

# **AN ANALYSIS OF LEARNING BARRIERS AMONG DEAF LEARNERS IN THE STRUCTURED WORKPLACE COMPONENT OF A LEARNERSHIP PROGRAMME**

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A research paper submitted in partial fulfillment of the requirements for the  
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## KEYWORDS

Learning Barriers

Deafness

Physical Abilities

Sign Language

Situated Learning Theory

Social Interaction

Peripheral Entry

Communities of Practice

Learnership

Structured Workplace Component



## ABSTRACT

### **AN ANALYSIS OF LEARNING BARRIERS AMONG DEAF LEARNERS IN THE STRUCTURED WORKPLACE COMPONENT OF A LEARNERSHIP PROGRAMME**

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M.Ed Research Paper, Department of Philosophy of Education, University of the Western Cape.

In this research paper, guided by Prof Z Groener, I explore the learning barriers experienced by deaf learners in the structured workplace component of a learnership programme.

I focus on the learning barriers of deaf learners at work on an Information Technology learnership where the learning environment shapes and are shaped by deaf learners. Twenty deaf learners have entered during 2005 into an Information Technology: Technical Support NQF4 learnership, funded by the Information Systems (IT), Electronics and Telecommunications Technologies Sector Education Training Authority (ISETT Seta).

WESTERN CAPE

I have determined how deaf learners are faring with work and learning in a technological environment that has experienced rapid and extensive restructuring during the past ten years. The specific difficulties which they experience during their structured workplace component of the learnerships have also been defined.

I argue that when deaf learners form part of a community of practice, consisting of both deaf learners and hearing colleagues and who operate in the same area of knowledge and activity, they fare better than those who did not form part of such a community. I conclude this research paper with a link to the situated learning theory where I explain why the learner's situation contributed to their ability to learn.

**DECLARATION**

I declare that *An analysis of learning barriers among deaf learners in the structured workplace component of a learnership programme* is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Gillian van der Westhuizen

24 February 2009

Signed: .....



## **ACKNOWLEDGEMENTS**

I have been very fortunate over the three years of my graduate work to have been the recipient of support, guidance, and encouragement from a large number of friends, colleagues and family. Their generosity and wise words have helped me in innumerable ways and made my study experience both memorable and rewarding. Much of my research work was guided by Zelda Groener who supervised me, I am hopeful that her perseverance and toughness helped instill in me a few of the qualities necessary to do good research.

In typical fashion, my colleague, Louis, generously gave of his time and energy throughout my graduate program and provided me with several opportunities that would not have been possible otherwise. He challenged me to think more deeply about my work and the applicability to my studies. I also need to thank Daan for the time and effort he took to assist me with my grammar and syntax. I owe my friends and colleagues who worked and played alongside me throughout my graduating years a great deal. They made my life incredibly rich and this fulfilling experience will forever influence how I think, work, and live.

If it is true that family is the greatest influence in the life of a person, then I am indeed a lucky individual. My mother provided me opportunities and experiences that most people only dream about and her dedication to my lifelong learning has inspired me to continually look for ways to broaden my education. I am also incredibly fortunate to have the encouragement and unflagging support of my husband, Bernett, to whom I owe so much. I appreciate him for his patience with me during the long lonely nights during my studies. His unwavering support and complete faith in my abilities have been a powerful source of comfort and strength for me. As I look ahead to a new set of opportunities and adventures, I am content in the knowledge that I will be able to share them with a most remarkable partner in learning and in life. Then, most importantly, I thank my Creator for the opportunity He gave me to complete this studies.

## **GLOSSARY OF TERMS**

ISETT: Information Systems, Electronics and Telecommunications  
Technology

IT: Information Technology

NQF: National Qualification Framework

NSDS: National Skills Development Strategy

SA: South Africa

SAQA: South African Qualifications Authority

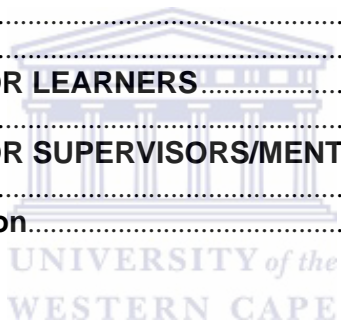
SETA: Sector Education and Training Authority

SETAs: Sector Education and Training Authorities



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## Section 1

### INTRODUCTION

The Skills Development Act (No 97 of 1998) was promulgated in South Africa in 1998 and instituted a new approach to the promotion and development of work-related skills. The vision of the Act is to establish integrated skills development for South Africa, to promote growth in employment, social development and the economy, through focusing on integrated education, training and employment opportunities. The South African Government provides training grants through its various skills development initiatives, such as learnerships, allowing learners to study at no cost. If the learners are unemployed they also receive an allowance from Government.

In 2005/2006 I was the programme manager for an accredited Training Provider<sup>1</sup> to manage a group of 100 disabled learners on an IT Learnership<sup>2</sup>. Twenty of these learners are deaf<sup>3</sup>.

The IT Learnership mentioned above is delivered in two components. The first component was the institutional learning component where the learners received theoretical training in a classroom for a period of thirteen weeks. The second component is the structured workplace component of thirty nine weeks where they did their practical learning. Thereafter the learners' skills were assessed according to an assessment strategy and schedule to determine whether they could proceed to the workplace or should receive remedial training. During this institutional learning component I supported the special needs of the deaf learners through regular visits, personal communication, follow up with facilitators and internally moderating their assessments. Communication with the deaf learners was facilitated through a sign language<sup>4</sup> interpreter obtained through the Deaf Federation of South

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<sup>1</sup> The accredited Training Provider is responsible for the Institutional Learning Component of a Learnership. See also the explanation below of terms for Institutional Learning pg2.

<sup>2</sup> IT Learnership is an information technology learnership. See explanation of terms for learnership on pg 32.

<sup>3</sup> Although hearing impaired people are usually referred to as Deaf people, the lower case 'd' is used throughout for easy of writing and reading.

<sup>4</sup> The acronym SASL normally used for South African signed language is not used in this study. In this case the use of the acronym would indicate one signed language in general use by the learners, which is decidedly not the case, as is explained later.



Africa, the writing of notes and through two of the deaf learners who were able to lip read.

The deaf learners came from different areas and schools within Gauteng. As all of the learners learned to sign in their own 'home' language, it was interesting to note that they each have unique vocabularies and structures. According to Padden & Humphries (1988:2), signed languages differ from one region to another similar to spoken languages.

As there is no official universal sign language<sup>5</sup> even in South Africa, there are currently also no official signs for most of the information systems and technology terms due to lack of access to this field in the past. As with any language, as the users grow in the new field, the language expands to accommodate new terms. The interpreter, together with the learners, had created their own signs for the IT environment. These signs are unique to the group and might not be understood by other sign language users.

An example of such a sign was the one for "motherboard" – one of the main components of a personal computer. The learners combined the sign for mother - as in mom, with the sign for a box. They did it in such a unique manner, as the interpreter explained to me, that if someone from outside this group would see the sign, he/she would interpret it as "mom sit on table/box"

However, when people using different signed languages meet, communication is significantly easier than when people of different spoken languages meet. Padden & Humphries stated that sign language, in this respect, gives access to an international deaf community. These researches also made it clear that sign language is not universal, and many different sign languages exist that are mostly mutually unintelligible.

Deaf people do not see themselves as disabled but as part of a distinct cultural and minority group. They could perhaps better be described as a 'special needs' or 'differently abled' group that require only certain aids and

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<sup>5</sup> Supalla and Webb (1995: 347) said that there is not a single universal sign language, but acknowledge the existence of an International Sign (IS). He concludes that IS "is more complex than a typical pidgin and indeed is more like that of a full sign language".

resources to function as normally as those not so impaired. This is a controversial issue and will not be addressed in this study.

The learners studied hard within their support group and formed a strong bond among them. This support group was styled as a community of practice. Etienne Wenger (1998:4) stated that communities of practice are formed when two or more persons learn from each other by means of communication. According to Wenger (1998:4), a community of practice functions when a mutually beneficial engagement binds members together in a social entity. The learners shared learning practices and were dedicated students. This created a good impression on everyone whom they came into contact during the training phase as they were eager to learn and worked very hard to obtain good grades.

After they successfully completed the institutional learning component of the learnership, they progressed to the second component, which was the structured workplace component where they did their practical learning. During this phase I placed the learners at several workplace environments with participating employers in the IT field. The learners thus gained their experience in a structured manner whilst being exposed to the normal employment conditions of basic employment.

Whilst having full control over their institutional learning component in the learnership, I did not manage their learning in the structured workplace component as this is how the learnership is designed. I had access to documented monthly reports regarding the learners' progress in the workplace and I observed that the learners did not fare well compared to the hearing, learners enrolled for the same program. The learners co-signed the reports and also indicated that they experienced certain practical learning problems.

Most of the employers welcomed the idea of having a disabled learner as a non-permanent employee, but I also realised that the employers were biased against the deaf learners as they clearly indicated that they could not accommodate specific forms of disabilities, for example deafness. This was

not so much a matter of discrimination as one of lack of preparation for employees with disabilities, with respect to the expense of training or providing properly equipped and prepared supervisors.

There were three participating workplace providers : Computer Warehouse, Prime Business Solutions (PBS) and Technical Computer Administrators (TCA)<sup>6</sup>. One learner, Mary, was placed at Computer Warehouse, another learner, Thabile, was placed at PBS and two learners, Leo and Sibusiso, were placed at TCA [not their real names]. Thabile joined the group at TCA after three months of practical workplace experience at PBS for more exposure. After placement at the workplace, the learners were also meant to receive on the job coaching and mentoring from a supervisor. I visited the learners on a monthly basis and completed monthly reports on their progress.

It was during these visits that I realised that the learners had difficulty adapting to their new learning circumstances. It became clear to me that the learners experienced some learning barriers.

I could not identify the learning barriers at that stage, except for the obvious fact that no interpreters were available at the workplace sites. The learners communicated with their supervisors via their personal computers, either electronic mails or typed and printed letters. This is a very impersonal way of communicating because the learners, used to communicating with facial expressions and their hands, were faced with the complex grammar that is markedly different from their sign language. It is at the same time very simple but also very complex especially when comparing the oral/aural and visual/spatial societies. The learners who became comfortable with each other during the three month institutional learning component had to face new working cultures in the workplace on their own.

My argument is that the learners experienced learning barriers in the workplace because the learning support group that they formed during the institutional learning component was dispersed and they were subjected to a new community of practice in the workplace. I have compared the progress of

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<sup>6</sup> These are pseudonyms.

the deaf learners to the other learners with other abilities on the same learnership and found significant differences. The question I asked is: why do deaf learners experience learning barriers during the structured workplace component of a learnership when they do not form part of a community of practice and how does the formation of communities of practices by deaf learners influence their learning experience in the workplace?

### **Learnerships in South Africa**

The Skills Development Act (No 97 of 1998) introduced a new approach to the promotion and development of work-related skills in South Africa. The overall vision is that of an integrated skills development system that promotes growth in employment, social development and the economy, through focusing on integrated education, training and employment opportunities.

Learnerships were introduced in 2004 to address the skills gaps experienced in South Africa. The concept of learnerships is central to this skills development system. According to the Services Sector Education Training Authority (Services SETA: 2007) a learnership can be defined as a contract between a learner, employer and a training provider for a specified period leading to the acquisition of a National Qualification and/or credits towards a National Qualification. Learnerships are primarily workplace learning programmes supported by structured institutional learning that result in a qualification.

A learnership is thus a government-funded initiative and comprises both institutional learning and structured work experience, designed to complement each other in an integrated structure. The duration for a learnership is usually twelve months and in this instance 30% of the time is allocated to institutional learning and 70% to work place experience. The Services SETA (Guide to learnerships: 2007) also indicates that it is critical that theory and practice are combined within each component, so that there are practical applications within the institutional learning and theory reflections within work experience. It is not simply a matter of timing the theoretical curriculum of institutional

learning to match the practical applications in the workplace. Each component must consist of theoretical and practical components.

There are three parties involved in a learnership, namely the learner, the training provider and the workplace. This approach follows international trends and best practices to ensure that a learner also gains experience in a workplace as part of the integrated learning process. Reference to such international trends includes Boud and Garrick (1999:2), where the power and importance of workplaces as sites of learning are acknowledged. Boud and Garrick (1999:6) state specifically that one of the purposes of workplace training is to advance the industry through contributing to production and to enhance their knowledge and skills to enable them to develop their capacity.

The target group of learners for skills development in South Africa originates from almost all occupational fields. The learners can be employed, unemployed or pre-employed at the time of entering the learnership. Learners are awarded credits for the outcomes achieved after successful completion of the different components of a learnership. They can be awarded credits for the parts that they complete, even if they do not complete the whole Learnership.

The institutional learning component of the learnership mentioned in this research was presented by an accredited Training Provider. The learners completed their structured workplace component at selected workplace providers, where their theoretical knowledge was applied in practice. These two components together formed the Structured Learning Programme that the deaf learners have completed.

According to the South African Qualifications Authority (SAQA) the purpose and rationale of this qualification is to build a foundational entry into the field of Computer Sciences and Information Technology, specifically in the area of Systems Support, covering basic knowledge needed for further study in Systems Support at Higher Education Levels. Although this qualification can be acquired in the traditional way of formal study, the learners in this research have qualified through a learnership.

## **Structured Workplace Component**

According to Skills Development Legislation, all workplaces are deemed to be places of learning and compliance to a variety of Skills Development Legislation is required. There is a myriad of legislation that controls these workplaces. In terms of the current discussion the following Acts, as amended, are highly relevant:

- Basic Conditions of Employment Act 75 of 1997 (BCEA)
- Compensation for Occupational Injuries and Diseases Act 130 of 1993 (COID)
- Employment Equity Act 55 of 1998 (EEA)
- Labour Relations Act 66 of 1995 (LRA)
- Occupational Health and Safety Act 85 of 1993 (OHS Act) (or Mine Health and Safety Act 27 of 1996)
- Skills Development Act 97 of 1998
- Skills Development Levies Act 9 of 1999
- South African Qualifications Authority Act 58 of 1995
- Unemployment Insurance Act 30 of 1996 (UIF)

In order to give effect to the legislation, the government developed and implemented the National Skills Development Strategy.

The five objectives of the strategy are to:

- Develop a culture of high quality lifelong learning;
- Foster skills development in the formal economy for productivity and growth;
- Stimulate and support skills development in small business;
- Promote skills development for employability and sustainable livelihoods through social development initiatives; and
- Assist new entrants into employment.

There is no doubt, therefore, that the government views the workplace as being critical to the success of closing the skills gaps in South Africa (Department of Labour, Skills Development Act 2007).

For most employers the motivation of taking on learners is only to add to their employment equity, improve the skills of their workforce and enhance the personal development of the learners. The form that such workplace-based learning takes varies greatly from in-house training programmes to skills programmes and learnerships. Part of the specific outcomes of the IT Technical Support learnership is for the learners to resolve computer technical problems. The learners were introduced to a level of understanding about computer industry concepts and it was expected of them to work in areas of Information Technology with little technical complexity. Examples of the areas covered are entry-level hardware, software, electronics and network support on mainly (but not limited to) desktop and hand-held devices and local area networks.

Three companies, Computer Warehouse, Prime Business Solutions and Technical Computer Administrators were approached to provide workplace for the deaf learners and they concluded contracts of employment with the learners. These workplaces understood the learning standards and agreed to expose the learners to the practical environment of technical support.

The workplaces were required to expose the learners to basic inventory taking by giving each learner certain tasks and a number of computers that they needed to assemble and/or refurbish, install software and test against given specifications. They also needed to inspect old computers to ensure that all the systems are installed and updated according to set standards. It was also required of the learners to do branding and packaging of the equipment to learn the substantial importance of a trademark. The outcome is that they must be skilled in the correct handling of products with emphasis on increased safety in the work area.

The IT learnership required that the learners also be exposed to problem solving in an assembly and/or refurbishing environment at the workplace.

This can be achieved when the learners deal with customers by building up the customer relationship skills and solve problems or give technical advice to the customer. The learners, therefore, must be able to provide their customers with support and maintenance of their assembled and/or refurbished computers.

### **Hypothesis**

Deaf learners experienced learning barriers during the structured workplace component of a learnership when they do not form part of a community of practice consisting of deaf learners. Deaf learners learn more effectively when forming a learning support group during the structured workplace component of a learnership.

### **Research Questions**

#### **Main Question**

Why do deaf learners experience learning barriers during the structured workplace component of a learnership?

#### **Sub-question 1**

How can the formation of learning support groups among deaf learners influence their learning experience in the workplace?

#### **Sub-question 2**

How can the understanding of learning barriers experienced by deaf learners as situated learning, be used to expand their learning in the workplace?





## **Methodological Framework**

### **Research design**

The research design utilises a case study, where the progress of a group of deaf learners in a learnership is followed through the institutional and workplace components of the learnership. The Situated Learning Theory as discussed by Jean Lave and Etienne Wenger (1991) has relevance to this case study. Their model of situated learning proposed that learning takes place effectively in a community of practice. This research paper will endeavour to determine the influence of deafness on effective learning in a workplace, where it forms part of the structured workplace component of a learnership, and if learning in a community of practice can enable learners to learn effectively.

### **Research methods**

In the research study I utilised an in depth qualitative study that will allow for a more generalised view on the issues related to communities of practices that form part of the structured workplace component in learnerships. The research interview guide includes open-ended questions that addressed the more qualitative issues that cannot be accommodated through the normal quantitative methods.

### **Section Outlines**

The section and content pertaining to this research are the following:

#### **Section 2 – Theoretical framework/literature review**

This section seeks to investigate the definitions, concepts, characteristics and the stakeholders applicable to the workplace, in order to understand the context within which the research should be seen.

### **Section 3 – Research design and methodology**

This section describes how the research was conducted. It will explain the research methodology that was used for this dissertation, the unit of analysis, the sample to be used and the data collection method.

### **Section 4 – Data analysis**

This section analyzes the data gathered during the research.

### **Section 5 – Conclusion**

This section reflects synoptically on the completed research and the research findings will be drawn into the related literature reviewed. Possible implications of the study on either policy or practice will also be discussed.

#### **Key findings**

I found that the deaf learners, when placed alone at a workplace, feel lonely and isolated, experience learning barriers in the workplace and do not learn as effectively as the learners who are placed in groups at the workplace.

#### **Main recommendations**

The importance for deaf learners to be part of a community of practice, whether it is in the institutional learning component or the structured workplace component, cannot be underestimated within a learning framework. Deaf learners should not be placed alone at a workplace during the structured workplace component of a learnership, but rather in groups of two or more, which could be constituted as a community of practice. This way the learners learn from their workplace and from one another.

There should be a formal and structured introduction to the workplace for deaf learners. Both the training provider and workplace should assist the learner in adapting to his working environment to overcome the learning barriers. This will prepare the learner for the real life employment that the learnership prepares the learner for.

## Section 2

### LITERATURE REVIEW

#### **Introduction**

This literature reviews the dominant themes of the research questions: why do deaf learners experience learning barriers during the structured workplace component of a learnership when they do not form part of a community of practice and how does the formation of communities of practices by deaf learners influence their learning experience in the workplace. The literature review also focuses on how communities of practice are formed between deaf learners in the institutional learning component as well as in the workplace. The review will examine the concepts of constructivism, social learning theory, situated learning theory and communities of practice. Experiential learning and learning barriers experienced by deaf learners are also defined

#### **Constructivism**

According to Doolittle (1999:1), constructivism is a theory of learning that has roots in both philosophy and psychology. Learning is a process of constructing meaningful knowledge and of making sense of one's experiential world. In this process students' errors are seen in a positive light and as a means of gaining insight into how they are organizing their unique reality.

The constructivist perspective sees learning as an activity in context, as explained by Duffy and Cunningham "the situation as a whole must be examined and understood in order to understanding the learning. Rather than the content domain sitting as central, with activity and the 'rest' of the context serving a supporting role, the entire gestalt is integral to what is learned" (Duffy and Cunningham, 1996:114). They also state that constructivist views assert that learning is the active process of constructing rather than passively acquiring knowledge, and instruction is the process of supporting the knowledge constructed by the learners rather than the mere communication of knowledge

Therefore, the meaning of constructivist perspective can be seen as when the individual derives meaning out of the knowledge received after comparing it against different experiences within the whole context. The meaning will therefore flow from conclusions made by the learner, and not by the educator. Constructivist learning takes place in individual contexts and through social negotiation, collaboration and experience. Experience plays a vital role and is essential in the total learning process. If the knowledge cannot be measured against previous experience, no learning will take place.

### ***Social Constructivism***

Social constructivism is defined in the principles that maintain the social nature of knowledge and the belief that knowledge is the result of social interaction and language usage, and thus is a shared, rather than in individual experience. The people around us and their experiences also start to have an influence on the individual's learning process. While social learning takes place the environment around us has an influence on how we perceive this learning that is taking place. With social constructivism we not only measure the learning against our own experiences, but also against the experiences and influences within that specific social environment (Von Glaserfeld, 1989:122- 129). Von Glaserfeld also stated that "Instead of presupposing knowledge is a representation of what exists, knowledge is a mapping, in the light of human experience, of what is feasible" (1989:134).

The nature of the learner's social interaction with knowledgeable members of society is important. Vygotsky (1978:24) states that without the social interaction with more knowledgeable others such as facilitators, supervisors at work etc., it is impossible to acquire social meaning of important symbol systems and learn how to use them.

Von Glaserfeld (1989) agrees with the work of Vygotsky (1978) and emphasized the critical importance of culture and the importance of the social context for cognitive development. Learning is not a purely internal process, nor is it a passive shaping of behavior. Vygotsky favoured a concept of learning as a social construct which is mediated by language via social

discourse. Vygotsky (1978:24) stated that “abstract intelligence, occurs when speech and practical activity, two previously completely independent lines of development, converge.”

### ***Cognitive Constructivism***

Cognitive learning has to do with information that is logically understandable and applicable within a real life situation. The situation is then created where some of this learning is measured against past and current experiences. The term cognitive constructivism can be seen as a subjective learning process where the individual measures the knowledge received against own past experiences (Vygotsky, 1978:84). Part of the process of how we construct reality is the way we recognise differences between what we already know and the new information we are attempting to learn. Another part of how we construct reality is the process of learning in an environment where more than one person learns from another. We construct meaning through recognising differences, such as understanding how different people perceive a particular theory or idea and that processes a structure that exists in the real world. (Vygotsky, 1978:86)

Vygotsky defines the zone of proximal development as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978:86).

Piaget (1964:246) asserts similarly that cognitive constructivism is typically associated with information processing and its dependence on the component processes of cognition. Piaget's theory of cognitive development proposes that humans cannot be given information which they immediately understand and use. Instead, humans must construct their own knowledge. They build their knowledge through experience. Experiences enable them to create mental models in their heads (Piaget 1964:245).

Both the work of Vygotsky and Piaget is complementary to each other as both researchers found that with cognitive constructivism the social environment around us does not play that vital role, as we measure the learning against own experiences.

### **Social Learning Theory**

Vygotsky (1978:35) further outlined the socio-cultural perspective as part of a discussion on the difference between learning and development: “human learning presupposes a specific social nature and a process by which children grow into intellectual life of those around them”. Wenger (1998:82) adds to this theory and spoke of the primary focus of this perspective as “learning as social participation”. He referred to learners as “being active participants in the practices of social communities and constructing identities in relation to those communities.” He referred to a social theory of learning that must therefore integrate the components necessary to characterize social participation as a process of learning and of knowing.

According to Wenger (1998:83) and other proponents of the socio cultural theory of learning, humans are fundamentally social beings who live and learn within a community. Social engagements provide a proper context for learning, they are about processes of being active participants in the communities. Judgment is therefore a process of social participation and a move from the border of the learning circle towards the centre of a community. It takes place through contextualization, as too abstract or general knowledge is deemed to make no sense in general. According to Wenger (1998), insufficient participation leads to relations remaining literal and procedural: our co-ordination tends to be based on compliance rather than participation in meaning. “With insufficient reification, co-ordination across time and space may depend too much on the partiality of specific participants, or it may simply be too vague, illusory or contentious to create alignment.” (Wenger, 1998:187). Social content includes matters like how to get along well with others, how to maintain reasonable assertiveness, how to collaborate in reaching decisions and how to take collective actions. According to Wenger, learning occurs through interested participation with

other peers. To a greater extent is knowledge embedded in a relationship between people rather than something that belongs to individuals as such; it has more to do with the various conversations in which learners participate. Educators need to reflect on students' understanding of what constitutes knowledge and they should also be involved in learning as informed and committed members of the process (Wenger, 1998:188).

Wenger (1998) further states "participation here refers to not just to local events of engagement in certain activities with certain people, but a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to those communities" (Wenger, 1998:4). The four components of Wenger (1998)'s social learning theory are meaning, practice, community and identity (Wenger, 1998:5). Vygotsky (1978:36) asserts similarly in confirming the point that individuals do not exist in isolation; he recognized that meaning is applied within the bounds of social and cultural practice. Since practice is to a large extent mediated by language, the use of language has a direct effect on the learning ability of the individual and on the formation of meanings, hence also the language used by deaf people.

Murphy (1999) came to the same conclusion as Vygotsky (1978) and Wenger (1998) that learning "traditionally gets measured as on the assumption that it is a possession of individuals that can be found inside their heads." He said that learning is in the relationships between people and that learning is in the conditions "that bring people together and organize a point of relevance; without the points of contact, without the system of relevance; there is not learning, and there is little memory. Learning does not belong to an individual person, but to the various conversations of which they are part" (Murphy, 1999:17).

Wenger, Vygotsky and Murphy affirm that the perspectives on social learning conforms the Socio-cultural perspective, where the individual's experience is measured against members of the group. Individuals can now also draw on the experience of the group in order to ensure that learning can take place. It has the advantage that newcomers within a group can now rely on the



collective experience of the group that has been brought about by more experienced members in the group. Even if all are equally experienced, the social learning theory still applies.

### **Situated Learning Theory**

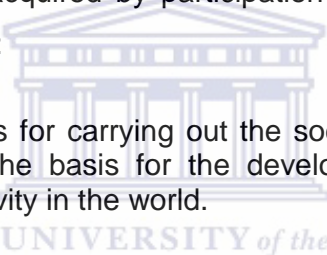
Lave and Wenger (1991:29) explain situated learning as when people initially “have to join communities and learn at the periphery. As they become more competent they move more to the centre of the particular community. Learning is thus, not seen as the acquisition of knowledge by individuals so much as a process of *social* participation. The nature of the *situation* impacts significantly on the process.”

Lave (1998:124) states that situated learning is a general theory of knowledge acquisition and she points out that situated activity is not the only source of structuring resources; social relationships and people’s subjective experience of problems also contribute to structuring or organizing resources. Lave (1988:171) argues that learning is situated as a function of the activity, context, and culture in which it occurs. Lave explains that learners also fashion their culture at the same time as learning takes place; thus, how adult learners learn may well depend on the context within which the learning is taking place and, as Lave suggests, on the tools they use as they learn (Lave, 1988:172). According to Lave (1988:87) learners become involved in a social practice where specific beliefs and behavior are shared. Social interaction is, therefore, a critical component of situated learning. Lave (1988:87) contrasts the view that society and culture “shape the particularities of cognition and give it content”. As newcomers move from the periphery of the community to its center, they become active and engaged within the micro-culture of the community. This process is what Lave and Wenger (1991:29) call “legitimate peripheral participation.” In the social participatory perspective on learning adopted by Lave and others, individuals develop and change their identities, “... people are becoming kinds of persons” (Lave 1996:157). Similarly Brown, Collins & Duguid (1989:34) assert on this theory of situated learning and emphasized the idea of cognitive apprenticeship. They state that: “Cognitive apprenticeship supports learning in a



domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity.”

Clancey (1995) asserts that situated learning is apprehensive with how learning takes place everyday. He argues that situated learning is a theory about the nature of human knowledge and is formed as we envisage the environment around us. Clancey (1995:49) asserts that the “*conception of our activity* within a social matrix shapes and constrains what we think, do, and say. That is, our action is *situated in our role* as a member of a community”. It can, therefore, be argued that people who are more exposed in a certain community will gain more knowledge which forms the learning experience of that person. Every person perceives a situation differently and reacts accordingly. These activities are interpreted by Clancey (1995:53) as tools and signs that are acquired by participation in the social environment and it is defined as follows:



“Tools are the basis for carrying out the socially organised activity which is, in turn, the basis for the development of new mental functioning and activity in the world.

Signs, such as language and other representations, are symbols of external activities that become reconstructed and internalised. In this way, speech, which organises meaning encountered in the social world, is internalised to become thought, allows for speech production which is necessary to take part in the social community, and becomes the basis for activity”.

Clancey (1995:51) asserts that situated learning is an old idea and has existed for many years without being named as such. Situated learning researchers worked with schools, universities, corporations and government agencies to study for the actual settings where knowledge is created and is useful. He also illustrated how the basics of situated learning should be considered. Producing and evaluating designs and policies are conceptually integrated with the person's identity as a member of a group. For example, the Information Technology (IT) Systems Administrator's knowledge of what constitutes "an intelligent resolution" to an IT systems error is formed with experience as there is more than one way to solve a problem. The

community's experience in this regard will determine the speed in which the novice learns the formation of the IT community and its norms.

The situated learning theory as discussed by Lave and Wenger (1991) proposes that learning involves a process of engagement in a community of practice and that the focus is on the ways in which learning are “an evolving, continuously renewed set of relations” (Lave and Wenger 1991:49).

### **Communities of Practice**

According to Wenger (1998:45), a community of practice defines itself along three dimensions:

- **What it is about** – its *joint enterprise* as understood and continually renegotiated by its members.
- **How it functions** - mutual engagement that binds members together into a social entity.
- **What capability it has produced** – the *shared repertoire* of communal resources, such as routines, sensibilities, artifacts, vocabulary, styles, etc., that members have developed over time.

According to DeafSA (Deaf Federation of South Africa, 2007), deaf learners have a language of their own that they form as part of a community of practice whilst training. The importance of working in a community of practice, whether it is in the institutional learning component or the structured workplace component, cannot be underestimated for deaf learners as “...learning is, in its essence, a fundamentally social phenomenon, reflecting our own deeply social nature as human beings capable of knowing” (Wenger, 2003:3).

DeafSA (2007) also explains that in deaf culture the common means of communication /sign language provides the basis for group cohesion and identity. The deaf learners' community of practice results from them coming together as a group of people to form a community around shared experience, common interests, shared norms of behaviour, and shared survival

techniques. Such groups as the deaf seek each other out for social interaction and emotional support. The deaf learners share a common sense of pride in their culture and language. There exists a rich heritage and pride in the ability to overcome adversity as individuals and as a group of deaf learners. The deaf learners view themselves as belonging to a linguistic minority with its own culture as they connect with one another.

Lave and Wenger (1991:98) argue that “a community of practice involves much more than the technical knowledge or skill associated with undertaking some task.” Wenger (1998:45) also mentions that members of a community are involved in more than one relationship over time and communities develop around things that are important to people, for example learners from different backgrounds who develop their skills together. The members of a community of practice operate in the same area of knowledge and activity and this gives them a sense of joint enterprise and identity. Wenger (1998:45) argues further that a community of practice needs to generate and appropriate a shared repertoire of ideas, commitments and memories to function properly.

Similarly, Clancey (1995:53) asserts that the community of practice develops different resources, such as the tools he described. He confirmed that documents, routines, vocabulary and symbols in some way carry the accumulated knowledge of the community. Implied in this is language, including sign language [vocabulary and symbols].

Wenger (1998), Lave & Wenger (1991) and Clancy (1995) agree that learning involves participation in a community of practice. This participation according to Wenger (1999:4) “refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the *practices* of social communities and constructing *identities* in relation to these communities”.

Lave and Wenger (1991:99) argue further that people are generally involved in a number of different communities of practice, either at work, school or home. As people become involved in communities of practice they engage with each other on different levels around the specific topic of concern. In this

process people interact with each other and learn from each other. Over time this learning journey from being a novice to being part of a community of practice, results in practices that reflect both the pursuit of our enterprises and the development of social relations. These practices are thus the property of a type of community created over time by the sustained pursuit of a shared enterprise.

A member of this specific community must go through a process to be part of the community. They must know with whom they can interact, with whom they can lodge complaints, who to ask questions and they must find out what they have to learn to become part of the specific community. All of this forms the identity of the member. The communities of which the member forms part, also has to adapt to the novice and for every person that joins the community, another acceptance have to be made to accommodate this person.

According to Wenger (1998:82), a community of practice functions when mutual engagement binds members together in a social entity. In Lave and Wenger (1991) it is also clearly stated that social interaction is a critical component of situated learning.

Consequently this links to the analytical framework of community of practice. The idea of a community of practice is a way of describing any group of people who work together to accomplish some activity, usually involving collaboration between individuals with different roles and experience. Examples can be the learner, facilitator, employer or mentor. Clancey (1995:57) summarizes the concept of learning in a community of practice as follows:

- *Knowledge* is the ability to participate in a community of practice.
- *Learning* is becoming a member of a community of practice.
- *Tools* facilitate interaction in a community of practice.

## **Experiential Learning**

The different theories of Fenwick (2001:28) raised issues about approaches to the relationships between “knower and context, between learning and action, between mind and learning, and between educator and the process of learning”. Her question regarding experiential learning: “How is the one doing the experiencing being understood” (pg 28) illustrates the importance of recognising the symbiotic nature of the elements.

Fenwick (2001: vii) also discusses the perspectives using the word orientations as well, recognizing the possibility of blurred lines between the different perspectives. In her conclusion she encouraged further discussions to “disrupt boundaries” in order to “examine omissions, links and blurriness among these perspectives”, “challenge the phenomena of experiential learning”, and questioned the educator’s role in the “phenomena of experiential learning” (Fenwick 2001: 56-57).

Fenwick describes each of these perspectives lucidly, outlining the critical elements as seen by other theorists and most important calling on all educators to reflect on their own motives and processes. She has outlined these theories and says: “ ...comparative examination of different perspectives can enlighten and raise new questions for each perspective, as well as help researchers, theorists, and educators situate and think carefully about beliefs of experience and learning underpinning their own practice.” (Fenwick 2001:55)

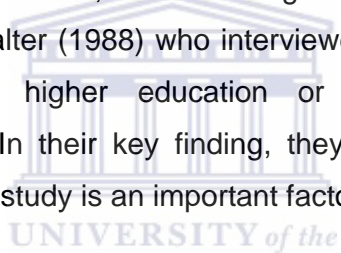
This means that educators must understand their own perspectives on “Experiential Learning” and ensure that learners also understand their educators’ perspectives in order for pre-conceived notions or biases to be transparent and taken into consideration in the learning environment.

## **Learning Barriers**

In this dissertation, learning barriers refers to an obstacle that hinders effective learning. Lang (2002:278) states that research already conducted in

the field of learning barriers over the past two decades has provided very few solutions and that communication between deaf learners, their tutors/mentors and peers is the major barrier to learning for deaf learners. According to Lang (2002:267), a review of research on deaf learners in higher education reveals “a significant body of knowledge about the barriers these students face in gaining access to information in the classroom”.

Lang asserts that the reasons for deaf students not completing their baccalaureate degree programs are numerous and that academic preparation and the challenges of learning through support services are only two elements of the complex mosaic. Other factors to the learning barriers include leave of absence, program lengths, difficulty in carrying full course loads, dissatisfaction with social life and changes in career interests (Lang & Stinson, 1982; Stinson & Walter, 1992 in Lang 2002:269). Lang (2002:270) mentions Scherer and Walter (1988) who interviewed 320 deaf students who were withdrawing from higher education or transferring to another postsecondary program. In their key finding, they reported that inability to decide on a major area of study is an important factor related to persistence.



Lang (2002:269) summarized why colleges and universities must attend to the student in a holistically way. Stinson and Walter (1997:14) described statistically significant relationships between student satisfaction with classes and their academic achievement and between social satisfaction and persistence/withdrawal. These researchers identified three social issues to be addressed for students to adjust effectively to higher education:

- developing social skills,
- establishing an identify, and
- acquiring independence and interdependence.

To improve degree completion rates, Stinson and Walter (1997:16) recommended admitting students who matched the demands of the college or university environment, early identification of the difficulties faced by students, and early and appropriate interventions. This can be achieved by means of pre-assessment.

Lang (2002:269) states that future efforts to investigate persistence of deaf students in higher education programs may be more fruitful if they focused on these social issues, as well as on “ability” factors. On the issue of integration for example, Stinson and Walter (1997:21) reported that a consistent finding is that deaf adolescents in mainstream settings prefer to relate to other deaf students. Research conducted with baccalaureate-level students, however, has shown that deaf students do not feel as much a part of the “university family” as do their hearing peers (Foster, Long, & Snell, 1999 in Stinson and Walter, 1997:21). This can be confirmed by Kersting (1997:254) who interviewed deaf university students who had little or no previous experience with deaf culture or language. She reported that feelings of isolation, loneliness, and resentment were most intense during orientation and the first year. Alienation from both deaf and hearing peers was experienced, and comprehensible changes in their social lives did not occur until their second and third years, partly as a result of improved communication with deaf peers and increased participation in extracurricular activities.

Lang (2002:269) has also conducted research on support services/access services used by deaf learners. According to Lang, the barrier for deaf learners to integrate socially and academically is made even more challenging in the classroom where specialized support and access services are commonly offered to deaf learners in higher education. In Lang’s findings he stated that the most common types of support services include tutoring, interpreting, real-time captioning, and academic advising. Lang (2002:270) states that “with access/support services come, for some students, the stigma of being different and, in many colleges and universities, the need to expend valuable time and energy in arranging the appropriate logistics scheduling of support, covering costs, etc.). Despite the use of such services by thousands of students in higher education, there is sparse published research to guide those interested in providing such support”.

According to Ko, Myers and Aung (2004:1), in order to overcome the learning barriers in a computer environment, the learner risks making invalid assumptions that often lead to wrong actions. The findings made by Ko,



Myers and Aung (2004:1) refer to complaints logged to a call centre and the learner / call centre operator has to provide a possible solution to the user or when the learner has to provide systems support to a user. Due to the learning barriers and possible resultant lack of knowledge, the learner may give the wrong solution that may lead to a systems error.

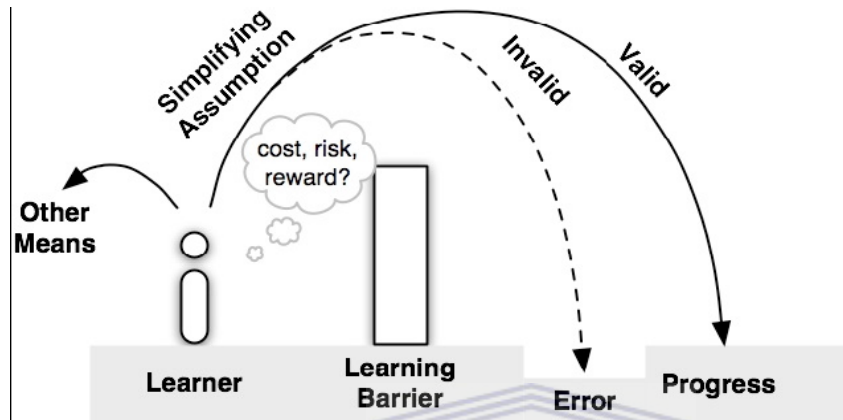


Figure 1. In overcoming barriers, learners risk making invalid assumptions that often lead to errors. Ko, Myers and Aung (2004: 1).

The diagram above gives a clear picture of how this can happen. If the learners do not have learning barriers, a valid assumption can be made and the request can be successfully resolved. This has nothing to do with the learner's inability to resolve the problem, because the learner will normally forward the request to a higher level if the request is of a more complex nature.

## Summary

Wenger (1998:82-83) used the term *joint repertoire* to define products created over time by communities of practice as they go through the process of meaning-negotiation. Joint repertoire includes routines, artifacts, methodologies, narratives and symbols. I have focused solely on artifact and identity because they represent a tangible byproduct generated by the community.

The literature shows that language and communication have an effect on the workplace learning. The questions to be asked is: how did he learners learn



the artifacts in their new community, did the learners need to change to be able to learn, did the mentors, supervisors and colleagues at the workplace change to accommodate the learner? I have explored how the learners learned to interact in their new environment and how they learned and managed the power relations in the workplace.

The literature shows that a community of practice is formed when learners learn from each other, from the facilitator and from their work environment. They function in the same area of knowledge and activity which gives them a sense of joint enterprise and identity. Although the deaf learners have obtained the theoretical knowledge, they formed part of an exclusive community of practice during their institutional learning component. The *tools* as described by Clancey (1995:53), which the deaf learners used to facilitate interaction in a community of practice, are unknown to the employer and its employees, including the mentors and coaches. The changes that these learners faced in their new community helped to form their identity. In this there is a concern with identity, with learning to speak, act and improvise in ways that make sense in the community. What is more, and in contrast with learning as internalization, 'learning as increasing participation in communities of practice concerns the whole person acting in the world' (Lave and Wenger 1991:49). The learners are exposed to a situated learning environment where learning is usually not directly taught, but is unintentional, occurring through active participation in working together with other people.

**Section 3**  
**RESEARCH DESIGN AND METHODOLOGY**

**Introduction**

Communication as a learning barrier for the deaf learner can be seen as a hindrance to effective learning. This research did not attempt to confirm that language and communication contribute to the learning barriers that the deaf learners experience during their structured workplace component as part of a learnership, but to prove the importance of communities of practice in a learning environment.

This research design and methodology are aimed at the importance that communities of practice have in the situated learning theory. Through my research design and methodology I have discovered that deaf learners learn more effectively when they work in a group with other deaf learners.

**Hypothesis**

Deaf learners experience learning problems during the structured workplace component of a learnership when they do not form part of a community of practice consisting of deaf learners. Deaf learners learn more effectively when forming a community of practice during the structured workplace component of a learnership.

**Key concepts and variables**

The key concepts are learning barriers and communities of practice. All respondents were part of a group of twenty deaf learners who attended the same learnership. There are few real variables in this group; the following are the only significant variables:

Race could have been a variable, but all learners involved in this learnership are black with the exception of one coloured female. Age also played a limited role, because all the respondents were between the ages of eighteen and thirty. This age group is classified by government as youth.

## **Research Methods and Design**

### **Research methods**

Different methods can be used to investigate a certain phenomenon. Research methods can be quantitative and qualitative. Qualitative research methods are normally used during observations, the analysis of written information received from respondents or participants in the research project.

Quantitative research methods include the analysis of statistical data received either from the respondents or other statistical data available and applicable to the research topic. Silverman in Seale (2004:53) states:

“A methodology is a general approach to study research topics. It establishes how one will go about studying any phenomenon. In social research, examples of methodologies are quantitative methodology, which uses numbers to test hypotheses and, of course, qualitative methodology, which tries to use first-hand familiarity with different settings to induce hypotheses.”

According to Spicer in Seale (2004:294), researchers often look at the differences between the qualitative and quantitative research techniques, and then emphasize why they decided on a specific approach. Some researchers are, therefore, more in favour of the one method over the other.

The research conducted in this study is theoretical in nature, using the qualitative research method as a basis to ensure that the respondents acquire an opportunity to express their own views in this regard. According to Seale (2004:182), qualitative methods allow access to attitudes and values of the respondents. It also allows flexibility and exploration of suppressed views.

### **Research design**

The situated learning theory as discussed by Jean Lave and Etienne Wenger (1991:98) is seen to be applicable to this case study. Their model of situated learning proposed that learning involves a process of engagement in a community of practice.

Lave and Wenger argued that communities of practice are everywhere. People are generally involved in a number of different communities of practice, either at work, school or home. As people become involved in communities of practice, they engage with each other on different levels around the specific topic of concern. In this process people interact with each other and learn from each other (Lave and Wenger, 1991:29).

The deaf learners were “organizing around some particular area of knowledge and activity” – namely Information Technology which gave them “a sense of joint enterprise and identity” (Wenger, 1998:46). argues that a community of practice needs to generate and appropriate a shared repertoire of ideas, commitments and memories to function properly. The community of practice therefore develops different resources such as tools, documents, routines, vocabulary and symbols, such as the hand and finger signs used in sign language, that in some way carry the accumulated knowledge of the community. In this research paper I addressed the effect that deafness has on effective learning where study support groups with the characteristics of a community of practice are formed in a workplace. The workplace forms an integral part of the structured workplace component of a learnership.

### **Sample Design, Techniques and Criteria**

Initially I considered conducting the study by means of a research interview guide, but I chose semi-structured interviews as I might not be able to answer any clarifying questions from the deaf learners clearly enough without the help of an interpreter. I selected a sample group of four deaf learners, two deaf learners who worked together, and two learners whom were placed individually at two other employers. I interviewed three supervisors/mentors from the two employers where the learners were placed. The questions were open ended and semi structured, and interviewees were given an interview guide specific to their role. The questions were used as a guide to allow the interviewer to make alterations if required. I made the interview guide available to the interpreter before the interviews to ensure that she was able to “define and clarify the main themes that the research aims to investigate and how these might be studied” (Tonkiss in Seale, 2004:195). I have also

drawn on my own experiences, working closely with the deaf learners as a programme manager for IT learnerships.

I retrieved the details and contact information of the learners from the Institutional Learning Provider's learner management system (LMS). I randomly selected candidates from the three workplace providers and when I contacted them, they were very eager to participate. The learners were randomly nominated and confirmation of their attendance to the interview was confirmed via a short message system (SMS). I telephonically contacted the supervisors of the participating candidates and requested their availability for interview. The supervisor from Prime Business Solutions contacted me a day before our appointment and requested to complete the interview guide electronically. I e-mailed the interview guide to him and it was returned to me within two days. I conducted the interviews with the learners in my office with the help of an SASL interpreter. The interviews with the supervisors of Computer Warehouse and Technical Computer Administrators were conducted at their respective company's premises.

To test the understanding of the research interview guide, I requested one respondent to complete it. The reason was to ensure that deaf learners understood the questions being asked, and also what was expected of them. This was done with no involvement from me. The learner therefore had to depend on her own ability to understand and complete the interview guide. This process showed that no alterations had to be made to the interview guide. The same interview guide as per Annexure A was, therefore, used during the final research. The interview guide for the supervisors as per Annexure B was not pre-tested.

A qualitative methodology normally "tries to use first-hand familiarity with different settings to induce hypotheses" (Silverman in Seale, 2004:53). The qualitative questions allowed for more freedom to express certain feelings and to elaborate on some issues. The interview guides have advantages and disadvantages, some of which are discussed here.

One of the advantages of using semi-structured interview guides is that the researcher has full control over the process. This control means the validity of the results is more reliable as the researcher relies on the honesty of the respondent. A disadvantage is that respondents may be biased towards some questions, and it may be difficult to claim complete objectivity with this type of interview guide.

With structured interviews, a disadvantage can be that the interviewees could be influenced by the presence of the interviewer and in this case the interpreter. I have chosen this specific data collection method because the respondents were freely available. During this study all possible respondents had already finished the learnership and the two currently employed learners as well as the two unemployed learners were available for one-on-one interviews. Administering the interviews with the semi-structured interview guides made collection of data quite inexpensive. The services of the interpreter were offered free of charge.

A selected group of four learners and three workplace providers were invited to take part in the survey. Only the learners were requested to provide demographical information. The group of respondents from the learner group consisted out of three men and one woman. The three male learners, Thabile, Leo and Sibusiso are all black South Africans and the female learner, Mary, a coloured South African. Two of the learners were in the age group 18 to 25 years, and two were between the age of 26 and 30.

All the learners attended a school for deaf people in Gauteng. When they were asked where they attended school, the answers were that Mary and Leo came from the same school and the other two are from two different schools. The sample group thus attended three different schools for deaf people. All of them were hearing impaired [deaf] but Mary and Sibusiso can partially lipread. All the learners grew up in households where their families can also sign. Therefore, the best way for the learners to communicate with hearing individuals is by means of writing.

Although all learners were unemployed at the time when the learnership began, they also indicated that they were not employed in the formal employment sector before. Two of the respondents, Leo and Sibusiso, were permanently employed at the time when the interview took place. Mary indicated that she has been requested twice since the completion of the learnership to assist a company in data capturing, but she was not permanently employed. The success rate of a learnership is not only determined by the amount of competent learners who complete the learnership, but also in how many learners are employed after the learnership. According to the ISETT SETA (2007), the success rate of an IT Learnership is 80%. Many SETAs offer an additional grant if the learner is employed for a period of six months and more after completion of the learnership.

From information collected from their application forms to attend the learnership, it was gathered that all the respondents had a grade twelve school qualification with no post school education.

### **Data Collection Process**

#### **Learner Interview Guide**

The interview guide that I used for the learners consisted of three categories of questions. The first category covered the respondent's personal details and historical background (see Appendix 1). The second covered detail about their educational background and hearing loss. The third category covered the questions with the purpose of identifying respondent experience of the learning barriers.

The fourteen questions were mostly open-ended questions that allowed for gathering qualitative information. This interview guide was e-mailed to the interpreter to enable her to prepare for the interpreting. All data was collected by means of a semi-structured interview, which were recorded in short hand writing where learners voiced their answers verbatim to the interpreter.

## **Supervisor/Mentor Interview guide**

The interview guide (see Appendix 2) that I used with the supervisors also consisted of three categories of questions. The first category covered the respondent's personal details and position/role in the company. The second covered detail about the company's experience with learnerships and disabled learners. The third category covered the questions with the purpose of identifying respondent experience of the learning barriers and possible solutions to these barriers.

Although the sample was not intended to be representative of a larger population, the study is useful because it can still present a significant contribution to knowledge and theory building (Mc Millan, 2000:258).

## **Data Analysis Procedure**

The data analysing process for this research consisted of two main tasks, interviews with the learners and interviews with their supervisors. All the questions were interpreted by an interpreter and captured by hand by the researcher. There was no unauthorized access to the results, the results were kept safe as a quality control procedure to ensure accurate data editing and coding. As the open-ended questions had no pre-coded answer, it formed the base of the results obtained from the interview guides.

## **Rationale for Data Analysis Procedures**

The data were scrutinized and organized in such a way to have an authentic reflection of the words and actions of the interviewees during the interviews. All responses to open-ended questions were analyzed by the researcher and conclusions reported in Section 4 of this paper. The responses to the open-ended questions gave clear insight to the feelings of the respondents, both negative and positive.

The focus of the research was on learning barriers and learning support groups, with reference to deaf learners. The research aim is focussed at the importance that communities of practice have in the situated learning theory.



Through this research I have discovered that deaf learners learn more effectively when they work in a group with other deaf learners.

It is argued that the learners experience learning barriers in the workplace as part of an IT learnership because they were taken away from their comfort zone during the institutional learning component. The learning support group that formed during the institutional learning component disseminated and they were subjected to a new community of practice in the workplace. I expected to find an answer to my question of what the learning barriers that the learners experienced are exactly. I found that when deaf learners establish themselves in a learning support group, they experience optimal learning. In my research results I found that the deaf learner placed alone without other deaf learners at a workplace does not learn as effectively as those who are placed with another deaf learner/s at a workplace. To summarize my point:

- The deaf learners formed a community of practice when they attended class in the first institutional learning component (unconsciously).
- When their group was separated, the individual learners formed a new learning support group with their hearing colleagues, but they did not learn as effectively as the group who worked together.
- The learners who worked together at one workplace and whom were part of the first community of practice, adapted to their situation with more ease, and although they too formed a new learning support group with their colleagues, they had each other to fall back to for advice and camaraderie.

When I started the research I envisaged that I will be able to identify the exact barriers that hinder effective learning to take place. I hoped to find answers such as “lack of proper communication” or “lack of supervisory support” or “they could not fit into the new environment”. With these answers I wanted to address the problem of the barriers and make life simpler and easier for the deaf learner. Instead I discovered how learning support groups and

community of practices fit into the picture and that without a proper support function, the deaf learner's chances of succeeding are limited.

In my observation as a Programme Manager I noticed that the learners experience certain barriers because of their deafness, for example they could not perform the first line IT support that entails communication with customers. This is one of the requirements to achieve a national certificate. The conclusion I made during this research is that for a deaf learner to be successful in an IT learnership, s/he must work with another deaf learner to form a learning support group to optimise effective learning.

During the learnership, I noticed that one of the deaf learners could communicate quite well by speaking in English. He could lipread well and shared his story as a deaf child with me. When he was an infant, his mother thought he was dumb and never realized his hearing was impaired. He was sent to school after his hearing loss was discovered at the age of ten and he excelled at school. His drive enabled him to often act as interpreter for the other deaf learners during the learnership.

Although it seems that language might be a problem for deaf learners in a new environment, my research has focused on the outcome that it had on the effectiveness of the learnership. The research also addressed whether the learners overcame the barriers and how they adapted in the new community, knowing that they might face learning barriers.

## **Section 4**

### **DATA ANALYSIS: PRESENTATION AND DISCUSSION**

#### **Introduction**

This section covers the analysis of the data gathered by means of an interview guide administered to four deaf learners. These learners have completed a learnership, entitled “Information Technology Technical Support” on a National Qualifications Framework (NQF) level 4. The analysis also comprises data gathered from the mentors/supervisors during the structured workplace component. The research question at the centre of this study is the following: “Why are deaf learners experiencing learning barriers during the structured workplace component of a learnership?” Included here is a discussion of the trends and patterns evident in the data, focusing on the learners’ learning experience in the workplace. The qualitative research method was used to formulate questions, with some open-ended questions where the respondents could elaborate on issues where they wanted to motivate some of their answers (Seale, 2004:294). Pseudonyms are used to honour confidentiality. This section is concluded with reflections on the method of data gathering.

#### **Research sites**

Pseudonyms were used for the three research sites, Computer Warehouse, Technical Computer Administrators and Prime Business Solutions were selected as key research sites. These companies support skills development in South Africa and were willing to accommodate deaf learners on a learnership in their respective workplaces.

#### **Computer Warehouse**

This company’s core function is to trade in refurbished computers.

## **Technical Computer Administrators**

This company is part of a franchise which provides call centre operations as support to their Head Office.

## **Prime Business Solutions**

This company is a consulting agency, with an IT department which provided technical support to the company's internal computer users.

## **Interviewees**

### ***Learners***

#### **Mary**

Mary is a coloured female and was placed at Computer Warehouse. Her responsibility was to assist the manager with IT related issues and she also performed some administrative duties. She was the only deaf learner at the company and her supervisor was Bongile.

#### **Leo and Sibusiso**

These two learners are black males and they were placed Technical Computer Administrators (TCA). They were responsible for IT refurbishment, service and client support. Their supervisor was Dalene.

#### **Thabile**

Thabile is also black male and he was placed at Prime Business Solutions (PBS) for the first three months. PBS employed Thabile to assist their IT team with their day to day responsibilities. His supervisor at PBS was Joe. After three months at PBS he was also placed under the supervision of Dalene at Technical Computer Administrators because the structured workplace experience did not take place at PBS.

## **Supervisors**

(The supervisors' companies' did not have a standard coaching or mentoring policy or procedures for deaf learners.)

### **Bongile**

This supervisor was the head of Human Resource Management and was the mentor for Mary during her employment at Computer Warehouse.

### **Dalene**

Dalene is the Skills Development Facilitator for TCA and mentored the IT Learnership learners as part of her responsibilities. Leo and Sibusiso were two of the many learners that she has mentored and coached.

### **Joe**

He was the head of Information Systems at PBS and also responsible for marketing and consulting. He volunteered to mentor Thabile, but stated that his other responsibilities at his company hindered effective coaching.

The following key findings were made in the analysing of the data:

### **Learners' experience during the Institutional Learning Component**

When asked why the learners entered into the learnership programme, the respondents said that they wanted to prepare themselves for employment. Mary told me that all the learners formed a close learning relation towards other deaf learners during the institutional learning component of the learnership. Mary, Leo, Sibusiso and Thabile strongly agreed that this relationship that they formed benefited their ability to learn. Leo said "...sometimes we could not understand the teacher and we would talk to one another to get the answer" referring to the unknown IT terms that the facilitator used. The learners talked with each other during class and learned from one another. Leo also said "the interpreter is not an IT expert and did not translate the words correctly" (Interview, Leo: 2007-09-12).

Sibusiso said that “we wrote down what information we did not understand at first” (Interview, Sibusiso: 2007-09-12) and that their class representative, Alex, who is also deaf, was responsible to discuss the uncertainties with the facilitator and interpreter after the last period. Alex then explained the concepts and answers to the rest of the class. According to Leo, this was a cumbersome though effective way for the learners to learn. He said “we had to wait for Alex sometimes till late afternoon, but then we understood” (Interview, Leo: 2007-09-12).

During the institutional learning component the deaf learners developed their own signs to identify computer parts, making it easier for them to describe the components. Only the learners, the facilitator and the interpreter understood these unique signs.

The following were the central learning barriers identified:

### **Learning barriers**

During the structured workplace component of the learnership, all of the deaf learners were placed with companies who have no other deaf employees and they all had to adapt to the new environment of learning. Communication between Thabile and his mentor/colleagues took place by means of note writing and electronic communication systems. Mary taught her supervisor some signs and they too communicated via note writing and electronic communications systems such as e-mail and messenger. Leo and Sibusiso also communicated with Dalene and their other colleagues via e-mails.

### ***Lack of communication between deaf learners and work community***

When they all started in the workplace, their hearing colleagues did not understand what was meant with their unique IT signs. That led to some frustration to both learner and colleagues. Part of the workplace requirements was for the learners to liaise with clients. Due to the communication problems between the deaf learners and customers, the customer relations part of the learnership did not take place effectively and contributed to the learning barriers for the learners. Lang (2002) confirmed in his research that

communication between deaf learners, their tutors/mentors and peers is the major barrier to learning for deaf learners.

### ***Lack of supervisor/colleague understanding of deaf learner's experiences***

Thabile's supervisor, Joe, revealed that he had a workforce of about thirty people who he was responsible to manage. He said that "I seldom communicated with Thabile, simply because he did not understand me and I did not have the time to learn sign language" (Interview, Joe: 2007-09-14).

According to Joe, the employees were never prepared to include Thabile in their workload sharing. Joe indicated that if the circumstances were different, he too would have appreciated to learn sign language to be able to communicate more effectively. Joe said "we have no policy or procedure to an introduction to the workplace specifically for deaf people" (Interview, Joe: 2007-09-14). It also came out that there were no policy and procedure for mentoring and coaching in his company.

Sibusiso and Leo's supervisor, Dalene, said that "although my communication with the learners was very limited, we had a sound relationship." (Interview, Dalene: 2007-09-14). Technical Computer Administrators did not have an official interpreter, in fact none of them had and interpreters were specially appointed for classes only and paid only for that time. Leo made it clear that it affected their ability to learn in the workplace. The learners all had access to computers and internet and therefore communicated with learners from the other workplaces via e-mail or chat rooms such as "Windows Live Messenger (MSN)". They were also able to keep in touch with Mary, who also had access to MSN.

### ***Language challenges to deaf learners***

Sibusiso and Leo were responsible to liaise with clients but was not placed at a call centre where telephonic support was required. The learners were placed in the second line of customer support where the call centre operators

would e-mail them the caller requests. The learners said that sometimes they did not understand the message and then had to go to the person who e-mailed them to explain the problem. Sibusiso said that “it was cumbersome and embarrassing as the impression was created that we do not respond to the requests correctly” (Interview, Sibusiso: 2007-09-12). They also experienced difficulties to communicate with their hearing colleagues/peers/mentors in the workplace. The learners said that they tried to overcome this communication barrier through other means of communication.

Stinson and Walter (1997) identified three social issues to be addressed for students to adjust effectively to higher education:

- developing social skills,
- establishing an identity, and
- acquiring independence and interdependence.

These two researchers also reported that deaf adolescents in mainstream settings prefer to relate to other deaf students. This can be confirmed as Leo and Sibusiso, who were placed with six other deaf learners at one company, sought advice and solutions from one another. Although these learners had to establish a new identity in their workplaces, they were not quite independent and could not perform their tasks as was expected.

Dalene identified explanations as a learning barrier for the learners, as it was very tedious to explain something to a deaf learner, even if they used an interpreter. This lengthy process in her opinion hampers the learner’s ability to be creative as she said “the tedious processes limit their ability to think out of the box.” (Interview, Dalene: 2007-09-14)

### ***Feelings of isolation and loneliness***

Research conducted by Foster, Long, & Snell (1999: 226) with baccalaureate-level students has shown that deaf students do not feel as much a part of the “university family” as do their hearing peers. This was confirmed by Kersting



(1997: 257) who interviewed deaf university students who had little or no previous experience with deaf culture or language. She reported that feelings of isolation, loneliness, and resentment were most intense during orientation and the critical first year. Alienation from both deaf and hearing peers was experienced and significant changes in their social lives did not occur until their second and third years, partly as a result of improved communication with deaf peers and increased participation in extracurricular activities. Kersting's (1997: 258) findings relates to this research, although not on a university level. It is true that in the workplace over a period of a few months, both learners and their supervisors found a way to adapt to the communication barriers. Dalene said "my colleagues and I have learnt to communicate with the deaf learners in a limited way using the signs that the learners taught us" (Interview, Dalene: 2007-09-14).

### **Learning support groups**

Leo and Sibusiso have supported one another in their workplace and have formed a learning support group between them and together they formed another support group with the other learners, as well as with their hearing colleagues.

Thabile said the he felt welcomed and part of the IT team at Prime Business Solutions (PBS), and his main responsibility would have been to provide technical support to the personnel of PBS. Thabile's excitement only lasted a few days as he realized that no one communicated with him except for the friendly greetings he received. He said "no one gave me work to do and I seldom saw Joe", his supervisor, who was appointed to mentor and coach him. After a week he was told that they will give him written CVs which he was supposed to type onto a computer. Although he looked forward to this data capturing task, the CVs were never given to him. Thabile said "I wanted to work as part of the IT team and was willing to capture data as part of the job, but it never happened." (Interview, Thabile: 2007-09-12).

He contacted the Programme Manager after three months and requested to be transferred to another workplace to be able to learn more. The learner

then was placed at Technical Computer Administrators, the same workplace provider where Sibusiso and Leo were placed. Thabile told me that he was much happier in the large group and he learned more in the last two months in the second workplace than in the three months at his first workplace. He said “I now do IT support what you taught us” referring to the theoretical training he received. Thabile also said that “I am happy with my friends, we know each other and they help me to learn the trade” (Interview, Thabile: 2007-09-12). This confirmed Wenger’s (1988:83) argument that one needs to share learning experiences to function as a whole in a learning environment. Thabile was able to share his learning experience with other deaf learners as soon as he entered their learning support group.

Sibusiso and Leo’s created work for themselves to keep them busy at first, such as refurbishing computers and cleaning them although they knew it had been cleaned and formatted a few times already! According to their supervisor, Dalene, they managed to perform their duties in the same time frame as that of their hearing colleagues in relation to actual work. Dalene said “the learners managed to keep up with my other employees quite amazingly!” (Interview, Dalene: 2007-09-14).

Although Technical Computer Administrators have not employed deaf learners prior to this learnership, they accommodated the deaf learners by appointing an interpreter. This contributed to the learning support group of the learners as everyone was drawn into a learning support group where they learnt from each other. When Thabile arrived at their workplace, they drew him into this support group and at the end of the learnership, Thabile gained sufficient workplace experience to complete his National Certificate.

Mary and her supervisor bonded but Mary was quite excluded from the rest of the Computer Warehouse community. I asked Mary that, if the circumstances were different and Computer Warehouse had offered her a permanent position, if she would have taken it. Mary said “No, I am not happy there”. Her explanation to this was that although the workplace was conducive for learning, she felt excluded because she did not form part of a community of practice or learning support group (Interview, Mary: 2007-09-12).

She also did mostly administrative work and although in an IT environment, she was not involved much with client relations and IT systems and technical support. Mary's supervisor, Bongile, said that it was the first time that her company employed deaf learners. They had employed disabled persons before, but never a person with a hearing impairment. Bongile formed a close relationship with Mary and also indicated that they still communicate with each other via e-mail. Bongile said that "I did not give Mary much responsibility at first, simply because it was too much effort to explain to her what she needed to do" (Interview, Bongile: 2007-09-17). If the task was urgent, Bongile would rather give the job to one of the other hearing IT technicians. As Bongile became more comfortable with Mary, she learned how to sign in a limited way and was able to give Mary more responsible work to do.

### **Learning support group, community of practice, situated learning**

This support group shows similarities with a community of practice which is described by Wenger (1998). Wenger (1998:82) mentioned that members of a community are involved in more than one relationship over time and communities develop around things that are important to people, for example learners from different backgrounds who develop their skills together. The members of a community of practice operate in the same area of knowledge and activity and this gives them a sense of joint enterprise and identity. Wenger (1988:82) argued that a community of practice needs to generate an appropriate shared repertoire of ideas, commitments and memories to function properly.

Lave and Wegner (1991:29) explain situated learning as "initially people have to join communities and learn at the periphery. As they become more competent, they move more to the 'centre' of the particular community. Learning is thus not seen as the acquisition of knowledge by individuals so much as a process of social participation."

The primary purpose of the structured workplace component of the learnership is to expose the learners to real life situations. The learners need to adhere to strict working hours, where in the institutional learning

component. They sometimes could have left earlier if their day's module was completed or if they needed to prepare for assessment. In addition the learners in the workplace also formed part of the tea clubs and social interactions of their new environment.

Clancey (1995) supports Lave and Wegner and states that the "conception of our activity within a social matrix shapes and constrains what we think, do, and say. That is, our action is situated in our role as a member of a community" (Clancey, 1995:49). It can therefore be argued that people who are more exposed in a certain community will gain more knowledge which forms the learning experience of that person. Sibusiso and Leo is the classical example of Clancey's statement as their learning experience was enriched by the learning support groups that they formed.

Thabile did not form part of a community of practice at first and his learning experience was very limited at PBS. His situation was of such nature that he did not keep himself busy at work as Sibusiso and Leo initially. Lave (1988) states that as newcomers move from the periphery of the community to its center, they become active and engaged within the micro-culture of the community. Thus when Thabile moved over to Technical Computer Administrators, he was the newcomer in the deaf learners' new learning support group and they drew him in to be active in their day to day tasks.

Dalene, the supervisor of Sibusiso and Leo and later Thabile, said that "I did not realize that the learners experienced barriers, as they managed to keep up with the other employees involved in the IT system support department" (Interview, Dalene: 2007-09-14). As a solution to the learner's barriers Dalene suggested that all other employees attend a sign language workshop for about fifteen minutes once a week to improve their communication skills

During the interviews with all four learners, Sibusiso, Leo, Mary and Thabile and their supervisors, Dalene, Bongile and Joe, it was clear that language and communication had an effect on their ability to learn in the workplace. In the interview, all of the interviewees said they had experienced difficulties in communicating with other people in the workplace during the learnership.

They were requested to explain their answers in question eleven and gave the following feedback:

Mary

“I do not write in good English, little notes and e-mails did not always explain what I needed to say. At first, Bongile did not talk to me; she talked to me after I taught her some signs.” (Interviewed, 12 September 2007)

Leo

“The first line support managers did not give us all the work to do, because they did not talk to us. We can do most of the work, but they did not give it to us.” (Interviewed, 12 September 2007)

Sibusiso

“It felt as if the learners that can hear get more work from the line managers than us. I don't know why, because we talk with each other to solve the computer problems. (Interviewed, 12 September 2007)”

Thabile

“At Prime Business Solutions, people did not give me work to do and they did not talk to me. With Technical Computer Administrators I learned more from the other learners, but I could see that the hearing learners get more experience than us deaf people.” (Interviewed, 12 September 2007)

The learners adapted their way of communication in their new environment by communication in writing, both electronically and in writing. The mentors, supervisors and colleagues at the workplace also had to make changes to accommodate the learner. Bongile learned to sign and all of them have explored ways in how to interact with the learners.

As Wenger (2003:3) said, "...learning is, in its essence, a fundamentally social phenomenon, reflecting our own deeply social nature as human beings capable of knowing." The learners and their supervisors did form a community of practice whilst learning in the workplace. Thus their learning support group enabled the learners not to only learn from their peers, but also from each other. This explains why Thabile could learn more effectively when he joined Sibusiso and Leo.

### **Social constructivism**

The principles of social constructivism are the belief that knowledge is the result of social interaction and language usage, and is a shared rather than individual experience. The people around us and their experiences also start to have an influence on the individual's learning process. While learning takes place, the environment around us has an influence on how we perceive this learning that is taking place. With social constructivism we not only measure the learning against our own experiences, but also against the experiences and influences within that specific social environment (Von Glaserfeld, 1989:122- 129).

As stated in the literature review, the deaf learners started in their workplace with only theoretical knowledge and the knowledge that they gathered from each other when they formed part of an exclusive community of practice during their institutional learning component. The tools, signs and language they used to facilitate interaction in a community of practice were unknown to the employer and its employees, including the mentors and coaches, and the changes that these learners faced in their new environment helped to form their identity. The learners were exposed to a situated learning, formed by social interaction where learning is not directly taught but is unintentional, occurring through active participation in working together with other people.

Fenwick (2001:28) statement that there are different approaches to the relationships between "knower and context, between learning and action, between mind and learning, and between educator and the process of learning" can be confirmed as the learning experience is different for each

individual, even if they are exposed to the same learning environment. Thabile was not happy with his first workplace and he did not learn as much as he did with Technical Computer Administrators as the other deaf learners helped him to form an identity.

Fenwick said : "...comparative examination of different perspectives can enlighten and raise new questions for each perspective, as well as help researchers, theorists, and educators situate and think carefully about beliefs of experience and learning underpinning their own practice." (Fenwick 2001: 55). The supervisors who acted as "educators" must understand their own perspectives on "Experiential Learning" to ensure that learners understand their perspectives in order for pre-conceived ideas to be transparent in the learning environment.

### **Summary of main results**

The outcomes of this research clearly indicate that the two learners who worked together formed a learning support group, with similar characteristics as the community of practice as described by Lave & Wenger (1991:98), whereas the two learners who worked in isolation struggled to learn effectively in the workplace. It cannot be determined for sure that Thabile's inability to learn effectively was because he was not part of a learning support group alone, as his supervisor agreed that Thabile was not given sufficient workplace experience. Thabile indicated that he learnt more effectively when he was transferred to another workplace together with other deaf learners.

The respondent's answers to the question if they incurred any other learning barriers than communication problems were as follow:

Mary

"Yes, because I travel far everyday, I'm tired at work." (Interviewed, 12 September 2007)



Leo

“Yes, we left early in the afternoons when we attended classes. Now I have to work to five and I cannot concentrate long.” (Interviewed, 12 September 2007)

Sibusiso

“Yes, I could not socialise effectively with the others.” (“others” refers to hearing colleagues) (Interviewed, 12 September 2007)

Thabile

“Yes, I was lonely” (Interviewed, 12 September 2007)

These answers indicated that effective learning did not take place; however, this will be the same for other learners and does not only apply to deaf learners.

What I also gleaned from the supervisors is that they emphasized how friendly the deaf learners are and how hard they work. The deaf learners do not get distracted by external workshop noises whereas the hearing employees would amuse each other with jokes and are easily distracted by external noises. Although the deaf learners formed part of the office community, e.g. they shared the same tea room and had breaks together; they were still an exclusive community of their own as research firms.

In all the cases the learners eventually formed a new learning support group. When more than one deaf learner works together they learn from each other and the work gets done quicker and more effectively. In the case of Thabile it is clear from the research that the lack of mentoring and coaching by an experienced supervisor created a learning barrier for him. This barrier was not solely because he was in a linguistic minority.



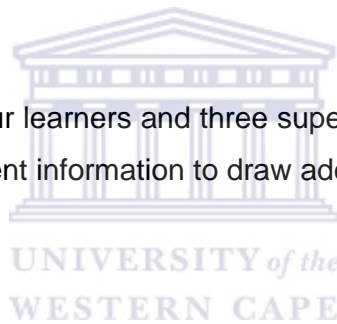
## **Reflections on use of research methods**

Huysamen (1998: 128) says the following about using both open- and close-ended questions:

“The questions in interview guides or interview schedules may be open-ended so that respondents have to formulate responses themselves, or they may be of the multiple-choice variety in which respondents have to select, from among two or more alternative responses; the one which best applies to them.”

Within the interview guide closed questions were used to ensure that the respondents addressed the issues that were seen as important for this study. Open-ended questions were added to allow respondents to elaborate where they felt it was necessary.

The sampling group of four learners and three supervisors from the workplace providers provided sufficient information to draw adequate conclusions.



## Section 5

### SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The aim of this research paper was to analyse the learning barriers among deaf learners in the structured workplace component of a learnership programme. I focused on the learning barriers and learner support for deaf learners at work as part of an Information Technology learnership. I have determined how deaf learners are faring with learning in work and identified some of the specific difficulties which they experienced during their structured workplace component of the learnership. I interviewed four learners and three mentors/supervisors from three different employers.

#### Summary of findings

I identified the inability to understand a hearing work environment as a learning barrier. This caused the learners to experience feelings of isolation and loneliness and had the following consequences:

- Lack of communication between deaf learners and work community.
- Lack of supervisor/colleague understanding of deaf learner's restrictions.
- Cumbersome explanations required for deaf learners.
- Tedious explanations between deaf learners and the work community.

I also found that when deaf learners do not form part of a community of practice or learning support group, styled as a community of practice, they fare worse than those who form part of such a community or support group. When learners are part of a community of practice or learning support group, consisting of both deaf learners and hearing colleagues who operate in the same area of knowledge and activity, a greater possibility exists that learning barriers be reduced.

My research findings relate to the situated learning theory and I was able to explain why the learner's situation contributed to their inability to learn effectively.

## **Conclusions**

The main goal of this research study is to establish why deaf learners experience learning barriers during the structured workplace component of a learnership. Overall results showed that deaf learners experienced learning barriers when they do not form part of a learning support group or community of practice. The deaf learners placed alone at a workplace, felt lonely and isolated and they did not learn as effectively as the learners who were placed in groups. Another reason for their learning barrier was that there was no formal induction to the workplace specifically for deaf learners.

The learners whom formed a support group where they can draw from each other's experiences and knowledge, learned better as shown in the research data. This finding shows similar features as the community of practice described in the literature review. The structured workplace component, as part of the integrated skills development process, has been identified as the most important part to create better employability, as the learners apply their theoretical knowledge in practice.

During the learnership while learning took place, the environment around the deaf learners had an influence on how they perceive the learning that took place. The people around them and their experiences also influenced their learning process. As described in the literature review, this process is called social constructivism where learning is not only measured against our own experiences, but also against the experiences and influences within that specific social environment (Von Glaserfeld, 1989:122-129).

I concluded my research with a narration to social constructivism as the learner's knowledge is the result of their social interaction and language usage which they shared.

The assertion according to situated learning is that deaf learners functioned and worked perfectly for learning to take place during the institutional learning component of the learnership. However, as soon as the learners were transferred to different workplaces, learning became less effective. Judy

Kalman quotes a Mexican scribe in her ethnographic study; “Work is a beautiful school” (Kalman, 2000:194). But is this really true for deaf learners when they are isolated because of their impairment?

The situated learning theory as explained by Lave and Wagner (1991) shows that social interaction is a critical component of situated learning. Lave (1988) also explained that when learners becomes involved in a community of practice which shares specific beliefs and behavior it become a critical component for situated learning to be effective. The research data confirmed that the learners who were part of a support group, consisting of both deaf learners and hearing colleagues and who operate in the same area of knowledge and activity fared better than those who did not form part of such a group.

### **Recommendations**

- Educational research is a useful tool for effecting positive change through innovation. Discovering new ways to synthesize meaningful research findings and translating them to improved access and success for deaf students in higher education should be a priority.
- My research findings reported across different contexts may suggest directions for policy makers, such as the Government, SAQA, the SETAs and Department of Education, while also raising important issues for further study.
- Through this research and networking initiative, a fuller range of educational innovation efforts may help policy makers reach informed decisions about ongoing systemic improvement.
- By taking an integral role in addressing the issues that are central to reform, researchers will help training providers to become more active consumers of research findings and more active in preparing for the delivery of educational programmes.
- Training providers involved with learnerships need to assist employers in the preparation of the working environment for the deaf learner.
- Employers should be encouraged to have a mentoring/coaching to new employees policy and procedure.

### ***Anomalies and possible reasons for them***

The only possible anomaly found during the research was that Thabile did not receive the practical experience at his first workplace as he should have. This resulted in the researcher's inability to analyse his experience of learning barriers as stated in the hypothesis. This could have been avoided if a proper workplace evaluation was done prior to the placements. The training provider could then have identified another workplace provider who would have been able to place Thabile and give him the proper practical experience. That Thabile was moved to another workplace provider during the last term of the learnership, contributed to his success in completing the learnership. During his practical at the second workplace where he was placed together with eight other deaf learners, he gained the necessary experience to obtain the required qualification.

### ***Larger relevance of study and aspects that may need further research***

I agree that deaf learners experience learning barriers during the structured workplace component of a learnership when they do not form part of a community of practice consisting of deaf learners. Much research has been conducted with pre-and post school learners regarding learning barriers of deaf learners in classrooms, but I could not find any research regarding learning barriers in a workplace situation such as on-the-job coaching and learnerships. Further research will also determine if similar findings can be made.

The importance for deaf learners of working in a learning support group, structured as a community of practice, whether it is in the institutional learning component or the structured workplace component, can not be underestimated. It is recommend to all training providers, who are involved with learnerships and the placement of the learners, that they should not place deaf learners alone without other deaf learners at a workplace, but rather in a group of two or more. SAQA can assist in this by implementing a policy and procedure in this regard to ensure that the deaf learners learn from their workplace and from one another. The SETAs should develop an

induction to the workplace template document for participating employers who must implement this formal and structured introduction to the workplace for deaf learners. Both the training provider and workplace should assist the deaf learner in adapting to his working environment to overcome the learning barrier. In our new all inclusive society the workplace must also adapt if and as it is needed for the deaf learner to function effectively.



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**INTERVIEW GUIDE FOR**  
**LEARNERS**



## INTERVIEW GUIDE FOR LEARNERS

### AN ANALYSIS OF LEARNING BARRIERS AMONG DEAF LEARNERS IN THE STRUCTURED WORKPLACE COMPONENT OF A LEARNERSHIP PROGRAMME

This research questionnaire is applicable to deaf learners who completed the National Certificate in Information Technology: Technical Support Learnership – NQF Level 4, at a private provider at the end of 2006. As researcher, Gillian van der Westhuizen, I give my assurance that personal information and information about the workplace that provided the structured workplace component of the Learnership will not be made public to any entity. Only the results of the research will be made available to third parties such as the ISETT SETA and the Management of the Training Provider.

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1. Complete the following details if available. It will only be used by the researcher for administration purposes, and will not be mentioned in the research findings or reports. If all these details are not available, complete only your name.

<b>Name:</b>	
<b>Workplace during learnership:</b>	
<b>Address 1:</b>	
<b>Address 2:</b>	
<b>City/Town:</b>	
<b>Province:</b>	
<b>Postal Code:</b>	
<b>Country:</b>	
<b>E-Mail Address:</b>	

2. What is your gender? Please mark with an **X**.

<b>Male:</b>	<input type="checkbox"/>
<b>Female:</b>	<input type="checkbox"/>

3. What is your race? Please mark with an **X**.\*

<b>Black:</b>	<input type="checkbox"/>
<b>Indian:</b>	<input type="checkbox"/>
<b>Colored:</b>	<input type="checkbox"/>
<b>White:</b>	<input type="checkbox"/>

\* This information is needed for statistical purposes only.

4. What is your current age? Please mark with an **X**.

<b>Between 18 and 25:</b>	
<b>Between 26 and 30:</b>	
<b>Between 31 and 35:</b>	
<b>Above 35:</b>	

5. Can you please give some historical background on your previous education and disability? Please mark with an **X**.

<b>Attended a school for deaf people:</b>	
<b>Grew up in a household where others could also sign:</b>	
<b>I can read lips:</b>	
<b>I can hear partly:</b>	

6. Please tick **YES** or **NO** to the following questions

	<b>YES</b>	<b>NO</b>
<b>Are you currently employed</b>		

7. If your answer is Yes, please tick the following questions, if your answer is NO, proceed to the next question.

	<b>YES</b>	<b>NO</b>
<b>Is your employment relevant to the IT Learnership that you have completed in 2006?</b>		

8. Please tick **YES** or **NO** to the following questions

	<b>YES</b>	<b>NO</b>
<b>Did you form a close learning relation towards other deaf learners during the institutional learning component of the learnership?</b>		
<b>If your answer is yes to the above, did this learning relationship benefit your ability to learn?</b>		

9. Please explain how your learning was benefited or prohibited.

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10. Please tick **YES** or **NO** to the following questions. During the structured workplace component of the learnership...

	YES	NO
<b>Where you the only deaf person in the workplace?</b>		
<b>If you were not the only deaf learner in the workplace, did you form a close learning relation towards other deaf learners in the workplace?</b>		
<b>Did you liaise with clients in the work during the learnership?</b>		
<b>Did you experience any difficulties to communicate with other people in the work during the learnership?</b>		

11. If your answer is yes and you have experienced difficulties to communicate with others, how did you overcome the communication barrier? Please explain.

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12. Please answer the following question by ticking as many answers as necessary. During the structured workplace component of the learnership...

<b>You communicated to people without hearing disabilities in your work by means of sign language.</b>	
<b>You communicated to people without hearing disabilities in your work by means of typing letters and/or e-mail.</b>	
<b>You communicated to people without hearing disabilities in your work by using an interpreter.</b>	
<b>Your supervisor in the workplace communicated to you by means of sign language.</b>	
<b>Your supervisor in the workplace communicated to you by means typing letters and/or e-mail.</b>	
<b>Your supervisor in the workplace communicated to you by means of an interpreter.</b>	
<b>You used other means to communicate (e.g body language)</b>	

13. Please answer the following questions as elaborate as possible

13.1 Did your hearing impairment affect your ability to learn in the workplace? Please explain.

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13.2. Did you incur any other learning barriers than communication problems? Please explain.

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**INTERVIEW GUIDE FOR**  
**SUPERVISORS/MENTORS**





## INTERVIEW GUIDE FOR SUPERVISORS/MENTORS

This research questionnaire is applicable to workplace providers whom acted as the lead or host workplace provider for deaf learners participating in the National Certificate in Information Technology: Technical Support Learnership – NQF Level 4, before end of 2006. I, Gillian van der Westhuizen, as researcher give my assurance that personal information and information about the workplace that provided the structured workplace component of the Learnership will not be made public to any entity. Only the results of the research will be made available to third parties such as the ISETT SETA and the Management of the Private Training Provider.

1. Complete the following details if available. It will only be used by the researcher for administration purposes, and will not be mentioned in the research findings or reports. If all these details are not available, complete only your name.

<b>Name:</b>	
<b>Company Name</b>	
<b>Position Held</b>	
<b>Address 1:</b>	
<b>Address 2:</b>	
<b>City/Town:</b>	
<b>Province:</b>	
<b>Postal Code:</b>	
<b>E-Mail Address:</b>	

2. Can you please give some background on your previous experience with learnerships? Please mark with an **X**.

<b>You have hosted learners on previous learnerships</b>	
<b>This is you first interaction with learnerships</b>	
<b>You are familiar with hosting learners with disabilities on learnerships</b>	

3. Please tick **YES** or **NO** to the following questions

	YES	NO
<b>You have disabled employees</b>		
<b>You have employed deaf learners after completion of a learnership</b>		

4. Please tick **YES** or **NO** to the following questions

	YES	NO
<b>Did you form a close learning relationship with the deaf learners during the institutional learning component of the learnership?</b>		

5. Please explain how you communicated with the learners.

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6. What main tasks were the learners responsible for in their job? (Briefly list or attach learner job description if possible)

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7. What, in your opinion, would you identify as a learning barrier for the deaf learners in the workplace? Please explain.

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8. Was it necessary to move/rotate/shift the learner to another position in the company because of learning barriers?

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9. What solution to the barriers do you have? (How can the barriers be limited/ eliminated in the future)

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10. Please tick **YES** or **NO** to the following questions. During the structured workplace component of the learnership...

	<b>YES</b>	<b>NO</b>
<b>Did the learners liaise with clients in the work during the learnership?</b>		
<b>Did you notice that the learners experienced any difficulties to communicate with other people in the work during the learnership</b>		

11. Please elaborate on your answers in Q10.

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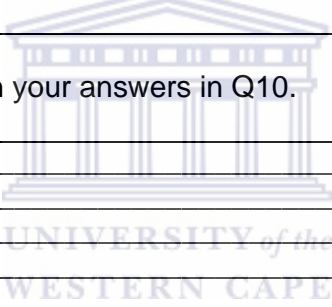
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12. Other comments

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## Appendix 3

**Registered Qualification**  
**Information Technology**  
**Technical Support NQF4**





*All qualifications and unit standards registered on the National Qualifications Framework are public property. Thus the only payment that can be made for them is for service and reproduction. It is illegal to sell this material for profit. If the material is reproduced or quoted, the South African Qualifications Authority (SAQA) should be acknowledged as the source.*

**SOUTH AFRICAN QUALIFICATIONS AUTHORITY  
REGISTERED QUALIFICATION:**

**National Certificate: Information Technology: Technical Support**

<b>SAQA QUAL ID</b>	<b>QUALIFICATION TITLE</b>		
24293	National Certificate: Information Technology: Technical Support		
<b>Originator</b>		<b>REGISTERING PROVIDER</b>	
SGB Information Systems and Technology			
<b>Quality Assuring ETQA</b>			
ISETT-Information Systems, Electronics and Telecommunication Technologies			
<b>QUALIFICATION TYPE</b>	<b>FIELD</b>	<b>SUBFIELD</b>	
National Certificate	Field 10 - Physical, Mathematical, Computer and Life Sciences	Information Technology and Computer Sciences	
<b>ABET BAND</b>	<b>MINIMUM CREDITS</b>	<b>NQF LEVEL</b>	<b>QUAL CLASS</b>
Undefined	163	Level 4	Regular-Unit Stds Based
<b>REGISTRATION STATUS</b>	<b>SAQA DECISION NUMBER</b>	<b>REGISTRATION START DATE</b>	<b>REGISTRATION END DATE</b>
Reregistered	SAQA 0160/05	2007-01-23	2010-01-23

**PURPOSE AND RATIONALE OF THE QUALIFICATION**

The purpose of this qualification is to build a foundational entry into the field of Computer Sciences and Information Technology, specifically into the field of Systems Support, covering basic knowledge needed for further study in the field of Systems Support at Higher Education Levels.

The qualification can be acquired in the traditional way of formal study as well as in the workplace, through learnerships. Acquiring the qualification through learnerships has the potential of addressing the problems of the past, where newly qualified people getting into the industry struggled to get employment, because they were required to have practical experience. The workplace experience can now be gained while acquiring the qualification through the various learnership schemes that are planning to use this qualification.

A Qualifying learner at this level will be a well-rounded entry-level Systems Support professional with a good fundamental knowledge of the Information Technology field, coupled with interpersonal and business skills, allowing for specialisation in one of the following Systems Support fields:

- Hardware and Infrastructure Support for Personal Computers
- Hardware and Infrastructure Support for Office Products
- Data Communications and Networking
- (and any new field not specified yet, allowing for new specialisations in this area)

The qualification is designed to:

- Provide learners with an entry level for further study in Information Technology and related fields, as well as for initial employment in the computer industry.
- Allow many of the listed unit standards to be used in Learnership Schemes in the Information Systems and Technology sector, as well as other sectors where Information Technology is a key requirement.
- Provide a foundational qualification for people who are pursuing a career in the computer industry, or related fields. People with this qualification have an introductory level of understanding about computer industry concepts and/or are able to work in areas of Information Technology with little technical complexity. Examples of the areas covered are entry-level hardware, software, electronics and network support, on mainly (but not limited to) desktop and hand-held devices and local area networks.
- Allow the credits achieved in the National Certificates in Information Technology (Level 2 & 3) to be used as foundation (i.e. learning assumed to be in place) for the requirements of this qualification.
- Have a flexible structure to allow for changing requirements in the computer industry, and to allow providers to create learning programmes with a predominantly Information Technology Support component but tailored to meet the local, national or international needs.

#### Rationale of the qualification

This qualification has been formulated such that it reflects the workplace-based needs of the Information Technology Industry as expressed by its stakeholders. The input has been used to ensure that the qualification provides the learner with accessibility to be employed within the IT Industry.

The introduction of national qualifications in Information Technology based on unit standards will allow learners to qualify for a national qualification by accumulating the required credits via short learning programmes or workplace practical experience or both. It also allows learners to achieve the qualifications through recognition of prior learning and/or learnerships schemes, overcoming past barriers in the methods of achieving formal qualifications.

Academically this National Certificate is intended to be an entry-level qualification in the area of Systems Support. The qualification builds on knowledge areas covered in National Certificates and short learning programmes at NQF level 2 to 4, and it facilitates entry into the Systems Support field. It aims to enhance readiness for further study in Information Technology and related fields at the Further Education level, provides a pathway into further study at Higher Education level, as well as providing for initial employment in the computer industry.

One of the most important needs for this qualification is to provide for the recognition of prior learning. There are currently no unit standards based registered qualifications in the Systems Support area. However, hardware and networks are being installed, maintained and upgraded on a daily basis in a number of different industry sectors. People with workplace experience in the areas covered by this qualification will now be allowed to request assessment and get recognition for prior learning.

The qualification provides the learner with the flexibility to articulate in the IT environment with a wide variety of specialisation options and articulation within the Telecommunications, Information Technology and Electronic Industries and other industries where IT is a key component, like the Financial Services Industry.

#### **LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING**

It is assumed that the learner is competent in skills gained at the further education and training band, with exposure to computing as an advantage, but not a requirement. A learning assumption of this qualification is foundational skills in English and Mathematics at

NQF level 3. Further learning assumed is the ability to use a personal computer competently, and competence in the unit standard, "Participate in formal meetings", NQF Level 2 (ID 14911).

The assumed learning can be acquired in the traditional way of formal study as well as in the workplace. Acquiring the competencies in a workplace (either via formal learnerships or normal on-the-job training) has the potential of addressing the problems of the past, where formal qualifications were only obtainable by way of formal study.

#### Recognition of prior learning (RPL)

Many of the competencies used in the Information Technology profession has traditionally been acquired through short courses and on-the-job training, which did not provide formal recognition of the knowledge and skills acquired. These competencies are still today viewed by most industries as invaluable, with the sad reality that there is no formal recognition. The nature of the Information Technology field means that competence is developed experientially, therefore the assessment processes should recognise experience versus theoretical knowledge. Recognition of prior learning will now allow people with these valuable competencies to be assessed and recognised formally.

Any learner wishing to be assessed may arrange to do so without having to attend further education or training. For recognition of prior learning the learner will be required to submit a portfolio of evidence of relevant experience, in a prescribed format, to be assessed for formal recognition. The assessor and learner will decide jointly on the most appropriate assessment procedures, subject to the assessment rules of the relevant ETQA. Learning assumed to be in place must be assessed by the assessor prior to any assessment relating to this qualification.

#### RECOGNISE PREVIOUS LEARNING?

Y

#### QUALIFICATION RULES

Rules of Combination for the qualification

Rules regarding the number of credits

The qualification consists of a minimum of 163 credits and has been designed in accordance with the SAQA rules of combination.

Rules regarding Fundamental, Core and Electives

1. All fundamental outcomes are compulsory for this qualification. This is in excess of the 56 credits that are mandatory according to the SAQA FET Policy. The fundamental unit standard titles that are compulsory are listed in the qualification matrix.
2. All core outcomes are compulsory (70 credits)
3. Additional standards from any other SAQA field or sub-field may be added to the listed electives.
4. A minimum of 20 elective credits need to be completed out of one of the elective specialisation fields.
5. The qualification description will list the field(s) of specialisation on the qualification document.

Below is a list of the elective unit standards that are grouped per specialisation field. A minimum of 20 credits from any one specialisation field is needed to be recognised as a specialisation field. Depending on the credits achieved, more than one specialisation field might be printed on the qualification certification documentation.

Specialisation Field: Hardware and Infrastructure Support for Personal Computers - 60 credits  
14922; Demonstrate knowledge of principles of electronic logic for computing ; L4; 9 credits  
14929; Describe Computer Cabling ; L4; 4 credits  
14934; Demonstrate an Understanding of Hardware Components for Personal Computers or Hand-held Computers ; L4; 7 credits  
14939; Assemble a Personal Computer or Hand-held Computer and peripherals from modules ; L4; 7 credits  
14935; Repair Peripherals for a Personal Computer or Hand-held Computer to Module Level; L4; 9 credits

14940; Repair a Personal Computer or Hand-held Computer to module level ; L4; 12 credits  
14950; Install a Personal Computer or Hand-held Computer and Peripherals ; L4; 7 credits  
14943; Install system software and applications software for a Personal Computer or Hand-held Computer; L4; 5 credits

Specialisation Field: Data Communications & Networking Support - 56 credits

14922; Demonstrate knowledge of principles of electronic logic for computing ; L4; 9 credits  
14928; Demonstrate knowledge of basic concepts of telecommunications ; L2; 7 credits  
14932; Describe Synchronous and Asynchronous Communication with Computers ; L3; 6 credits  
14947; Describe data communications ; L3; 4 credits  
14942; Demonstrate an understanding of computer network communication ; L4; 9 credits  
14931; Install networked computer application software ; L4; 5 credits  
14953; Install a Local Area Network ; L4; 10 credits  
14937; Apply the Principles of Supporting Users of a Local Area Network ; L4; 7 credits

Specialisation Field: Hardware and Infrastructure Support for Office Products - 27 credits

14922; Demonstrate knowledge of principles of electronic logic for computing ; L4; 9 credits  
14936; Describe and install scanning systems ; L4; 3 credits  
14946; Describe and install photocopier machines. ; L4; 3 credits  
14952; Describe and install a facsimile machine. ; L4; 2 credits  
14945; Describe and install computer printers. ; L4; 2 credits  
14941; Describe and install colour copiers/printers ; L4; 4 credits  
14948; Describe and install high-volume photocopier machines. ; L4; 4 credits

## EXIT LEVEL OUTCOMES

Exit Level Outcomes:

A learner will be able to

1. Communicate effectively with fellow IT staff & users of information systems.
2. Demonstrate an understanding of different types of computer systems and the use of computer technology in business.
3. Demonstrate an understanding of problem solving techniques, and how to apply them in a technical environment.
4. Demonstrate an understanding of Computer Technology Principles.
5. Select and use materials and equipment safely for technological purposes.
6. Work effectively as a team member within a support team.
7. Carry out, under supervision, a small size task to demonstrate knowledge of techniques & skills needed in one or more of the following areas of majoring/specialisation:
  - Hardware and Infrastructure Support for Personal Computers
  - Hardware and Infrastructure Support for Office Products
  - Data Communications and Network Support

In addition to the above, unit standards will be utilised to provide depth of specification of the outcomes ranges and the assessment criteria and processes.

## ASSOCIATED ASSESSMENT CRITERIA

Assessment Criteria for Exit Level Outcomes

In particular, assessors should check that the learner is able to demonstrate an ability to consider a range of options and make decisions, meeting the following criteria:

1. Effective Communication is demonstrated with fellow IT staff & with users of information systems, in the form of written and verbal communication.
2. An understanding of different types of computer systems and the use of computer technology in business is demonstrated, being able to describe the different computers systems and associated hardware and network configurations and investigate (sometimes under supervision) its use within organisations.
3. The ability to identify different problem solving techniques, and when and how to apply them, is demonstrated.
4. A fundamental understanding of Computer Technology Principles are demonstrated by



- explaining computer architecture, networking and operating systems concepts, as well as different data storage methods.
5. An understanding of use of equipment safely for technological purposes is demonstrated, being able to install, maintain and upgrade hardware or infrastructure in areas of specialisation, according to customers' Service Level Agreements, manufacturers' recommendations and safety regulations.
  6. Working effectively as a team member within a support environment, taking part in team activities and understanding different roles within different support teams.
  7. The knowledge of the techniques & skills needed in one or more areas of specialisation is demonstrated by carrying out a small size task that is covering the assessment criteria explained in the unit standards selected in the specialising area being assessed in.

In addition to the above, unit standards will be utilised to provide depth of specification of the outcomes ranges and the assessment criteria and processes.

Furthermore, the assessment process should also cover the following generic components:

- Measure the quality of the observed practical performance as well as the theory and underpinning knowledge behind it;
- Use methods that are varied to allow the learner to display thinking and decision making in the demonstration of practical performance;
- Maintain a balance between practical performance and theoretical assessment methods to ensure each is measured in accordance with the level of the qualification; and
- Ensure that the relationship between practical and theoretical is not fixed but varies according to the outcomes being assessed.

Assessment of Critical Cross-field Outcomes:

To ensure applicability of Fundamental and Critical Cross-field Outcomes this should be assessed as part of Core and Elective assessments.

Integrated Assessment:

Development of the competencies may be through a combination of formal and informal learning, self-learning, training programmes and work-based application. The practical, applied, foundational and reflexive competencies demonstrated for the group of assessment criteria in this qualification, must prove that the whole competence is more than the sum of the parts of the competencies. Providers should conduct diagnostic and formative assessment. Formative, continuous and diagnostic assessments should also take place in the work place, if applicable. The learner should also be able to assess him or herself and determine readiness for a summative assessment against this qualification.

During integrated assessments the assessor should make use of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflexive competencies. Input to completing the Integrated Assessment typically makes use of combinations of the following assessment methods:

1. Time-constrained written examinations
2. Coursework Evaluations
3. Continuous Evaluation
4. Practical Evaluation
5. Evaluation of Portfolios of Evidence

#### **INTERNATIONAL COMPARABILITY**

The concept of qualifications based on unit standards is not unique to South Africa. This qualification and unit standards have been evaluated against, and are comparable to core knowledge and specialised knowledge elements found in the following International Qualifications Frameworks:

- New Zealand NQF,
- Australian NQF,
- British NVQs.

Furthermore input to the development of the qualification has been benchmarked against the

following International sources, where the outcomes and assessment criteria, degree of difficulty and notional learning time has been compared:

- City and Guilds Certificate and Diploma for IT Technicians (refer 7261 IT Scheme administered by ISETT),
- NCC Education`s International Certificate and Diploma in Computer Studies for IT Professionals,
- CompTIA`s A+ and N+ certification,
- Microsoft MCSE certification
- E-Skills

This qualification combines the NQF principles and requirements, with Internationally accepted Knowledge Areas required in a System Support Qualification.

### **ARTICULATION OPTIONS**

Upon successful completion of the qualification, the learner will understand the role of a Systems Support Technician and be able to competently carry out the exit level outcomes of the qualification, in a business environment. The purpose of this qualification is stated as being a foundational qualification at the Further Education and Training band (level 4), allowing for further study in Information Technology and related fields at Higher Education levels. This will allow the qualified learner to progress to further qualifications either in Systems Support or other IT domains, or in other related industries where IT is a key component.

In particular, this qualification has been designed to allow entry into either the National Certificates in Systems Support at NQF level 5 or the National Certificate in Systems Development at NQF level 5, but can also be used as foundational to other IT qualifications that will be defined in future.

### **MODERATION OPTIONS**

- Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor or moderator with the relevant ETQA.
- Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.
- Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQAs policies and guidelines for assessment and moderation.
- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise.
- Moderation should also encompass achievement of the competence described both in individual unit standards as well as the integrated competence described in the qualification.
- Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited for assessment by the relevant ETQA.

To ensure that national standards are maintained, the final assessment should be conducted on the following basis, which will be under the control of the relevant ETQA`s (ISETT SETA or other relevant ETQA`s):

- National assessment of written papers and/or practical assignments needs to be undertaken, by the relevant ETQA. This must include the necessary assessment tools (eg. marking schemes) to ensure consistent assessment. This function can be performed by the ETQA itself or a nominated body or bodies.
- Assessment can be institutional or workplace based and must be done by a registered assessor.
- External moderation will be undertaken as required, to ensure that the quality of NQF standards maintained nationally.

### **CRITERIA FOR THE REGISTRATION OF ASSESSORS**

The criteria to register as an assessor includes the following:

- Assessors should be registered as assessors with the relevant ETQA, in accordance with the policies and procedures defined by the ETQA.
- Have a relevant academic qualification or equivalent recognition, at a level higher than the qualification being assessed.

- All registered assessors must have met the requirements of the generic assessor standard, and should be certificated by the ETDP SETA or by the relevant ETQA in agreement with the ETDP SETA in this regard.

## NOTES

Knowledge Areas covered by the qualification

This qualification addresses the following knowledge areas being developed for the IT qualifications framework, inter alia:

- Competence in providing a variety of support services to users of IT, with limited supervision and direction of others.
- Contributing to solving user technical problems and meeting their support needs.
- Apply problem solving techniques to given user technical problems and solving the problems, according to customers` Service Level Agreements and manufacturers` recommendations.
- Review of customer usage of IT support services and implementation of specified improvements to the support services.
- Application of a range of IT technical skills and knowledge to meet user needs, within designated responsibilities
- Competence in dealing directly with customer staff.
- Understand the structure of a typical systems support teams, knowing the different roles and knowing when to ask for assistance in performing the above tasks.

Level Description of the qualification:

The knowledge areas listed in the notes section of this qualification display competence that are complex and non-routine, which is appropriate at this level. It involves the application of knowledge and skills in a limited range of varied work activities, performed in a wide variety of contexts. Some level of responsibility and autonomy is allowed, where control or guidance of others is often required, although complete responsibility is assumed for the quantity and quality of the individuals own outputs. Collaboration with others, perhaps through membership of a work group or team, may often be a requirement.

This also supports the SAQA approved level descriptors at this level, as listed below:

Foundational Competence:

- Possession of wide-ranging scholastic/technical skills.
- Possession of a broad knowledge base incorporating some theoretical concepts.
- Demonstrate the ability to access, analyse and evaluate information independently.
- Employ a range of responses to well defined but often unfamiliar or unpredictable problems.

Progression is manifested by the change from routine responses at level 3 to generation of responses at level 4.

Practical Competence:

- Operate in a variety of familiar and unfamiliar contexts under broad guidance and evaluation.
- Select from a considerable choice of procedures.
- Give presentations to an audience.

There is evidence of progression in terms of the range of skills, choice of actions and the ability to present information to others.

Reflexive Competence:

- Complete responsibility for quantity and quality of output.
- Possible responsibility for the quantity and quality of output of others.

Progression is marked by a significant increase in responsibility for individual outputs and the need to interact with others. At level 4, the learner can assume leadership roles of a limited nature.

Qualification Naming and Specialisation Description:

The Information Technology sub-field has been broken into various domains, of which Systems Support is one. Qualification names will be linked to these domains, with specialisation descriptions attached to the qualification certification document being produced. The reason for this is firstly to reduce the number of qualifications needed to be registered to a manageable level, and secondly to have the qualification linked to the typical structure of the Information Technology industry. Finally we want to have the qualification certification document to reflect fields of specialisation, for unit standards that has been achieved within listed fields of specialisation. These specialisation fields are defined as part of the elective unit standards for the qualification. This will allow flexibility in future to add new specialisation fields without having to redefine the whole qualification. This is very important to the IT industry which is a very dynamic and fast changing industry.

The naming of this qualification is as follows:

National Certificate in Information Technology: Technical Support - (NQF level 4),

Specialising in one or more of the following fields:

- Hardware and Infrastructure Support for Personal Computers
- Hardware and Infrastructure Support for Office Products
- Data Communications and Network Support
- (and any new field not specified yet, allowing for new specialisations in this area)

A minimum of 20 credits from any one specialisation field is needed. The specialisation field(s) will be printed on the qualification certification documentation.

**UNIT STANDARDS:**

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Core	<a href="#">10313</a>	Comply with service levels as set out in a Contact Centre Operation	Level 4	10
Core	<a href="#">10025</a>	Handle a range of customer complaints	Level 4	4
Core	<a href="#">114636</a>	Demonstrate an understanding of preventative maintenance, environmental and safety issues in a computer environment	Level 3	6
Core	<a href="#">14913</a>	Explain the principles of computer networks	Level 3	5
Core	<a href="#">14908</a>	Demonstrate an understanding of testing IT systems against given specifications	Level 4	6
Core	<a href="#">14926</a>	Describe information systems departments in business organisations	Level 4	3
Core	<a href="#">14921</a>	Describe the types of computer systems and associated hardware configurations	Level 4	6
Core	<a href="#">14917</a>	Explain computer architecture concepts	Level 4	7
Core	<a href="#">14944</a>	Explain how data is stored on computers	Level 4	7
Core	<a href="#">14963</a>	Investigate the use of computer technology in an organisation	Level 4	6
Core	<a href="#">14919</a>	Resolve computer user's problems	Level 4	5
Core	<a href="#">14938</a>	Resolve technical computer problems	Level 4	5
Fundamental	<a href="#">9303</a>	Communicate verbally with clients in a financial environment	Level 3	3
Fundamental	<a href="#">9302</a>	Access information in order to respond to client enquiries in a financial services environment	Level 3	2
Fundamental	<a href="#">8968</a>	Accommodate audience and context needs in oral communication	Level 3	5

Fundamental	<a href="#">8969</a>	Interpret and use information from texts	Level 3	5
Fundamental	<a href="#">8973</a>	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	<a href="#">8970</a>	Write texts for a range of communicative contexts	Level 3	5
Fundamental	<a href="#">12154</a>	Apply comprehension skills to engage oral texts in a business environment	Level 4	5
Fundamental	<a href="#">12155</a>	Apply comprehension skills to engage written texts in a business environment	Level 4	5
Fundamental	<a href="#">9015</a>	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life related problems	Level 4	6
Fundamental	<a href="#">14927</a>	Apply problem solving strategies	Level 4	4
Fundamental	<a href="#">8974</a>	Engage in sustained oral communication and evaluate spoken texts	Level 4	5
Fundamental	<a href="#">14920</a>	Participate in groups and/or teams to recommend solutions to problems	Level 4	3
Fundamental	<a href="#">8975</a>	Read analyse and respond to a variety of texts	Level 4	5
Fundamental	<a href="#">9016</a>	Represent analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 4	4
Fundamental	<a href="#">7468</a>	Use mathematics to investigate and monitor the financial aspects of personal, business, national and international issues	Level 4	6
Fundamental	<a href="#">8976</a>	Write for a wide range of contexts	Level 4	5
Elective	<a href="#">14928</a>	Demonstrate knowledge of basic concepts of telecommunications	Level 2	7
Elective	<a href="#">14947</a>	Describe data communications	Level 3	4
Elective	<a href="#">14932</a>	Describe Synchronous/ Asynchronous Communication with computers	Level 3	6
Elective	<a href="#">14937</a>	Apply the principles of supporting users of local area networks	Level 4	7
Elective	<a href="#">14939</a>	Assemble a personal computer or handheld computer and peripherals from modules	Level 4	7
Elective	<a href="#">14942</a>	Demonstrate an understanding of computer network communication	Level 4	9
Elective	<a href="#">14934</a>	Demonstrate an understanding of hardware components for personal computers or handheld computers	Level 4	7
Elective	<a href="#">14922</a>	Demonstrate knowledge of the principles of electronic logic for computing	Level 4	9
Elective	<a href="#">14952</a>	Describe and install a facsimile machine	Level 4	2
Elective	<a href="#">14941</a>	Describe and install colour copiers/printers	Level 4	4
Elective	<a href="#">14945</a>	Describe and install computer printers	Level 4	2
Elective	<a href="#">14948</a>	Describe and install high-volume photocopier machines	Level 4	4
Elective	<a href="#">14946</a>	Describe and install photocopier machines	Level 4	3
Elective	<a href="#">14936</a>	Describe and install scanning systems	Level 4	3
Elective	<a href="#">14929</a>	Describe computer cabling	Level 4	4
Elective	<a href="#">14953</a>	Install a local area network	Level 4	10

Elective	<a href="#">14950</a>	Install a personal computer or handheld computer and peripherals	Level 4	7
Elective	<a href="#">14931</a>	Install networked computer application software	Level 4	5
Elective	<a href="#">14943</a>	Install system software and application software for a personal computer or hand-held computer	Level 4	5
Elective	<a href="#">14940</a>	Repair a personal computer or hand-held computer to module level	Level 4	12
Elective	<a href="#">14935</a>	Repair peripherals for a personal computer or handheld computer to module level	Level 4	9

