikos, 1996: online). The experience we have determines the world we live in and this experience is personal in that two people can never experience the same situation in the same way. There is no method of determining the similarity of our experiences

In transfer of learning, educator should ensure that learners construct their own knowledge using their own experiences as they possess different cognitive abilities. The educators should ensure that they don't feed learners with information but learners look for information themselves and that will bring meaning and understanding to them. In addition, acknowledgement of learners' experience is very important in that due to their different age and stages their rate of development will differ, as such their experience will have a great influence as to how they perceive and understand concepts.

In addition, transfer of learning is a process that needs involvement of all the social structures and different resources found in the disposal of the school. In a school setting, the educator needs to involve other educators as a means to achieve the desired aims as set by the school. The conduciveness of the environment is crucial in that the use of computers is social as there are social factors influencing the safety and the way computers are handled and used in schools.

Transfer of learning is enhanced when an educator works collaboratively with his or her colleagues to bring efficiency and facilitation of activities within their own school (Haskell, 2001:137). This simplifies transfer of learning because, as a group, they are able to negotiate and generate meanings and solutions through shared understanding.

2.2.2. Cognitive theory and transfer of learning

In cognitive theory, the point of reference will be to look at the definition of Cormier and Hagman (1987:1): “*Transfer of learning occurs whenever prior-learned knowledge and skills affect the way in which new knowledge and skills are learned and performed*”. From this definition, the author concentrates much on the cognitive aspect of the knowledge and skill. How is knowledge and skill affecting transfer? According to this definition, transfer concerns the way in which new knowledge and skills are acquired. Hartman (2001:3) explains that cognitive skills are essential for one to perform a task while metacognition is to understand how the task was performed.

He further explains that the combination of procedural knowledge and cognitive skills are necessary to perform a task. He further explains that when the students have metacognitive skills, they will know as to when and how to use different learning strategies in order to plan, monitor, control their learning and how to transfer learning from their classroom to other contexts.

In contrast to constructivists who rely much on experience and knowledge, the cognitive psychologists place emphasis on unobservable constructs, such as the mind, memory, attitudes, motivation, thinking, reflection, and other presumed internal processes (Alessi & Trollip, 2001:19). They believe that human thinking and learning are similar to that of computer information processing, with the centre of attention on learning inputs or outputs that are processed by human mind. Learning takes place when the individual gathers information from external worlds and builds within the mind a mental construct of that world, that is an account of how it appears to the individual (Leonard, 2002: 29).

Therefore, all these constructs affect learning, either positively or negatively. *Learning* is defined as to “knowledge got by study” and the verb *learn* as “Get knowledge ... or skill by study, experience, or being taught” (The Concise Oxford Dictionary, 2005:689). Cormier and Hagman (1987:121) used knowledge and skills

as their point of reference. These are explanatory concepts for change in behaviour resulting from learning: learning results in a cognitive change in behaviour (new knowledge and skills), and this cognitive change results in new behaviour.

2.2.3. Behaviourist theory and transfer of learning

Behaviourism seeks to explain animal and human behaviour entirely in terms of observable and measurable responses to environmental stimuli (Leonard, 2002: 16). John B. Watson, the American psychologist insisted that behaviour is a physiological reaction to environmental stimuli. He rejected the exploration of mental processes as unscientific and together with the help of Skinner contended that behaviour is a process of conditioned habit which can be learned or unlearned. (Answers.Com. 2006: online)

To this effect, behaviourists focused on studying observable behaviours rather than studying mental activities. They believe that instruction is achieved by observable, measurable, and controllable objectives set by the instructor and met by the learners who elicit a specific set of response based upon a controlled set of stimuli (Leonard, 2002:16). The behaviourist believed that for transfer to take place, educators need to set achievable objectives which can be seen after a set of time, as transfer is a process that is measured over time. The classical and operant conditioning by Pavlov and Thorndike respectively is well known in this theory. Thorndike used rewards and punishment to modify behaviour (Alessi & Trollip, 2002:18).

To that effect, Skinner demonstrated that (1) behaviour that is followed by positive environmental effects increases in frequency (ii) (1) behaviour that is followed by the withdrawal of negative environmental effects also increases in frequency (iii) behaviour that is followed by negative environmental effects decreases in frequency (iv) behaviour that was previously increased in frequency through

reinforcement is no longer reinforced, it decreases in frequency (Driscoll, 2000: 39). B.F. Skinner claims that for transfer to take place, positive reinforcement need to be applied else one need to withdraw the negative reinforcement. This theory demonstrates that planning of transfer should be strictly on observable objectives and environmental events (Alessi & Trollip, 2001:18).

Identifying outcomes in transfer of learning is important for behaviourist. The tasks to be achieved in the outcomes must be structured from simple to complex. Leonard explains that assessing the success of the educational experience is based completely upon the achievement of a set of behavioural outcomes predicted by the learning objectives. The behaviourists believe that by systematically adjusting the stimuli throughout a course of study, the instructor can alter and fine-tune the behaviour of the learners and modify the outcomes.

According Kirkpatrick (1994), post training testing or observations can assess use of skills. Behaviour can be assessed through tests, observations, surveys, and interview. The assessment of behaviours must base on the objectives of the course. This theory is concerned with objectives that are planned before hand and demonstrated by the outcomes. It is concerned with learning outputs, with a set of single events controlled by the stimulus response mechanisms versus the learning and thinking.

2.3. How to measure effective transfer

Several evaluation models are used for guiding evaluation and educational research, each with its own weaknesses and strengths. Due to the fact that I am going to evaluate transfer of learning in schools by educators, Kirkpatrick's evaluation model is selected as an appropriate model in order to measure effective transfer. One way of finding an appropriate evaluation approach is to review the relevant literature. In the following section, I look at Kirkpatrick's evaluation model as a suitable method for evaluating transfer. The aim of this section is therefore to

conceptualise the difficulties with evaluating transfer and ultimately selecting a model for the evaluation of transfer that the participants in this research do.

I shall first look at Kirkpatrick's evaluation model as the choice of selecting the data in this enquiry is based on his model. I believe that Kirkpatrick's model provides a theoretical framework to assist in determining what data should be collected for evaluation purposes.

2.3.1. Kirkpatrick's evaluation Model

Assessing training effectiveness begin with evaluation of a programme after the training has occurred. This is done to see the importance of a training programme, the perception of the learners, the improvement in skills and knowledge in organisations and improvement of work conditions and increased quality and production.

The choice of selection of data method in this study is based on Kirkpatrick's four levels of evaluation model. The four levels of evaluation are:

- A. Reaction
- B. Learning
- C. Behaviour
- D. Results.

According to his model, (1994:21) each level has its own importance in that it provides a conceptual framework to assist in determining what data should be collected. He believed that moving from one level to another becomes more difficult and time consuming but more information is provided. These four levels are presented in table 3.1. The brief discussion of each level follows.

Table: 2.1: The Kirkpatrick evaluation Model

Level	Issue	Measurement focus	Questions addressed
1	Reaction	Educator perception	What did the educators think of the training?
2	Learning	Knowledge/skills gained	Was there an increase in knowledge or skill level?
3	Behaviour	Worksite implementation	Is new knowledge/skill being applied on the job?
4	Result	Impact on organization	What effect did the training have on the organization

A. Reaction

This is the first level of evaluation in Kirkpatrick's model. Kirkpatrick uses the term "Reaction" to refer to how the participants react to the instructional programme. This level is trying to discover the reaction of the learners to the training received. It attempts to answer questions regarding their perceptions-Did they like the programme? Was the material relevant to their work? This level deals with the feeling of the people from their own perspective. The aim of this level is to receive the inputs from the learners in order to improve the programme.

In a qualitative interview, the use of interviews is to extract information from one another for a certain purpose. According to Merriam (1988:72), interviews are used

on things are unobservable like feelings, thoughts and intentions. How people construct meaning and how is that meaning attached to their lives necessitates one to use interviews to elicit that information. Through interviews we are in another person's perspective.

In this study, the reason for measuring reaction is to find out how the students who have completed a computer-based course at UJ effectively learnt this course. This implies finding their feelings and perspective about the course. Their reactions are important for the improvement of the course and the training methods.

B. Learning

The second level of Kirkpatrick model is "learning". According to the behaviourists, learning is a change in behaviour. This implies that the learners are expected to possess behavioural change in a desired direction (Smith 1999: online). According to Kirkpatrick (1994:22), this level attempts to address the extent to which students have highly developed in behavioural changes like skills, knowledge, or attitude in attending a particular course.

For one to assess learning, participants take the test before the training (pre-test) and after training (post-test) to determine how far they have learned. Educators can be asked questions through interviews and by observing their skills and knowledge they apply in their lesson.

A qualitative study is concerned with the improvement of practice in our daily lives. This implies that it deals with quality of phenomenon as critical problems. The qualitative approach is suitable for improving learning in education.

In this study, transfer of skills and knowledge as a phenomenon, means delivery of skills and knowledge from different context. How one transfer this skills and knowledge depends on the learning and attitude acquired during the course. The

quality of delivery will also come into the picture. This study will be suitable to improve learning using interviews and observation as well as documents.

C. Transfer

This is the third level of Kirkpatrick's evaluation model. It measures transfer that has occurred in learners' behaviour due to training program. Evaluating at this level attempts to answer the question - Are the newly acquired skills, knowledge, or attitude being used in everyday environment of the learner? This level addresses the programme's success. This implies that after the completion of a program, the evaluators of a program must make a concerted effort to follow-up the learners to see if they transferring the skills and knowledge learned in the programme to their respective organizations.

This level is difficult to follow as it is complicated because the environment needs to be conducive for transfer in that opportunities should be created for transfer of skills and knowledge to happen. In companies, it is easy to follow in that the increase in production might be associated with the training but in schools the production is the learners' results which are dependent on diverse internal and external factors which then make it difficult to associate with the training of a programme.

The other factor can be the trainee himself/herself or the trainee's supervisors. The attitude the trainee possesses determines the degree of the application of the learned skills. The trainee can apply the learned skills to his job environment; continuously deny implementing change; or his superiors can prevent one to from implementing the skills.

Kirkpatrick (1994:58) informs us that another factor should be the time allocated to measure the skills and knowledge of a programme. This will allow the students opportunities to transfer new skills and knowledge and expanded opportunities can

be explored. In addition, decisions of planning, strategies and method of measurement will be done.

However, it is important to note that you can learn but not be able to transfer the learned task to job environments due to complex reasons. According to Kirkpatrick (1994:23), for one to be able to transfer, change attitude, planning, strategies, a favourable environment and motivation play an important role. For example, in order to attain change and motivation, a positive attitude and appropriate knowledge and skills are essential.

The 'favourable environment' is used similarly to Kirkpatrick's 'right climate' which refers to participant's immediate supervisor. Kirkpatrick (1994:23) identifies five different kinds of behaviour which influence the participant's behaviour. These are, preventing, discouraging, neutral, encouraging and requiring.

It is important that in job environments, one finds encouraging and requiring kinds of behaviours in supervisors. The first two behaviours (preventing and discouraging) are totally not wanted in any job environments. Kirkpatrick (1994) recommends that in order to evaluate behaviour such guidelines can be followed. In this study, through interviewing trainees, transfer can be enhanced. Interviews will be suitable for this level to gather depth of the phenomenon.

D. Results

The fourth level of Kirkpatrick's evaluation model is "Results". Results assesses the effect of the training on the organization in terms of improved production, enhanced quality, lowered costs, reduced rate of accidents, improved sales, and even higher profits or return on investments.

In terms of schools, it assesses improved pass rates, improved quality of teaching and learning, decreased costs of teaching and learning materials, increase in number of admitted learners which increases the number of teaching posts.

In business, it is easy to measure the result because these are quantifiable quantities whilst in education learning is qualitative and it is measured in different time in learners due to their cognitive abilities. The measurement of learning again depends on the listed learning outcomes which the degree of attainment is not the same in learners according to the level descriptors. In addition, the expertise of the educator plays an important role on the attainment of the expected outcomes in terms of skills and knowledge gained in the programme.

Kirkpatrick (1994:65) suggests that for one to accomplish the expected results, certain guidelines should be used. These are similar to the guidelines used in evaluating level 3 (behaviour). According Kirkpatrick (1994:70), it is easy to evaluate tangible results rather than concepts, theories and principles. According to Kirkpatrick (1994:86), the success of a programme is achieved if these four objectives have been attained: participants liked the programme, knowledge and skills were gained, application of what is learned on the job and the achievement of mission and vision of the organisation.

In terms of the enquirer's perspective, Kirkpatrick's evaluation is suitable and best for this inquiry. The qualitative data collection methods advocated by Kirkpatrick can be used to get rich data. These data can be used in this study to measure transfer of learning to schools focusing on educators' skills and knowledge. These results are more important for the institution of UJ to find out how far it made impact to the schools and the development of educators. In addition, it will show the institution the role it plays in improving the learning and teaching of students in the schools.

2.3.2. Summary

The four levels of Kirkpatrick were discussed to show the importance of how to evaluate a programme of instruction to the educators. It has also highlighted the impact of each level on the other level. Different factors that contribute to a

successful programme were also highlighted. Results of an organisation as well as schools were shown. Methods of collection of data follow in detail from the qualitative paradigm:

2.4. Factors affecting transfer of learning

As explained, a major factor of education is to prepare educators to be flexible and adapt to new problems and settings. Their abilities to transfer what they have learned to new situations provides an important index of adaptive, flexible learning; seeing how well do this can help educators evaluate and improve their instructions. Therefore, their abilities to transfer what they have learned depend upon a number of factors. In the discussion below different factors that influence transfer are explored.

2.4.1. Context

Context is the environment or situation in which something exists or occurs (IdeaPivot, 2002). According to Rainbird, Fuller and Munro (2004: 201), learning is extensively influenced by the context and settings in which it occurs. Context and settings are socially constructed and the physical environment emphasizes culture for learning. As human beings our mind uses context to manage a massive amount of information from countless of different situations, such as work, family, friends, and community. Using context, people quickly interpret what information is relevant in a given situation. People can use information based on the knowledge they have of their context and they can out of their context derive meaning.

One usually link one's previous learning to places where the learning occurred. Transfer is linked to previous knowledge. If one has learned a concept before, it is simple to grasp it provided it was properly interpreted. If it is the first time a concept is learned, it might take time to grasp it depending on one's metacognitive knowledge. Hartman (2001:7) explains that metacognitive knowledge and

regulation improves when a learner cuts across all academic domains. This means that as the learner advances, they don't acquire metacognitive knowledge; they also use it in a more flexible manner, particularly in new areas of learning. He explains that metacognitive knowledge may also compensate for low ability or lack of relevant prior knowledge.

Transfer is affected by context of original learning; people can learn in one context, yet fail to transfer to other context. This result if the information to be transferred sometimes differs to the original information (Bransford, 2000).

According to Bransford et al. (2000:78), transfer across contexts becomes simple if learning is taught in multiple contexts. Another situation of application of knowledge depends on whether there are examples and demonstrations to apply the learned skills and knowledge. On the other hand, Haskell (2001:29) states that "often a change in context, though the learned task is exactly the same, may result in a lack of transfer" of knowledge. This happen if the concepts learned is applied in a to some extent different situation.

According to IdeaPivot (2002: online), context is critical to human mental function. According to Haskell (1987: 29) information is welded to the place where it is learned because the physical place provides cues necessary for retrieving the learning.

2.4.2. Time to learn

Time plays a very important role in learning. Anyone can be taught anything, given good teaching and learning time (Jansen & Christie, 1999:83). Therefore adequate time for learning is needed if one is to transfer knowledge from one setting to another. The age and prior knowledge of the learners need to be considered. The time allocation to learn concepts need to be in direct relationship with the age and experience of computers. This implies that transfer of learning from lectures to

educators will not be the same as from educators to students. One also needs to acknowledge that using computers requires theory and practice and therefore initial learning will assist in this case. In schools where there was never any computer lesson before, more time will be needed than in schools where there one. Time is therefore directly proportional to the amount of work one needs to learn. For example, In Grade 12, learners who pass are the ones who devote much of their time to study. Insufficient time of learning leads to memorizing and learning of fragmented facts which do not form any coherent meaning to people (NSF, 2002:4: online).

2.4.3. Motivation to learn

The information evolution makes demands on society, which in turn transfers the demands to education (Maseko, 2002). Therefore, this demand has put a burden to educators to deal with the amount of changes in education ranging from content, methods, tools and approaches. For these demands to be met, educators need to be motivated. Moreover, the purpose of any organisation is to secure results, increase market share, improve profitability and boost quality (Holton & Baldwin, 2003). Therefore any leader's sole challenge is to get results through people. Results will only be attained through motivated people.

It is a fact that a motivated person always is willing to succeed. Holton and Baldwin (2003) emphasise that compensation and reward are linked to performance which in turn increases when it is linked to compensation and reward programs as forms of motivation to enhance performance growth and development of people. By contrast, Jensen (1998) contends that immediate rewards are not effective for creating a climate for learning transfer. He believes, eliminating threats in the workplace, setting goals, providing positive reinforcements and influence, managing students' emotions and continuous feedback are excellent sources for enhancing learning transfer over a period of time. Therefore, in schools, motivation plays a vital role in learning either intrinsically nor extrinsically. The difference in

motivation leads to the different time we devote to our books. People have different reasons as to why they are motivated and their level of achievement depends on what do you want to achieve. According to Parsons, Hinson and Brown (2001: 289), people who are intrinsically motivated achieve higher than those who are only extrinsically motivated. Intrinsic motivation exists when an individual works simply because of an inner desire to accomplish a task successfully whether it has some external payoff or value or not. This is engaging in an activity simply for its own sake. By virtue of computers serving as motivators, learning of transfer will be enhanced in education. Research suggests that transfer and motivation are mutually supportive in creating an optimal learning environment. If the learner perceives what he is learning to be relevant and transferable to other situations, he will find learning meaningful, and his motivation to acquire the skill or knowledge will increase (kidsource, 2000: online).

2.4.4. Beyond 'time on task'

Bransford et al (2000) explains that different ways of using time has different effects on learning and teaching. According to Croft (1996: IV), time management is the ability to use your time on the thing that matters. This informs us that it is important for students to know the implications of this transfer as it increases their perceptual and conceptual knowledge. When the students understand where, why and when to use the knowledge they acquired, learning transfer is enhanced and more understanding and vigour to learn are increased.

2.4.5. Managers/Principals

Previous research has found that leadership attitude (supervisory support or sanction) is the most influential factor in facilitating or hindering trainees' transfer of learning to their workplace. In schools, all major research on innovation and effectiveness shows that the principal strongly influences the likelihood of change, but it also indicates that most principals do not play instructional or change

leadership roles (Fullan & Stiegelbauer: 1991). They articulate that principals' actions serve to legitimate whether a change is to be taken seriously and to support teachers both psychologically and with resources. Noe (2002: 118) claims that managers' support refers to the degree at which managers emphasize the significance of transfer programs and the application of learned knowledge to the workplace.

Therefore, managers and principals play a critical role as transfer agents when they use their managerial skills and abilities to support and influence employee learning transfer, help training generate the outcomes of which it intended, and enhance the return their organization realizes from training investments (Holton and Baldwin, 2003: 245). Noe (2002: 118) explain that to maximize transfer educators need a high level of support. According to Holton and Baldwin (2003: 245), transfer agents are those individuals most capable of acting both as a means through which learning transfer occurs and a force capable of improving organizational transfer system. Principals need to take their fundamental competencies and apply them to improve learning transfer in their organization and facilitate meaningful change. However, this will only be attained if principals understand the different dimensions of change in education and if not they won't be able to understand the teachers' concerns and no support will come from such principals. These may include amongst other things setting of goals as a performance strategy because goals can improve subordinates performance as they provide a visible target for performance and a basis for tracking progress. In other cases, principals can also facilitate transfer through reinforcement (Noe, 2002: 119). Holton and Baldwin (2003: 254), explain that a good deal of research has established that the most effective goals are specific and focus on task-related outcomes.

2.4.6. Educators in transfer

The primary goal of education is to provide quality learning to its learners and community. The knowledge and skills of educators is a critical factor in establishing and sustaining quality education. However, there are many other factors in the workplace that can directly or indirectly affect the quality of services and influence the ability of providers to apply their knowledge and skills in the services they offer.

The primary purpose of the 'Transfer of Learning' enquiry is to share strategies and techniques that can be used before, during, and after training interventions to ensure support for the transfer of knowledge and skills to improved performance (learning) on the job (Prime II & JHPiego,2002:online). The factors for transferring learning are presented in this study. The researcher has also included a brief explanation to the factors that play important roles in the transfer of learning. It is therefore imperative for the educators to examine their work environments carefully in order to fully understand all the factors that may be affecting their transfer. For learning interventions to be successful, stakeholders must work together as partners with a common goal. While the study outlines specific actions for researchers and educators, other stakeholders like principals and SGBs can also use this information to gain an appreciation of the process and an in-depth understanding of the support and resources needed to ensure transfer of learning.

To make transfer truly effective in schools and teacher performance, educators must understand how to enhance transfer of learning in schools. In an effort to assist educators, principals need to ensure maximum support during and after transfer to ensure sustainability. Whilst educators need to be committed, their vast knowledge and experience plays an important role in achieving the expected skills and knowledge. Included, is the educators expertise and content grasp in the transfer. The acquisition of the adequate knowledge has an impact on the expected outcome. As Cormier and Hagman (1987) explains, related research in the area of problem solving has shown that the skill execution depends upon

content knowledge. This implies that both content and skill knowledge are both required to perform tasks at the level of an expert.

Furthermore, the educator's attitude plays an important role in the transfer. Wozney et al, (2006), informs us that the attitude of educators originate from amongst others, technology related training, the absence of systematic policy and planning in schools, leadership in schools, accessibility to computers and beliefs. In Malaysian research, it was found that there were a sizeable number of teachers who reported negative attitudes in the behavioural domain. The behavioural component refers to the intended behaviour with regard to computers or its use. This implies that some of the teachers did not plan to use computers even though they believed that computers were useful (Hong & Koh, Online: 2002). Moreover, the role of administration extends beyond policy to include leadership within the school. It is therefore vital that these factors are addressed because if the attitude is positive, transfer is enhanced. The educators can go an extra mile if the attitude is positive so as to ensure the maximum execution of their given tasks.

2.4.7. Content

Tomlinson, Kaplan, Renzulli, Purcell, Leppien and Burns (2002:48) explains content as, expectations we specify the students should come to know, understand and be able to do as a result of their participation in a lesson, unit of study, or a year in the classroom. Content emerges from a variety of sources with the teacher as a driving force with his own expertise. It may originate from district curriculum plans, documents as learning objectives, benchmarks, goals or learning outcomes. Textbooks play a role in determining the content even though they differ in quality in content knowledge as determined by constituency groups involved in developing standards. In contrast, Jansen and Sayed (2001) explains that in case of OBE, outcomes and patterns of learners experiences should be the criteria for selecting content. However, the teacher determines the degree to which the content seems comprehensive, coherent, authentic and relevant. It is his duty to supply missing

elements in order to improve learning. It therefore implies that the teacher's expertise in the subject matter cannot be substituted.

Transfer depends on the acquisition of relevant and adequate content. In the school settings, the principal as the manager, the entire staff and the stakeholders should be motivated to change job behaviour by ensuring the relevance of the content to be transferred. When educators see the relevance of the content, transfer will be highly enhanced in that educators will be able to relate what was learned and the application of the work. The content helps in building on previous knowledge and experiences of the participants. In any situation, educators should use many source of information to increase their knowledge and to build a coherent and rich content that will help them to ease the transfer of knowledge to their advantage. Tomlinson et al, (2002: 48), explains that without clear content a curriculum unit dissolves into a collection of disjointed activities which are unlikely to support meaningful learning across all students in the classroom. For transfer to be enhanced, correct and relevant content is required which matches the standard of the learners for which transfer need to take place. Even though context can be the same, the levels of the learners need to be considered in the design of the content. Again, provision should be made for theory and practical to be accommodated in the plan as computers needs adequate time.

2.4.8. Policy

Policy sets out a government's intention regarding certain matters that have a bearing on the common goal and welfares of people (Jansen & Sayed: 2001). It is therefore developed and implemented for reform in social service arena. Whether a policy is good, depends on its success or failures in achieving its objective. However, a policy's success depends on several factors including development and whether it was poorly conceived. Adding to the list of failure of a policy is the lack of resources, the need for consensus, ownership sharing, and clarification of accountability and evaluation of the progress. A policy dictates and facilitates

enactment of sound legislation. If there is no policy, the institutions fail to perform due to the fact that there is no yardstick one can use to enforce compliance and performance of duties. The key conditions of successful policy development were consensus on the need for change, general agreement on a vision of the future and inclusive participatory progress.

According to Jansen and Sayed (2001:121), a policy needs a committed leadership if it is to succeed. It should be borne in mind that in schools, most of the managers especially in disadvantaged communities lack computers skills and knowledge not excluding qualifications and to assist in transfer of skills becomes difficult for such managers, In this context, if the government comes with a stringent mechanisms to enforce transfer then the education of the children is in a predicament.

2.4.9. Problem representation

Helping students represent their solutions at a more general level can help them to increase the probability of positive transfer. Whilst Bransford (2000) support multiple representation of problems, Van Somerson, Reimann, Boshuizen and De Jong (1998) explains that when information is represented in different ways, it is important to teach relations between those representations because these can be hard for one to construct. According to Van Somerson et al. (1998) semantic relations and their performance characteristics are cornerstones of learning and problem solving when one uses multiple representations. Transfer is also enhanced by instructions that help students represent problems at higher level of abstraction. It is therefore important to teach learners abstract learning so that they can be able to apply their solutions to other situations not similar to the original one. When educators are taught abstraction at an HEI, it will be simple for them to apply what they have learned because they can on their own analyse the situation and come up with their analysis and interpretation as to what method and steps of transfer of knowledge and skills can one apply to enhance this process.

2.4.10. Initial acquisition of knowledge

Initial knowledge is very important for transfer only if it facilitates or enhances transfer of learning. One needs to know that when initial knowledge inhibits new knowledge, it becomes detrimental. Cormier and Hagman (1987: 23) illustrated that for effective transfer to take place, an adequate degree of initial learning is needed. From the research (NSF, 2002:4), “transfer failure” has resulted from inadequate opportunities to learn. Past knowledge is important in transfer of knowledge. However, initial knowledge can also inhibit transfer in that it can make transfer impossible, a situation referred to as ‘negative transfer’ (Bransford, 2000). Prior knowledge enhances transfer and the amount of transfer, as the educators can easily grasp the content without much explanation. One need to point out that it is true that initial knowledge can enhance or inhibit transfer. An example to illustrate the inhibit ant is when the educator cannot use the recent software as a result of the old version that one has learned. The lack of prior knowledge is illustrated by complains normally coming from learners where they complain that they have not experienced such a topic in their studies.

2.4.11. Metacognition approach to teaching

Metacognition is thinking about one’s own thinking, examining one’s own information one will see that metacognition is thoughtfulness. One is metacognitive if one has the ability to understand and manipulate his own cognitive processes. Parsons et al (2001: 422) explains that metacognition relies on a fair amount of abstract thinking; the skills engaged are highly representational and internalized. When educators possess metacognitive skills, transfer of learning will be initiated. Due to the fact that metacognitive skills improve high-thinking order skills, which includes problem solving, educators who will be engaged in transferring of skills will be well versed with how to solve problems in their respective schools. When educators are aware and in control of their cognitive aspect then this will facilitate their problem solving skills.

Once a person possesses cognition skills, he can perform tasks given to him but understanding how the task is done is another important aspect that needs more contemplation. Hartman (2001: 4) explains that metacognitive awareness is comprised of declarative, procedural and conditional knowledge as the three components that made it possible to perform tasks. Metacognitive knowledge and skills are needed for effective cognitive performance. He articulates that once an individual possesses these skills, he needs regulation of cognition to control his own learning and through this regulation; his performance in learning is increased. He further explains that to increase metacognition, the educators should promote general awareness of the importance of metacognition, improves knowledge of cognition, improves regulation of cognition and foster environments that promote metacognitive awareness Educators should model their own metacognition so that they can be able to transfer it to their students. Educators who are metacognitive aware, are able to transfer it to their learners. When learners possess metacognitive skills, they will be able to comprehend, affect acquisition, think critically, learn efficiently and solve problems.

2.4.12. Abstract learning.

When educators learn and test what they have learned; positive transfer is enhanced. Transfer across domains depends on whether the educators perceive what they are learning as continuous. Transfer, according to studies is determined by domains sharing the same cognitive elements which make learners to learn more rapidly. Included in the enhancement of transfer are domains that are dissimilar in structure but sharing common abstract structures and domains that share procedural elements.

As quoted in Bransford et al. (2000:65), Singley and Anderson (1989) and Biderman and Shiffer (1987) found similar principles governing transfer of Mathematical competence across multiple domains when they considered transfer

as declarative as well as procedural knowledge and found that instruction on abstract principles helps novices improve their transfer respectively.

According to Bransford (2000) abstract representation of events become components of larger related events. Thus the abstract representation is enhanced by the schemata if one is to think analogically. The schemata help in analogical transfer which led to induction of a general schema for the solved problems that can be applied to the subsequent problems (NRC; 1994: 43). The schemata promote memory retrieval and transfer because they derive from a broad scope of related instances than single learning experiences.

2.4.13. Active versus passive approaches to transfer.

According to Bransford et al (2000:66), it is important to view transfer as a dynamic process that requires learners to actively choose and evaluate strategies, consider resources and receive feedback. This active view of transfer is different from more static views, which assume that transfer is adequately reflected by learners' abilities to solve a set of transfer problems right after they have engaged in an initial task. Transfer assumes the role of a positive catalyst as it increases the speed and facilitates the learning of a new domain. Transfer is also increased when prompting. Again the amount of transfer is directly proportional to the direction of the attention during learning.

In addition, to gauge as to how far the students were prepared for transfer, the method of dynamic assessment should be applied. The amount of help needed to transfer is dependent on the number of prompts and types counted.

2.4.14. Understanding conceptual change

According to Mayer (2003, 205), in order to understand how learners learn, it is important to approach conceptual change from the traditional and cognitive view, namely assimilation and accommodation. Mayer explains that the traditional view

emphasizes assimilation as learning by fitting new information into the existing one. This implies that the existing concept does not change but new information is connected to it. In contrast, conceptual theory posits that learning can occasionally involve accommodation rather than assimilation. In assimilation, the students must build a new concept from the wrongly learned concept and simultaneously accommodate the newly presented information (Mayer, 2003: 205).

From a political perspective, Ball, Farr and Hanson (1989:25) define conceptual change as dealing with creative consequence, criticising and attempting to solve the contradictions which they discover or generate in the complex network of their beliefs, actions, and practices as they try to comprehend and transform the world around them.

Conceptual change is the mechanisms fundamental to meaningful learning (Limo and Mason, 2002:101). This implies that when a learner moves from not understanding how something works, to understanding it. They further explain that conceptual change is understandable when viewed from four perspectives- Vosniadou's *synthetic meaning* view, Chi and Roscoe's *misconception repair* view, diSessa's *knowledge-in-pieces* view, and Ivarsson, Schoultz, and Sâljö's *sociocultural* view. Even though it is studied from different perspectives, the basic contribution of it has been to make important contributions in learning theories and educational practices.

Conceptual change might be understood as a way of solving problem/theories amongst people. Therefore, theories can also undergo change as they struggle to explain or to reconstruct the world. When theorists find it difficult to reconstruct the world they may propose that some of the concepts in their theories be abandoned, conceived or changed. At the end these theorists may be judged to be successful, rational and progressive to the extent that they solve the problem.

According Davis (2001, Online), learning for conceptual change is not merely accumulating new facts or learning a new skill. Conceptual change in learning is

not gaining more facts or about learning new skills but it is about changing an existing concepts or replacing it so that it becomes a foundational framework where upon students use it to solve, explain phenomena and function in the world.

In reference to Physical Science Grade 11, calculations on resistors in parallel in Curriculum, Nated 550 and NCS are not the same. The reason brought forward is that in NCS, calculations were made simpler for learners to understand and solve problems. Therefore, this agrees with the conceptual change definition that concepts are changed to solve problems or to transform a theory.

Bransford (2000:70) explain that learning involves transfer from previous learning and as such one's existing knowledge can also make it difficult to learn. This can be compounded by one's coherent information brought along into the new information which causes misunderstandings. Misconceptions about certain theories and concepts make it difficult for one to understand information. It is therefore appropriate for an educator to stop probing for preconceptions as that contribute to incorrect understanding. Early concepts in subject guides improve and guides students to think and understand. Bransford (2000:71) explains that the fact that learners construct understanding based on their current knowledge highlights some of the dangers in teaching by telling. He further highlights that lecturers and other forms of direct instructions can sometimes be useful, but only under the right conditions. Therefore, educators should strive to make thinking visible and find ways to assist in conceptualizing faulty conceptions.

2.4.15. Transfer and cultural practices

Transfer of learning is enhanced by prior knowledge which educators possess by virtue of race, class, gender, culture and ethnic affiliations. Hartman (2001:38) explains that cognitive developmental theories describe cultural acquisitions as cognitions that develop in people because of society requires or emphasizes them. Therefore, culture influences on students' self perceptions. For example, self-

concepts is affected by social influences such as peers, physical considerations, physical appearance and ability and gender. To emphasize the point, during Winter-school classes, learners who attend in formerly Model C schools because of regarding themselves as attending high class schools shows a lot of confidence during questioning in class. It is therefore advisable for schools to engage in remedial and counselling to accommodate other learners' culture and practices. One of the factors in schools which causes failure may be partly the mismatch between what students have learned in their home cultures and what is required (Bransford, 2000:72). For example, in Bapedi culture, when one greets an old person, one needs to sit down as a show of respect whilst in schools, when the educator greets you, you stand up to show that you respect him. As such, the application of different cultures in schools highlights the importance of its impact on the students. However, as the conditions in schools remain as described, the students are expected to adapt to instructional programs rather than instructional programs adapting to the needs of the students.

In others, cultures show considerable similarities in the cognitive styles and often recognizable differences which are sometimes equated to deficiencies. In this context, cultural factors such as ethnic or gender stereotypes may also trigger certain teaching behaviours such as low standard of expectations, and in turn academic achievements.

Another major cultural factor that impacts on education is when the language of instruction is different from the native language used by learners. This can affect the students' ability to acquire knowledge through reading and to communicate what they learned through writing.

Consequently, cooperative learning should be used to facilitate content acquisition and highlight the impact of culture on education in order to prepare learners when they engage with different cultures either in schools or at workplaces. According to Bransford et al. (2000:73), the meaning attached to cultural knowledge are important in promoting transfer- that is, encouraging people to use what they have

learned. When people are aware that you respect their culture, they start to have a sense of belonging and trust is developed. In developing trust, transfer is enhanced.

2.4.16. Transfer between school and everyday life

The ultimate goal of school is to help students transfer what they have learned in school to everyday settings of home, community and workplace (Bransford, 2000:73). For example, for one to enhance transfer, one needs to understand the environment in which the students function. And for one to understand the student' environment, community involvement of educators need to be promoted and emphasized, for the school does not operate in isolation. For the environment and culture within and around the school influences the function of the school. However, due to the fact that the school and the outside settings differ in application of what one has learned, the context in which the learners learn should be similar to application because the difference in contexts lessens transfer. It is a fact that the schools rely on mental factors whilst the every day settings use tools most of the time but the tools without mental work will be lesser used. According to Holton and Baldwin (2003) and HRSDC (2005: Online), the content must be taught in a manner that enables learners to use it in real work situations. In addition, the use of different reasoning in school and everyday settings poses a problem for the learners. The use of abstract reasoning as compared to contextualized reasoning causes major impediment on transfer as learners cannot see similarities to what they learn in schools and its relation to application at home or work. From these perspectives, it is important to schools to based their teaching and learning on similar context so that learners can contextualize what is learned at their respective places of wok or home.

2.4.17. Change management

Change management can take many forms and include many change environments. The most common usage to the term refers to organizational change management.

Organizational change management is the process of developing a planned approach to change in an organization. Typically the objective is to maximize the collective benefits for all people involved in the change and minimize the risk of failure of implementing the change. The discipline of change management deals primarily with the human aspect of change. Change management can be either 'reactive', in which case management is responding to changes in the macro environment (that is, the source of the change is external), or proactive, in which case management is initiating the change in order to achieve a desired goal (that is, the source of the change is internal). Change management can be conducted on a continuous basis, on a regular schedule (such as an annual review), or when deemed necessary on a program-by-program basis.

Change management can be approached from a number of angles and applied to numerous organizational processes. Its most common uses are in information technology management, strategic management, and process management. To be effective, change management should be multi-disciplinary, touching all aspects of the organization. However, at its core, implementing new procedures, technologies, and overcoming resistance to change are fundamentally human resource management issues (Wikipedia, Online: 2006).

Attitudes towards change result from a complex interplay of emotions and cognitive processes. Because of this complexity everyone reacts to change differently. On the positive side, change is seen as akin to opportunity, rejuvenation, progress, innovation, and growth. But just as legitimately, change can also be seen as akin to instability, upheavals, unpredictability, threat, and disorientation. Whether

employees perceive change with fear, anxiety and demoralization, or with excitement and confidence, or somewhere in between, depend partially on the individual's psychological makeup, partially on management's actions, and partially on the specific nature of the change.

An individual's attitude towards a change tends to evolve as they become more familiar with it. The stages a person goes through can consist of apprehension, denial, anger, resentment, depression, cognitive dissonance, compliance, acceptance, and internalization. It is management's job to create an environment in which people can go through these stages as quickly as possible and even skip some of them. Effective change management programs are frequently sequential, with early measures directed at overcoming the initial apprehension, denial, anger, and resentment, but gradually evolving into a program that supports compliance, acceptance, and internalization. (Wikipedia, 2006: online)

To address these challenges, an adequate knowledge of transfer needs to be mostly acquired especially by the management. Due to the fact that most of the changes require knowledge and skills, to address fears and anxiety as one of the components of change, one needs to have an approach that will be of high standard in order to allay these fears.

2.5. Summary

The study revealed different theories of learning which were articulated from different authors. The study also highlighted factors that need to be considered in transfer of learning. The factors mentioned were studied in relation to computers. The study has alluded to factors that need to be considered in transfer of learning. In South African context, most of these factors will be highly looked into, to enhance transfer. As our country is developing, emerging factors can also be found and moreover the study focuses specifically on transfer of learning in computers in schools with educators as agents of transfer.

Chapter 3

Research Design

3.1. Introduction

This study is part of a larger inquiry into the ways in which students at the selected institution (see paragraph 3.4) are extending their learning to their places of work. This particular inquiry then focuses on the qualitative part of that study, and specifically framed against theories of transfer of learning. What is reported here then is how only that part of the study was executed, and it must be kept in mind that a parallel study was undertaken using the same population, but from within a quantitative approach.

The research design refers to the detailed plan of how a research study will be conducted. Blanche and Durrheim (1999:29) explain a research design as a framework that connects the research question and the execution or implementation of the research strategically. In addition, Merriam (2002:11) states it as a backbone of the problem to be studied, where samples are selected and data is analysed and collected. The researcher should select the correct method for data collection and analysis that is in relation with the paradigm of choice (Creswell, 1994:10). For example, when one chooses the design, the literature review from the perspective of the researcher should be thoroughly read, and gaps are looked into and combined with the experience of the subject. Furthermore, Mason (2002:142) expands the quality of a research design as to solve the research question, explaining the purpose of the research, explaining the research to the readers and representing knowledge to the people as well as investigating a phenomenon.

On the other hand, Henning (2004:33) adds that good research does not depend solely on the research design, also the researcher needs to have a broad understanding of methods and methodologies, knowledge of the theoretical framework of the research and also the latest literature; know the empirical field, the places where the study will unfold and the relevant people, places and problems that some authors talks about. Therefore, in my design to address “how educators who have completed their educational computing course are able to transfer their skills and knowledge at their place of work”, I will apply methods that are compatible with the research aims, and which will, amongst others, produce observational data required to investigate the research question.

The structured research design in this study includes an explanation of the paradigm (a qualitative research approach), the methods, data collection instruments, data analysis techniques, the literature review, measures to stabilize the trustworthiness of the study and the ethical considerations associated with the study.

3.2. The Qualitative Research Approach

Mouton (2001:161) explains qualitative research as an approach that is more concerned with research methods that describe and evaluate programmes in their natural settings. Qualitative research is descriptive and it is used to find the meanings people have constructed about a particular phenomenon (Merriam, 1988:19). Creswell (1994:5) states that qualitative paradigm regards reality as interpretive and multiple, as seen from the views and experience of the participants. According to Henning et al. (2004:9), the researcher conducts a study using this approach to understand and describe the phenomenon. Mason (1996:4) states that the aim of a qualitative paradigm is to produce data that is rich, contextual and detailed. In addition, Henning et al., (2004:5) claims that the qualities, characteristics and properties of the phenomenon are explored for better understanding and explanation.

In this study¹, a qualitative approach will be used to collect a variety of data from people that will illustrate the transfer of learning that have taken place. Unlike a quantitative inquiry, that collects data in the form of numbers and makes use of statistical inquiry, the qualitative inquiry involves multi-methods in focus, with an interpretive, naturalistic approach to its subject matter, in that it studies objects in their natural settings, attempting to ensure or interpret phenomena in terms of meaning people bring to them. Data is interpreted according to the set of criteria as practiced in a qualitative interpretive paradigm.

For this research inquiry, the qualitative research methodology was chosen because it employed interviews, backed up by observations, to determine educators' views about their experience and perceptions on transfer of learning in their own school settings. Their knowledge, interpretations, experience and interactions thus reflect the social reality in which the school operates.

3.3. The Research Methodology



According to Strauss and Corbin (1998:3), the research methodology is how you are going to collect data and use it to study social reality. Whilst a *method* is how one does his study, *methodology* refers the worthiness of the study to the society, the contribution it will make and why it is important to undertake it (Henning, 2004:36). The research approach used in this study is a basic (generic) qualitative study, which emphasises studies that are interpretive. The main focus is to understand how participants make meaning of a situation or phenomenon inductively and descriptively.

In contrast to quantitative methods, which begin with a series of predetermined categories, usually embodied in standardized statistical measures and using data to make broad comparisons, a qualitative methodology allows the researcher to

¹ A separate twin study is being conducted at the institution using the same population, but in this case, a quantitative instrument in the form of a questionnaire is used as primary source of data collection

study selected issues in depth, openness and detail, as they identify and attempt to understand the categories of information that emerge from the data. The chief reason for using such methods is that the researcher wants to listen and understand the informants, and whether they are transferring knowledge and skills in their workplace. In order to gain an in-depth understanding of the phenomenon (transfer), educators who have completed their education computing courses will be interviewed.

Due to the fact that the researcher wishes to discover in depth the transfer of learning, different methods of data collection will be applied namely interviews, observations and document analysis. The data will be inductively analysed to identify recurring patterns and common themes that cut across it. Employing the method of interviewing educators, analyzing documents and observing at their respective workplaces, will ensure that the research question is explained and researched optimally.

3.4. Selection of participants.

The participants in this study are educators who studied and qualified in Computer-based Education at the former Rand Afrikaans University or at the re-named University of Johannesburg between 2000 and 2006. All graduates in the Computer-based Education programme between 2000 and 2005 received a quantitative questionnaire to complete. After these were received back from the graduates, 10 were selected. The participants for the qualitative component were selected based on three factors. Firstly, graduates had to indicate that they were willing to participate in follow-up, qualitative interviews. Secondly, the graduates had to be teaching in a reasonably close radius to each other, and to Johannesburg. Thirdly, graduates who have actually been able to extend their learning to their places of work were selected.² In order to ensure rich thick

² Some graduates do not have computers at their places of work, and would therefore not have been able to extend their learning.

descriptive data, the 10 graduates will be subject to all three methods of data collection (see paragraph 3.5). The use of three methods is to enhance the credibility of the study through triangulation (Denzin & Lincoln, 2003:188)

3.5. Data collection.

A first general principle in data collection is that the inclusion of multiple data collection (triangulation) in a research project is likely to increase the reliability of the observations. Triangulation is the use of different methods of collecting data in which various techniques are used (Mouton, 2001:156). Merriam and associates (2002:12) explain that the question of the study determines the data collection strategy, that is, the researcher needs to use relevant and best sources when collecting data to answer the research question.

In this study, three ways of collecting data are used. This multiple –method of collecting data is often referred to as triangulation. Triangulation is the use of multi-method to collect data (Merriam, 1988:69). The three methods of collecting data in this study will be interviews, observations and documents analysis. The aim of using these three methods is to cover the short comings of each method and improving credibility. The detailed description of each data collection method follows.

3.5.1. Interviews

The use of interviews is the common recognized forms of qualitative research methods. They can be described as social interaction between equals in order to obtain required information (De Vos, 1998: 298). Interviewing refers to one or more face-to-face interactions between the researcher and the participants, where the purpose is to understand the life experience or situation as expressed in their own words. McMillan (2002:262) writes that the researcher interviews to elicit

description of experiences, behaviour, opinions, and emotions in their own settings.

Most qualitative research operates from the perspective that knowledge is situated and contextual and therefore the aim of the interview is to ensure that the relevant contexts are brought into focus, and situated knowledge produced (Limo & Mason, 2002:62). In addition, Henning et al. (2004,3) states that not only context is important, but that the interview is also used to bring to attention what individuals think, feel and do. What they have to say in an interview gives their subjective reality in a structured discussion, which is guided and managed by an interview. Three types of interview are considered, namely, structured (standardized), semi-structured and unstructured (constructionist) interviews. A standardized interview is recommended in this study in order to produce information that represents reality as it is through the response of the interviewee

According to Henning et al. (2004:4), this type of interview gives a true or real subjective version of facts, opinions and feelings. Merriam and associates (2002:12) explain that structured interviews are the type of interviews where questions and their order are planned in advance. According to Creswell (2003:188) open-ended questions attempt to get meaning from the participants.

A researcher is required to ask questions to informants to probe areas that arise during interviews. Probing questions are designed to encourage informants to go more deeply into the topic, and they can be used to reshape the direction of the interview segment (Hatch, 2002). Questions of meaning, understanding and process are appropriate for qualitative research. The researcher believes structured (face-to-face) interview with selected educators will obtain an in-depth understanding of the phenomenon (transfer of learning).

The best way of gathering information from educators is to use structured interviews, asking the same questions focusing on attitude, knowledge, skills and behaviour changes in educators. Educators will be asked questions like:

1. What motivated you to enrol for this course?
2. What did you learn in the course that you found valuable for you at school?
3. How do you now teach differently after doing the course?
4. Were you able to apply what you learned in the course in your school?
5. How did other teachers at your school benefit from you doing this course?

According to Merriam and Associates (2002: 53), a standard interview is used to give real and true subjective version of facts, opinions and feelings. The researcher believes that such questions will yield information that represents reality as it is, through the response of the participants.

By asking questions, the researcher will be trying to find the 'reaction' of the educators to the knowledge and skills they had acquired at the University of Johannesburg. Evaluation of participants' reactions consists of measuring their feelings; it does not include a measure of actual learning (Boverie, Mulcahy & Zondlo, 1995: online). In contrast to quantitative study that uses questionnaires to extract information from participants, in this study interviews will be used as a method to extract information from the participants as this is a qualitative study. In this instance the participants will only be educators. According to Kirkpatrick (1994), evaluating reaction is similar to measuring customer satisfaction. Therefore, for any training to be effective, it is vital for educators to react positively to it. In this study, structured interviews will be used to evaluate the 'reaction' of educators to the training they had in computing courses at the institution under study. In our attempt to get the reaction of educators, Sir Kirkpatrick's model will be used to elicit more information from the educators.

One measures training for several reasons. Kirkpatrick explains that evaluating training gives valuable feedback to evaluate the program and suggestions for improving the future programs. In addition, it will help educators to improve their learning and where to improve their instruction. These can be done by drawing consistent interview tool (sheet) which Kirkpatrick referred to it as 'happiness

sheet'. The aim of using the interview tool is to help a researcher to analyse properly. The following guidelines as proposed by Kirkpatrick (1994:28) will help the researcher to evaluate during the interview:

1. Determine what you want to find.

The aim of an interview is to get the reactions of both the subject (transfer of learning) and the educator. The researcher wants to get the educators' reactions to one or more of the following; the facilities (computer labs, computers, and so forth), the schedule; audio-visual aids, handouts, the value the educators place on individual aspect of the program. In this instance, the researcher will be asking knowledge and attitude of educators about the course they have attended.

2. Design a form that will qualify the reaction.

It is imperative for any researcher to design an interview sheet that will provide adequate feedback. Kirkpatrick informs us that an ideal form should provide maximum amount of time and it should require less time to complete. This is done to enhance participation by educators because if the form becomes too long to complete educators may tend not to be involved. Therefore the purpose of the form should be to serve the idea on which it was designed. In this study the form will be designed to ask questions that will solve the question under study. This form will be designed as simple as possible.

3. Encourage written comments and suggestions.

Due to fact that interviews will be conducted, the ratings will not be catered to give the full reactions of educators. The researcher will be asking open-ended questions to get more comments and suggestions from the educators.

4. Get 100% immediate response.

As interviews are arranged and an agreed date set, the researcher believes that a full participation by educators will be achieved and the expected percentage will be attained.

5. Get honest response.

It is meaningful to know who made the comments in an interview sheet so that reference can be made in case one needs to make a comment or suggestion relative to the comment. Due to ethical considerations, the naming of people will be made optional.

6. Develop acceptable standards.

Ratings will be used in some instances to establish a standard of acceptable response. The following example will be used to showcase the interview of 10 educators.

During the interview, data were transcribed. From the transcripts, using inductive reasoning knowledge and skills on transfer is described and interpreted. The gathered data from the interview is analysed and discussed in chapter 4.

3.5.2. Observations

An observation means to see and to use other senses in your research (Henning et al., 2004: 82). This is one of the favourite ways of gathering material about the social world. Merriam (1998b:264) regards observation as a tool when it done purposefully in the planning of a research to record data and to control validity and reliability. Limo and Mason (2002:85) add that other reasons of using observation are epistemological and ontological perspectives as people interpret social reality

differently. This method views broad patterns of data on the surface and it conceptualises the researcher to answer questions appropriately and address ethical matters adequately. Observational techniques view data as natural and situational and extracted through contextual settings.

The purpose of using observation as another data collection method in study is to limit flaws and enhance whether transfer of learning in schools is taking place. For our study, in evaluating learning, we will refer to Sir Kirkpatrick Model as a guideline. According to Kirkpatrick (1994), evaluating learning means determining; the knowledge learned, the skills developed or improved or attitude changed. As such, measuring learning is time consuming and difficult. There are four guidelines to evaluate learning:

1. Use of a control group
2. Evaluating knowledge, skill, and/or attitude both before and after the program. Use a paper-and-pencil to test knowledge and attitudes, and use performance test to measure skills.
3. Get 100 percent response
4. Use the result of the evaluation to take appropriate action.

In this study, the researcher will be using guideline 2 above (to evaluate learning) as interviews were used to test knowledge and attitude in educators, observations will be used to measure skills. The researcher will observe educators using computers in their schools to teach or teach using computers. The whole environment will be observed, the number of computers, children, average length of the time using computers, organization of the classroom, equity issues, social impact of computers, lesson preparations, design principles, educator timetable, allocation of subjects and computer subject policy.

3.5.3. Document analysis

Another method of collecting data for qualitative studies is reviewing documents. Documents are any written or computer generated relevant information (McMillan, 2000:263). They can be almost anything written or printed, such as books, school budgets, committee minutes, memos, letter newspapers, diaries, test scores and books. The researcher usually finds existing documents that have been produced, but occasionally a researcher asks participants to keep records or narratives as a way or producing documents. A document is written or created as a natural outgrowth of the situation. The common use of documents is to verify or support data obtained from interviews or observations. The other use of documents is to verify or contextualize or clarify personal recollections and other forms derived from interviewing and observation.

This study will use documents to verify whether transfer of learning is taking place amongst educators by looking at subjects, specializations and period allocations. To that extent, documents such as committee meetings and minutes will also be looked into to ascertain the extent of the transfer. They will be scrutinized and a report is compiled and analyzed.

3.6. Data analysis

Data analysis is a process where information is collected, sorted and formatted and constructing meaning out of the text (Creswell, 1994: 153).

According to Henning et al (2004: 127), data analysis is an ongoing, emerging and repetitious or non-linear process. She further explains that before analysis of data, data are transcribed which means that data in a form of audio-recording from interviews, observational notes, and documents are typed into a word processing documents. The researcher breaks up data into manageable themes, patterns, trends and relationship. The transcripts are analysed manually by organising, reducing and describing. As explained that analysis means to break up data into

bits and pieces, we say you are 'coding' or categorising the data. Data is broken down in order to be classified.

The researcher creates concepts from the data classification which is guided by research objectives and connections are made between concepts. These concepts provide the basis for the analysis. This is done to ensure that data is rich, thick and descriptive. Once data has been classified, regularities, variations and peculiarities are examined and patterns identified, correlation or relations between different categories may be studied and a picture of data may be built, which will be both clear and complex. The aim of analysis is to understand various constitutive elements of one's data through inspection of the relationship between concepts, constructs or variables, and to see whether there are any patterns or trends that can be identified or isolated, or to establish themes in the data (Mouton, 2001, 108).

The aim of a qualitative data analysis is to change words into ideas, and that the analysis is ultimately concerned with human situations and social processes. Henning et al. (2004:128) explain that one of the aims of data analysis is to describe both data and the objects of data.

Data collected using these data methods is to ensure validity and reliability to the information collected, captured and coded using open coding codes. Data collected will be collated and combined to form a coherent and readable data analysis. Then the data will be categorised and connections will be made between the found concepts and new descriptions will be formulated.

This study will follow the procedures outlined above to make everything clear and procedural.

3.7. Preparing data

After the completion of collection of raw data, data will be meaningfully analysed so that a clear interpretation is used by the researchers. In this study, data analysis

will be done according to Tesch's method (Creswell, 1994: 155). Tesch's method of reducing information to themes and categories involves several steps where transcriptions with educators about their experiences and field notes will be analysed. In addition, Miles and Huberman (1994) claims that reducing data is the initial step in analysis of data. The researcher will first organize the collected raw data, and then transcribe it into written format, according to the researcher's needs. The theme and categories identified through data analysis will be compared with the relevant literature in order to highlight similarities and differences between the research and other studies on this topic. This enhances the describing principles and guidelines for educators to effectively implement transfer of learning in their schools.

3.8. The literature review

One of the main reasons conducting a qualitative research is that the study is explanatory, not much has been written about a topic and the researcher seeks to listen to informants and to build a picture based on their ideas (Creswell, 1994:20). Henning et al. (2004:27) stresses that literature is used to structure the research and locate it in a study.

According to McMillan (2000:48), the purpose of the literature review is to relate previous research to the problem under investigation. The review provides the link between the existing knowledge and the problem that is being investigated. Knowledge of literature contributes to the credibility of the research. Literature not only helps the researcher to find focus for the topic, but also informs the research design and interview questions referring to the research under study, the theoretical framework of what 'transfer of learning' is provided in chapter 2. The literature study will only be used in the research method to frame the inquiry. Other specific purposes of literature review as stated by McMillan (2000:28) are developing hypothesis, refining the research problem, identifying the relevant

method techniques and extracting new information. The detailed literature review was conducted in the preceding chapter.

3.9. The trustworthiness of the Research

Table 3.1: Comparisons for judging the quality of quantitative versus qualitative research.

Criterion	Quantitative approach	Qualitative approach
1. Trustworthiness	Internal validity	Credibility
2. Applicability	External validity	Transferability
3. Consistency	Reliability	Dependability
4. Neutrality	Objectivity	Confirmability

This research is based on the criteria described in 3.2 above with reference to the qualitative study. The notion of objectivity in qualitative research is found in the notion of trustworthiness. Trustworthiness implies maintaining neutrality on the findings or decisions in a research (Babbie & Mouton, 2001:276). It implies persuading audiences that the findings of a study are worth paying attention to or worth taking account of. Whilst a quantitative study cannot be considered valid unless it is reliable, a qualitative study cannot be called transferable unless it is credible. As explained, Lincoln and Guba (1985:300) identified a set of criteria for judging trustworthiness that compares quantitative and qualitative studies as follows:

3.9.1. The credibility of the findings

Credibility is defined as the extent to which data, analysis and conclusions are believable and trustworthy (McMillan, 2000:272). In contrast to the quantitative research that uses instruments that measure what they are suppose to measure, in a qualitative research, the researcher is the primary instrument for collection of

data. It is therefore very important for the researcher to check and demonstrate that his research is credible.

Based on this study, which is interpretive and inductive, the researcher has accessed accurate data in transfer of learning and the researcher acquired enough knowledge in determining credibility. The use of triangulation was one of the methods to achieve credibility. It is the effort and the ability of the researcher that plays an important role in the credibility of the research. As such, the researcher has attempted to meet this criterion in achieving credibility.

3.9.2. The Reliability / dependability of the Research

In quantitative research, it refers to the extent to which the obtained scores may be generalised to different measuring occasions, measurements/ test forms and measurement/test administrators (Welman & Kruger, 2001:139).

In qualitative research, there is no credibility without dependability; this means that if the inquiry was to provide audience with evidence that if it were to be repeated with the same or similar respondents in the same context, its findings will be similar (Babbie & Mouton, 2001:278).

As the researcher is the primary instrument for data collection, through training and practice, he/she can become reliable. Dependability of documents can be assessed through various techniques of analysis and triangulation. The use of multiple methods is also a strategy for obtaining consistency and dependability data as well as data that are more congruent with reality as understood by participant. The use of multiple methods is also a strategy for obtaining consistency and dependability data as well as data that are more congruent with reality as understood by participants (Merriam & associates, 2002:27). In this study, is applied to maintain consistency and compensate for any flaws from each method.

3.9.3. The transferability of the findings

In quantitative research, one can generalize from a random sample to a population which is contradictory to a qualitative research where a small sample is selected precisely by the researcher to understand the phenomenon in-depth, not to find out what is generally true for many. Therefore in a qualitative study generalization is thought differently and referred to as transferability.

According to Babbie and Mouton (2001:277), transferability refers to the extent to which the findings can be applied in other contexts or with other respondents. Transferability lies in the contexts. What is learned in a particular situation can be transferred to similar situations that are subsequently encountered. The findings of this study can be transferable to other studies. This study will be important to educators, institutions, academics and educational departments. It will be accessible to those who deemed it necessary. McMillan (2000:275) emphasise that transferability is on how well the data is categorised, analysed and how patterns are described and how well the researchers can understand findings so that they can be used in other settings. Therefore, this study has alluded to those requirements as explained.

3.9.4 The Confirmability of the findings

Confirmability is the degree to which the findings are the product of the focus of the inquiry and not the biases of the researcher (Babbie & Mouton, 2001:278). They elaborated that to conduct confirmability audit trail means reviewing six classes of data namely:

- ✓ raw data
- ✓ data reduction and analysis products
- ✓ data reconstruction and synthesis products
- ✓ process notes
- ✓ material relating to intentions and dispositions
- ✓ instrument development information.

The findings, according to Zhang (2004:21), should be the product of the focus of the inquiry and not the biases of the researcher. In this study, the researcher ensured that the data, analysis and interpretations support each other.

3.10. Ethical considerations of the research.

A good qualitative study is the one that has been conducted in an ethical manner. The essential purpose of ethical research planning is to protect the welfare and rights of the participants, although there are many additional ethical considerations that should be addressed in the planning and implementation of research work (Blanche & Durrheim, 1999:65). For example, revealing information of the participants without the approval is violation of their rights. Therefore, to comply with the ethical standards, the researcher will:

1. Respect the dignity and rights of the participants.
2. Consider the principle of reliability and validity in all aspect of the research.
3. Ensure anonymity and confidentiality of the participants.
4. Ensure that the findings and conclusions are available to those who need them.
5. The principle of informed consent should be given to all participants and that the withdrawal is any time

3.11. Summary

This chapter dealt with the research design and methodology. The basic qualitative study was used to explain in detail what and how the research will be conducted showing its relevance to the study. The multi-methods (interviews, observations and document analysis) as method of data collection used, analysis and interpretations were discussed. The procedure of literature review, trustworthiness and ethics in a research were also discussed. In the next chapter, the data are analysed and research findings are made.

CHAPTER 4

THE RESEARCH FINDINGS - DATA ANALYSIS: HOW STUDENTS WHO COMPLETED THEIR STUDIES TRANSFERED LEARNING TO THEIR PLACES OF WORK

“Information technology will not only bring mass-produced information to students, but all such information will be customized to their learning styles, their cultural backgrounds, their educational interests and their academic goals” Bill Gates

4.1. INTRODUCTION

This chapter describes the findings of the case study with regard to the research question. The findings are derived from data obtained from the transcripts of individual interviews and field notes made during visits to schools and the review of educators' documents. Analysis of the data is based on Kirkpatrick's four level evaluation model, which provides a theoretical framework to help determine what data should be collected. According to this model, each level is important. Kirkpatrick (1994:21) explains that although movement from one level to another leads to increases in the difficulty of evaluation, and consumes more time, nevertheless it provides the researcher with more valuable information. These four levels of evaluation represent a series according to which programmes are evaluated. The findings are discussed and reported in the following paragraphs.

4.2. DATA ANALYSIS: HOW STUDENTS WHO COMPLETED THEIR STUDIES TRANSFERED LEARNING TO THEIR PLACES OF WORK.

According to Kirkpatrick (1994) (see chapter 2, paragraph 2.3.1.), evaluation that verifies and improves the effectiveness of transfer of learning can be conducted at four levels: Reaction, Learning, Behaviour change and Results. In this study, the researcher contends that the effectiveness of learning will be best determined

when transfer of learning has taken place. Evidence to determine the effectiveness of learning must be gathered at each level of the Kirkpatrick model.

Table.4.1. (below) represents the questions needed to be answered at each level of evaluation, as well as data collection tools that are used in answering each question.

Table 4.1: Evaluation questions and data collection tools

	Evaluation Questions	Data Collection Tools
Reaction	How did learners react to the programme?	Interviews/ Observations
Learning	How much did educators achieve?	Interviews
Behaviour	Is what was learned being applied on the job?	Interviews/Observations/ Document analysis
Results	Did the training impact on the school	Interviews

In this study, the table above will be used as an evaluation instrument in analyzing the data. The data analysis of each level is presented as follows.

4.2.1. Level One – Students’ reaction (satisfaction)

At this level, measurement is made of how students felt about the programme, in particular whether they liked it or not. Students’ reactions will show whether the programme and the course satisfied their expectations and the outcome of the reaction evaluation will inform the researcher whether the course challenged and

motivated the teachers in their training. Due to the fact that this study is qualitative, the researcher, in measuring the reaction of the teachers, will be more interested in the depth and understanding of the programme. Therefore, in his quest for understanding, the researcher measures the participants' reaction by using the interview as a data collection instrument to find the information. In this level, the researcher looked at motivation, content and prior knowledge as important factors when measuring the reaction of the teachers.

4.2.1.1. Motivation to learn

In any education, to achieve the desired outcomes, the educators need to be motivated if effective learning is to take place. The interviews conducted with educators show that they were motivated to learn in this course, either intrinsically or extrinsically, or both. For example, one said: **"I did computer literacy at RAU and I was motivated to do a BEd. Hons as well as the building of GautengOnline in my school, interest in computers and a lady from my school who told me about the course"**. Another said: **"I was motivated by one of the educators who was talking about the course"**, while another educator said: **"I enrolled at RAU, and I developed much interest and again the building of GautengOnline"**.

Whilst some associated their motivation with the course, others got motivation as a result of their job requirements. One educator said: **"I am motivated by the use of computers nowadays and the way they can design teaching aids"**, another that: **"I wanted to keep abreast with the latest developments as computers are used everywhere"**. In addition, one said: **"I was not motivated by anything except that I realized that most duties need computer knowledge for administration and facilitating teaching and learning in the classroom."** Furthermore, one said **"I was using a typewriter in my teachings and I was expected to use computers the coming year and I did not have skills and**

knowledge in computers and as a result I had to enroll for a computer- based course (FDE) at RAU to enhance my chances in teaching”

4.2.1.2. Relevant Content.

For the training to be effective and efficient, the trainees need a relevant and appropriate content that will be applied in their place of work. If the content is not relevant, transfer of learning might be compromised. In the interviews conducted, the findings shows that the students were happy with the content with relevance to the practical part. For example, one **educator** said: **“I enjoyed the course because it was easy to relate and all the programs were interesting and user-friendly”**. Other educators said: **“I enjoyed the practical part of the course”**, and **“I enjoyed the basic knowledge of the usage of computers like typing letters, sending e-mails, using internet, developing my own learning and teaching materials”**. One concluded that **“I enjoyed the practical part of it, especially *Authorware, Excel and FrontPage*, as well as computer modules”**.

However, the educators showed some discontent with the educational modules and the theory part of the course, as confirmed by comments from the educator who said: **“I did not enjoy theory especially where studying is needed”**. Others said: **“I did not like computer theory that much including educational modules” and “I did not like educational modules and I felt they were unnecessary”**.

On the other hand, most of the educators felt that other modules should have been added, with programming felt to be the most necessary: **“I thought we were going to do programming”** and: **“I thought we were going to do programming and specializes into it”**. One educator said: **“I wanted to learn programming so that it can help me in my teaching and also know how to program as computers are developing every day”**.

From the above discussions, it is evident that the students liked the practical components of the modules, and that they had developed a positive attitude to it. However, they felt that there needed to be some additions to the course programming, and a reduction of some educational or theoretical modules.

4.2.1.3. Initial acquisition of knowledge

How the students reacted to the new information they received depends on the amount of initial knowledge they had. Initial knowledge is very important for transfer only if it facilitates or enhances transfer of learning. The question, "Tell me, how you knew about computers before?" drew different responses from different educators with different learning experiences. For instance, one responded by saying: **"I knew little because I did only typing but in terms of computer software, I knew nothing"**, whereas for another: **"I knew nothing before, it was my first time starting computers"**. Others commented that **"I knew nothing before but was motivated by one of the educator who was talking about the course"**, and: **"I did not know much but I had a basic knowledge like typing"**.

Whilst others came with no knowledge, there are however educators who brought along some experiences to this course: **"I had prior knowledge before starting the course"**, or **"I attended a computer course before and I was taught MS-DOS but could not grasp anything"**. One educator had wider experience: **"Yes, I knew about computers, programmes like word processing, Excel, Pascal programming are not new to me"**

The findings from some educators, with reference to prior knowledge, illustrate those educators attending computing courses came with mixed experiences to this course. These experiences ranged from none, to irrelevant or relevant experience. As a result of the different experiences, and therefore understanding, transfer of learning would not be the same. As such, transfer of learning would be transferred at different paces to be grasped by educators ranging from hampering, less

enhancement and enhancement. Another important factor relates to the type of experiences educators bring to the course, in terms of the pace of the delivery of the content and the practical part.

The findings at Level One show that the educators come to the courses with mixed motivations to learn. The findings also reveal that the educators are happy with computer modules, especially the practical part, but it shows that they disapprove of educational modules. Again, the findings reveal that the educators have high expectations of programming as a subject to be added to the course. In addition, the educators use computers to facilitate learning and teaching. That is, the computer has been used by educators to create hardcopies as well as projected instructional materials. The results confirm that the reaction of the students towards Computer-Based Education is positive.

4.2.2. Level Two- Learning (How did they achieve in Educational Computing Course)

Kirkpatrick (1994) explains that, in this level, the participants are tested on how they achieved results in their courses. Measuring learning is more difficult and complex. In order to test a change in behaviour, the researcher needs to find out whether learning took place or not. To determine how they achieved their knowledge and skills transfer, the researcher used two data collection instrument, i.e. their (educators) results and interviews, and found through interviews that the educators held different views on how they achieved learning.

According to the individual interview conducted in terms of the question: **“What helped you to achieve?”**, two students attributed their success to “motivation”. For example, one student said: **“My motivation helped me”**, another: **“There is nothing that helped me, only motivation”**.

Other educators attributed their achievement to colleagues and group work: **“I was helped by a colleague of mine who had computer skills. She was so helpful. We had a group work and that also helped”**, and: **“A colleague from my school, whom I was attending with, helped me to cope with computers”**.

Whilst most educators attributed their success to motivation and collaboration, others felt that their commitments and prior knowledge benefited them. One educator said: **“practicing more helped me”**, whilst for another: **“Studying hard and the skills and background knowledge of using a keyboard helped me a lot”**.

In contrast, the educators interviewed felt that there were factors that made the course difficult for them. This was in response to the question **“What proved difficult?”** The two students felt that educational modules were difficult for them, and they associate this difficulty with the educational modules and the way they were taught, understood and presented: **“some of the educational modules like issues in education, were difficult as we did not understand these concepts by then”**, or **“The educational modules like issues in education proved to be difficult”**.

In addition, to the educational modules, one student felt that educational modules were unnecessary and felt that they could be removed replaced with more computer modules: **“Some educational modules are unnecessary, let the computer modules be included”**. Another student viewed the lecturers as the contributory factor to their problems, due to they way presented information, coupled with the deadlines for submission of assignments. The students viewed the method of teaching used by lecturers as inappropriate, and the due dates as inconvenient for part-time students. In addition to the lecturers, the educator cited the penalty of reducing marks for late submission by lectures as a contributory factor to poor assessment of their course: **“The only thing that proved difficult for me is the lecturers who were unable to present information as we expect,**

they used trial and error. The deadlines also were unreasonable forgetting that we are working. The other thing is the reduction of marks, if we submit late”.

On the other hand, two educators felt that there were no difficulties in this regard. They internalized the difficult concepts to be within individuals, and felt that the course was simple. It is a matter commitment and studying hard that must be added by educators. One educator, again, mentioned prior-knowledge as contributing to the understanding of the concepts: **“I can’t remember what was difficult”** and **“Studying hard and the background knowledge helped me, nothing proved difficult for me because I was a hard worker”**.

The findings in this level reveal that the students attributed their achievements to different motivations, though more to intrinsic motivation than any extrinsic motivation in their learning. Again, the findings show that the students viewed collaborative learning as a contributory factor to their achievements. However, some attributed their achievements to their own self in terms of studying and commitments. In addition, the students mentioned lecturers as factors contributing to their failures.

4.2.3. Level Three - Transfer/ Behaviour

It is important that, after the training, educators apply what they have learned from the institution to their place of work. To measure whether the students transferred the knowledge and skills to their respective schools, interview, observations and document analysis were used.

4.2.3.1. Conceptual Change in approach to teaching

On the question: **“How do you now teach differently after doing the course?”** The students held differing views regarding the computer-based course and the

way they teach in schools. They said that the course had changed the way they taught, albeit from different perspectives.

One student felt that the course had increased his skills and knowledge in teaching in general, whereas another educator said that other modules in CBE assisted him to develop knowledge in learners. For example, the student said: **“Yes, I do teach differently, the course has given me some skills in how to prepare the lesson and present it. Courses like Issues in Education, Perspectives and Globalization has helped me to teach learners to develop knowledge on their own. Learners dislike theory, therefore practical would increase competence”** The other students held the view that the course helped them to apply different methods of teaching and to teach computers in school. One educator said: **“Yes, I teach differently now, we have a program that allows every educator to have computer periods and each teaches learners according to the allocation of the computer literacy period. We teach them computers”**. The third student viewed the contribution of the course to the teaching of computers as a course, the style and approach applied to teaching: **“I teach differently as I teach computers than typewriting and my teaching has developed in such a way that it simplified my approach to teaching and I use different styles of teaching”**. The fourth student said the course taught them different programmes that facilitated their teaching and made it simple for learners to understand: **“I can now use *PowerPoint* in my lesson. When the learners see pictures and information on the screen, they learn differently. Using internet, computers and electronic photos has given them ideas of what we are talking about”**. One student cited the course as having taught different methods of teaching and ways of looking for information. It had inculcated collaborative methods as a form of teaching in the educator’s subject: **“I do teach differently as I am using internet for information and by sharing other ideas with my learners”**.

Although two teachers held the view that they still taught in the same way, one explained that he was trying to apply new methods to the teaching but that the large number of learners made it impossible for him to do so: **“I still teach the same but I am trying to apply new methods and do away with manual teaching due to a large number not all the learners have access”**. Another educator explained that even though he was still teaching in the same way, the university courses helped in teaching how to generate manuals: **“I still teach the same, but I use computer to generate manuals but not using it as a tool”**.

4.2.3.2. Application of computer in schools.

On the question of **“Were you able to apply what you have learned in the course?”** the students held different views on the application of their knowledge and skills to their schools. The data gathered reveal that they used computers to generate / facilitate teaching, as a tool in teaching and in management. In terms of facilitating teaching and learning, the educators uses computers to draw diagrams, design documents, use e-mail and the *Ms Office* Package: **“.....I teach L.O. and it has a computer section where students design documents, uses e-mail, use Ms Office package”**. Meanwhile a student said **“Yes, Ms Word for typing, write reports.....I set tests. I use Excel in compiling schedules”**. Another said: **“Yes Excel is used at school, as well as Database, I train administrators, I use PowerPoint in my lesson presentations”**. The other educator said: **“Yes, I was able to apply what I learned, like I draw diagrams, manage documents or administration, marksheets, and question papers”**.

On the issue of teaching, the interview revealed that only two educators use computers for teaching: **”I use PowerPoint in my lesson presentations”** and **“.....I teach L.O. and it has a computer section where students design documents, uses e-mail, use Ms Office package”**.

On the issue of management, the interviews revealed that computers were used to manage documents, write reports and minutes of meetings, as well as for administration: “....., **write reports, minutes of the meeting as I am an HOD**”

4.2.3.3. Obstacles of computer applications in schools

Contrary to expectations, some of the educators said that they were unable to apply the knowledge and skills they learned from UJ. The educators reveal that the problems lay in the following contextual factors:

4.2.3.3.1. Infrastructure

The researcher observed that in all the schools visited, the computer room setup was uniform among schools, in part because *GautengOnline* computer laboratories were built according to set specifications. These laboratories were constructed by the Department of Education to make computers available for learners and to bridge the digital divide in schools. All the laboratories had 25 computers networked (one used 17 inch monitors for the educator, 24 used 15 inch monitors), with one networked printer, one VCR, one DVD player and an 84 cm television(www.gautengonline.com). The laboratory had two air-conditioners to keep the room cool and the laboratories could accommodate 24 learners in each interval.

However, the design of the laboratory did not accommodate learners with disabilities. When the computer laboratory was designed, it was meant for learners in ordinary public schools. Again, the number of learners registered in a school was not considered because the laboratory built in a school with a total of 500 learners would be the same as for a school with 2000 learners. This created a problem, as learners could not access the laboratory at frequent times, as compared to others. Furthermore, the chairs and desks were meant for older students. The researcher saw the primary learners finding it difficult to operate

computers, as compared to older learners. The design of the laboratory did not take into cognizance the age of the learners, as the design was the same for primary and secondary. The Department of Education was using an “*All size fits all*” policy in their attempt to address the problem of computer literacy.

The researcher observed that in some schools, a number of the computers were not working. When the researcher asked educators about the non-functioning of computers, the response was that they had been there for a long time, with a promise from the ‘government’ that they would be fixed. This added to the problem of the number of learners who were expected to use computers in the school. However, in positive terms, the researcher observed that the components of a multimedia educational computing system installed in schools as well as the kind of softwares used were powerful enough to meet the needs of the students.

4.2.3.3.2. Policies

The researcher viewed different curricula and policies in different schools and found that the schools did not follow uniform curricula and policies. The educators taught the learners what they believed would be important and sufficient for their knowledge acquisition. The documents used were based on arbitrary criteria that they deemed fit for their own school. In some of the schools, the teachers were using some of the computer documents they received from UJ during their training. The observation revealed that the students in the same level used different programmes and policies. Importantly, the principles of NCS, which place more emphasis on learner-centeredness, the attainment of skills, knowledge, values and attitudes, issues of continuity, integration, addressing of Learning Outcomes (LO’s) and Assessment Standards (AS), learning schedules and learning programmes, were not being applied in the schools.

At an LSEN school that was visited, the researcher found only one departmental subject policy that was used and relevant to LSEN schools. However, the policy did not specify the lesson outcomes, assessment standards, assessment task or

the programme of assessments of the learners. The programme that was used on the day of the observation was called *Kidspiration*, which appeared sound and contextual, with learners dealing with their everyday experience. For example, on the day they were dealing with the topic: "Transport (types and effects)".

In addition to policies, the researcher observed that some schools developed their own computer laboratory policies. The educator found that in most of the schools, laboratory policies that were developed did not address some of the basic requirements expected from the learners and teachers in the laboratory. In one of the schools, educators admitted to knowing about the laboratory policy but not in its use and visibility to the students.

In other school, where the laboratory policy was developed; the researcher found that the policy did not address the ethical issues, as contextual factors experienced in the school. For example, when the researcher asked the interviewee about the problem experienced by the laboratory educator, the response was: **"The only problem I have is of learners who steal earphones and mouse and sometimes they come with disks infected with viruses and this cause the computers not to function properly"**. The researcher found that these concerns and threats to computers were supposed to be addressed in the laboratory policy drawn and be made visible to the students. Again, in some of the schools where laboratory policies were drawn up, they were duplicated from other resources that were different from the school in question. In terms of problems experienced, they did not show the concerns similar to the one experienced in the school visited. The policies did not address contextual factors, for example, theft, viruses, as experienced in the schools observed and the researcher found that whilst the schools were experiencing problems such as theft, inclusivity, crime, invasion of piracy, software piracy, viruses and copyrights, their policies were lacking in ways to address these problems.

4.2.3.3.3. Issues of equity, gender, accessibility

The researcher found that in some of the schools visited, the timetable was not drawn up, and the schools were told that the computer laboratory was not in the curriculum. As a result, the learners visited computer laboratory during their own time which made it difficult for equal access to the laboratory. This posed a problem to the learners as the older ones visited the computer laboratory more often than the smaller ones, as the latter are subject of victimization and bullying. In other schools, the researcher found only a Grade 12 timetable, and the interviewer was informed through the interview that the laboratory was used only by Grade 12 students.

During observation, the observed educator was having difficulty with logging on for the learners, and it was clear that the learners were not using the computers on a regular basis. Due to frustration, the educator confessed that even the grade 12 timetable was not functional, as the management gave instructions that the laboratory was not for curriculum purposes. This implied that the computer laboratory and the computer subjects could not be allocated to teachers in the timetable, or as part of teaching and learning. The Department of Education had not made provision for teachers to teach computer subjects when they constructed the computer laboratories. The researcher therefore concluded that the issue of equity was not being addressed in some of the schools.

None of the schools appeared to be addressing the issue of gender equity. The researcher observed in all the schools that, during the lesson on computers, there was a large disparity of gender, with in most cases male students exceeding female students. The educator observed that the learners were grouped in classes in terms of subject performance from the previous preceding (former) grade, thus raising the possibility that if a particular learning area is favoured by one gender, this would be perpetuated in the computer class.

On the issue of accessibility, the researcher found that the learners with barriers to learning had special schools that they attended. In schools visited, the researcher found that learners with disabilities were not catered for. There is still discrimination in schools, because provision of learners with disabilities is not made for such learners. The observer found that for learners to attend special schools that cater for them only is discriminatory in itself. These schools are not having inclusive policies in place to cater for such learners.

Most schools visited mentioned that they had drawn an inclusive policy following a mandate from the government, but they did not use it because they had no disabled learners. The LSEN School that was visited had two computer laboratories, but the researcher used one laboratory for observation. This has made provision for the learners with barriers and special equipment had been provided for learners with disabilities, for example switches and a joystick. The timetable revealed that all learners had equal opportunities to visit the computer lab.

The educators felt that the lab was accessible to them, but conditionally: **“I was not able to apply it fully because of the accessibility of the lab”**. The other educator confirmed this by saying: **“The person in charge is an HOD with no computer skill. He controls the computer laboratory and he has the keys and when we ask her for the keys she gives us but she always leave early and we don’t prepare using computers because access depend on her”**. In some of the schools, due to lack of human resources, they were initiating means to ensure that the learners received computer courses. Therefore, in one of the schools, the observer noted that learners were expected to pay a certain amount of money in order to pay the hired tutor. The computer literate educator monitors then hired a tutor. Those who could not afford to pay were not allowed to receive computer lessons.

4.2.3.3.4. Instructional practices

The researcher observed that in schools where computers were in the curriculum and taught, the preparation of lessons was taking place. The researcher found that there was a link between lesson preparation and curriculum integration. The observer found that where there was no computer lesson taking place, educators have not prepared. In terms of the LTSM, the researcher found that the educators were the ones who had materials to supplement their knowledge, but the learners did not possess those materials.

In the case of support, the researcher found that educators had not been visited by officials to monitor computer implementation or lesson presentations. The only related computer visits were for technical related problems. The computer laboratories were arranged in rows and educators taught by moving around the rows, using “show and tell” as a means of teaching. The learners were given activities at the end of the lesson and sometimes homework to complete, albeit largely theoretical as they did not have computers at home. The activities were authentic to their real life, as they were designed to teach them to solve their own problems using computers, such as typing a CV, writing letters, doing presentations and calculating their budgets.

4.2.3.3.5. Curriculum Integration

In this era where change is occurring at a fast rate, the educational institutions often make mistakes by giving little consideration to educational matters when installing computers. What type of computers to buy, where to place them, what kind of software to buy, whether networked or not, is done in a haphazard way and decisions are not certainly made. An example of this is in schools where the GautengOnline laboratories were found. There was no curriculum that was being followed, as the computers were not integrated into the teaching and learning of the school.

The absence of a systematic policy and proven planning can also impede teachers' efforts to integrate computers into the classroom (Cuban, 2000; Morton, 1996). Therefore, the schools used their own subject curricula and the issue of integration could not exist as there was no uniformity or proper subject policies used. The researcher found it difficult to specify the learning areas addressed as integration could not be specified in their preparation. The teachers did not sit down and plan the ICT lessons in schools as there was no committee on computers, and the issue of specialization in computers was not considered because computers were not part of the curricula.

4.2.3.3.6. School Management as obstacle

The educators viewed the management of the school as responsible for their inability to apply the knowledge and skills they were expected to transfer. This was evident from one of the educator who said: **“.....They are not giving us permission to use computers”**. They associated the management with lack of skills, nepotism and lack of recognition for their achievements, and another, quoting the principal: **“The principal said, ‘one person should know the security code of the lab and if the HOD is not coming, there is no access’. The qualifications are not considered”**. In addition, another one said: **“No, I am not able to be in charge because there is a lot of nepotism at school. People who are friends to the manager are given permission to use the lab even though they are not computer literate as I am”**, for another the experience and expertise of management is challenged: **“The knowledge of management impacts on us because they don't have the knowledge as to how computers can change (improve) performance and knowledge”**.

Contrary to the management as obstacles, the researcher observed that in schools where educators who were computer-literate, and occupying management positions, there was a high rate of transfer of knowledge and skills. The researcher concluded that the more the managers becomes computer literate, the more likely

transfer of learning occurs, thus resulting in a direct relationship between computer literacy and management.

4.2.3.3.7. Lack of computers and large classes considered a barrier to transfer

The educators felt that the computers allocated were not enough and this made it difficult for them to apply their skills. In some instances learners were sharing computers. In one of the schools, during computer lessons, the period of computer studies was divided into two to cater for all the learners. This was supported by comments that: **“There are not enough computers for educators”** and **“Yes, applied to a minimum because of shortage of skills”**.

In addition, the educators viewed large classes as a contributory factor to their inability to apply what they learned in their schools. One educator said: **“Huge classes make it impossible to accommodate all the learners”**. In one school, the researcher observed the learners divided into two groups with each allocated 30 minutes of the 1 hour allocated to the class. The other confirmed this by saying: **“The number of learners is more than the computers”**. The educators did not only see problems, they also come up with solutions to solve them: **“If we have more funds, we would employ teachers from SGB funds to take care of the remaining learners (supervise) when other are inside the lab”**. The Computer-Based Course had not only taught educators computer skills, it had also equipped them with management skills to solve their problems.

4.2.3.3.8. Insufficient time

The time allocated for the learning of computers in schools was not sufficient, due to some conditions in the school. The situation was not conducive for application of computers: **“We have one hour per learner per learner and they split. That is one learner uses a computer after two weeks”** To add another said **“The time**

to access the lab is not enough, I wish we have computers especially in each classroom". The other one said in reference to one of the managers **"She controls the laboratory and she has the keys and when we ask her for keys she gives us but she always leaves early and we don't prepare using computers because access depends on her"**

4.2.3.3.9. Allocation of computer-based teaching posts.

During interview, one teacher explained that the department's inability to advertise the posts for ICT-capable educators affected the implementation of computers in schools. The issue was that the computer-based teachers in schools were allocated other subjects and therefore could not teach computers. This made the transfer of learning in schools ineffective. Again, the issue of workload was mentioned as a deterrent to educators, as they could not cope with the amount of work they had. This was evident from one educator's comment that: **".....the government does not want to advertise computer-based courses to be filled by computer literate educators so that educators can work in computers on a full time basis as the workload enforces to look for alternatives"**

4.2.3.4. Laboratory Management

On the question **"Are you able to be in charge at your school?"** the researcher found that there was a direct relationship between the person in charge of the computer laboratory and the transfer of knowledge. The educators who were in charge of the computer laboratory implemented computers in their schools. This is evident from one student who said: **"Yes, I am, I am managing this computer lab. The keys and responsibility of this lab (*pointing to the lab*) are in my hands. I manage and maintain this lab. If something is not working, I call the technicians to fix it. If the problem is small, they fix it immediately but when it is big, it takes some days. The only problem I have is the learners who steal**

earphones and mouse and sometimes they come with disks infected with viruses and this cause the computers not to function properly”.

The teacher was teaching computers at the school and as a result care was taken to ensure that computers were looked after. The teacher revealed the threat exposed to computers and expressed passionate concern towards computers. Another teacher said: **“Yes access is good. I am in charge but now I am training an assistant cause the government does not want to advertise Computer posts to be filled by computer literate educators so that such educators can work in computers on full time basis as the workload enforce to look for alternatives”.** The educator was also managing the computer laboratory, however due to the workload looked for alternatives to ensure that transfer of learning was not hampered by lack of resources. The other added that the workload enforces one to delegate management of the lab to other educators as a show of passion and willingness to transfer learning to their institutions. Another educator said: **“Yes, I am in charge, we only encounter problems with GautengOnline, they take long time to solve problems, whilst they were managing the laboratory, the educator ensured that the problems in the lab are fixed to ensure that transfer of learning is effective”.**

Another educator said that the management did not appoint him, however, lack of computer literacy amongst colleagues made the school to revert to him as they did not have computer skills: **“ Yes, sometimes, the lack of management affect us because they see computer lab as a privilege. As a member of the SMT, I can manage the computer lab, draw the lab policy and implement computers into the curriculum”.** The interviewee revealed that, given the opportunity, there was an abundance of knowledge and skills to transfer to the school, as s/he revealed some of the experiences and expertise possessed.

Contrary to that, two students think they would not be able to apply the knowledge and skills to their work environment. They cite lack of opportunities as a factor that

will make it impossible to transfer what they learnt from UJ. For example one student said: **“No, I am not able to be in charge because there is a lot of nepotism at school. People who are friends to the manager are given permission to use the lab even though they are not computer literate as I am”**. The other said: **“No not in charge, there is a lot of politics in education. The person in charge of computers is an HOD with no computer skills. She controls the computer laboratory and she has the key and when we ask her for the keys she gives us but she always leaves early and we don’t prepare using computers because access depends on her”**. The researcher found that there was common ground that the managers inhibited the transfer of learning. The students said that the managers did not consider their qualifications and skills. This was also affirmed by the statement of the teacher when quoting the principal: **“One person should know the security code of the lab”**.

Summary

The analysis of Level Three reveals that the students viewed that the training of Computer-Based education had changed their behaviour and approaches to teaching. The training revealed that the educators, when given the opportunity, will be able to transfer the knowledge to their place of environment. The findings also show that factors that influence transfer are contextual and should be considered in case the educator transfers knowledge to their school.

In addition, the findings also show that the building of the computer laboratories alone without computer literate educators and uniform policies will not achieve the expected objectives of bridging the digital divide by 2015. The observation conducted has shown that the lab policies drawn are not addressing social issues affecting computers and these expose computers to the abuse of students. This will also affect transfer of knowledge and skills.

The findings reveal that schools are not considerate in terms of equity, gender equity and accessibility. The number of female students and male students differs in terms of representation, with female learners being more in numbers in most

cases. However, in terms of accessing the lab, the time-table shows the learners are given equal chances, although, the big number of learners making it difficult to transfer knowledge.

The research exposes the discrimination of students as practiced in schools by not accommodating learners with barriers to learning in schools. The findings show that educators are more focused in transfer of the subject matter only as opposed to social issues affecting computers. This is shown by one of the educator who said: **“The only problem I have is of learners who steal earphones and mouse and sometimes they come with disks infected with viruses and this cause the computers not to function properly”**. The frustrations of the educator should have been addressed in the policy which did not exist. This comments come from one of the schools where the researcher observed that the computer lab policy was not placed in the vicinity of the learners and as such it exposes danger to computers and therefore affect knowledge transfer and skills.

In terms of curriculum integration, the findings show that the subject curriculum is not addressed during lessons as there are no approved subject curriculum used by school that are uniform coupled with learning programmes, showing learning outcomes and assessment standards to be achieved at the end of the grade. The teacher observed also that the learners in one of the schools used a programme called *Kidspiration* which was the first and last programme seen in this school. In another school, the teacher uses a programme designed by the school, whilst in another school the educator uses some of the programmes from UJ to assist the teaching of computers. This evidence shows that there is no uniform subject curriculum for schools.

The teachers are not involved in the planning of the ICT as a school as expected in collaborative working environments. Due to the Department of Education's stance that computers in schools are for information, not part of the curriculum, has exposed the lack of planning and involvement of educators in ICT.

The findings show that the support from the department of education in terms of computers is alarming. The findings show that instructional practices as viewed from educators does not show continuity and integration, as educators are using their own initiative to teach learners. This will affect the quality of transfer in schools. In addition the findings reveal that the educator in management who possesses computer skills influences the implementation of computers in schools. In contrast, the research shows that the management can also hinder transfer of learning in schools.

4.2.4. Level 4- Results

Kirkpatrick (1994) explains that measuring results is the most important and difficult of the three levels already discussed. The Kirkpatrick Model used, focused on the business organizational perspective whereas the researcher is on the educational perspective, and it is not easy as the production in education is experienced after several years. We deal more with development and the time allocated for this research is too little to be used to measure results. For accurate and successful results, it is imperative for the researcher to have enough time to measure the results before the training and after the training, in order to see the impact of the training.

4.2.4.1. Benefits to teachers in schools as a result of completing the modules in CBE

In this research, the time was limited and the researcher relied on the interview to elicit information from the educators. In response to the question “**How did other teachers at your school benefit from you doing this course?**” the educators showed the expertise of application of computers as they have a lot of different uses they apply in their schools. This is shown by comments such as: “**I am offering extra classes in computer literacy at my school and some of the teachers I work with attend. I also help other educators studying in**

institutions with computers” The other said **“Most did not know about computers, and I helped them to do what they can do, like the use of features in computers, word art, preparation of files before inspection, typing minutes, tests and assignment projects. I also help them to access education portals like Thutong. I also tried to help the principal but he was less interested”**. The educator reveals that not only educators in lower levels benefit from their knowledge but also the management, if they are willing. The course does not benefit the educators who are at UJ only, it also motivates other educators to come and learn computers. This is evident from: **“I motivated four teachers who are attending at RAU. I also trained other teachers. Some are doing BEd Hons, motivated by seeing me operating computers at school”** The other educator added by saying **“I helped other teachers to do schedules in their classes because they were using manual labour and it has motivated them with some of them willing to register for the course at UJ”**. This proves that the course changes the approach to education, lessens work and serves to motivate educators. The course improves confidence of educators and the literacy in schools and helps educators to search for vast information. The influence of the computers on educators prepares them to share knowledge with others. This is confirmed by one of the educator who said: **“Educators benefited as I had extra classes for them as I am a deputy principal I gave them an instruction to remain after school in order to teach them. As I am speaking now, my school is 100%computer literate in terms of educators. I taught them *Ms Excel, Word and PowerPoint*. Also they can use Internet and I have taught them to use Internet search engines like *Google, Aardvark, Yahoo, etc*”**.

4.2.4.2. Benefits to learners in schools as a result of teachers completing the CBE modules

The same question was posed to the educators in terms of learners. The question **“How did the learners at your school benefit from you doing this course?”** The response of the educators shows the learners to benefit more as they are

taught the computers in totality. This is confirmed by one of the educator **“They benefit as I am teaching them computers daily”** The other one concur with the first educator when he said **“My learners benefit as I am teaching the computers daily”** The learners are also taught to apply their knowledge in their daily chores and to solve their problems using computers **“I help the Grade 12 to buy shares at JSE through Internet, help learners write their CV’s. Other grades like Grade 10, I helped to search for information on the Internet”**

4.2.4.3. Benefits to schools as a result of CBE

The Macmillan English Dictionary (pg.223) defined change as “to become different or to make someone or something different”. The researcher tries to find out whether the CBE course brought some changes in schools after learning. We shall cause this “technological change”. This implies that, technological change not only affect individual educators, but also the education in school and also the way information is handled within the school. Therefore, if transfer took place, the effect of its change will be applied at school. The researcher acknowledges that the decision to study the CBE course lies in educators but the implementation to evaluate the impact of learning happens at school. Therefore, the researcher in attempting to evaluate the changes in schools brought by the educators who studied the course will look at the following factors:

4.2.4.4. Planning and administration in schools

The school to function properly depends on its good planning and administration. One of the computer’s strength is the ability to record data efficiently, capture data and retain data about the educators and learners. Therefore, the educators affirm that the course has equipped them with skills to administer their work. One of the educator said that the course has taught him planning. The other one avowed **“I was able to apply what I learned like use it for administration”** The other one said **“I use computers in administration and accessing information about my**

school” She further said **“I train administrators”** The course did not equip educators with administration skills only, it has also prepared them with knowledge of transferring skills in teaching their fellow administrators.

4.2.4.5. Promoting collaboration amongst educators

The CBE course has promoted team work amongst educators in schools. Educators assist one another in accomplishing different educational tasks. This is evident from statements like **“I am the deputy principal; I gave them instruction to remain after school in order to teach them. As I am speaking now, my school is 100 % computer literate in terms of educators. I taught them to use Ms Excel, Word and PowerPoint”**

The other one said **“I also trained other educators”** The other one said **“Not only the teachers benefited but the school as a whole as I developed educators by teaching them computer skills”** The other one said **“I helped others to do schedules in their classes because they were using manual labour”** The other said **“I help them in designing reports”**. The other one said **“Most of them did not know anything about the computers; I helped them to do what they can do”**. The other one adds **“I am also making presentations for them in workshops and assisting them to make their own”** He comments further **“I am educating them on the usage of computers”**.

Whilst others are helped in accomplishing educational tasks others are helped in achieving individual tasks. This is affirmed by statements like **“I helped them to do assignment projects”**. The other one said **“I am offering computer literacy at my school and some of the educators attend. I helped other educators studying in institutions with computers”**.

4.2.4.6. Exposure to a variety of information

The way information is instantly and accurately changed, makes people to acquire immediate knowledge and skills related to teaching and learning. The schools is also benefiting in that the educators share a wealth of information with each other and assisting their students in terms of research and other related educational matters. Multimedia and web-based learning materials provide learners and educators with value-added learning experiences. Through the internet and e-mails, teachers interact with each other and share information. According to Bill Gates as quoted by Ornstein and Hunkins (pg.398) "Information technology will not only bring mass-produced information to students, but all such information will be customized to their learning styles, their cultural backgrounds, their educational interests and their academic goals" Therefore, educators will be involved with learners to ensure that they adapt transfer of learning contextually and through culture in order to arise the interest of the learners and achieve their learning goal. How effective educators use their computers in schools will enhance the learners' understanding. This is supported by statements like **"I am using internet of information and by sharing other ideas with my learners from other people"** **"I am able to search information on the internet"**. The other one said **"I also help educators access educational portals like Thutong"** **"I enjoyed basic knowledge of the usage of computers like typing letters, e-mail, internet, developing my own learning and teaching materials"**. The teachers also show that they use internet for different purposes. In contrast to using internet for only education, other educators are assisting learners in how to acquire shares though internet. The teacher explains **"I helped the Grade 12 to buy shares at Johannesburg Stock Exchange (JSE) through internet"**. These shows that Internet is providing schools with variety of solutions in solving problems as experienced in schools.

4.2.4.7. Changed approach and style to teaching

The most important aspect in education is the way one uses a good approach in ensuring that learners understand. Therefore, the course has changed educators' approach and styles to teaching. In addition, the educator also appreciate the more skills gained from this course. The educators affirm their approaches and styles by stating **“I do teach differently, the course has given me more skills in how to prepare a lesson and present it.”** The other one said **“I can now use PowerPoint in my lesson. When learners see pictures and information on the screen, they learn differently”**. The other said **“I do teach differently as I am using internet of information and by sharing other ideas with my learners from other people”**

4.2.4.8. Transfer-use of computers in subject/school

The use of computers varies from one school to another depending on the availability of resources and time. However, computers are used to manage instructional process including, planning, assessment and delivery of the content. The researcher finds that the schools use computers according to their own descriptions and situations. It is important that educators transfer their skills into their professional lives and work. The researcher discovered that the skills of computers again depend on their choices in terms of software one finds applicable. The educators due to a variety of skills gained use Ms-word the most, Ms-Excel the second most, with Ms-PowerPoint being the least used as compared to Ms-Access. The use of Ms-Word amongst others includes, typing of question papers, tests, minutes, file-dividers and personal use. The educators agree with the researcher by saying **“I am able to set tests, do assignments for learners, assist my fellow educators with file dividers, and search information on the internet and for my personal studies”** The other students view Ms-Excel as very important for their work at school in that they can calculate marks, draw graphs, compile marksheets **“In the course what was valuable to me is Excel for**

calculations of marks and drawing graphs and compiling marksheets as well as Ms-Word in writing letters and question papers” The other one said **“In the course, I learned Excel, Word”**; he further explained **“ I was able to apply what I learned like I draw graphs, manage documents, for administration, marksheets, question papers”** Whilst others appreciate the practical applications, one acknowledge the importance of theory. This lady appreciated the theoretical knowledge she received at RAU as she explained that in her job, in the school, she deals with theory a lot and she also declares that she did not like it **“The theory that I did not like helped me as I am teaching theory and practical. Things like formatting disks, I learned as theory. Ms Word and Spreadsheet are used in my school and I found them most valuable”** The other one said

4.2.4.9. Integration of computers into the curriculum

The transition from traditional teaching to teaching with computers requires a lot of expertise and transformation. It therefore, involves a shift in teaching paradigm, the way one thinks about teaching. Therefore, the CBE course has equipped educators with confidence as well as motivation to integrate computers into their curriculum. While the educators have learned how to design and apply new methods of teaching using computers, some of the schools do not afford educators the opportunities to show their expertise, educators reveal their confidence to assist schools. This is affirmed by **“As a member of the SMT, I can manage the computer lab, draw the policy and integrate computers into the curriculum”**. The other one said **“I have learned how to integrate computers in teaching and learning”** The other one said **“I learned a lot, planning and integrating computers with other subjects”**

The findings of Level Four- Results evaluation- shows that the educators noticed the changes at work brought by enrolling for the university course. The course has also brought changes to the teaching and learning in schools. It has not only

benefit educators only, learners are also gaining skills as a result of the transfer brought by educators. The findings also reveal that the course has brought collaboration and team work within schools as educators can work together with other educators and learners.

The findings also shows that the course has equipped educators with a vast knowledge and expertise as educators explained different knowledge and skills that they are applying in their different schools. The findings confirm that educators in computer based education are taught different skills that are relevant to their teaching and learning.

Again, the findings reveal that the CBE course does not prepare educators for educational use only. They can use it to accomplish their own work and complete their studies with learners to use different methods of getting information and acquiring skills during teaching and learning.

4.3. Summary

In this chapter, the qualitative research findings were reported. The collected data for the research were analyzed using Sir Kirkpatrick's evaluation Model. This model uses Reaction, Learning, Transfer and Results as the level of evaluation. Analysis of the first level "Reaction" confirms that the educators were generally satisfied with the CBE course and the training programme of used in transfer. The second level "Learning" shows that the students have acquired enough skills and knowledge by using different types of motivation to achieve. The educators have learned satisfactorily.

The third level "Transfer/ Behaviour change" has revealed that educators are able to transfer knowledge and skills in their schools when given the opportunity. The study also shows that by denying educators opportunities of transfer, transfer of learning will be difficult.

Analysis of the fourth level shows that educators noticed changes brought by CBE course in their respective schools. In the next chapter, an overview of the study, conclusion, deficiencies in the research and recommendations for further study would be discussed.



CHAPTER 5

OVERVIEW OF THE STUDY, LIMITATIONS OF THE STUDY, RECOMMENDATIONS FOR SUCCESSFUL TRANSFER OF LEARNING, RECOMMENDATIONS FOR FURTHER RESEARCH, AND FINAL CONCLUSION

5.1. OVERVIEW OF THE STUDY

The purpose of this study was to explore the transfer of learning by students from the institutional place of learning (University of Johannesburg/former Rand Afrikaans University) to the place of work. In order to pursue this study, the following research question was formulated:

How do educators who have graduated in 'Educational Computing' qualifications at the institute of higher learning transfer the knowledge and skills to their workplace? In order to answer the question, the following will be done:

- Educators, who graduated in Educational Computing courses, will be interviewed.
- Schools where computer laboratories exist and where these educators are offering computer courses will be visited to conduct observation.
- The documents of educators like computer subject policies, electronic or hard copy of tests, assignments will be analyzed.

Chapter two presented a broad review of the literature on learning transfer with a focus on the research enquiry. Firstly, the concept of transfer of learning was explored against different learning theories: Constructivist Theory, Cognitive Theory and Behavioural Theory. Secondly, Kirkpatrick's Model of Evaluation was

discussed and chosen as an applicable model for this study to determine whether transfer of learning took place or not.

In chapter three, the research design and methodology were discussed. A qualitative research approach was identified as being appropriate. The research method used in this study was a basic (generic) qualitative study, which emphasizes studies that are interpretive. The qualitative research methodology was chosen because it employed interviews, backed up by observations and documents analysis, to determine educators' views about their experience and perceptions on transfer of learning in their own school settings.

Chapter 4 presented a report on the findings of the study. The findings were analyzed against Kirkpatrick's evaluation Model. In terms of the research question ***“How do educators who have graduated in Educational Computing qualifications at the institute of higher learning transfer the knowledge and skills to their workplace?”***, the findings revealed the following:

At Kirkpatrick Level 1, the reaction of the students to the course showed that the students were positive about the course with some feeling that there should be some more additions of courses, for example Programming. The students felt that the course is important to their work as it assisted them to improve and complete their different tasks like using internet for information searching, designing reports, compiling learners' schedules, typing tests and question papers. According to the interviews conducted, the students' reaction to the questions showed that students were eager to transfer the knowledge and skills to their respective schools. The students' overall reaction to the Educational Computing course was generally good.

However, in terms of some of the educational theory modules, students showed some dissatisfaction. It was clear that the students did not enjoy the educational theory modules in comparison to computer modules.

The findings in terms of level 2 deal with the learning that students underwent. The marks obtained by the students during their computing course reveal that the students have passed the course well. In addition, the students showed that they have mastered the course content as they use computers for different purposes in the work setting. During the observations, the students demonstrated that they have learned the course as they use computers for different purposes in their respective schools.

Whilst others felt that they teach differently, two educators felt that they still teach the same. On further questioning during interview, the educator found that these educators are not given the opportunities to use computers as was possibly necessary. In terms of attitude, the findings from individual educators showed that the students had a positive view with regard to computing courses. This attitude has enhanced their learning.

Level 3 speaks about behaviour change. It became apparent that most of the students changed their behaviour in a positive way in terms of what was learned in the Computing Course. The findings from individual interviews showed that most of the students already transferred what was learned in the course to their respective schools whilst other did not. Those who did not transfer the knowledge and skills to their respective schools reveal that given the opportunity, they would have done so. For example, one student said that the management is not aware of the impact of computers to school. Again, the individual interviews reveal that the Computing Course did not only benefit the individual educator but other educators and students as well. During document analysis and observation, the researcher found that the educators have improved the professional look of their documents and assisted in the management of the computer laboratory. The evaluation at level 3 indicated that the knowledge and skills gained at UJ/former RAU has been transferred to the schools.

Finally, at Level 4 (Results/Organizational Impact) the evaluation showed that the course did have a positive impact on the organization of the school. However, due to time constraints, the researcher was not able to interview all the educators to get the results of the evaluation in other schools. According to Kirkpatrick (1996), measuring results before and after the course gives one a comprehensive idea whether the course did have an impact or not. Therefore, the results are based on the interview collected from educators, observation and document analysis of educators. Kirkpatrick reveals that two years is appropriate for measuring the impacts of an organization.

5.2. CONCLUSION

In conclusion, the study discloses that despite educators' knowledge and skills acquired in the Computing course, policies, accessibility, management in schools, lack of support, lack of finance, lack of human resources, lack of physical resources and subject curriculum remain the most barriers to effective transfer of learning from the learning institution to the work situation. In addition to the above, ethical issues affecting computers are also not adequately addressed by the educators at school level.

The study also reveals that although the students gained knowledge and skills in the Computing Course, without a conducive environment, transfer of learning will never happen. However, it was shown that the educators who had the necessary opportunities transferred their skills and knowledge to their respective schools.

The study revealed that issues of discrimination towards learners with barriers to learning are not addressed in ordinary schools and provision is not made in terms of the design of the laboratory in terms of equipments and accessibility.

5.3. LIMITATIONS OF THE STUDY

- 5.3.1. The first limitation of this study is that the results, due to the fact that the study was qualitative in nature, cannot be generalized to other educators who completed their computer studies at other higher institutions, as this case study was based on educators who completed their studies at UJ/Former RAU. These can be because the contents of their course levels and experiences differ from one university to another. However, these studies can be used to overcome other similar problems as experienced by other educators in similar situations. In addition, the problems experienced in those schools cannot be generalized to other schools where computers are taught, as problems are contextualized and a conclusion cannot be assumed to be happening to those schools.
- 5.3.2. The second limitation in this study was only aimed at one university and that these results cannot be generalized.
- 5.3.3. According to Kirkpatrick (1996), evaluation of results needs at least two years evaluation periods. Therefore, the time to conduct the evaluation period was insufficient on the side of the researcher and the funds to travel around schools served also as limitations.

5.4. RECOMMENDATIONS FOR SUCCESSFUL TRANSFER OF LEARNING

Considering the findings of the study, the following recommendations are made that would support transfer of learning:

- 5.4.1. The study revealed that implementation and integration of computers is a problem in most of the schools. The implementation of computers requires careful planning in terms of human, physical and financial resources. It is therefore recommended that the Department of Education advertises posts for educators who will teach computers in schools as the schools are experiencing a shortage of staff in terms of workload. In addition, the

implementation of computers in schools should consider the number of learners; for example, one computer laboratory for 600 learners cannot again be used for 1600 learners as some of the learners access the laboratory after two weeks and this makes it difficult for the learners to grasp and understand computer literacy.

Again, the study revealed that the repairs and replacement of accessories are taking weeks and months before they can be fixed, therefore it is recommended that finance should be made available to schools to repair obsolete and damaged computer accessories in time.

5.4.2. The study reveals that where the management is computer literate or where one of the managers is the leader in implementation process, there is a high success of integration and implementation of computers. Therefore the researcher recommends that managers in schools should have basic computer literacy skills.

5.4.3. The security of computers in schools is a concern. In most schools, the computers have been stolen. Therefore it is recommended that security be beefed-up to protect computers and improve computer literacy in schools. The children are deprived their right to quality education by this theft.

5.4.4. The policy governing the computer labs are not displayed on the walls so that the students and teachers can be able to read the rules when they enter the laboratory. The laboratory policies need to address the problems of the school as the schools are contextualized. Issues such as missing accessories, ethical issues, crime, privacy, crime, software piracy, viruses and security need to be included in the laboratory policy.

5.4.5. The support from the GDE in terms of implementation of computers appears to be lacking. There are no uniform subject policies in computer subjects that are in place that will make transfer to schools effective and efficient.

The schools are using any material they deem fit to use in their respective schools. Therefore, the GDE should ensure that uniform policies in computer subjects are implemented which includes, learning outcomes, work schedules, assessment standards, like it is happening in other subjects.

5.5. RECOMMENDATIONS FOR FURTHER RESEARCH ON TRANSFER OF LEARNING.

Due to the fact that computers are evolving at a faster rate in educational practice, there is a need to ensure that transfer of learning is researched in order to find whether the higher institutions and the corporate world are offering the same or continuous programs, so that there is continuity and learners are able to apply their basic knowledge when they enter these different entities. It is more appropriate to research the topic further with a larger sample of people including facilitators, learners and senior management to find the problems in terms of the topic researched and to highlight the problems experienced by the educational institutions as a whole and to create awareness about the topic.

Again, it is imperative for a school (institution) to value transfer before it can create conducive environment for it to happen. Thus, the perception, knowledge and expectations of transfer within an organization need to be evaluated before its commencement. Thus, research to investigate these values is proposed.

Finally, due to the fact that the study was only confined to UJ, it may not be possible to generalize from its findings. Therefore, a broader study in transfer of learning that involves all institutions in South Africa can be carried out to address what is recently an emaciated literature.

5.6. SUMMARY

For schools to offer computer-based courses, proper planning is needed. In such an instance, the subject policy from the education department needs to inform the timetable, the hours per week and the number of periods per week.

The management of the school or the School Management Team (SMT) needs to offer educators with financial, human and physical resources. It is the management of the school that should offer assistance for the effective and efficient running of the school. It is very important for the management to possess computer skills as research showed that in schools where there is a high level of computer literacy of management personnel, transfer of learning is enhanced.

For educators to transfer learning in their schools, more skills coupled with expertise is needed. Therefore, whilst the educators are more involved with transfer of learning in schools, the management and all the stakeholders should ensure that support is given to the educators. The educators need to consult the departmental policies when offering computer-based courses in schools.

The laboratory policy is the most important tool that addresses most of the problems affecting computers in schools; as a result, educators need to ensure that when drawing the policy most of the ethical issues are reflected in the laboratory policy.

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APPENDICES

Appendix A: Consent Letter

LETTER OF CONSENT FOR THE FACE-TO-FACE INTERVIEW

Dear Educator

I am a Master's student under the supervision of Prof. Duan van der Westhuizen in the Department of Mathematics, Science, Technology and Computer Education at the University of Johannesburg (UJ). I am conducting research to determine whether educators who graduated in Educational Computing courses at UJ (and formerly RAU) transfer the knowledge and skills at the schools where they are employed.

I am requesting your participation, in an interview. Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your name will not be used.

Although there may be no direct benefit to you, the possible benefit of your participation is for us to establish the factors that affect transfer of knowledge and skills in schools focusing on computers.

If you have any questions concerning the research study, please do not hesitate to call either myself or my supervisor.

Yours faithfully,

Mr L.J. Movalo
(Researcher) 072 480 1841

Prof Duan van der Westhuizen
(Supervisor) 011 489 3236

By signing below, you are giving consent to participate in the above study.

Signature

Printed Name

Date

Appendix B: Consent Letter

LETTER OF CONSENT FOR DOCUMENT VIEWING AND OBSERVATION.

The Manager/Principal

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

I am a Master's student under the supervision of Prof. Duan van der Westhuizen in the Department of Mathematics, Science, Technology and Computer Education at the University of Johannesburg. I am conducting research to determine whether educators who graduated in Educational Computing courses at UJ (and formerly RAU) transfer the knowledge and skills at the schools where they are employed.

I am requesting your permission to interview selected educators and simultaneously be an observer in your school to determine how educators who graduated in Educational Computing courses at UJ (and formerly RAU) transfer the knowledge and skills at your school. The results of the research study may be published, but the name of the school will not be published unless permission has been granted by the manager/s.

Although there may be no direct benefit to you, the possible benefit of your participation is for us to establish the factors that affect transfer of knowledge and skills in schools focusing on computers. If you have any questions concerning the research study, please do not hesitate to call either myself or my supervisor:

Yours faithfully,

Mr L.J. Movalo
(Researcher) 072 480 1841

Prof Duan van der Westhuizen
(Supervisor) 011 489 3236

By signing below, you are giving consent to participate in the above study.

Signature

Printed Name

Date

APPENDIX C

Individual Interview Questions

Semi structured interviews were conducted with individual educator who are transferring skills and knowledge to their places of work to get a depth understanding of their lived experiences as understood by them.

In this interview, open-ended questions were used. The following questions are guidelines for the questions that will be used to establish how transfer of learning takes place in schools. The purpose of this interview in this study is to produce information that represents reality as it is through the response of the interviewee. The questions will be used to answer challenges as experienced by educators. Follow-up questions will be asked in some instances to search for more information. The following questions were asked.

Questions to be asked in an interview.

1. What motivated you to enrol for this course?
2. Tell me, what did you know about computers before?
3. What did you enjoy and not enjoy about the course?
4. What did you learn in the course that you found valuable for you at your school?
5. What else would you have wanted to learn in the course?
6. How do you now teach differently after doing this course?
7. Were you able to apply what you learned in the course in your school?
8. What helped you? What proved to be more difficult?
9. How did other teachers at your school benefit from you doing this course?
10. How did learners at your school benefit from doing this course?
11. Are you able to be in charge of computers at your school? Tell me more.

12. Is there anything that you might not have thought about before that occurred to you during this interview?

13. Is there anything you would like to ask me?

Thank you for your time and participation. Your comments are appreciated

End*****End*****End



Appendix D

Transcripts of individual interview

Interviewer: “Good morning AA, How are you?”

Interviewee AA: “I am fine, thank you.”

Interviewer: “What motivated you to enrol for this course?”

Interviewee AA: (*Confidently*), in 1994, I did computer literacy at Rau and I was motivated to do a Bed Hons as well as the building of Gauteng Online, interest in computers and a lady from my school who told me about it.

Interviewer: “Tell me, what did you know about computers before?”

Interviewee AA: “I had prior-knowledge before doing Bed Hons.”

Interviewer: “**What did you enjoy and not enjoy about the course?**”

Interviewee AA: “I enjoyed the course because it was easy to relate and all the programs were interesting and user-friendly. However I did not like educational modules and I felt they should have added more computer modules. Therefore I felt some of the modules were unnecessary.”

Interviewer: “**What did you learn in the course that you find valuable for you at your school?**”

Interviewee AA: “I learned a lot, educating learners using computer generated manuals, teach subject in schools and integrating it in other Learning areas,

planning, using spreadsheets, ms-word and PowerPoint for presentations as well the use of the internet.”

Interviewer: “What else would you have wanted to learn in the course?”

Interviewee AA: “I thought I would learn something that is relevant to the corporate world but it was more of educational and again I thought we are going to do programming as well as developing our own programs and selling them on internet.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee AA: “I still teach the same but I am trying to apply new methods and do away with manual teaching but due to a large number not all the learners have access.”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee AA: “Yes, applied on a minimum because of shortage of computers. Hugh classes make it impossible to accommodate all the learners. We have one hour per learners and they split. That is, one learner uses a computer after two weeks. Time table also is a problem because it cannot accommodate them on the same day as they travel to school and so they use common transports and after school they had to leave because they are primary learners.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee AA: “My motivation helped me. Some of the educational modules were unnecessary; let the computer modules be included.”

Interviewer: “How did other teachers at you school benefit from you doing this course?”

Interviewee AA: “Educators benefited as I had extra classes for them after school as I am the deputy principal I gave them an instruction to remain after school in order to teach them As I am speaking now, my school is 100 % computer literate in terms of educators. I taught them to use Ms Excel, Word and Power point. Also they can use internet and I have taught them to use internet search engines like Google, aardvark, yahoo, etc.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee AA: “My learners, prior to me obtaining my degree, I taught them basics like switching computers, hardwares and softwares. They can also type but they are not fully skilful. They can use Encarta from the Gauteng online.”

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee AA: “Yes, access is good .I am in charge but now I am training an assistant cause the government does not want to advertise computer-based courses to be filled by computer literate educators so that such educators can work in computers on full time basis as the workload enforces to look for alternatives.”

Interviewer: “Is there anything you might not have thought about before that occurred to you during this interview?”

Interviewee AA: “No, I had an idea of what is expected as this is not the first interview from Rau even though the questions are different.”

Interviewer: “Is there anything you would like to ask me?”

Interviewee AA: “Yes, what can I do to study for M Ed?”



Appendix E

Transcripts of individual interview

Interviewer: "Hi, BB. How are you?"

Interviewee BB: "I am fine and happy"

Interviewer: "Can you tell me, what motivated you to enrol for this course?"

Interviewee BB: "I was using an electronic typewriter in my teaching and I was expected to use computers the coming year and I did not have skills and knowledge in computers and as a result I had to enrol for a Computer based course (FDE) at RAU to enhance my chance in teaching."

Interviewer: "Tell me, what did you know about computers before?"

Interviewee BB: "I knew little because I did only typing but in terms of computer softwares, I knew nothing."

Interviewer: "What did you enjoy and not enjoy about the course?"

Interviewee BB: "I enjoyed the practical part but I did not enjoy the theory especially where studying is needed."

Interviewer: "What did you learn in the course that you find valuable for you at your school?"

Interviewee BB: “The theory that I did not like helped me as I am teaching theory and practical. Things like formatting disks, I learned as theory. Ms Word and Spreadsheet are used in my school and I found them most valuable.”

Interviewer: “What else would you have wanted to learn in the course?”

Interviewee BB: “Programming, I wanted to learn it so that I have knowledge that can help me in my teaching. Also, I wanted to know how to program as computers are developing everyday.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee BB: “I teach differently as I teach computers than typewriting and my teaching has developed in such a way that it simplified my approach to teaching and I use different styles of teaching.”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee BB: “Yes, I have mentioned before that what I learned at RAU, I am able to apply at school. I was teaching computers completely in my school but due to curriculum changes, I teach L.O. and it has a computer section where students design documents, uses e-mail, use MS Office package.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee BB: “Studying hard and the skills and background knowledge of using a keyboard helped me a lot because I was able to type quickly and complete my assignments in time. Nothing proved difficult for me because I was a hard worker.”

Interviewer: “How did other teachers at you school benefit from you doing this course?”

Interviewee BB: “I am offering extra classes in computer literacy at my school and some of the teachers, I work with attend. I also help other educators studying in institutions with computers.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee BB: “They benefit as I am teaching them computers daily. I am teaching NCV-Office Data Processing. I also teach them word processing. In addition, I am also offering L.O. wherein I also teach Ms Office Package.”

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee BB: “Yes, I am. I am managing this computer Lab. The keys and responsibility of this Lab (*pointing to the Lab*) are in my hands. I manage and maintain this Lab. If something is not working; I call the technicians to fix it. If the problem is small, they fix it immediately but when it is big, it takes some days. The only problem I have is of learners who steal earphones and mouse and sometimes they come with disks infected with viruses and this cause the computers not to function properly.”

Interviewer: “Is there anything that you might not have thought about before that occurred to you during this interview?”

Interviewee BB: “Yes, as you interview me, I thought about the course I did whether it was improved or not. I told myself that if the course was improved, it will benefit many people.”

Interviewer: “Is there anything you would like to ask me?”

Interviewee BB: “Yes, why is the Dept of Education not instructing RAU to teach computers as they expect? Why is the Dept of Education not doing this research?”

Interviewer (response): “This interview is done by UJ to find out whether it is successful in terms of training its teachers in Computer-Based Education (CBE). They (Department of Education) can’t instruct RAU to teach they way they expect as they are not yet sure about their expectation in terms of ICT. In addition, the Department is not an institution of Learning and therefore it cannot conduct this research as they are not the one offering CBE”

Interviewee BB: “Thank for the response”

Interviewer: Thank you also for your time as it was worth talking to *you* (*The interview ends*).



Appendix F

Transcripts of individual interview

Interviewer: “Hi, CC. How are you?”

Interviewee CC: “I am fine and happy”

Interviewer: “What motivated you to enrol for this course?”

Interviewee CC: “The use of computers nowadays and the way it can design teaching aids.”

Interviewer: “Tell me, what did you know about computers before?”

Interviewee CC: “I did know nothing before but I was motivated by one of the educators who were talking about the course.”

Interviewer: “What did you enjoy and not enjoy about the course?”

Interviewee CC: “I enjoyed exercises which were user friendly and also the way PowerPoint was presented made the course enjoyable. I can't remember anything that was not good but the way I know everything was fine with me.”

Interviewer: “What did you learn in the course that you find valuable for you at your school?”

Interviewee CC: “In the course what was valuable to me is excel for calculations of marks and drawing graphs and compiling mark sheets as well as Ms-Word in writing letters and question papers.”

Interviewer: “What else would you have wanted to learn in the course?”

Interviewee CC: “As I did FDE, I wanted to learn more about programs like Internet and e-mail because those are some of the terms used recently as computer languages.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee CC: “Yes, I teach differently now, we have a program that allows every educator to have computer periods and each teaches learners according to the allocation of computer literacy. We teach them how to use computers.”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee CC: “The application is few, because of my learners disabilities (mentally disabled) abstract things cannot be taught.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee CC: “There is nothing that helps me only motivation and the difficult part is that others can’t read and it is difficult to teach them.”
Practicing more helped me, and I can’t remember what was difficult.”

Interviewer: “How did other teachers at you school benefit from you doing this course?”

Interviewee CC: “The teachers in my school benefited because I help them in designing progress reports. Help them when teaching students and to access information on the internet even though I am still struggling.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee CC: “My learners benefit as I am teaching them computer skills.”

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee CC: “No not in charge, there is a lot of politics in education. The person in charge of computers is an HOD with no computer skill. He controls the computer laboratory and he has the keys and when we ask her for the keys she gives us but she always leave early and we don't prepare using computers because access depends on her. The principals said “One person should know the security code of the lab” and if the HOD is not coming, there is no access. The qualifications are not considered (*looks sad and frustrated*)”

Interviewer: “Is there anything you might not have thought about before that occurred to you during this interview?”

Interviewee CC: “No, I thought that since you are coming from UJ, I will see what you will be asking me.”

Interviewer: “Is there anything you would like to ask me?”

Interviewee CC: “Yes, what are you going to do with the information you get from me?”

Appendix G

Transcripts of individual interview

Interviewer: “Good afternoon DD. How are you?”

Interviewee DD: “I am okay, no problem”

Interviewer: “Can you explain to me, what motivated you to enrol for this course?”

Interviewee DD: “Basically money motivated me and again the way computer is evolving me motivated me a lot.”

Interviewer: “Tell me, what did you know about computers before?”

Interviewee DD: “I did not know much but I had a basic knowledge like typing letters.”

Interviewer: “What did you enjoy and not enjoy about the course?”

Interviewee DD: “The practical part of it made it enjoyable especially Authorware, excel and FrontPage. I also enjoyed more of practicals as well as computer modules and I did not like computer theory that much including educational modules.”

Interviewer: “What did you learn in the course that you find valuable for you at your school?”

Interviewee DD: “In the course I learned excel, word.”

Interviewer: “What else would you have wanted to learn in the course?”

I would liked to learn programming and specialize into it.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee DD: “I still teach the same, but I use computer to generate manuals but not using it as a tool.”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee DD: “Yes, I was able to apply what I learned like I draw diagrams, manage documents, for administration, marksheets, and question papers.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee DD: “The knowledge I gained at Rau helped me but the education modules like issues in education, proved to be more difficult.”

Interviewer: “How did other teachers at you school benefit from you doing this course?”

Interviewee DD: “Not only the teachers benefited but the school as a whole because I developed educators by teaching them computer skills, i am making also presentations for them in workshops and assisting them to make their own. I am also responsible for result analysis. I am also assisting them in Gauteng Online because the government gave them the start and I educating them more on the usage of computers.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee DD: “The learners benefited in that I am generating manuals for them, teach them computer skills and how to save their work and editing of computers.”

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee DD: “In 2005 I was in charge but due to workload I have delegated as I am in the management as an HOD and accessibility in my school is enough but computers are not enough for the learners.”

Interviewer: “Is there anything you might not have thought about before that occurred to you during this interview?”

Interviewee DD: “When you told me about the interview I appreciated it because I did know that the university is making a follow up but I did not expect to be asked on some of the questions.”

Interviewer: “Is there anything you would like to ask me?”

Interviewee DD: “I just want to ask you that what the requirements for M ed. are and when the registration will close?”

Appendix H

Transcripts of individual interview

Interviewer: “Hello EE. How are you?”

Interviewee EE: “I am all right”

Interviewer: “I am also fine, can we start our business? *(Referring to the interview)*”

Interviewee EE: “Yes, we can start.”

Interviewer: “Tell me, what motivated you to enrol for this course?”

Interviewee EE: “Firstly introduced to computers by the union and I became interested after an imbalances in performance. It told us that in the near future schools will have computers and I trained at Unisa and the certificate was not recognized by the Dept of Education. I then enrolled at Rau, and I developed much interest and again the building of Gauteng Online motivated me more.”

Interviewer: “What did you know about computers before?”

Interviewee EE: “Yes, I knew about computers, programs like word processing, excel, Pascal programming are not new to me.”

Interviewer: “What did you enjoy and not enjoy about the course?”

I enjoyed interaction with PowerPoint, FrontPage. I did not enjoy the theory part. I am not a person who likes studying, I like practical.”

Interviewer: “What did you learn in the course that you find valuable for you at your school?”

Interviewee EE: “How to use computers, teaching with computers, integrating computers in teaching and learning, using computers for personal gain, formulas, mark schedules and reports, database for the whole school, manipulation of databases, administration and accessing information about my school.”

Interviewer: “What else would you have wanted to learn in the course?”

Interviewee EE: “I wanted to learn Networking, because I used to have a problem in networking computers at my school. You find that I can’t use the printer. I feel network knowledge is needed.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee EE: “I can now use PowerPoint in my lesson. When the learners see pictures and information on the screen, they learn differently. Using internet, computers and electronic photos has given them ideas of what we talking about. Actual pictures have given learners a clear picture of what we are talking about.”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee EE: “Yes, excel is used at school, as well as database, I train administrators, I use PowerPoint in my lesson presentations.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee EE: “Practicing more helped me, and I can’t remember what was difficult.”

Interviewer: “How did other teachers at you school benefit from you doing this course?”

Interviewee EE: “I motivated 4 teachers who are attending at Rau. I also trained other teachers. Some are doing B Ed Hons, motivated by seeing me operating computers at school.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee EE: “Most of the Grade 4 can use computers because I teach them. I also a part time tutor, as such I gained more experience and this has benefited my learners. Again, we do have computer periods for Grade 4 and 5 where children go to the lab and be taught. The period runs for 1 hour every day.

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee EE: “Yes, I am in charge, we only encounter problems with Gauteng Online, they take long time to respond to problems in the Lab. Again, the time to access the lab is not enough. I wish we have computers especially in each classroom. The number of learners is more than the computers. The learners share computers. If we have more funds, we would employ teachers from SGB funds to take care of the remaining learners (supervise) when others are inside the lab.”

Interviewer: “s there anything you might not have thought about before that occurred to you during this interview?”

Interviewee EE: “No”

Interviewer: “Is there anything you would like to ask me?”

Interviewee EE: “No”



Appendix I

Transcripts of individual interview

Interviewer: “Hello FF. How are you?”

Interviewee FF: “I am all right”

Interviewer: “Could you tell me what motivated you to enrol for this course?”

Interviewee FF: “I wanted to keep abreast with the latest development as computers are used everywhere.”

Interviewer: “Tell me, what did you know about computers before?”

Interviewee FF: “I attended a computers course before and I was taught Ms Dos but could not grasp anything.”

Interviewer: “What did you enjoy and not enjoy about the course?”

Interviewee FF: “I enjoyed nothing because we were doing anything, with no specialization. If we were doing one particular aspect, it was going to be better because what we did is difficult to use it outside school.”

Interviewer: “What did you learn in the course that you find valuable for you at your school?”

Interviewee FF: “I am able to set tests, do assignments for learners, assist my fellow educators with file dividers, and search information on the internet and for my personal studies.”

Interviewer: “What else would you have wanted to learn in the course?”

Interviewee FF: “I wanted to learn how to simplify my work as a teacher, and not to rely on administrators, how to make certificates and more of Authorware so that we can use it at school.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee FF: “Yes, I do teach differently, the course has given me some skills in how to prepare a lesson and present it. Courses like issues in education, Perspectives (course) and globalization has helped me to teach learners to develop knowledge on their own. Learners dislike theory, therefore practical would increase competence.”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee FF: “Yes, ms word for typing, write reports, minutes of the meetings as I am an HOD. I can set tests. Uses excel in compiling schedules.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee FF: “I was helped by a good colleague of mine who had computer skills. She was so helpful. We had a group work and that also helped. The only thing that proved difficult for me is the lecturers who were unable to present information as we expect, used trial-and-error. The deadlines also were unreasonable forgetting that we are working. The other thing is the deduction of marks, if we submit late.”

Interviewer: “How did other teachers at your school benefit from you doing this course?”

Interviewee FF: “Most did not know anything about computers, and I helped them to do what they can do, like the use of features in computers, word art, preparation of files before inspection, typing the minutes, tests, and assignments projects. I also help them to access education portals like Thutong. I also tried to help the principal but he was less interested in learning computer skills.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee FF: “I helped the Grade 12 to buy shares at JSE through Internet, help learners write their CV’s. Other Grades like grade 10, I helped them to search information on the Internet.”

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee FF: “Yes, sometimes. The management’s lack of computer literacy affects us because they see the computer lab as a privilege. As a member of SMT, I can manage the computer lab, draw the lab policy and implement computers into the curriculum. Even though the management has not officially appointed me to be in charge, I end up being in charge due to lack of computer skills in the school amongst teachers. I am also responsible for any repairs and maintenance.”

Interviewer: “Is there anything that you might not have thought about before that occurred to you during this interview?”

Interviewee FF: “Yes, I ask myself questions like, what is he here for? but I did know that since he is coming in terms of computers, the information I am going to get will help me and It will also help me to resolve my assignment project.”

Interviewer: “Is there anything you would like to ask me?”

Interviewee FF: “No, thank you for sharing this information with me; I will use it to complete my assignments.”



Appendix J

Transcripts of individual interview

Interviewer: “Hi GG. How are you?”

Interviewee GG: “I am all fine and happy”

Interviewer: “What motivated you to enrol for this course?”

Interviewee GG: “I was not motivated by anything except that I realised that most duties needs computers knowledge for administration and facilitating teaching and learning in the classroom”

Interviewer: “Tell me, what did you know about computers before?”

Interviewee GG: “I knew nothing before; it was my first term starting computers at Rau”

Interviewer: “What did you enjoy and not enjoy about the course?”

Interviewee GG: “I enjoyed basic knowledge of the usage of computers like typing letters, e-mail, internet, developing my own learning and teaching materials using computers”

Interviewer: “What did you learn in the course that you find valuable for you at your school?”

Interviewee GG: “The thing I found valuable was the use of excel for schedules as it makes them easy and typing of question papers.”

Interviewer: “What else would you have wanted to learn in the course?”

Interviewee GG: “I have learned enough, unless if there is new programs introduced that will need us to upgrade our knowledge.”

Interviewer: “How do you now teach differently after doing the course?”

Interviewee GG: “I do teach differently as I am using internet for information and by sharing other ideas with my learners from other people”

Interviewer: “Were you able to apply what you have learned in the course in your school?”

Interviewee GG: “I was not able to apply it fully because of the accessibility of the lab. The management are not able to use computers and therefore they are not giving us permission to use computers and there are not enough computers for educators. I am of the idea that each educator should have one computer in each class.”

Interviewer: “What helped you? What proved to be more difficult?”

Interviewee GG: “A colleague from my school, whom I was attending with, helped me to cope with computers. Some educational modules like issues in education and research projects were difficult as we did not understand these concepts by then”

Interviewer: “How did other teachers at you school benefit from you doing this course?”

Interviewee GG: “I helped other teachers to do schedules in their classes because they were using manual labour and it has motivated them with some of them willing to register for the course at Rau.”

Interviewer: “How did learners at you school benefit from you doing this course?”

Interviewee GG: “The learners benefit because the more information I accessed from the Internet the more they acquire knowledge though it is not what I expect because of accessibility and I need more for them to benefit.”

Interviewer: “Are you able to be in charge of computers at your school? Tell me more...”

Interviewee GG: “No, I am not able to be in charge because there is lot of nepotism at school. People who are friends to the manager are given permission to use the lab even though they are not computer literate as I am. The knowledge of management impacts on us because they don't have the knowledge as to how computers can change (improve) performance and knowledge”

Interviewer: “Is there anything you might not have thought about before that occurred to you during this interview?”

Interviewee GG: “Yes, I thought the question asked, “What are the things that the I wanted to know during the course which I did not know before?” was difficult for me because I knew nothing before and so the comparison was difficult for me.”

Interviewer: “Is there anything you would like to ask me?”

Interviewee GG: “After telling you this information, how are we going to benefit?”