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UNDERSTANDING LEARNING STYLES OF ADULT LEARNERS IN THE VHEMBE DISTRICT MUNICIPALITY

By

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DECLARATION

I, Selaelo Kgomommu hereby declare that the dissertation for the Master of Arts of degree at the University of Venda hereby submitted by me, has not previously been submitted for a degree at this or any other University and that it is my own work in design and in execution and that all reference material contained here has been duly acknowledged. It is the result of my effort through the professional guidance of my dedicated supervisor.

SKgomommu

Signature

08-04-2010

Date

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Abstract

Little is still known about the Vhembe district municipal employees' learning style although considerable research on learning styles has been conducted. The purpose of this study was to investigate and understand the different learning styles among municipal employees in order to develop appropriate strategies to be used by instructors during training and determine the relationship between those learning styles and training methods. The method of data collection for this study is quantitative in nature using a self-designed questionnaire consisting of 34 items. The findings of this study revealed that Vhembe district municipal employees prefer visual learning compared to verbal learning. Active learning was preferred to reflective learning. However, both sensing and intuitive learning received equal preference. The municipal employees also preferred sequential learning to global learning. The findings also revealed that training methods, which ere suitable for the Vhembe district municipal employees are lectures, video tapes, computer based learning, and group discussions. The findings of this study suggest that those training methods are effective when used to train employees that are visual, verbal, active, and sequential learners. A considerable number of training methods is effective; however, the effectiveness of the training method largely depends on the instructor. If the instructor understands the learner's learning style, it will be easier for the instructor to select the training methods that will accommodate most of the learners. The importance of this study is to assist employees and trainers to identify the most suitable learning styles and training

methods which will assist in enhancing performance and productivity in the municipalities.

TABLE OF CONTENTS

CHAPTER TWO

LITERATURE REVIEW

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

APPENDIX

CHAPTER 1

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

The current state of the South African labour market is undergoing a transformation process regarding technological, economical, political, and social advancement if thus requires a skilled labour force in order to compete with global markets. Global competition demands that South African organizations strive to become learning organization. These new developments have put more pressure on adults to continue upgrading their skills in order to remain useful recourses in their workplace.The new South African government identifies lifelong learning as a priority to solve the problems of illiteracy and an unskilled labour force created by the past apartheid government. South African business organizations recognize that there is a shortage of highly skilled personnel. The way in which people perceive a certain learning process, and retain and integrate new information is determined by learning style preferred by that particular individual. It is important to understand how different people learn. Adult learning has long been recognized, understanding the role of adult learning has developed through time and adult learning has become vital in the economic, political, and cultural transformation of individuals, organizations and societies (UNESCO, 2009).

The *Department of Public Service and Administration* (DPSA) states that in order to transform and accelerate service delivery to the South African citizens, there is a need for the public service sector to empower people with the required skills in order to address the resistance to change. Organizational learning is one of the strategies for empowering people to embrace transformation. The current economy is an economy of knowledge, which requires the maximum exploitation of the organizational knowledge to be able to make the required impacts.

Education and training requirements are at the center of transformation of the public service sector in South Africa. The *Green Paper on Public Service Training and Education* (1997) identifies problems related to pubic service training and education both in the past and present. Public service training and education was limited to meeting a narrowly defined band of needs, with particular emphasis on management, which was predominantly white and male in composition. The Green Paper further emphasizes the fact that public service education and training should be integrated with training and education in the broader society. There is also a need to align education and training to the affects and skills revolution outlined in the *Department of Labour's Green Paper on Skills Development* (1997). South Africa is facing a crisis requiring skills. It is therefore important for the public service sector to build a new skills profile, which will develop the competency of current employees as well as new entrants to the public service (COSATU, 1997).

We know more about how children learn than about how adults learn. In order to understand the learning styles of adults, one must understand the different learning theories and models. There are many learning theories, each of them emphasizing various aspects of the teaching and learning process. Naturally there is an overlap between what is known about adult learners and what these learning theories tell us about the learning process (Kemp & Smellie, 1994).

Learning plays an important role in our daily lives as well as at work. Adult learning includes all learning activities in the education system and beyond education. It involves the acquisition of knowledge and skills important to learning effectively in any situation. According to (Haverkamp, 1983) when adults grow older their individual differences in motivation, goals, intelligence, cognitive development and academic preparation, employment background, experience, skills level and initiative becomes increasingly differentiated. According to Jonnassen & Grabwski, 1993) learners are different in their ability and preferences for processing information, the ability to apply the information into meaningful situations. The individual differences cannot be directly observed, but what can be observed is the manner in which individuals behave and approach the learning environment which will reveal their individual learning styles.

According to Knowles (1990), the adult learner is regarded as a neglected species because there has been little thinking, investigating or writing about them. The learning styles of adult learners should be taken into consideration more than ever before. This research project was thus undertaken to focus on the learning styles of adult learners in municipalities.

1.2 The Nature of Vhembe District

Vhembe is one of the districts in the Limpopo Province situated in the far northern part of South Africa. It covers an area of 21 000 square km, which forms 18% of the Limpopo Province. The population in this district was about 1,1 million which is 27, 2% of the population in the Limpopo Province (*Small Enterprise and Human Development Limpopo*, 2003).

The Vhembe district municipality consists of four local municipalities, namely: Musina, Thulamela, Makhado, and Mutale. Thohoyandou at the time of the study was regarded as the district capital, where the municipal government is located. The Vhembe district municipality had a total number of 1 803 employees. Musina 230 permanent employees and 57 temporary employees, which is 287 in total; Thulamela had 486 employees; Makhado had 913 employees, while Mutale's total number of employees amounted to 174 (*Small Enterprise and Human Development Limpopo*, 2003).

The district is rural in nature and people depend on trade, mining, agriculture, and a few different services including tourism, as the main provider of employment opportunities and services. Vhembe is characterized by diversity in terms of ethnicity, language, culture, and values. Africans made up 98.48% while there was 01.14% Whites; 00.02% Indians while there were 00.01% Coloureds. The

Tshivenda speaking people were the largest in number, 68.25%; the Tsonga (Shangaan) speaking people comprised of about 25.56% while the Northern Sotho (Sepedi) speaking people constituted about 2.33%; Afrikaans speakers made up 1.14% while other minority groups were scattered throughout the district (Department of Statistics, 2001).

District municipalities consist of a number of local municipalities, which belong to one district. Districts are usually formed by 4 to 6 local municipalities, which come together as a district. The main function of the district municipality is to co-ordinate development and delivery in the whole district (*Understanding Local Government*: 9/28/2005)

The *Municipal Service Delivery* (9/28/2005) indicated that the constitution of South Africa provides that municipalities are vested with the responsibility to make sure that all citizens have equal access to services that will satisfy their basic needs. Even though municipalities were given the responsibility to deliver services to the people, many municipalities are unable to deliver services to their residents. This might be because of a lack of finance or a lack of capacity to provide a good service at an affordable price. Such municipalities should try to find other ways (such as skills training and capacity building) to ensure that the services are improved and reach the people most in need of them.

The above information indicates the need for skills training and development in the municipalities in order to execute their responsibilities for service delivery. Municipalities need to improve their own abilities of doing things as well as improving a number of skills to be able to deliver services efficiently and effectively from the inside.

All four local municipalities forming the Vhembe district indicated the need for skills training because most of the services were not directly provided by the municipalities themselves; instead they hire someone else to provide the service on their behalf. The reason is that such service providers the necessary have management skills to provide the service.

Vhembe district is faced by the following challenges:

- an unemployment rate of 60%, which is the highest in the Limpopo Province.
- the income per capital is lower than the provincial figure and a high number of households seem to have no cash income.
- a lack of skill training among workers.
- a shortage of educational facilities when compared to other provinces.

There is a challenge for ensuring a well-trained labour force (*Small Enterprise and Human Development Limpopo*, 2003).

The above-mentioned challenges indicate that the need for learning among the Vhembe district municipality adults is vital. Learning is "a change in an individual, due to interaction of that individual with the environment, which fills a need and makes him more capable of dealing adequately with his environment" (Knowles, 1984:5). Since the district is characterized by a diversity in terms of ethnicity, language, values, and culture, one must understand how adult learn and the way they differ as a result of cross-cultural issues. Learning theories in western culture emphasize the active participation of a learner; however, models of adult learning developed in western culture may not be appropriate for South Africa because of these cultural differences (Sawadogo, 1995).

1.3 The Statement of the Problem

South Africa is challenged by a shortage of a highly skilled labour force and as a result organizations need to initiate skills training and development of employees in order to sustain global competition. However, adult learning and the manner in which their learning takes place were not taken into consideration. For effective training, trainers need to understand their trainees in order to help them to improve their knowledge, skills and abilities. Trainers need to understand how their trainees learn as well as their learning styles in order to make their learning effective and efficient thereby creating a productive workforce. The problem to be investigated in thus study was to establish whether there is a relationship between learning styles and training methods in municipalities in the Vhembe district.

1.4 Aims and Objectives of the Study

The main aim of this study was to determine the relationship between learning styles of the municipal employees and training methods. In particular, this study is designed to:

- Explore the learning styles of municipal employees.
- Determine the relationship between learning styles and methods of training municipal employees.
- Investigate the association between the extent of overall styles of learning reported by municipal employees and their work experience; population group gender, and age.

1.5 Research Design

The study is quantitative in nature. The goal of quantitative research was to identify the general patterns, and relationships, testing theories, and making predictions (Ragin, 1994). The questionnaires were used to collect date from the respondents.

1.6 Research Questions

This study was guided by the following research questions:

- How do adult employees in municipalities learn?

- What is the relationship between learning styles and training methods in the municipalities?
- What is the relationship between learning styles and demographic variables (gender; age, experience and population group)?

1.7 Hypotheses

For the purpose of this study, I hypothesized that:

- Female and males differ in their learning styles.
- Blacks and whites will differ statistically and significantly differ their learning styles
- Employees with longer experience differ in their learning styles with those who have shorter work experience.
- Older employees will differ in their learning styles with those who are younger.

1.8 Assumptions

- South African adult learners do not learn in the same way that western adult learners do.
- South African trainers use western models because of the Eurocentric management culture prevailing in South African organizations.

1.9 The Significance of the Study

Training practitioners may develop strategies and techniques relevant to the way the Vhembe district municipal employees learn. Employees will be able to identify their learning style preferences. Furthermore, these municipalities would benefit because the study identified how adults learn and how to design a training programme, suitable for employees to enhance performance and productivity.

1.10 Definitions

The following concepts are defined as would be used in this study:

1.9.1 Learning styles

According to Tennant (1988), learning styles refer to the characteristics and preferred approaches to learning other than the cognitive, such as strategies adopted to learn more effectively, but also refer to the individual differences in the way that people think and learn. Kolb (1984) cited in Buch & Bartley (2002), argued that learning styles are categories developed by educational researchers to classify learners based on their customary approach to perceiving and processing information.

1.9.2 Adult learning

According to Dewar (1996), adult learning is about change – change in attitudes, change in knowledge, change in behaviour, change in a skill, and change in how we think about things. The perspectives on adult learning vary according to the context or discipline in which one operates. Some businesses and industries appear to view adult learning as a commodity that, once mastered, would produce efficient workers.

1.9.3 Adult

An adult is any one who has reached a certain stage of development usually associated with an appropriate age and recognized in each social context as being definitive. Thus, an adult status is accorded to those people who have reached that stage of development along with the legal rights and duties (Roger, 1992).

1.9.4 Municipality

A municipality is an administrative local area generally composed of a clearly defined territory and commonly referring to a city, town, or village government. In South Africa, municipalities are subdivisions of a province, and are ranked by size in descending order: metropolitan, district and local (Wikipedia, 9/1/2005).

1.9.5 ABET

ABET refers to Adult Basic Education and Training. The term is widely used to indicate any kind of education and training for adults. According to Kigundu (1998:12), there is no single nationally accepted definition of ABET. Roger (1992:19) defines Abet as the provision of elementary education, literacy, numeracy, and social skills.

1.11 The Scope and Limitation of the Study

The research project was based on municipal employees in the Vhembe district of the Limpopo Province and the results were generalized to other similar organizations. The major limitation of the study is the quantitative survey method, which often yields a low response rate and suffers from several biases. However, attempts were made to boost the response rate by forging close collaboration with the Municipalities and making the survey as user-friendly as possible to reduce errors.

1.12 Ethical Issue

The researcher was responsible for protecting subjects against any form of physical discomfort that might have emerged, within reasonable limits, from the research project. The respondents were informed about the goal of the investigation while correct attitudes and actions for this specific research project were maintained. The participants were informed that the study was anonymous and that no one would be identified.

1.13 The Organization of the Study

Chapter One presents an outline of the study; the research questions; the aims and objectives; hypotheses, scope and limitation of the study.

Chapter Two provides the literature review on adult learning Models and the relationship between learning styles and training used in previous studies are discussed as well.

Chapter Three presents the research design and methodology, sampling techniques and the measuring instrument used in this study.

Chapter Four provides the quantitative data presentation, the analysis and the results of the data collected. The results are presented and interpreted with the help of graphical representations. In addition, the results are compared to and supported by past and present findings from additional research in the field of adult learning styles.

Chapter Five gives the main findings of this study, the conclusion and makes recommendations.

1.14 Summary

In this chapter the main objective of the research and the motivation for the current research are generated for the purpose of answering the research question being investigated. The limitations are given to indicate which areas to be improved.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents significant learning theories and focuses on those that are applicable to adult learning. The focus on adult learning theories was on models that have received greatest attention in the past.

The re-birth of South Africa in 1994 after many years of apartheid rule has brought significant transformation in educational policies. The new education, training and development systems in South Africa require a paradigm shift from traditional-content based to the new Outcomes-Based Education (OBE) approaches to teaching and learning (Meyer, 1999). Content-based learning focuses on mastering a syllabus and at the same time developing thinking and reasoning skills. When the knowledge and skills have been acquired, learners will be examined and passed or failed according to their mastering of the content or learning objectives. The assessment is done to determine the extent to which learners are able to master, remember and recall the learning content (Olivier, 1998).

The OBE approach focuses on the mastering process together with the intended outcomes. According to Meyer (1999), the OBE system contributes to the personal development of learners without considering the place and level of learning. It focuses on what the learner is able to do, meaning that each learning programme has a particular learning outcome in terms of what the learner can do at the workplace. OBE learning emphasizes learner-centered learning with the emphasis on what has been mastered, and that the process to master knowledge, skills, techniques, and methods can be repeated in other and new situations (Olivier, 1998).

The Skills Development Act, No. 97 of 1998, attempts to redress the past by introducing new training systems which put special emphasis on the previously disadvantaged by unfair discrimination. It also emphasizes the learnership training system to bridge the gap between theoretical education and skills training and which will be accessible to people in formal employment, in pre-employment and the specific target group.

The Skills Development Act (1998), together with the Skills Development Levies Act, No.9 of 1999, emphasized the need for South African organizations to invest in the training of their employees in order to stay one step ahead of world wide competition. The employers' organizations are required to put aside a levy of their annual pay roll for the internal training and development of their employees. The levy is to be paid to the South African Revenue Services (SARS), which then apportions it to 25 sectors, called the Education and Training Authorities (SETAS). SETA then pays the funds to the registered trainer for high power skills development. The National Skills Authority (NSA) was established to implement the Skills Development Strategy and to monitor its performance as well as to report the progress made by the sector for Education and Training Authorities (Jinabhai, 2005:1). The Skills Development Act (1998), provides that skills training will be done through learnerships, where the training program is accredited and recognized as being of high quality.

According to Jinabhai (2005:3), the Skills Strategy document proposed that 85% of people who will benefit from learnerships should be black while 54% of them should be women. Four percent of the people trained in 4 years should be disabled.

2.2 Theories of Learning

According to Ormrod (1999), learning is defined as a process that brings together cognitive, emotional and environmental influences and experiences for acquiring or enhancing one's skills, knowledge, values, and the way one views the world. Learning is a process that focuses on the outcome of what was learned.

We know much more about how children learn than about how adults learn. In order to understand the learning styles of adult learners, one must understand the learning theories. There are many learning theories, each of them emphasizing various aspects of the teaching and learning process. Naturally we will see an overlap between what we know about adult learners and what these learning theories tell us about the learning process (Kemp & Smellie. 1994)

Conditions under which animals learn are more controllable than those under which children learn. The conditions under which children learn are more controllable than those under which adults learn (Knowles, 1990:2). This is why most of the theories of learning were derived from the study of learning by animals and children. According to Knowles (1990:11-14), there are two types of literature about learning theories, namely: the proponders (who tend to be dogmatic and argumentative) and the interpreters (who tend to be reconciliatory). There were some difficulties in classifying the learning theories, until some of the proponders presented a challenge to the interpreters in an effort to bring some kind of order into the system. They started categorizing learning theories. Hilgard and Bower (1966:8) in Knowles (1990:14) state that there are two major families of learning theories: the stimulus-response theories and the cognitive theories. The stimulus response theories included the theories of Thorndike, Pavlov, Guthrie and Hull while the cognitive theories include Tolman's and the classical gestalt theory. Mergel (1998) and Cheetham and Chivers (2001), identified three basic theories of learning, namely: behaviourism, cognitivism, and constructionism.

2.2.1 Behaviourism

According to Mergel (1998), behaviourism defines learning as a change in behaviour. Learning can be observed or measured (Good & Brophy, 1990).

Behaviourism centers on the trainee's efforts to accumulate knowledge of the natural world and the trainer's efforts to transmit it. Behaviuorism emphasizes external observable behaviours. The founders of behaviourism had three underlying assumptions proven as true:

a) Learning is manifested by a change in behaviour.
b) The environment characterizes behaviour.
c) The principles of contiguity and reinforcement are central to explaining the process.

There are various branches of behaviourism, namely: classical conditioning, operant (instrumental) conditioning and connectionism. Most of them focus on stimulus-response. Watson (1991) cited in Tennant (1988), argues that most of our behaviuor is acquired through learning which can be the result of environmental and biological influences.

2.2.1.1 Classical conditioning

Pavlov's (1849-1936) experiments on dogs were considered as the most important unit of learning. Pavlov (1927) demonstrated that animals could be conditioned to behave in a required manner by subjecting them to neutral stimuli (Cheetham & Chivers, 2001; Knowles, 1990 and Mergel, 1998). In his experiment, on classical conditioning, Pavlov (1927) indicated that a dog could be conditioned by placing food in front of the dog, which initiates the flow of saliva. Before conditioning, the food was presented to the dog and a bell was rung, but the dog showed no response to the ringing of the bell. During conditioning the bell was rung before the food was presented to the dog. After conditioning, the ringing of the bell alone made the dog salivate. When conducting training using conditioning, one begins with an already well-established response related to a stimuli and then proceeds to extract the same response with different stimuli or produce a different response to the same stimuli. Conditioning has been used to extract desirable behaviours and also to break undesirable ones.

Classical conditioning is also used by trainers to create an association between a stimulus that would not have any effect on the animal and a stimulus that would. John B Watson (1878-1958) extended Pavlov's work and applied it to human beings. In 1921 Watson conducted a study on Albert, an eleven month old infant child (Watson, 1925). Watson's aim with the study was to condition Albert to become afraid of a white rat by presenting the white rat with a very loud noise (unconditioned stimuli). At first Albert showed no sign of fear when he was presented with the rat, but once the rat was repeatedly presented accompanied by a loud noise, Albert developed a fear of rats. It could be mentioned that the loud noise (unconditioned stimuli) induced fear (conditioned stimuli). Albert's fear was generalized to other small animals. Watson decided to extinguish Albert's fear by presenting the rat without a loud noise. The result was that the fear that was conditioned became stronger and more permanent than ever before (Knowles, 1990: Mergel, 1998). The implication of Watson's experiment suggests that classical conditioning can cause some phobias in a human being.

2.2.1.2 Operant (instrumental) conditioning

Operant conditioning received serious attention in the past decade. Skinner believed in a stimulus response pattern of conditioned behaviour. He argues that organisms simply emit responses, which are gradually shaped by their consequences. He emphasizes that when a response has rewarding consequences it is likely to be repeated. Skinner placed a hungry pigeon in a soundproof box containing prominent buttons that, when pressed, dispersed food pellets being dispensed into a tray. The pigeon learned that if they pecked the buttons it would result in the emission of food pellet (Mergel, 1998; Tennant, 1990).

Gredler (2001), in turn, proved that Skinner believed that behavioural change is the result of environmental conditional conditions and events. Greenway (2002) emphasized that behaviour which is positively reinforced will be repeated, while intermittent reinforcement is particularly effective. When teaching, information should be presented in small amounts for responses to be reinforced. Reinforcement will generalize across similar stimuli producing secondary conditioning. Kidd (1973) indicated that Skinner's theories seemed to be applicable to many situations for children and adults because teaching occurs when a response is stimulated for the first time and then reinforced.

According to Gredler (2001), teachers must look at individual differences, readiness for learning and motivation when they consider the learner's characteristics.

2.2.1.3 Connectionism

Edward Thorndike (1874-1949) developed the connectionism theory. He mentions that learners are empty organisms that respond to stimuli more or less randomly and automatically. According to Thorndike, learning is connected to stimulus and response. Thorndike developed three laws, which he believed ruled the learning of animals and human beings, namely the law of effect, the law of readiness, and the law of exercise (Mergel, 1998).

- The "law of effect" provides that if the connection between a stimulus and response is positively rewarded it will be strengthened, but if it is negatively rewarded it will be weakened.
- The "law of readiness" holds that it is the circumstances under which a learner tends to be satisfied or annoyed, to welcome or reject the learning material.
- The "law of exercise" states that the more stimulus response a bond is practised, the stronger it will become.

Thorndike (1879-1949) stresses the fact that reward plays an important role in learning while punishment is less effective. Kidd (1973) pointed out that Thorndike's experiments had some effects on the abolishment or reduction of corporal punishment.

According to Settlers (1990), learning occurs when the bonds are formed into behaviour patterns. Watson was the first psychologist to use Pavlov's work in the study of human behaviour. He believed that humans are born with a few reflexes and the emotional reaction of love while all other forms of behavoiur are established through stimulus response associations through conditioning.

2.2.1.4 Contiguity theory

Edwin Guthrie (1938) added to the works of Pavlov, Watson, and Thorndike through the law of contiguity. The contiguity theory is intended to be a general theory of learning. According to Guthrie, all learning is a result of association between a particular stimulus and response. "Simple contiguous association of a stimulus and response can lead to change in behaviour" (Guthrie, 1938). According to Guthrie, a learned behaviour is a series of movements that takes time to develop into an act.

Guthrie (1950, 1952) provided that each movement produces stimuli and the stimuli then become conditioned. Every movement serves as a stimulus to may senses and organs in muscles and joints. Stimuli acting at the time of a response become conditioners of that response so that the movement-produced stimuli have become conditioners of the succession of movements. Some behaviour involves the repetition of movements, so that conditioning can occur long after the original stimulus.

The theory further suggests that forgetting is due to interference rather than the passage of time, stimuli become associated with new responses and old responses become 'unlearned' (Guthrie, 1930).

Guthrie emphasizes that circumstances must be changed to further learning. He mentions that teachers often limit their involvement in the classroom in order to further learner learning and by so doing they allow learners to make the desired response without any stimuli from the teacher.

2.2.2.5 Behaviourism applied

The principle of behaviourism was applied to the development of low-level psychomotor skills. Skinner's operant conditioning has been applied in behaviour modification, teaching and instructional development (Cheetham & Chivers, 2001).

Bandura (1977) cited in Cheetham and Chivers (2001), mentions "behaviour modeling" as an example of behaviour applied directly to a higher–level training. Behaviour modeling uses techniques such as "goal setting" and "self-reinforcement" to assist people to acquire the characteristics of a competent role model. Role modeling can be effective in assisting people to overcome fears and phobias. Modeling also develops interpersonal skills. Latham and Frayne (1989) in Cheetham and Chivers (2001), agree that modeling assists in self-development and employee motivation.

Cheetham and Chivers (2001) states that behaviourism was used to explain and inform learning through repetitive processes such as drill, practice and observation. Cheetham and Chivers (2001) note that behaviourism also influenced the design of programmed learning by making use of teaching machines, such as computer based training and interactive videos.

Behaviourist principles were applied to the development of motor skills, which involves continuous repetition (Cheetham & Chiver, 2001). Gagne (1987) cited in Cheetham and Chivers (2001), argues that repetition accompanied by instructions is more effective than repetition accompanied by simple feedback.

2.2.2 Cognitive theory

Cognitive learning received major attention in that it challenged behaviourism for its focus on external observable behaviour and disregarded the internal mental structures and processes (Ormrod, 1999). Cognitive learning varies from behaviourism in that it views human beings as different from animals. Human beings have minds which can be utilized to think, memorize, differentiate, and solve problems. The inner mental structures and processes can be utilized to understand how people learn. This learning theory is based on the thought (mental) processes, which accompany activities such as learning, reasoning or problem solving. Changes in behaviour are observed, and used as indicators to what is happening inside the learner's mind. Cognitive theorists recognize that the majority of learning involves associations established through contiguity and repetition (Mergel, 1998). The cognitive theory is also concerned with the acquisition, memory and relation of information. In addition, the theory looks at how human beings acquire knowledge and how they relate ideas and concepts to one another. Cognitivists are concerned about what is happening internally, organizing the thinking process that leads to performance rather than the outcomes of learning (van Dyk, Nel & Leodolff, 1992).

According to Marhar and Harford (2004), Jean Piaget (1896-1980) became the most influential theorist of cognitive learning during the 20th century. Piaget looked beyond behaviour to mental-based learning. Marhar and Harford (2004) furthermore argued that Piaget based his ideas on studies with young children. Huitt and Hummel (2003) reasoned that Piaget was interested in how knowledge is developed in human beings. According to Piaget's theory, cognitive structures are patterns of physical or brain-based action that underlie specific acts of intelligence and correspond to stages of child development. He categorized stages of child development into four primary developmental stages. The stages are the sensorimotor stage, the pre-operations stage, the concrete operational stage, and the formal operations stage.

a) **The sensorimotor stage** is between the birth of a child and two years. Intelligence takes the form of motor action. Children build an understanding of themselves and how things work through interaction with the environment. Learning takes place through the process of organizing information and integrating that information into existing schema (assimilation) and when an object cannot be organized and absorbed into the schema, the schema has to be modified to include the object (accommodation).

b) **The preoperational stage** is between three to seven years. Intelligence is intuitive in nature. It is a stage where children classify objects in simple ways, especially according to the objects' important features.

c) **The concrete operations stage** starts from the age eight to eleven years. The cognitive structure is logical but depends upon concrete referents. Children begin to think abstractly and conceptualize; creating logical structures that explain their physical experiences (Huitt & Hummel, 2003).

d) **The formal operations stage** begins at ages twelve to fifteen years. At this final stage of cognitive development children start to involve abstraction in their thinking. Intelligence is demonstrated through the logical use of symbols related to abstract concepts. Children at this stage no longer require concrete objects to make rational judgments. They are capable of deductive and hypothetical reasoning and their abstract thinking abilities are fairly similar to those of adults.

According to Piaget (1970), the four stages of mental growth are assumed to reflect qualitative difference in children's cognitive abilities. Children are controlled by the logical structures in their different developmental stages and they cannot be taught key cognitive tasks if they have not reached a particular stage of development. According to Marhar and Harford (2004), each stage of development gives the child a new set of mental "tools" which will assist the child to process information. The educator has the responsibility to match the content to the child's stage of development.

Piaget (1985) suggests that the process of learning is interactive and new information is shaped to fit with the learner's existing knowledge while existing knowledge is modified to accommodate new information, i.e. attaching new ideas to previously learned ideas. The important concepts in this cognitive process are:

a) **Assimilation** takes place when a new object or event is perceived by a child in terms of existing shemes or operations. It is a process of attaching new information into the existing cognitive structures.
b) **Accomodation** happens when existing schemes or operations are modified to account for a new experience. It is a process of modifying the existing cognitive structures based upon new information.
c) **Equilibrium** encompasses both assimilation and accommodation and it occurs when a learner shows a dynamic construction process of human development.

Both the assimilation and accommodation processes are utilized simultaneously and alternatively throughout life as the person increasingly adapts to the environment in a more complex manner.

According to Marhar and Harford (2004), Piaget's work was challenged for the following reasons: (1) the theory failed to take into account adult learners due to its emphasis on fixed developmental stages as relatively discrete and universal rather than overlapping and varying amongst individuals.

2.2.2.1 Gestalt theorist

Gestalt is a branch of cognitive psychology. The gestalt psychologists believed that knowledge comes from more than just experience and involves the knower actively imposing organization on sensory data. The gestalt theorists were concerned about the whole rather than the parts of learning. Cheetham and Chivers (2001) mentioned that "Gestalt" is a German term meaning shape or pattern and also refers to "an integral whole". Gestalt approaches help people to understand how perception and memory are assisted by the use of mental images.

According to the gestalt psychologists, behaviour could not be explained by the principles of association only. There are inner processes that enable organisms to grasp the structures of the situation in which learners recognized the interconnection based on the properties of things themselves. Learning occurs with a realization of new insight and experience. There are two assumptions underlying Gestalt psychology, namely:

a) that the memory system is an actively organized processor of information, and
b) that prior knowledge plays an important role in learning.

The focus was on how organisms' memories function to promote learning.

2.2.2.2 Language and thoughts

Some of cognitive theorists believe that language is linked with thought and the process of learning. Language assists in the formation of concepts in human beings. Gross (1987) cited in Cheetham and Chivers (2001), argues that language and thoughts are closely linked because adults' thinking goes on through imagining things and expressing thoughts and feelings through non-verbal communication, e.g. gestures and facial expressions. Green (1975) cited in Cheetham and Chivers (2001), provides that language and articulation of thought plays an important role in learning within education. Examples are the use of group discussions, presentations, written assignments, reflection reports, and simultaneous commentaries.

2.2.2.3 Cognitive critique

Cognitive theories are important in reflecting how people think and learn; but they are unable to confirm their experiments due to the fact that they are unable to observe what is happening in someone's head (mind) (Cheetham & Chivers, 2001).

2.2.3 Constructivism

Constructivists believe that the learners construct their own reality, and interpret it based upon their perception of experiences. Theories prepare the learner to solve problems in an ambiguous situation (Mergel, 1998). Constructivism views learning as a process in which the learner actively constructs new ideas or concepts based upon their current or past knowledge and experience (Brunner, 1986). Marhar and Harford (2004) provide that learners develop new ideas and concepts based upon their existing knowledge.

2.2.3.1 Social constructivism

Tolman (1959),Bolles (1972), Bandura (1986), and Gagne and Briggs (1979) cited in Cheetham and Chivers (2001), tried to combine behaviourist and cognitive principles after realizing that people do not only respond to stimuli but they also act on expressing attitudes, beliefs and strive towards goals. Social learning is a continuous, dynamic interaction between individuals affecting their values, attributes and behaviour. Each of these areas requires a different developmental approach.

Derry (1999) and McMahon (1997) define social constructivism as a theory that emphasizes the significance of culture and context in understanding what happens in society and constructing knowledge based on this understanding.

Social constructivists believe that learning is constructed by learners either individually or socially rather than simply being received from the teacher or another source. Learning is viewed as a social process and only takes place when individuals are engaged in social activities.

According to Marhar and Harford (2004), the social factors to the cognitive development theory of Jean Piaget were introduced by Les Vygotsky (1896-1934). Vygotsky continued with the idea that development leads to learning but he approached it from the opposite angle and argued that learning leads to development. Vygotsky felt that social learning precedes development.

According to Vygotsky, children's level of learning are more accurately reflected by what they can do with help, rather than what they can do on their own. He developed the "zone of proximal development" (ZPD) representing the distance between the actual developmental level as determined by the independent problem solving.

Marhar and Harford (2004) states that Vygotsky's view is that children become increasingly complex as the child grows and children are active participants in their own learning. The social environment the child learns in plays an important role since it can increase or hinder the development of a child.

According to Crawford (1996), Vygotsky focused on the connection between learners and the socio-cultural context in which they act and interact in shared experience. Crawford (1996) further states that humans use tools that develop a culture, such as speech and writing to mediate their social environments.

2.2.3.2 Jerome Bruner's constructivism theory

Jerome Bruner was one of the founding fathers of constructivism. His works were influenced by the earlier theoretical research of Lev Vygotsky and Jean Piaget. Overbaugh (2004) states that Bruner's theoretical framework supports the notion that learning is an active process in which learners construct new ideas or concepts based upon their present and past knowledge. The learner selects and transforms information, construct hypotheses, and makes decisions, relying on a cognitive structure. Bruner (1986) presents the notion that children could be active problem solvers and are capable of exploring difficult subjects of instruction.

Overbaugh (2004) mentions that learners are regarded as creators and thinkers through the use of inquiry, and the role of experience in learning. Brunner developed three stages of representation without specifying age, namely the enactive; the iconic stage, and the symbolic stage.

a) The **enactive** stage is the stage in which knowledge is largely in the form of motor responses. Learners are able to perform a physical task much better than to describe the very same task that has just been accomplished.
b) The **iconic** stage provides that knowledge is largely presented in visual images. Diagrams are used when new information is presented to assist learners to visualize concepts.
c) The **symbolic** stage provides that knowledge is mostly in the form of arbitrary words, mathematical symbols and other symbolic systems.

Bruner acknowledges that learners undergo various stages of development but he differs with Jean Piaget whose theoretical framework is age specific while Bruner's theoretical framework does not specify age.

According to Overbaugh (2004), constructivism makes it possible for adults to switch from iconic stage to symbolic stage or to learn in sequence starting from enactive stage to iconic stage and to symbolic stage as opposed to going from formal operations stage.

2.2.4 Malcom Knowles's theory of adult learning or "Andragogy"

The research on adult learning theory can be traced to the 1960 when Malcom

Knowles took an initiative in developing a theory that took into consideration the characteristic and experiences of adult learners. According to (McGrath, 2009:99) “adult learners need to know why they are learning new knowledge before they are willing to participate”. When adults are aware of the benefits that will come out of learning they become more encouraged to participate in learning. Our traditional education system focuses a lot on the achievement of learner and not on learning. The primary objective of our learning institutions is to ensure that learners pass their test and examination. Adult learners are different from children; children are more dependent on the teacher whereas adults take responsibility of their own learning.

McGrath (2009) provided that andragogy and pedagogy learning theories have a particular relevance to adult teachers. He further indicated that adult learners who are used the pedagogical theory, that assumes that learners learn what they have been told by the teacher can be demoralized to learn in today’s adult classroom environment. The background knowledge of the subject matter plays a vital role in adult learning. Where adult learners do no not have the background knowledge of the subject matter, the teacher is forced to use the pedagogical theory. Ruhnau (2006) stated that when adult learning is voluntary, they cannot be made to adhere to the pedagogical theory of learning.

In the 10th century, the writings and methods of great teachers, such as Socrates were no longer used. “Teaching was performed by transmitting content from teacher to students. The methodology maintains that the students are “empty vessels” and the teacher can ‘pour knowledge’ into them” (Clark, 1999:1). This learning approach is called pedagogy. Pedagogy means “the art and science of teaching”. Pedagogy is derived from the Greek words “paid” meaning “child” and “agogus” meaning “leader of” (Clark, 1991:1).

According to Merriam (2001), researchers in the twentieth century focused on whether or not adults could learn. Thorndike, Bregman, Tilton, and Woodyard

(1928) approached adult learning from a behavioral psychological perspective. Learners were tested under timed conditions on various learning and memory tasks. Merriam (2001), Rosenthal and Brueggeman (2001) provided that a comparison was made between adults and young people learning under timed conditions and it appeared that young people were indeed better learners than adults. Adults had much less formal education than young learners. Adult learners had much less opportunity developing test taking skills, thus appeared that they were less capable learners.

According to Lorge, (1944, 1947), adult learners up to the age of seventy did as well as young learners when the speed or rate of learning is not considered. Lorge (1944, 1947) discovered that adult learners are also capable learners when he focused on the ability to learn and not the speed or rate of learning.

Intelligence tests were also developed in the twentieth century. Students' scores were compared to those of adult learners. According to Schaie and Wills (1986), young learners scored well when compared to adult learners. The measurements of intelligence became more complex and the scores indicated a decline in some sections but not in the other sections. Today it is recognized that adults when they age, score better on some aspects of intelligence and worse on others. The overall results remain in a remarkably stable composite of intelligence until very old age (Schaie & Wills, 1986).

According to Merriam (2001), the question of whether adults could learn was put to rest in the 1970s and 1980s and a new focus of what was different about adults from children emerged, and gave birth to the most important theory called Andragogy.

Malcolm Knowles (1990) stated that the pedagogical model gives the teacher full responsibility for making decisions about the content, method to use and when what has to be learned. Pedagogy is teacher-centered learning where the teacher has the mandate to make all decisions in learning while the learners see themselves as completely dependant on the teacher. Malcolm Knowles decided to compensate the misinterpretations by using the word "Andragogy" which refers to the art and science of teaching adults (Knowles, 1990:55-63). He distinguished adult learning from pedagogy. Adults usually approach learning differently from children.

Assumptions of pedagogical and andragogical models (Knowles, 1990:55-63 and Mihall & Belletti, 1999).

Assumptions:	**Pedagogy**	**Andragogy**
1. Self concept	Dependent on the teacher (Passive). Relies on teachers to decide what is important to be learned.	Self-directed (active). Decide for themselves what is important to be learned.
2. Experience	Children have a few experiences relevant to what is being taught.	Adult have accumulated a foundation of life experiences and knowledge, including experience from youth, work-related activities and previous education.
3. Teacher's role	Authority figure.	Guider and facilitator.
4. Readiness to learn	Children become ready to learn what the teacher tells them to learn if they want to pass and get promoted.	Adults learn in order to cope effectively with real-life situations.
5. Orientation to learning	Children and teachers of children are subject-centered and enjoy being	Adults are life centered, or task-centered or problem centered to meet life's needs.

	so.	
6. Motivation	Children are motivated by external rewards and punishment.	Adults are motivated by internal incentives such as promotions, higher salaries and better jobs.

From these assumptions, it was proposed that the classroom environment should be one of adulthoodness where the adult feels accepted, respected and supported (Knowles, 1980). He further mentions that there should exist a feeling of mutual inquiry between teachers and students.

Knowles suggested that "andragogy" is another model of assumptions about adult learners to be used alongside the pedagogical model of assumptions, thereby providing two alternative models for testing out the assumptions as to fit with particular situations. Marhar and Harford (2004) mentioned that adults have moved from being dependent upon others as children, to being independent thinkers as adults. The idea of a curriculum guided by others is therefore inappropriate in adult education environment.

The assumptions were criticized for not being characteristics to adult learners only but also for some young learners. There are instances where some children take part in the aspects of adult learners and instances where adults take part in the aspects of young learners. For example, some adults are highly dependent on the teacher so as young learners often are, while some young learners are highly independent, and self directive like adults. One cannot always assume that adults are intrinsically motivated, as some adults may be externally motivated to learn to get promotion or to keep their jobs. Children also are not always externally motivated to learn, as most are intrinsically motivated to learn out of curiosity or simply interested to learn (Rosenthal & Brueggeman, 2001).

Andragogy was commended for its contribution to understanding adults as learners, but it was criticized for not clarifying the understanding of the process of the process of learning (Merriam, 2001).

According to Rosenthal and Brueggeman (2001), a good educator will assist adult learners with a variety of opportunities for their different learning styles and different learning experiences to emerge and expand into new areas of skills, knowledge, ideas, and reflection.

Marhar and Harford (2004) add that adults are self directed in their learning and they seek to learn from and about their social and work environment and the roles they play there.

According to Brookfield (1995), self directed learning is the process by which adults take control of their own learning, i.e. planning, setting own learning goals, locate appropriate resources, and decides on which learning methods to utilize and evaluate their progress.

2.2.5 Learning style models

According to Butler (1993), learning style refers to individual learning differences. People differ in the way they perceive information; process and think, feel, and transform that information into meaning. Researchers conducted various studies to assess how individuals perceive and process information and further developed numerous learning models to assist in the assessment of individual learning. Only three learning models were selected for the purpose of this study, and these are: the Kolb's Learning Style Inventory, Honey and Mumford's Learning Style Questionnaire and Felder and Silverman's Index of Learning Style.

2.2.5.1 David Kolb's experiential learning model

Social and constructivist theories of learning did not, generally, investigate the nature of experience in learning. Marhar and Harford (2004) state that experiential learning theories seek to understand the ways that experiences motivate individuals and facilitate learning. Learning comes to be about meaningful experiences that result in a change in an individual's knowledge and behaviour. Experiential learning theories build upon social and constructivist theories of learning but place experience at the centre of the learning process.

Smith and Kolb (1985:23) in Cheetham and Chivers (2001) identified a "Learning Style Inventory" coming from Kolb's work on experiential learning and his "learning cycles". According to the model, there are two processes respectively for grasping information and for transforming experience into learning:

For grasping information (how information is taken in):

- Concrete Experience
- Abstract Conceptualization

For transforming experience into learning (how information is processed):

- Active Experimentation
- Reflective Observation

These four processes can be combined into four learning styles:

(a) Convergers

Buch and Bartley (2002) and Cheetham and Chivers (2001) define convergers as people who prefer to combine abstract conceptualization with active experimentation. They prefer deductive reasoning, are interested in practical application, and will learn best by putting ideas into practice. They prefer computer-based instruction to other delivery modes e.g. IT

Specialists. According to Felder and Brent (2005), convergers are learners who respond to work actively on well-defined tasks and who prefer to learn through trial-and-error in an environment which allows them to feel safe. They furthermore, emphasize that converges can be effective if the instructor acts as a coach and provides guidance practice and feedback in the methods being taught.

(b) Accommodators

They are defined as those who prefer concrete experience and active experiments. Felder and Brent (2005) mention that accommodators prefer applying theory into practice to solve real problems. Accommodators become effective when the instructor poses open-ended questions to allow learners to discover the answers themselves.

(c) Divergers

Divergers are defined as people who combine concrete experience and reflective observation. They are considered as people who care for other people's feelings and interests. They are also able to imagine things. Divergers can perform well where there is a need for the generation of ideas e.g. brainstorming (Buch & Bartley, 2002; Cheetham & Chivers; 2001). Divergers are learners who respond well to explanations of how the course content relates to their personal interest, experience and future careers. For them to be effective the instructor should act as a motivator (Felder & Brent, 2005).

(d) Assimilators

According to Buch and Bartley (2002) and Cheetham and Chivers (2001), assimilators are defined as those who combine abstract observation and reflective observation, possess well-developed thinking skills, are good at organizing information, and enjoy designing experiments. They prefer to formulate hypotheses to be tested. According to Felder and Brent (2005), these learners respond to information that is presented in a logical and organized manner. They benefit if they are given time to reflect on the information presented. Assimilators become effective if the instructor acts as an expert.

Learning style inventory, even though criticized for not being a precise tool, can assist in reminding teachers and trainers that people learn in different ways and also make them aware that they must not generalize the assumptions about learners.

According to Kayes (2002), the experiential learning theory has considerable influences in the management of learning and education despite serious criticism. Kayes furthermore, mentions that experiential learning is still considered by researchers for its explanatory strength and practical importance.

2.2.5.2 Howard Gardner's multiple intelligences

According to Marhar and Harford (2004), the theory of multiple intelligences was developed in 1983 by Howard Gardner who challenged the idea of one type of intelligence as typically measured by current psychometric instruments. Gardner's theory argues that intelligence, particularly as it is traditionally defined, does not sufficiently encompass the wide variety of abilities humans display. Gardner (1993) proposed seven and later eight different kinds of intelligences to account for a broader range of human potential in children and adults. Gardner (1993) suggested that intelligence is not a single attribute that can be measured and given a number. He pointed out that I.Q. tests measure primarily lingustic, logical-mathematical, and some spatial intelligence. Believing that there are many other kinds of intelligence that are important aspects of human capabilities, he proposed that they also include visual/spatial, bodily/kinesthetic, musical, interpersonal, and intrapersonal intelligences. More recently he added naturalist intelligence to this list and suggested that there may be other possibilities including spiritual and existential. The following are the eight intelligences:

a) Linguistic intelligence.
b) Logical-mathematical intelligence.
c) Spatial intelligence.
d) Bodily-kinesthetic intelligence.
e) Musical intelligence.
f) Interpersonal intelligence.
g) Intrapersonal intelligence.
h) Naturalist intelligence.

Gardner suggested that people should also place attention to individuals who are gifted in other intelligences such as musicians, artists, naturalists, therapists and others who enrich the world we live in.

According to Armstrong (1994), the multiple intelligence theory proposes a major transformation in the way educational institutions are conducted. The majority of adults find themselves in jobs that do not make optimal use of their most highly developed intelligences. This theory gives adults a new way to look at their lives; assessing potentials that they left behind in their childhood but now have the opportunity to develop through courses, hobbies or other programme of development.

Gardner (2000) provides that multiple intelligences should not in and of itself be an educational goal, but rather be used as a means of achieving educational goals which are a reflection of our educational values.

2.2.5.3 Honey and Mumford's learning style questionnaire theory

This model was developed as an alternative for Kolb's Experiential Learning Style Model by Honey and Mumford in 1982. They felt that the Inventory has questionable predictive accuracy and poor face validity. Honey and Mumford (1986) cited in Cheetham and Chivers (2001), developed an alternative instrument called the Learning Style Questionnaire. Honey and Mumford (1992) mention that the Learning Style Questionnaire was developed to explore the relative strengths of four different learning styles: activist, reflector, theorist, and pragmatist with an intention to ensure that learners become proficient in all four stages of the learning cycle. Honey and Mumford's four learning styles are similar to the ones developed by Kolb in his Experiential Learning Model: active experimentation (activist), reflective observation (reflectors), abstract conceptualization (theorists) and concrete experience (pragmatist).

The questionnaire offered the following four different categories of learning styles (Honey & Mumford, 1992 and Penger, Tekavčič, & Dimovsiki, 2008):

(a) Activists

They are learners that involve themselves fully in new experience. They act first and consider the consequences afterwards. They prefer discussions such as brainstorming. They become effective in teaching and learning when they are given new experiences, problem-based learning, games, and group research. They dislike repetition and one-way lectures.

(b) Reflectors

They are learners that prefer collecting and analyzing information and are careful at making decisions. They stand back, observe and think deeply before getting actively involved. They become effective in teaching and learning activities if they are watching videos or they are given time to think before they react. They become ineffective if they are required to respond or act immediately.

(c) Theorists

Theorists are objective. They like to reason and synthesize information into logical patterns. They think problems through in a vertical, step-by-step logical manner. They are effective in teaching and learning activities when they are given time to ask questions and process in detail, assumptions or logic, principles, theories, and models. They become ineffective when involved in unstructured activities.

(d) Pragmatic

Pragmatics likes to try new ideas and turn theories into practice. They become effective in teaching and learning activities that combine theory and practice. They prefer to apply what they learned in a real life situation. They become impatient with open ended discussions.

Sadler-Smith (1996) cited in De Vita (2001) doubts the applicability of the Learning Style Questionnaire to students in general, especially to business students.

2.2.5.4 Felder and Silverman's index of learning styles

Felder and Silverman (1988) developed the learning style model which was used to categorize students' preferences in terms of type or mode of information perception: (sensing or intuitive, visual or verbal) organizing and information processing (inductive or deductive, active or reflective) and the pace at which students progress towards understanding (global or sequential) De Vita (1999a), and Felder and Soloman developed an instrument called the Index of Learning

Style which has 44 items. The instrument was used to assess preference on four dimensions (active or reflective, sensing or intuitive, visual or verbal and sequential or global). The inductive or deductive dimension is not assessed by the Index of Learning Style (ILS).

The analysis of this instrument is in terms of information handling as provided by Felder and Brent (2005):

a) What type of information does the learner preferentially perceive: sensory (sight, sound, physical sensations) or intuitive (memories, thoughts, insights)? Sensing learners tend to be concrete, practical, methodological, and oriented towards facts and hands-on procedures. Intuitive students are more comfortable with abstractions (theories, mathematical models) and are more likely to be rapid and innovative problem solvers.
b) What type of sensory information is most effectively perceived: visual (pictures, diagrams, flow charts, demonstrations) or verbal (written and spoken explanations)?
c) How does the learner prefer to process information: actively (through engagement in physical activities or discussions) or reflectively (through introspection)? This scale is identical to the active-reflective scale of Kolb's model.
d) How do learners characteristically progress towards understanding: sequentially (in a logical progression of incremental steps) or globally (in large "big" picture jumps)? Sequential students tend to think in a linear manner and are able to work with only partial understanding of the material they have been taught. Global learners think in a systems-oriented manner, and may have problems applying new material until they fully understand it and see how it relates to materials they already know and understand. Once they grasp the big picture, however, their holistic perspective enables them to see innovative solutions to the problems that sequential learners might take much longer to reach.

(a) Active and reflective learners

Felder and Soloman (1999a) describe **active** learners as learners who can retain and understand information best when they are actively involved in something they do. They perform best in discussions, applying them and also explain them to others. They like to work as a group rather than working alone. It is very hard for them to sit in class without doing anything physical. **Reflective** learners prefer thinking about new information quietly first before they can act. They tend to like to study alone. Reflective learners prefer to stop periodically to review what they have read and think of the possible questions or how to apply the information.

(b) Sensing and intuitive learners

Sensing learners like learning facts. They are good at memorizing facts and doing hands-on work. They are more practical and careful. Sensors prefer solving problems by well established methods. They prefer courses, which have apparent connection to the real world. They remember and understand information best if they can connect the information to the real world. **Intuitive** learners are best at grasping new concepts and are comfortable with abstracts and mathematical formulations. They tend to work very fast and are innovative. They dislike repetitions (Felder & Soloman, 1999a).

(c) Visual and verbal learners

According to Felder and Soloman (1999a), **visual** learners remember best what they see (e.g. pictures, diagrams, flow charts, time lines, films, and demonstrations) They learn more when the information is presented both visually and verbally. **Verbal** learners learn best from words. They prefer written and spoken information. They learn best when information is presented both verbally and visually. Group work is also effective for gaining understanding.

(d) Sequential and global learners

Felder and Soloman (1999a), view **sequential** learners as learners who gain understanding sequential steps, with each step following logically from the previous one. They find solutions by logical stepwise paths. They learn best by outlining their study materials in a logical order. **Global** learners tend to learn in large jumps. They just absorb materials almost randomly without seeing connections and then suddenly get it. They can solve difficult problems quickly once they have grasped the big picture but they may have problems explaining how they did it.

Felder and Soloman (1999a) indicate that the ILS is still under development and that it cannot be considered validated. The results of the ILS indicate individual's learning preference as well as group learning. They also emphasize that the profile does not reflect a learner's suitability or unsuitability for a particular subject or profession.

De Vita (2001) administered a questionnaire to university students in Oxford Brockers University. The questionnaires were distributed to 66 students but only 63 completed questionnaires were returned.

The study showed that 75% of international students showed a preference for visual rather than verbal inputs. The Britain students indicated preference for visual information (52.4%). The emphasis on visual learning rather than verbal learning seems to be effective in all cultures. This might be because of technological advancement. Students are exposed to television, computers, videos, and games.

They compared international and home learners on other dimensions, where comparison showed the existence of greater variation of learning style preferences within the international students' sample. Their scores were scattered across moderate/strong ranges of the active-reflective, sensing-intuitive and sequential-global scales. The home students resembled a distinct learning pattern, and active information processing as opposed to reflective, sensing as opposed to intuitive information, perception and sequential as opposed to global progression towards understanding.

According to Felder and Brent (2005), the ILS may be considered reliable and valid for assessing learning styles, although the three papers by Felder and Spurlin (2004), and Livesay, Dee, Nauman, and Hites (2003) and Zywno (2003) recommended continuous research on the instruments.

The recommendations of Litzinger, Lee, Wise and Felder (2007) strongly emphasizes the validity and reliability of the ILS and further recommended that it be utilized unrevised.

According to Felder and Spurlin (2004), the Index of Learning Style can be applied to provide guidance to the instructor on the diversity of learning styles within the learning environment and also help instructors to design instructions that will address the learning needs of their learners.

The Index of Learning Style can also be applied to help individual students to identify their possible learning strengths and weaknesses. It can assist both the instructor and learner to understand each other.

2.3 The Relationship between Gender, Age and Learning Styles

Adult learners have specific learning style preferences, and these preferences may vary between male and female adult learner and between younger and older adult learners. Gender and age differences in learning styles are some of the key aspects that need to be considered by adult educators in order to achieve the objectives of adult learners in their learning. Tomkiewick & Bass (2008) stated that there are gender differences between males and females. Their argument is supported by Basson (2000) whose study on learners' perception of and reaction to professors found that there was a gender factor.

Siebert and Gerl (1975) conducted an investigation about participants in adult education classes and found that female adult learners prefer to continue learning in organized classroom setting, while adult male learners did not prefer organized classroom setting. Siezoo, Malhotra and Bearson (2003) investigated a gender-based comparison of learning strategies of adult business students and found gender differences among respondents. Adult females had some learning characteristics which were different from adult males. The study revealed that adult females are more motivated to attend business classes than males.

Slater, Lujan and DiCarlo (2007) conducted a study to determine whether gender have an influence in the learning styles preferences for first-year medical students. The study revealed gender differences in preferred methods of information delivery. Female learners are more diverse than males.

Murray, Owen and McGaw (2005) A comparative study conducted in Canada found that there is a great difference in performance among older adults. The results showed the difference between adult learners with the lowest and highest scores tend to be higher among older adults aged 46 to 65. The findings further, revealed a negative association between age and cognitive skills.

A study conducted to investigate the outcomes for college adults by Donaldson and Graham (1999) found that mature students performed well or better than traditional students in higher education. The findings implies that mature students use different skills, techniques, interactions with faculty and fellow student together with their real life experience assist in achieving better results.

In Devlin (1996) study on older and wiser?: a comparison of learning and study strategies of mature age and younger teacher education students, it was found that mature students performed well in exams than younger students. Mature students are able to use their life experiences in selecting key points relevant to their learning.

2.4 Training Methods

There are quite a number of training methods that are used for training. The researcher used training methods for the study that are commonly used in South Africa.

2.4.1 Lecture training method

Lecture is the most widely used instructional method of all in adult education. Tracy (1984:247) in Van Dyk, Nel and Leodolff (1992:224) defines lecture as a "semiformal discourse in which the instructor presents a series of events, facts, concepts, or principles, explores a problem, or explain relationships". According to Rogers (1989:120), lecturing is an excellent way of orientating students with the framework of the course and presenting an overview of its importance. Lectures can assist trainers to transmit a considerable amount of information to a large group of students within a short space of time (Nel, 1977:98 in Van Dyk, Nel and Leodolff, 1992:224).

The lecture method has been criticized as a poor training method. Researchers have emphasized that it must be used in combination with other training methods. Van Dyk, Nel and Leodolff (1992:224) further state that the lecture method lacks trainee involvement. They indicated that lecture is a one-way communication activity in which the instructor never receives feedback from trainees. It does not consider individual learning differences.

According to Rogers (1989:119), adults learn best when they are actively involved. It is best to stop the lectures periodically in order to ask the trainees to give feedback on the information presented to them.

2.4.2 Videotapes training method

According to Read and Kleiner (1996), the effectiveness and ineffectiveness of videotapes depend on the way they are used. It can be effective if the trainees are watching videos and the trainers stop periodically to ask questions from the audience. By so doing it leads to active participation and feedback. Videotapes do not hold as much attention as lecturing itself because trainees just watch videos in a passive manner.

2.4.3 One–on-one instructions

This type of training can take place at work and even away from the trainee's workplace. At work it is regarded as on-the-job training while away from work it is called off-the-job training.

According to Read and Kleiner (1996), on-the-job training occurs when the employee is doing the actual job at work under normal working conditions. This type of training is important as it ensures that what is learnt is transferred to the job while the employee becomes productive.

Off-the-job training is expensive and requires the trainer to have more time to prepare before the actual training. Most organizations do not prefer to use it as it involves senior employees training their juniors. The disadvantage could be that the supervisor may not be trained as a trainer. If that is the case they will never be motivated to train or to accept the responsibility for training. Some people perform best at work but fail to show others how it is done. The only advantage of using this method is that less time is spent on skills that can be given to difficult tasks (Read & Kleiner, 1996).

2.4.4 Role-play training method

Role-play gives trainees a good chance for personal involvement and practical experience. Van Dyk, Nel and Leodolff (1992:226) state that in role play “learners physically act out a specified role, applying the theory instead of merely thinking about it”. The instructor explains the problem through discussions or lectures. After the explanation, they are given roles to play where the trainees must play roles without the instructor telling them how to play. This makes characters to be creative and innovative because they must play the way they think it should be done. It gives trainees insight into interpersonal problems and a chance to improve their ability to socialize effectively.

2.4.5 Brainstorming training method

Brainstorming is the most commonly used method for generating an alternative solution to the problem. It is used to encourage learners' participation and creativity. It can be useful to obtain the best creativity and intelligence from a combined group. The evaluation of ideas takes place at the end of the session in order to encourage the creativity spirit (Van Dyk, Nel & Leodolff, 1992:229).

2.4.6 Computer-based training method

Computer-based training can be classified into two categories: Computer Assisted Instruction (CAI) and Computer Managed Instruction (CMI). In CAI the computer is used as the instructor. Training occurs during a dialogue between the learner and the computer where the information is presented via the monitor and the learner responds to the instructions by typing on the key board (Read & Kleiner, 1996:7). The CAI is good in a lesson that requires practice, games, simulation, and problem solving (Van Dyk, Nel & Leodolff, 1992:229).

2.4.7 Group discussions training method

According to Kenny (1996:27), group discussion is a two way communication process involving both the instructor and the learner. He further indicates that discussion is an important way for participants to be more involved in the training. Training's success is measured through the participants' involvement in it. During group discussions, questions should be directed for the attention of the group. Such questions should be formulated in a way that will require the respondent to describe the processes and procedures, focus on feelings/reactions and are perceived by the participants as helpful. It is important to ask open-ended questions that make learners think about their responses rather than questions which prompt "yes" or "no" answers.

2.4.8 Games training method

Games may only indirectly relate to the real world. They involve the competition of individuals or the group with the outcome influenced by the choices made or the skills of the players. Since they are played for fun the player might not take them seriously. When using this method we must be careful because at the end of the day the players might leave the training session unaware of what they learned. For games to be effective, trainers need to arrange for post game discussion to ensure that the objectives were accomplished (Read & Kleiner, 1996:4).

2.4.9 Case studies

Van Dyk, Nel and Leodolff, (1992:225) defines a case study as "an in-depth group discussion of a simulated real-life situation". When this method is used, the instructor usually presents the problem to the trainees to find the solution to the problem on their own.

Trainees are given the opportunity to use their past knowledge and experience to test their ability to assess a real-life situation (Van Dyk, Nel and Leodolff, 1992:225). Case studies are very useful in encouraging discussion in order to explore different point of views (Read & Kleiner, 1996:5).

2.4.10 Demonstrations

In demonstrations the trainer demonstrates to the trainees whatever needs to be done and shows them the procedure to do it. The trainer also explains the whole process, giving the trainees the reasons why they are performing the task. After the trainers' demonstration, the trainees will be required to repeat what the trainer was doing. Demonstrations can be helpful in teaching analytical skills, problem solving and procedures (Van Dyk, Nel and Leodolff, 1992:230).

2.5 Important Model for this Study

Due to the fact that Limpopo Province is characterized by diversity in terms of ethnicity, language, values, and culture, this study will examine whether people from different backgrounds learn in the same way. Most researchers support the fact that people from diverse cultures learn differently (Sawadogo, 1995).

In this study the researcher seeks to re-examine some of the adult learning theories and styles and to assess their suitability for training in the South African context. For the purpose of this study, the Index of Learning Style developed by Felder and Silverman in 1988 was selected.

The Index of Learning Style emphasizes the fact that learners have different strengths and preferences in the way they process information (Felder & Spurlin 2004). The learning styles have implications on training methods. In the African context, trainers/teachers are regarded as authoritative, who impart knowledge on passive dependent learners (Sawadogo, 1995). Teachers, trainers and instructors who are used to impart knowledge to passive dependent learners might find it difficult to teach learners with a variation in the preference in learning styles.

South Africa believes that OBE is the approach that is necessary for training employees because it reflects that if a person wants to reach a certain goals, he/she must first determine what he/she wants to achieve. The purpose of education and training is to prepare learners for life in society and for performing a job. The OBE approach intends to focus equally on knowledge, skills, the process of learning, and the final outcome.

Experiential learning is also important for adult learners because their experience plays an important role in their learning process. Adult learners are mature people who are able to use their past experiences in their learning process. Effective learning is closely linked to the adult learner's past experience, which is integrated into the adult learner's self-esteem (Mac Donald, Gabriel & Cousins, 2000).

Experiential learning is vital in South Africa to such an extent that the Department of Labour as well as the Sector for Education and Training has introduced Learnerships as a means of developing key skills in all fields of learning. Learnerships are offered for both employed and unemployed candidates in need of theoretical knowledge together with practical experience to achieve a full and nationally recognized qualification (Meyerson, dmeyerson@global.co.za).

2.6 Summary

This chapter indicated that most researchers on adult education emphasize that there is a need for a generalized theory of adult learning, which will provide us with guidelines for choosing the methods and styles of teaching. They also indicate that generalization is possible because there is a general agreement that all human behaviour is learned and that learning can result in a complete change of behaviour.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter presents the research design and methodology, nature of the study, sampling procedures, as well as the methods of data collection and data analysis used in this study. The aim of the study was to establish out whether there is any relationship between learning styles and training methods when training municipal employees.

3.2 Hypotheses

In an attempt to understand the learning styles of municipal employees, it was hypothesized that:

- women and men will differ in their learning styles during training;
- Blacks and whites will differ statistically and significantly differ their learning styles
- employees with longer experience will differ in their learning styles during training from those with shorter working experience; and that
- Older employees will differ in their learning styles with those who are younger.

The key concepts that formed part of the study are:

- Understanding: the faculty of thinking, reasoning, acquiring and applying knowledge.
- Explore: investigation, search and discover.
- Learning styles: the individual differences in the way they think and learn.

The following are the key variables for the study:

- Learning styles and training methods.
- Learning styles and gender.
- Learning styles and age.
- Learning styles and work experience.
- Learning styles and population group.

3.3 Research Design

The study is quantitative in nature. The goal of quantitative research is to identify general patterns and relationships, testing theories and making predictions (Ragin, 1994). Quantitative research presents statistical results of people holding similar views and characteristics or behaviour. An attempt to measure the responses of individuals and compare them with each other includes all the techniques (McCormark & Hill, 1997:4). This will enable researcher to make generalizations about the extent to which responses found are likely to be representative of other people not being investigated. The study is likert-type surveys with 34 questions to be answered on a Likert scale with responses ranging from strongly agree to strongly disagree.

3.4 Research Methodology

The quantitative research design was used in this study to collect data needed to answer questions about the municipal employees. The following methodology was followed in collecting data for this study:

3.4.1 Data collection instruments

A questionnaire was used to collect data for this study. The questionnaire was constructed based on literature reviewed and personal experience on issues related to learning styles and training methods. The questionnaire consisted of thirty-four (34) items. The first seven (7) items required the respondents to give their biographical information. Items number eight to twenty-four (8 -24) required the respondents to indicate their learning styles. The rest of the items (25-34) required the respondents to share their views on the effectiveness of training methods. Five point scales were used in Sections B and C to help rank the way individuals learn as well as the effectiveness of training methods. Use was made of a1-5 value to rank attention given to the aforementioned issues (e.g. Section B: 1- "Strongly disagree" to a given issue and on the opposite end of the scale 5 – "Strongly agree" and Section C: 1- "Ineffective" and on the opposite end 5 – "Highly effective").

Items 8 – 24 were given on a four point scale: active-reflective, sensing-intuitive, visual-verbal and sequential-global learners. Active-reflective learners were covered in Items 12, 13, 14 and 15. Matters relating to sensing-intuitive learners were covered in items 16, 17, 18 and 19. Matters concerning visual-verbal learners were covered in item 8, 9, 10 and 11, and sequential and global learners were covered in items 20, 21, 22, 23 and 24.

The following is a summary of questions:

- Matters concerning the relationship between learning styles and training methods were covered in items 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34.
- Matters concerning the effect of gender on learning styles were covered in item 1.
- Matters concerning the effect of work experience on learning styles were covered in item 6.
- Matters concerning the effect of educational standards on learning styles were covered in tem 5.
- Matters concerning the effect of population group on learning styles were covered in item 3.

The questionnaire was divided into three sections: Sections A, section B and section C.

Section A

Section A asked questions about the biographical details of respondents such as gender, age, population group, and home language, level of education and experience and training sessions each year.

Section B

Section B required the respondents to indicate the degree to which they agreed or disagreed with statements that best describes their learning styles. the respondents were requested to indicate 17 learning style preferences. A five-point scale was used to quantify the respondents learning styles. The learning styles included the following types of learners: visual or verbal, active or reflective, Intuitive or sensing, and sequential or global.

Section C

The respondents were asked to express their opinions on how each of the training methods was helping them to learn best. They were requested to indicate the effectiveness and ineffectiveness of ten training methods in their training. A five-point scale was also used to quantify the effectiveness of the training methods. For the purpose of the study, only ten training methods, which are commonly used in South Africa, were used, mainly the lecture, videotapes, one-on-one instructions, role-play, brainstorming, computer-based training, group discussions, games, Case studies and demonstrations.

The questionnaire was preferred because it is designed in such a manner that questions are asked in exactly the same way for every respondent.

3.4.2 Pilot study

A pilot study was conducted to test the appropriateness of the data-collection instrument and the process. Only eight respondents from the Vhembe district municipality were requested to complete the questionnaire which consisted of fifty items. The questionnaire was reported to be too long and time-consuming, some of the statements were repeated and others were not clear. The questionnaire was then reduced to thirty-four items and these items adjusted according to suggestions from the respondents. The instrument was assessed and revised with a panel of experts and researchers for content validity.

3.4.3 Sampling procedure

The following sampling procedure was followed:

3.4.3.1 Population

A total of 67 municipal administrative officials in the Vhembe district municipality were selected from five municipalities in the Limpopo Province consisting of 1 803 municipality workers and officials.

The survey populations for this study comprised of administrative officials in the three local municipalities, which fall under the Vhembe district municipality. This group was literate to a varying extent. The respondents were chosen for the following reasons:

- They came from different population groups.
- They were familiar with the elements of adult teaching and learning situations, such as learning styles and methodology.
- They were different in terms of gender and age.

3.4.3.2 Sampling frame

Acording to Seaberg (1988), a small portion of the total set of objects, events, or people that together comprise the subject of the study refers to a sample. Databases of employees from the Messina, Thulamela and Makhado local municipalities who work for those municipalities were obtained.

3.4.3.2 Sampling procedure

The participants were selected following a simple random selection. To arrive at the desired sample size of hundred-and-fifty, participants were selected from the Musina, Makhado and Thulamela local municipalities as follows: The sample derived from the Makhado municipality consisted of seventy administrative officials while those from Thulamela were fifty administrative officials. Musina had thirty administrative officials in the sample. The sample was drawn from these three local municipalities where sixty seven administrative officials participated.

3.4.4 Participation in the study

Participation in this study was voluntary. No promises were made or enticement promised to the respondents beyond indicating that the research results would be made available through the Human Resource Development office.

3.4.5 Data collection

Permission to conduct this study was granted by the Councils of the Musina, Makhado and Thulamela local municipalities of the Vhembe district municipality. A letter, indicating proof of the researcher's registration as a student from the University of Venda, and a copy of the questionnaire, were attached to the letter requesting permission to conduct the research.

After permission was granted, the researcher visited the municipality during December 2007. The researcher produced the student card from the University of Venda and the letter from the municipality for permission to conduct research whenever the selected municipality were visited.

The data collection instruments were delivered to the selected sample by hand with a covering letter requesting the respondents to respond to the questionnaire (Appedix D). This was done to ensure that the questionnaires reached all participants. The same procedure was followed in the collection of the completed questionnaires. The result was that 67 questionnaires were returned out of a total of 150. It was much difficult for the researcher to find the respondents in their offices when collecting the questionnaires as it was during December.

The study was aimed at understanding the learning styles of adult learners. The data collected opinions as well as preferences. The study was aimed at determining the relationship between learning styles and training methods in which data required were opinions and preferences on the given learning style and training method.

Lastly, the study determined the relationship between learning styles and demographic variables (their age, sex, level of education, experience, and population group).

3.4.6 Data capturing and editing

The data were entered into a data editor loaded with the Statistical Package for the Social Sciences (SPSS) file. Although I had taken considerable care in entering the data from the study, with the help of the data analysis expert, we checked for errors that might have occurred during capture. Two approaches to error checking were used so that errors that occurred during the capturing process were corrected: examining the data set directly using the case summaries approach and running the procedure and frequency, which produced a summary table of values for each variable. One approach could have been used but we used two to double-check for errors.

3.4.7 Data analysis

The computer and the SPSS powerful statistical software which manipulates large amounts of data, finds patterns and tests hypotheses were used to capture and analyze data. The SPSS is a tool that helps the researcher to

- Summarize data;
- Compile appropriate tables; and
- Examine relationships among variables.

3.4.8 The limitations of the study

For the purpose of the study, limitations are the factors that hinder the progress of the study.

The research project was based on municipal employees in the Vhembe district municipality; therefore, the sample of participants is not a probability sample. Some respondents were unwilling to participate in the study. The available records could not reach the required size.

3.5 Summary

This chapter outlines the methodology employed, the data collection instrument, the sampling procedures, the data collection process, data analysis, as well as the limitations of the study.

CHAPTER 4

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The chapter focuses on the presentation of results obtained from the analysis of questionnaires completed by administrative officials of local municipalities under the Vhembe district municipalities and includes an analysis and discussion of research findings based on the objectives of the study. The demographic profile and the main trends and patterns in the data are presented.

One of the objectives of the study was to determine empirical evidence on how demographic variables (gender; age, experience, and population group) affect adult learning styles. Such evidence would identify those issues that affect adult learning styles. The research study was furthermore aimed at determining the relationship between adult learning styles and training methods.

One hundred-and-fifty questionnaires were distributed in the three local municipalities: Makhado, Thulamela and Musina. Only 67 completed questionnaires were returned. This represents a 68.89% response rate. This response rate is deemed acceptable to validate the research data.

SECTION A

This section consists of biographical information only.

4.2 Biographical Information

The demographic characteristics obtained from the questionnaire were the following:

4.2.1 Gender

Respondents were requested to indicate their gender. The results are presented in Table 4.1.

Table 4.1 Gender

Gender	Frequency	Percentage
Male	38	56.7
Female	29	43.3
Total	67	100.0

More than half 56.7% of respondents of the sample were males while females comprised of 43.3%. The results show that the majority of employees were males. These results are not consistent with the provisions of the Employment Equity Act (1998) which indicate that there should be equitable representation on gender in the workplace.

4.2.2 Age

The respondents were requested to indicate their age and the results are presented in Table 4.2.

Table 4.2 Age

Age	Frequency	Percentage
21 – 30 years	14	20.9
31 – 40 years	27	40.3
41 – 50 years	23	34.3
51 years or older	3	4.5
Total	67	100.0

The respondents from the age of 31-40 years comprised 40.3% while 34.3% were those between 41-50 years. The age group of 21-30 years was represented by 20.9%. The respondents of 51 years and above represented of 4.5%. The results show that the majority of employees were middle-aged employees. These results suggest that the majority of employees can still undergo training and still remain with the Municipality before they retire.

4.2.3 Population group

The results showing the various population groups which took part in the survey are given in Table 4.3.

Table 4.3 Population group

Population Group	Frequency	Percentage
Black	57	85. 1
White	10	14. 9
Total	67	100. 0

The majority of the respondents were Black with (85.1%). There were 14.9% White. Indians and coloureds were not represented. The results thus show that the majority of employees were blacks. This could be attributed to the fact that Vhembe district municipality population consist mainly of blacks, as per *Statistics* (2001).

4.2.4 Home language

Table 4.4 presents the results of the home language of the sample which took part in the study.

Table 4.4 Home language

Home language	Frequency	Percentage
Afrikaans	10	19. 9
Sepedi	6	9. 0
Xitsonga	11	16. 4
Tshivenda	40	59. 7
Total	67	100.0

More than half (59.7%) of the respondents were Tshivenda speaking, followed by the Xitsonga speaking respondents comprising of 16.4%. The Afrikaans speaking population constituted of 14.9%.The Sepedi speaking people were the lowest percentage (9.0%) of the sample.

The majority of the employees in the municipalities were Tshivenda speaking. These results are not surprising since Tshivenda speaking employees are in the majority in this area. The statistics of Census conducted in 2001, reflected that the largest numbers (68.25%) of the population in the Vhembe district municipality are Tshivenda speaking people.

4.2.5 Level of education

The respondents were requested to indicate their level of education and the results are given in Table 4.5 below.

Table 4.5 Level of education

Level of education	**Frequency**	**Percentage**
Below Standard 10/Grade 12	7	10. 4
Equivalent to Standard 10/ Grade 12	17	25. 4
One-year Certificate	7	10. 4
Diploma	17	25. 4
Bachelor's degree	15	22. 4
Honour's degree	1	1. 5
Master's degree	2	3. 0
Other	1	1. 5
Total	67	100. 0

There were 35.8% of the respondents with one-year certificate/equivalent to standard 10. A further 25.4% of the respondent had diplomas. Just 22.4% were graduates with junior degrees. There were 10.4 % of the respondents with level of education below STD 10/Grade 12.

The results reflect that the majority of Municipal employees did not undergo post matric education. The researcher wanted to find out the extent to which qualifications of the municipal employees showed a need for training. It is expected that employees should have had at least a National Diploma. These results suggest that municipal employees, who do not have a post matric qualification, should undergo further education and training for effective service delivery.

4. 2. 6 Experience

The respondents were requested to indicate their experience in years.

Table 4.6 Experience

Experience in department	Frequency	Percentage
Less than one year	4	6. 0
1-3 years	21	31. 3
4-6 years	25	37. 3
7-9 years	8	11. 9
10 years and above	9	13. 4
Total	67	100. 0

There were 37.3% of the respondents who had worked in the department for four to six years followed by 31.3% of those with between one and three years' working experience. Eleven point nine percent of the respondents had seven to nine years' experience. Thirteen point four percent of the respondents had ten years and above. The lowest percentages (6.0%) were respondents with a working experience of less than a year. These results show that the majority of employees had four to six years working experience. This implies that the Vhembe district municipality employees were not well experienced. The results suggest the need for skills training in the Vhembe district municipality.

4.2.7 Training sessions per year

The respondents were requested to indicate the number of training sessions attended. The results are presented in Table 4.7.

Table 4.7 Training sessions per year

Training sessions	**Frequency**	**Percentage**
0	15	22. 4
1-3	37	55.2
4-6	14	20. 9
Other	1	1. 5
Total	67	100. 0

More than half (55.2%) of the respondents had attended 1 to 3 training sessions each year while 20.9% had attended from for up to six training sessions per year. Only 22.4% were respondents had never attended a training session. The Skills Development Act (1998) was aimed at addressing the problem of illiteracy and an unskilled labour force which was created by the apartheid regime. The results show that the majority of employees have been trained. These results indicate that the Vhembe district municipality is working towards skills training which is in line with the provisions of the Skills Development Act (1998) together with the Skills Development Levies Act (1999), which emphasize that South African organizations need to invest more on training in order to beat the world's competition regarding skills training.

SECTION B

The respondents were requested to indicate the level to which they agreed or disagreed with the statements by choosing the number that best describes their learning styles. The results are presented below:

4.3 Learning Styles

The researcher attempted to find answers relating to individual preferences in learning styles in the three municipalities (Makhado, Musina and Thulamela). The main objective was to assist trainers to understand their trainee's learning styles before the latter conducted their trainings. The researcher used four learning dimensions to assess the preferences of the individuals on the learning style (visual/verbal, sensing/intuitive, active/reflective, and sequential/global). The section below discusses the results regarding these learning styles.

4.3.1 Visual and verbal learners

4.3.1.1 Remembering

Table 4.8 presents the results showing the individual's preference on the issue of remembering what I see.

Table 4.8 Remember better what I see than what I hear

What I see than what I hear	Frequency	Percentage
Strongly disagree	1.5	1.5
Disagree	5	7. 5
Don't know	2	3. 0
Agree	33	49. 3
Strongly agree	26	38. 8
Total	67	100. 0

The majority (88.1%) of the respondents agreed that they remembered better what they see than what they hear while a few respondents (9.0%) disagreed with the fact that they remember better what they see than what they hear. Only 3.0% of the respondents were undecided.

This implies that the majority of employees in the Vhembe district municipality were visual learners.

4.3.1.2 Using diagrams on the board

The respondents were requested to indicate their ideas about the use of diagrams on the board and the results are given in Table 4.9.

Table 4.9 Trainers using diagrams on the board

Trainers using diagrams on the board	**Frequency**	**Percentage**
Strongly disagree	2	3.0
Disagree	11	16.4
Don't know	1	1.5
Agree	33	49.3
Strongly agree	20	29.9
Total	67	100.0

More than three quarters (79%) of the respondents felt that they liked trainers who put many diagrams on the board while only 19.4 % of respondents disagreed that they liked trainers who many of diagrams on the board. Very few respondents (1.5%) indicated that they were not sure whether they like trainers who put many diagrams on the board. These results indicate that employees of the Vhembe district municipality are visual learners.

4.3.1.3 Watching rather than listening

Table 4.10 below presents the results of the respondents regarding the issue of watching TV rather than listening to the radio.

Table 4.10 Enjoy watching TV to listening to the radio

Watching TV to listening to the radio	Frequency	Percentage
Strongly disagree	3	4. 5
Disagree	13	19. 4
Don't know	3	4. 5
Agree	31	46. 3
Strongly agree	17	25. 4
Total	67	100. 0

The results indicate that nearly a quarter of the respondents (71.7%) agreed that they enjoyed watching TV to listening to the radio. About 23.9% either disagreed or strongly disagreed with enjoying watching TV rather than listening to the radio. Only 45% of the respondents had a neutral view regarding the issue. These results confirm that the majority of adult learners prefer to see than to hear.

4.3.1.4 New information through verbal communication

The respondents were requested to rate themselves regarding the issue of getting new information through verbal communication. Table 4.11 below presents the results.

Table 4.11 New information through verbal communication

New information through verbal communication	Frequency	Percentage
Strongly disagree	2	3. 0
Disagree	19	28. 4
Don't know	2	3. 0
Agree	35	52. 2
Strongly agree	9	13. 4
Total	67	100. 0

There were 65.5% of the respondents who preferred getting information through verbal means. Roughly 32.4% of the respondents disagreed with getting information through verbal communication. Only 3.0% had no opinion regarding new information through verbal communication.

The results on visual and verbal learning illustrate a greater preference for visual learning than verbal learning. The results are consistent with the findings of De Vita (2001) whose study reflected that trainees preferred visual information to verbal information. Percentage wise the results indicate differences although cross tabulations did not reveal any significant differences. However, cross tabulations revealed that employees from different population groups differ significantly on the issue of "getting information through verbal communication" (Chi-Square = 13.755; $p< 0.05$; Cramer's V = 0.453). Blacks are more verbal than whites. Literature suggests that blacks are trained through the lecture method. However, according to De Vita (2001), visual learning seems to be more effective to all cultures than verbal. The results are also consistent with the findings of Wang (2007) whose study reflected that a number of participants displayed a strong preference for the visual learning style. The results are also consistent with the findings of Felder and Brent (2005) where 82% of engineering students were visual learners.

Cross tabulation revealed insignificant differences on the relationship between age, gender and learning styles.

4.3.2 Active and reflective learners

4.3.2.1 Studying alone rather than in a group

The result presented in Table 4.12 below, shows individual's preference on the issue of studying alone rather than in a group.

Table 4.12 I prefer to study alone rather than in a group

Study alone rather than in a group	**Frequency**	**Percentage**
Strongly disagree	4	6. 0
Disagree	25	37. 3
Don't know	4	6. 0
Agree	18	26. 9
Strongly agree	16	23. 9
Total	67	100. 0

Half (50.8%) of the respondents preferred to study alone rather than to study in a group while 43.3% of the respondents showed disagreed with studying alone than to study in a group. Only 6.0% had a neutral response to the issue.

4.3.2.2 Understand better after I have thought it through

Table 4.13 presents the results of respondents who were requested to indicate their preference on the issue of understanding better after thinking through a problem.

Table 4.13 Understand better after I have thought it through

Understand better after I have thought it through	Frequency	Percentage
Strongly disagree	1	1. 5
Disagree	11	16.4
Don't know	6	9. 0
Agree	33	49. 3
Strongly agree	16	23. 9
Total	67	100. 0

The majority 73.2% of respondents agreed that they understood something better after they had thought it through. There were 17.9% of the respondents who disagreed that they understood something better after they had thought it through. Only 9.0% of the respondents did not have an answer to the question.

4.3.2.3 Remember well something I have done

Table 4.14 below presents the results of respondents regarding the issue of remembering something one had done.

Table 4.14 Remember something one had done

Remember something one had done	Frequency	Percentage
Agree	35	52. 2
Strongly agree	32	47. 8
Total	67	100. 0

All the respondents were of the opinion that they remembered something if they had done it. The result suggests that all the respondents are active learners.

4.3.2.4 Learn best when emotionally involved

The respondents were requested to indicate their preference on the issue of learning best when they were emotionally involved and the results are given in Table 4.15 below.

Table 4.15 Learn best when emotionally involved

Learn best when emotionally involved	**Frequency**	**Percentage**
Strongly disagree	8	11. 9
Disagree	20	29. 9
Don't know	4	6. 0
Agree	22	32. 8
Strongly agree	13	19. 4
Total	67	100. 0

Slightly more than half (52.2%) of the respondents remarked that they learned best when they were emotionally involved. A further 41.8% felt that they could not learn best when they were emotionally involved. Only 6.0% had a neutral response to the issue. The results also emphasize that the respondents preferred being emotionally involved in their learning.

The respondents were requested to indicate their individual preference on reflective and active learning dimensions. The results show that 100% of the employees preferred active learning compared to 50.8% of the employees who preferred reflective learning. The results are consistent with the findings of De vita (2001) who wanted to establish individual learning preference among international and home students which showed inconsistencies with regard to international students but were consistent among home students. The results of international students were scattered across moderate/strong ranges of active-reflective learners whereas those of the British students showed a preference to active learning compared to reflective learning. One could suggest that trainers need to consider active participation as well as giving reflective learners time to think about what has been said.

The cross tabulations revealed a significant difference between groups of different working experience on item "prefer to study alone rather than in a group". While all groups disagreed that they preferred to study alone rather than in a group, the degree of disagreement differs significantly. It is interesting to note that employees with groups between one to nine years of working experience were undecided on the item "prefer to study alone rather than in a group". It is possible that one could find it easy to work alone while also being able to cope in a group. However, all groups agreed that they preferred to study alone than in a group although the level of agreement significantly differed among the employees with different working experience (Chi-Square = 27.767; p< 0.05; Cramer's V = 0.322). The results suggest that those employees who have experience use their experience in their working situations while those without working experience depend only on knowledge acquired during training. The results also confirm the hypotheses which indicated that employees with longer experience differ in their learning styles with those who have shorter work experience.

Although all employees of different population groups tended to remember something they had done, they differed significantly on the level of agreement. Cross tabulations revealed significant differences on the manner in which municipal employees from different population groups responded to the item "remember something one had done" (Chi-Square = 3.631; p< 0.05; Cramer's V = 0.233). Blacks (52.0%) seem to have a very strong opinion on this issue compared to whites (20.0%).

According to Felder and Brent (2005), a study conducted at Iowa State University amongst engineering students revealed that 63% of the respondents were classified as active learners while 37% were classified as reflective learners. Those results are consistent with this study.

There result showed insignificant differences on the relationship between age, gender and learning styles.

4.3.3 Sensing and intuitive learners

4.3.3.1 Learn from practical exercises

Table 4.16 below presents the results of respondents regarding the issue of learning from practical exercises.

Table 4.16 Learn from practical exercises

Learn from practical exercises	**Frequency**	**Percentage**
Disagree	3	4. 5
Don't know	2	3. 0
Agree	35	52. 2
Strongly agree	27	40. 3
Total	67	100. 0

An overwhelming 92.5 % of the respondents preferred to learn from practical exercises. There were 4.5% of the respondents who did not prefer learning from practical exercises. A few respondents (3.0%) had a neural opinion regarding the issue.

4.3.3.2 Doing experiments to see how things work

The results showing individual preference on the issue of doing experiments to see how things work are given in Table 4.17.

Table 4.17 Doing experiments to see how things work

Doing experiments to see how things work	Frequency	Percentage
Strongly disagree	1	1. 5
Disagree	8	11. 9
Don't know	2	3. 0
Agree	29	43. 3
Strongly agree	27	40. 3
Total	67	100. 0

The majority (83.6%) of the respondents enjoyed doing experiments to see how things were working. A further 13.4% seemed not enjoying doing experiments to see how things were working. Only 3.0% had a neutral view concerning the issue.

4.3.3.3 Good at grasping new concepts

Table 4.18 presents the results of respondents on the issue of grasping new concepts.

Table 4.18 Good at grasping new concepts

Good at grasping new concepts	Frequency	Percentage
Strongly disagree	1	1. 5
Disagree	2	3. 0
Don't know	8	11. 9
Agree	39	58. 2
Strongly agree	17	25. 4
Total	67	100. 0

The Majority of the respondents (83.6%) supported the idea that they were good at grasping new concepts. There were 11.9% of the respondents who had a neutral opinion concerning the issue of grasping new concepts. Only 4.5% regarded themselves as poor in grasping new concepts.

4.3.3.4 Memorizing facts

In addition, the respondents were requested to indicate their preference on the issue of memorizing facts. The results are given in Table 4.19 below.

Table 4.19 Memorizing facts

Memorizing facts	**Frequency**	**Percentage**
Strongly disagree	1	1. 5
Disagree	9	13. 4
Don't know	8	11. 9
Agree	39	58. 2
Strongly agree	10	14. 9
Total	67	100. 0

The majority (73.1%) of the respondents indicated that they were good at memorizing facts while only 14.9% disagreed with being good at memorizing facts and only 11.9% had neutral opinions to the matter.

The results on sensing and intuitive learning illustrated a greater preference on both learning dimensions (Table 4.16 to Table4.19). De Vita (2001), his study on individual preferences among international and home students, found that there is greater variations of learning style preferences on sensing and intuitive learning for international students while home students preferred a distinct learning pattern in which greater preference was given for sensing than intuitive learning.

These results suggest that individuals do learn in more diverse ways. Cross tabulations have revealed that there are significant differences in the manner in which employees from different population groups responded to the item “prefer to learn from practical exercises” (Chi-Square = 8.013; p< 0.05; Cramer's V = 0.346). The results show that blacks seem to prefer to learn from practical exercises while Whites do not.

Blacks tend to agree that they are better at memorizing facts than whites (40%: 9.6%). There are significant differences in the rating of item “good at memorizing facts” by employees from different population groups (Chi-Square = 9.415; p< 0.05; Cramer's V = 0.375). The results show that whites are better at memorizing facts than blacks.

There was insignificant difference in the relationship between learning styles and demographic variable age and gender.

4.3.4 Global and sequential learners

This sub-section presents the results showing the difference between global and sequential learners.

4.3.4.1 Preference of working on materials

The respondents were requested to indicate their individual preference regarding the issue of working from the beginning of the study material. The results are presented in Table 4.20 below.

Table 4.20 Preference of working on materials

Preference of working on materials	Frequency	Percentage
Strongly disagree	3	4. 5
Disagree	3	4. 5
Don't know	3	4. 5
Agree	37	55. 2
Strongly agree	21	31. 3
Total	67	100. 0

The respondents who agreed that they preferred to work from the beginning of the material comprised of 86.5%. A further 9.0% did not prefer working from the beginning of the material. Only 4.5% were neutral.

4.3.4.2 Preference for starting with an outline

Moreover the respondents were requested to indicate their preference on the issue of trainers who start with the outline of what they will cover these results are presented in Table 4.21 below.

Table 4.21 Preference for starting with outline

Preference for starting with outline	Frequency	Percentage
Disagree	5	7. 5
Don't know	1	1. 5
Agree	31	46. 3
Strongly agree	30	44. 8
Total	67	100. 0

An overwhelming 91.1% of the respondents indicated their preference for being given a course outline at the beginning of the training. There were 9.0% of the respondents who had a neutral opinion about course outlines. Seven point five percent showed disagreement with course outlines.

4.3.4.3 Preference during calculations

The ratings for individual preference regarding to repeat all steps when dealing with calculations are given in Table 4.22 below.

Table 4.22 Preference during calculations

Preference during calculations	Frequency	Percentage
Disagree	8	11. 9
Don't know	4	6. 0
Agree	32	47. 8
Strongly agree	23	34. 3
Total	67	100. 0

The majority of the respondents (82.1%) preferred to repeat all steps when dealing with calculations. Only 11.9% of the respondents showed disagreement to repeating steps when dealing with calculations. About 6.0% indicated that they did not know whether they preferred to repeat all step when dealing with calculations.

4.3.4.4 Sections after understanding chapter

The results presented in Table 4.23 below indicate the respondents' preferences on how the different sections of the chapter fit in, once they understood the whole chapter.

Table 4.23 Sections after understanding chapter

Sections after understanding chapter	Frequency	Percentage
Disagree	8	11. 9
Don't know	6	9. 0
Agree	45	67. 2
Strongly agree	8	11. 9
Total	67	100. 0

More than three-quarters (78%) of the respondents agreed that they only saw how the different things were fitting in, once they have understood the whole chapter while 11.9% disagreed with the statement. Only 9.0% had a neutral opinion regarding the issue.

4.3.4.5 Getting solutions for mathematical problems

Table 4.24 below presents the results of respondents regarding the issue of finding answers without following steps.

Table 4.24 Getting solutions for mathematical problems

Getting solutions for mathematical problems	Frequency	Percentage
Strongly disagree	18	26. 9
Disagree	30	44. 8
Don't know	11	16. 4
Agree	7	10. 4
Strongly agree	1	1. 5
Total	67	100. 0

There were 71.7% of the respondents who either strongly agreed or disagreed with the issue of getting the answer without following the steps while 16.4% of the respondents were not certain about the issue. Only 11.9% agreed that they got the answer without following the steps.

The respondents were requested to indicate their individual preference regarding sequential and global learning dimensions. The results showed a greater preference for sequential than global learning which could suggest that employees prefer to learn in sequential steps, from the simple to the complex. Trainers should consider presenting information in sequence in order to make their learners learn more effectively. These results are consistent with the findings of De Vita (2001) who confirmed that there was more emphasis on sequential as opposed to global progression towards understanding. The majority of blacks (87.7%) have indicated that the use of the group discussion training method is effective during training. These results confirm earlier findings in this study that blacks prefer verbal learning when compared to whites.

The respondents were requested to indicate whether they differed in the manner in which they responded to the item "I prefer trainers who start with the outline of what they will cover". The respondents from the different population group showed differences in the manner in which they responded to this item. Blacks (93.0%) preferred to start with the outline of what they had to cover. Cross tabulations reveal significant differences between black and white employees in their rating of these "trainers who start with the outline of what they will cover" (Table 4.21). (Chi-Square = 7.892; $p < 0.05$; Cramer's V = 0.343). These results indicate that different training methods between blacks and whites should be used if the maximum results have to be achieved.

The majority of employees indicated that they preferred to repeat all the steps when dealing with calculations. However, a significant number of the white employees (40.0%) disagreed from the black respondents (7.0%) on this issue. Cross-tabulation of the ratings in "dealing with calculations I prefer to repeat all steps" for employees from different population group revealed that the blacks showed more interest on the issue of "repeating all steps" than the whites. (Chi-Square = 9.550; $p < 0.05$; Cramer's V = 0.378) It is thus hypothesized that blacks and whites will differ statistically and significantly differ their learning styles.

The results showed insignificant difference in the relationship between learning styles and demographic variable age and gender.

SECTION C

4.3 Training Methods

The following sections of this study are based on the analysis of responses obtained from opinions of members of the community to determine the relationship between learning styles and training methods. The respondents were requested to indicate the level of effectiveness of ten commonly used training methods in South Africa. The results are presented in this section.

4.3.1 The effectiveness of the lecture training method

The results showing the opinions of the respondents regarding the issue of the lecture training method are given in Table 4.25 below.

Table 4.25 The effectiveness of the lecture training method

Lecture	Frequency	Percentage
Partially effective	9	13. 4
Don't know	1	1. 5
Effective	38	56. 7
Highly effective	19	28. 4
Total	67	100. 0

An overwhelming majority (85.7%) of the respondents viewed the lecture training method as an effective training method while 13.4% of the respondents regarded the lecture training method as partially effective. Only 1.5% of the respondents had a neutral view regarding lecture method.

Consistent with Felder (2002), the results showed that employees viewed the lecture training method as an effective method of training. According to Felder (2002), the lecture method needs to be used in combination with auditory information such as words on a chalkboard, diagrams, transparencies, and handouts. These results therefore suggest that the lecture method could be used with success in training. According to Felder (2002) most learners in colleges are visual learners while most of their teaching is verbal where the information is presented through lecturing or visual representations of transparencies or on a chalkboard. One could conclude that the lecture method is effective for visual, verbal and reflective learners if it is used together with visual representations and intervals to provide the learners with the opportunity to think about what they have been told. The results are consistent with the findings of De Vita (2001) who examined the learning style profiles exhibited by students in a multicultural class of international business management and found that the lecture method is effective for both verbal and visual learners if used in combination with visual images.

4.3.2 The effectiveness of the video tapes as a training method

Table 4.26 present the result of the opinion of the respondents regarding the use of the video tapes as a training method.

Table 4.26 The effectiveness of the video tapes as a training method

Video tapes	Frequency	Percentage
Ineffective	2	3.0
Partially effective	9	13. 4
Don't know	5	7. 5
Effective	35	52. 2
Highly effective	16	23. 9
Total	67	100.0

More than three quarters (76.1%) of the respondents were of the opinion that the use of the videotapes was effective as a training method. while 16.4% indicated that videotapes are ineffective in training. Only 7.5% of the respondents were uncertain regarding the effectiveness and ineffectiveness of videotapes as a training method.

The results thus showed that the employees regarded video tapes and computer-based training methods are effective during training. Several studies (Read & Kleiner, 1996 and De Vita, 2001) confirm that video tapes and computer-based training methods are effective for training employees. Videotapes are effective as they can be stopped periodically in order to pose questions to the learners to receive feedback. Employees watch and, at the same time, see the whole training process. Computer software technology can bring together text, sounds, graphics, videos, and web connections which can be helpful for both verbal and visual learners. These results suggest that trainers should always remember to use video tapes together with the learners' participation which will lead increase its effectiveness. The results further suggested that video tapes and computer-based training are effective for visual and verbal learners.

4.3.3 The effectiveness of the one - on - one instruction as a training method

The results on the opinion of the respondents regarding the use of one-on-one instruction in training are presented in Table 4.27 below.

Table 4.27 The effectiveness of the one –on-one instruction as a training method

One-on-one instruction	**Frequency**	**Percentage**
Ineffective	2	3. 0
Partially effective	20	29. 9
Don't know	3	4. 5
Effective	26	38. 8
Highly effective	16	23. 9
Total	67	100.0

More than half (62.7%) of the respondents who felt that the one-on-one instruction is an effective training method, while 32.9% felt that one-on-one instructional method is an ineffective method of training. Only 4.5% of the respondents were neutral concerning this method training.

The results indicated that more than half (62.7%) of the employees felt that one-on-one instruction are effective in training. Read and Kleiner (1996) viewed one-on-one instruction as an important method of training which ensures that what is learned is also transferred to the job which results in employees becoming productive.

One-on-one instructions are effective training methods for active learners if such training takes place on the job. One to one instructions must be taken into consideration when training employees as they showed a preference for active learning.

4.3.4 The effectiveness of the role play as a training method

The results showing the opinions of the respondents regarding the role play as training method are given in Table 4.28 below.

Table 4.28 The effectiveness of the role as a play training method

Role play	Frequency	Percentage
Ineffective	1	1.5
Partially effective	13	19. 4
Don't know	10	14. 9
Effective	33	49. 3
Highly effective	10	14. 9
Total	67	100.0

More than half (64.8%) of the respondents regarded the role play as effective in their learning while 29.9% regarded this training method as ineffective in training, while 14.9% remained neutral .

The results indicate that more than half (64.8%) of the employees viewed that the role play as an effective training method. According to Van Dyk, Nel and Leodolff (1992), when using role play, the instructor explains the roles to be played by the trainees after which the trainees play without the instructor telling them how to play. Trainees need to show creativity and innovative skills. Role play is effective for intuitors who like the application of theories and sensors. Role play also accommodates reflective learners who require time to think before they act.

4.3.5 The effectiveness of the brain storming as a training method

In addition, the respondents were requested to give their opinions on the use of the brain storming as a training method. The results are presented in Table 4.29.

Table 4.29 The effectiveness of the brain storming as a training method

Brainstorming	Frequency	Percentage
Ineffective	2	3. 0
Partially effective	14	20. 9
Don't know	10	14.9
Effective	20	29. 0
Highly effective	21	31. 3
Total	67	100. 0

More than half (61.2%) of the respondents held that the brainstorming is an effective training method while 23.9% were of the opinion that the brainstorming is ineffective. A further 14.9% of the respondents had a neutral view about brainstorming.

These results reflect that more than half of the employees felt the brainstorming is an effective training method. Consistent with Felder (2002), active and intuitive learners prefer to do something in class beyond just listening and watching, they prefer arguments, discussions, brainstorming, and questioning. Based on existing literature, one could speculate that brainstorming is effective for active and intuitive learners because it gives them time to be creative. They are also given a chance to participate in activities during training. Ideas that have been brainstormed are further synthesized and the participants can actively participate in discussions about ideas they regard as their own.

4.3.6 The effectiveness of the computer based training method

Table 4.30 below presents the results of the respondents regarding the issue of the computer based training method.

Table 4.30 The effectiveness of the computer based training method

Computer based	Frequency	Percentage
Partially effective	5	7.5
Don't know	8	11. 9
Effective	32	47. 8
Highly effective	22	32. 8
Total	67	100. 0

The Majority (80.6%) regarded computer based training is an effective method. There were 11.9% of the respondents who were uncertain about the effectiveness this training method. The lowest percentage (7.5%) held that the computer based t was partially effective to their learning.

4.2.7 The effectiveness of the group discussion as a training method

The results in Table 4.31 below present the respondents' opinions on the use of the group discussion as a training method.

Table 4.31 The effectiveness of the group discussion as a training method

Group discussion	Frequency	Percentage
Ineffective	2	3. 0
Partially effective	9	13. 4
Don't know	2	3. 0
Effective	21	31. 3
Highly effective	33	49. 3
Total	67	100. 0

The majority (80.6%) of the respondents indicated that they were of the opinion that the group discussion is an effective training method while 16.3% regarded it as ineffective. Three percent of the respondents were neutral concerning group discussions.

An overwhelming majority of the respondents regard group discussions as an effective method of training, with 49.3% regarded this item as highly effective. There was a difference in opinion between the respondents of different population groups. The results show that the majority of blacks (87.7%) (compared to whites) indicated that the group discussions is effective during training. Cross tabulations reveal that employees from different population groups differ significantly on this item (Chi-Square = 16.514; $p< 0.05$; Cramer's V = 0.496). To conclude, group discussions are highly effective during training where the majority of the trainees are blacks. This type of training replaces training where the trainers mainly used the lecture method so that the trainees are not active participants.

4.3.8 The effectiveness of games as a method of instruction

Table 4.32 below, will present the results of respondents' opinions on the use of games as a method of instruction.

Table 4.32 The effectiveness of games as a method of instruction

Games	Frequency	Percentage
Ineffective	4	6. 0
Partially effective	20	29. 9
Don't know	6	9. 0
Effective	23	34. 3
Highly effective	14	20. 9
Total	67	100. 0

More than half (55.2%) of respondents were those who felt that games were effective when used as a training method, whereas 25.9% held that games were ineffective in training. A further 9.0% had neutral opinion on the issue.

However, cross tabulations reveal significant difference on the manner in which employees from different population group differ in response to the item "opinions on the use of games training method". (Chi-Square = 9.473; $p < 0.05$; Cramer's V = 0.376). Whites seem to regard games as ineffective method of training as compared to Blacks. These results are consistent with the findings of Read and Kleiner (1996) which show that games are not effective for training because when they are played players might not take games seriously and at the end of the training session trainees might leave unaware of what was learnt. Trainers who prefer to use games for training need to get feedback after playing to ensure the effectiveness of this method.

4.2.9 The effectiveness of the case studies training method

The respondents were requested to give their opinions regarding the use of the case studies training method. Results are given in Table 4.33.

Table 4.33 The effectiveness of the case studies training method

Case Studies	Frequency	Percentage
Ineffective	3	4. 5
Partially effective	6	9. 0
Don't know	2	3. 0
Effective	31	46. 3
Highly effective	25	37. 3
Total	67	100. 0

An overwhelming 83.6% of the respondents felt that the case studies training method is effective while 13.5% felt that it is ineffective in training. The lowest percentages (3.0%) had no opinion.

The respondents indicated that case studies are an effective training method. These results are in agreement with existing literature (Read & Kleiner, 1996 and Van Dyk, Nel, & Leodolff, 1992) which indicates that when using a case study, the instructor should present the problem to the trainees and leave them to develop solutions to the problem. Sequential and global learners require creative exercises or problems involving generating alternative solutions and bringing in materials from other courses or disciplines and encourage trainees to solve them.

There is a significant difference in the manner in which employees from different population groups respond to the issue of the case studies training method (Chi-Square = 9.321; $p < 0.05$; Cramer's V = 0.373). Considerably more blacks regard case studies as a highly effective training method than whites. Case studies allow trainees to use the experience they have acquired which allows the trainees to be analytical.

4.3.10 The effectiveness of demonstrations as a training method

The results showing the opinions of the respondents regarding the respondent's opinions on the use of demonstrations training method. These results are presented in Table 4.34.

Table 4.34 The effectiveness of demonstrations as a training method

Demonstrations	Frequency	Percentage
Ineffective	3	4. 5
Partially effective	2	3. 0
Don't know	2	3. 0
Effective	25	37. 3
Highly effective	35	52. 2
Total	67	100. 0

An overwhelming majority (89.3%) of the respondents regarded demonstrations as an effective training method. A further 7.5% were of the opinion that demonstrations are an ineffective training method, while 3.0% of respondents did not know whether demonstrations could be effective or ineffective.

The results thus show that the respondents regarded demonstrations as an effective method of training because demonstrations can be helpful in teaching analytic skills, problem solving and procedures, as confirmed by Van Dyk, Nel, & Leodolff (1992). The trainer demonstrates to trainees what needs to be done and explains the whole process: the trainees will be required to repeat what the trainer was demonstrating to them. Demonstrations are effective for sequential, sensing, active, intuitive, reflective and global learners in that once learners are given an exercise to practices using the basic methods being taught, they can, be given exercises that require analysis and synthesis.

5.2.2 Summary of findings and conclusions

A total of 150 questionnaires were distributed to three local municipalities in the Vhembe district but only sixty seven questionnaires were returned.

5.2.2.1 Main findings

The main findings of this study are presented according to the analytical categories that guided both the collection and analysis of the data. These are given in order of ranking.

- **Learning styles.** Visual learning was found to be more effective than verbal learning; the respondents preferred visual learning which might have emerged from technological advancement. People from different cultures do not learn the same way since blacks were found to be more verbal than whites.

  Active learning is effective for municipal employees as it allows learner participation. Blacks have a stronger preference for active learning when compared to whites.

  The respondents who had between one to nine years of working experience were undecided on the item “prefer to study alone rather than in a group”. The respondents who had experience used their experience in their working situation while those without working experience depended only on knowledge acquired during training.

  It was established that blacks strongly preferred sensing learning when compared to whites; however, sequential learning is effective when compared to global learning. The respondents in the study preferred to learn in sequential steps, from the simple to the more complex.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study was aimed at understanding the learning styles and the existence of the relationship between learning styles and training methods of municipal employees in the Vhembe district municipalities.

The literature survey indicated the different inputs made on the topic and the extent to which other researchers have covered it. Questionnaires were administered to all levels of municipal employees. The responses supported and confirmed some observations made in the literature surveyed.

5.2 Summary of the Findings

Following are the major findings of the empirical investigation conducted on the municipal employees of the Vhembe district municipality:

5.2.1 Findings from the literature review

The literature review revealed that visual learning is more effective to all cultures than verbal learning. Women are more likely to be visual learners than men and women preferred a quiet learning environment. Men prefer active learning, Cultural differences in learning styles do exist and the cultural background is important in the development of individual learning styles. There is a great difference in performance among older adult learners. Women prefer more structured classroom environment.

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- **Learning styles.** Visual learning was found to be more effective than verbal learning; the respondents preferred visual learning which might have emerged from technological advancement. People from different cultures do not learn the same way since blacks were found to be more verbal than whites.

  Active learning is effective for municipal employees as it allows learner participation. Blacks have a stronger preference for active learning when compared to whites.

  The respondents who had between one to nine years of working experience were undecided on the item "prefer to study alone rather than in a group". The respondents who had experience used their experience in their working situation while those without working experience depended only on knowledge acquired during training.

  It was established that blacks strongly preferred sensing learning when compared to whites; however, sequential learning is effective when compared to global learning. The respondents in the study preferred to learn in sequential steps, from the simple to the more complex.

The respondents showed insignificant difference in the relationship between learning styles and demographic variable age and gender.

- **Training methods:** The study showed that raining methods are effective for training and that each training method is suitable obtaining for certain learning dimensions. The lecture training method, the video tapes training, the computer based training method, and the group discussions training method are effective for training visual, verbal and reflective learners.

  The study indicated that one-on-one instruction as a training method, and brainstorming training methods are effective for trainings where learners prefer active learning. Trainers consider the active participation of trainees when they use these training methods. The role play training method was found to be an effective training method for learners who prefer to reflect on what is happening and then decide what to do.

  The case studies training method is effective for learners who prefer to learn in sequential steps and for those who learns in large jumps. Blacks regard the case studies training method as more effective than whites. This method of training allows learners to use the experience they have which makes them analytical.

  The findings suggest that the same training method may not be equally appropriate for every learner and instructor. The instructor can enhance learning by using methods that match the learners learning style or by using different methods.

5.2.2.2 Conclusions

The findings of this study enabled the following confirmations to be made about what trainers need to consider ensuring the effectiveness of the various training methods.

- a considerable number of municipal employees are visual, active, sensing, intuitive and sequential. However, although there exists diverse learning dimensions which may lead to ineffective trainings, there is a need for training providers to use training methods which could cater for all the above mentioned learning styles. Trainers need to try all the relevant training methods in order to select the best training methods which would cater for all the learners. The Chi-square statistics was significant for indicating differences between the population groups and experience.

- A considerable number of training methods are effective; however, the effectiveness of the training method depends on the users. If the trainers understand how their learners learn it could be easy for them to select the training methods which may accommodate most of the learners. The Chi-square tests for this study did not reveal any statistical and significant differences regarding gender and learning styles.

5.3 Recommendations

Special attention should be given to match the training methods with the trainees learning styles. The trainers should first understand how their trainees learn before selecting the training methods for a particular training.

The Vhembe district training providers should take the differences regarding population the groups and working experience into account when preparing for any type of training.

5.4 Suggestions for Further Studies

Further research need to be conducted using a larger sample for the study to be representative of the large population. Future researchers should consider extending this study towards developing a model for South African learning and teaching styles.

6. REFERENCES

Armstrong, T. 1994: *Multiple Intelligences in the Classroom*. Association for supervision and curriculum development. Alexandria.

Behr, A.L. 1988: *Empirical Research Methods for the Human Sciences*, 2nd (ed.), Durban: Butterworths.

Buch, K. & Bartley, S. 2002: *Learning Styles and Training Delivery Mode Preference*, Journal of workplace Learning, (Vol.14). MCB University Press.

Brookfield, S. 1995: *Adult Learning: An Overview*. In A.Tuinjam (ed.) International Encyclopedia of Education. NewYork: Oxford Pergamon Press.

Bruner, J. 1986: *Actual Minds, Possible Worlds*. M.A. Harvard: Cambridge University Press.

Bruner, J. 1990: *Acts of Meaning*, M.A. Harvard: Cambridge University Press

Butler, K.A.1993: *Learning and Teaching Style:* In theory and practice.2nd (ed.). Connecticut: The learner's dimension.

Clark, D. 1999: *Early Schools and Pedagogy*. [Online] http://www.nwlink.com/~donclark/hrd/history/history.html (Date of access: 14/07/2006).

Clark, D. 1999: *Andragogy*. [Online] http://www.nwlink.com/~donclark/hrd/history/history.html (Date of access: 14/07/2006).

Charle, W.R. & Brian, H.K. 1996: *Which Training Methods are Effective*? Management Development Review, 9(2).

Cheetham, G.; & Chivers, G. 2001: *How Professionals Learn in Practice*, An investigation of informal learning amongst people working in professions, Journal of European Industrial Training. 25(5).

Conner, M.L. 2007: "*How Adults Learn*" Ageless Learner. Retrieved from http//www.agelesslearner.com/intros/adultlearning.html (Date of access: 02/06.2008).

COSATU.1997: *Submission on the Green Paper on Public Service Education and Training,* Pretoria: Government Printers.

Crawford, K. 1996: *Vygotskian Approaches to Human Development in the Information Era*. Educational Studies in Mathematics. 31:43-62.

Department of Labour. 1997: *Skills Development Strategy for Economic and Employment Growth in South Africa,* Pretoria: Government Printers.

Department of Labour.1997: *Public Service Training and Education Green Paper,* Pretoria: Government Printers.

Department of Labour. 1997/98*: Growth and Development Strategy: Limpopo Province.* Pretoria: Government Printers.

Department of Labour. 1998: *Employment Equity Act.* Pretoria: Government Printers.

Department of Labour. 1998: *The Skills Development Act, No. 97 of 1998*. Pretoria: Government Printers.

Department of Labour. 1999: The Skills Development Levies Act, No.9 of 1999. Cape Town. Government Printers.

Department of Labour, 1999-2000: *Public Service Review Report:* Pretoria. Government Printers.

Department of Statistics 2001: The *Vhembe District Municipality.* Census [Online]http://www.dermarcation.or.../stats.aspx?code=DC34&Prov=Limpopo&type=District&m d. South Africa (Date of access: 10/10/2007)

Derry, S.J. 1999: *A Fish Called Peer Learning*: Searching for common themes. In A.M. O'Dennell & A. King(Eds.).

Devlin, M. 1996: *Older and wiser: A comparison of the learning and study strategies of mature age and younger teacher education students.* Higher Education Research and Development, 15(1):51-60

De Vita, G. 2001: *Learning styles, Culture and Inclusive Instruction in the Multicultural Classroom.* Oxford Brookes University.

Dewar, T. 1996: *Adult Learning* [Online] http://www.cybercorp.net/~tammy/lo/oned2.html (Date accessed 20/04/2007).

Dewey, J 1993: *How we Think.* 2nd (ed.). Boston: D C Heath.

De Vos, A.S. Strydom, H., Fouche, C.B., Poggenpoel, M. & Shurink E. & W. 2001: *Research at Grass Roots: A Primer for the Caring Professions*, Pretoria: Van Schaik Publishers.

Donaldson, J and Graham, S. 1999: *A model of college outcomes for adults.* Adult Education Quartely, 50(1): 24-40.

Felder, R.M. & Silverman, L. 1988: *Learning and Teaching Styles in Engineering Education*, 78(7):674-681.

Felder, R.M. & Soloman, B.A. 1999a: *Index of Learning Styles* (Online) www2.ncsu.edu/unity/lockers/users/f/felder/public/ILSdir/ILS-a.htm (Date accessed: 14/07/ 2005).

Felder, R.M. & Soloman, B.A. 1999b: *Learning Styles Strategies*. (Online) www2.ncsu.edu:8010/unity/lockers/users/f/felder/public/ILSdir/styles.htm (Date accessed: 14/07/ 2005).

Felder, R.M. 2002: *Designing Tests to Maximize Learning*, Journal of Engineering Education & Practice.128 (1):1-3.

Felder, R. M. & Brent R. 2005: *Understanding Student Differences*: Journal of Engineering Education. 94(1): 57-72.

Felder, R.M. & Suprlin, J. 2005: *Applications, Reliability and Validity of the Index of Learning Styles*. Britain:TEMPUS publications.

Gagne, R. 1985: *The Conditions of Learning* 4th (ed.) New York: Holt, Rinehart and Winson.

Gardner, H. 1983: *Frames of Mind*: The theory of multiple intelligences. New York.

Gardner, H. 1991: *The Unschooled Mind:* How children think and how schools should teach. New York.

Gardner, H. 1993: *Multiple Intelligences*: The theory in practice. New York.

Gardner, H. 2000: *Intelligence Reframed*: Multiple intelligences for the 21st Century. New York.

Gredler, M. 2001: *Learning and Instruction*: Theories into Practice. 4th (ed.). Upper Saddle River: Prentice Hall.

Good, T.L., & Brophy, J.E. 1990: *Educational Psychology:* A realistic approach. 4th (ed.). New York: Longman Publishers.

Guthrie, E.R. 1930*: Conditioning as a principle of learning*, Psychological review. New York: Haper & Row.

Guthrie, E.R. 1938; *The Psychology of Human Conflict*: The Clash of Motives Within the individuals. New York: Haper & Row.

Guthrie, E.R. 1950: *The psychology of learning*. New York: Haper & Row.

Guthrie, E.R. 1952: *The psychology of learning*. Revised (Ed.). New York: Haper & Row.

Hall, D. & Hall, I. 1996: *Practical Social Research,* Project work in the community, London, MACMILLAN.

Havarkamp. K 1983: The orientation experience for the adult learner. In Smith, R.M (ED.), *Helping Adults to learn How to Learn: New Directions for Continuing Education*.19:3-11.

Huysamen, G.K. 1994: *Methodology for the Social and Behavioural Science*, Pretoria, International Thompson.

Honey, P. & Mumford, A. 1983: *Using Your Learning Styles*. Maidenhead: Peter Honey Publications.

Honey, P. & Mumford, A. 1992: *The Manual of Learning Styles*. Maidenhead: Peter Honey Publications.

Huitt, W. & Hummel, J 2003: *Piaget's Theory of cognitive development*. [Online] http://www.edpsycinteractive.org/topics/cogsys/piaget.html. (Date of access: 10/02/2008)

Jinabhai, D.C. 2005: *New Challenges for South African Development and Training-Linkages to Empirical Research*. Public Personnel Management.

Kayes, D.C. 2002. *Experiential Learning and its Critics*: Preserving the role of experience in management learning and education. Academy of Learning and Education, 1(2):137-149.

Kemp, J.E. and Smellie, D.C. 1994: *Planning, Producing and Using Instructional Technologies*, 7th (ed.). New York. Harper Collins.

Kenny, K. 1996: *What is Effective Training?* Advanced reading for participation in Human Rights Capacity Building Programme. Iraq.

Kidd J.R. 1973: *How Adults Learn*. New York: Association Press.

Kigundu, E.M. 1998: *Adult Basic Education and Training (ABET): An examination of its nature and role in enhancing women's contribution to socio-economic development.* M ED: University of Venda .

Kimberly, A. 1998–2002: *Violence Against Women*, US: Department of Justice.

Knowles, M.S. 1978: *The Adult Learner:* A neglected Species, 2nd (ed.) Houston: Gulf Publishing Company.

Knowles, M.S. 1980: *The Modern Practice of Adult Education*: from Pedagogy to Andragogy, 2nd (ed.) New York: Cambridge Books.

Knowles, M.S. 1984: *Andragogy in Action*, San Francisco: Jossey-Bass.

Knowles, M.S. 1990: *The Adult Learner*: A neglected species, 4th (ed.).London: Gulf Publishing Company.

Kolb, D.A. 1984: *Experiential Learning*: experience as the source of learning and development, New Jersey: Prentice-Hall.

Learning Theories Knowledgebase, 2008: *Stage Theory of Cognitive Development* (Piaget at Learning-Theories.com. [Online] http://www.learning-theories.com/piagets-stage-theory-of-cognitive-developmet.html. (Date of access: 07/11/2008).

Liversay, G.A, Dee, K.C, Nauman E.A, & Hites, L.S. 2003: *Learning Styles of first and second year engineering students*, International *Coll.*

Litzinger, T.A., Lee, S. H., Wise, J.C. & Felder, R.M. 2007: *A Psychometric Study of the Index of Learning Styles*. Journal of Engineering Education, 96(4): 309-319.

Lorge, I. 1944: *Intellectual Changes during Maturity and Old Age*, Review of Educational Research, 14(4): 438-443.

Lorge, I. 1947: *Intellectual Changes during Maturity and Old Age*, Review of Educational Research, 17(5): 326-330.

Marhar, S. & Harford, M. 2004: *Research on Human Learning*. Office of learning and teaching. Department of Education and Training.

McCormack, B. & Hill, E. 1997: *Conducting A Survey*: The SPSS Workbook. International Thomson Business Press.

McGrath, V. 2009: *Reviewing the evidence on how Adult students Learn: An Examination of Knowles' Model of Andragogy*. The Irish Journal of Adult and Community education, 99-110.

Mc Millan, J.H. & Schumacher, S. 2001: *Research in Education*: A Conceptual Introduction. 5th (ed.). Library Congress of Cataloging-in-Publication Data.

McMahon, M. 1997: *Social Constructivism and the World Wide Web* – A Paradigm for learning. Paper Presented at the ASCILITE Conference. Perth. Australia.

Mergel, B. 1998: *Instructional design and learning theory*, University of Saskatchewan graduate student.

Merriam, S.B. 2001: *The New update on adult learning Theory*, San Francisco Athens: University of Georgia.

Meyer, M. 1999: *Outcomes-based education:* Back to the basics or a new paradigm for training staff? [Online] http://www.astd.co.za/ASTD-OBE.htm (Date of accesses 07.05/2007).

Meyerson, D. *Learnership:* a solution to skills issues in South Africa, or a tangible of red tape? [Online] (dmerson@global.co.za) (Date of access: 12/10/2008).

Mihall, J. & Belletti, H. 1999 *Adult Learning Styles and Training Methods* [Online] http://66.249.93.104/search?q=cac.../learstyl.pdf+Adult+training+methods&hl

=en&ie=UTF- (Date of access: 03/21/2009).

Mkhwanazi, S.Q.N. 2001: *Problems of adult learners in adult basic education: A psycho-educational perspective*. Pretoria: University of South Africa graduate student.

Municipal Service Delivery. [Online] file://A:\MUNICIPAL%20SERVICE%20DeLIVERY.htm. (Date of access: 9/28/2005).

Murray, T.S., Owen, E. and McGaw, B. 2005: *Learning a Living: Comparative Profile of Adult skills*. Statistics Canada. OECD Publishers.

Olivier, C. 1998: *How to educate and train*, Pretoria: J.L. Van Schaik Publishers.

Ormrod, J. E. 1999: *Human Learning*. 3rd (ed). Upper Saddle River: Prentice-Hall.

Overbaugh, R. 2004: *An overview of Jerome Brunner:* His Theory of Constructivism. Old Domain.

Pavlov, I.P 1927: *Conditioned Reflexes: an investigation of the Physiological Activity of the Cerebral Cortex*. (G.V. Anrep Trans). London: Oxford University Press.

Penger, S; Tekavčič, M & Dimovski V. 2008: *Meta-Analysis and Empirical Research of Learning Style Theories in Higher Education: The Case of Slovenia*. Journal of College Teaching & Learning, 5(11).

Piaget, J. 1970: *Genetic Epistemology*. (E. Duckworth, Trans) New York: Colombia University press.

Piaget, J. 1985: *The equilibration of Cognitive Structure*: Chicago, IL: University of Chicago Press.

Pickworth, G. E. and Schoeman, W.J. 2000: *the psychometric properties of the learning styles Questionnaire: Two normative measures of learning styles*, South African Journal of Psychology, 30 (2).

Ragin, C. C. 1994: *Constructing Social Research, Sociology for a new century*, USA, Pine Forge Press.

Read, C.W. & Kleiner, B.H. 1996: *Which Training method is effective?* Management Development Review, 9 (2).

Roger, A. 1992: *Adult learning for development*, Great Britain, Cassell Education series.

Rogers, J. 1989: *Adult Learning*. 3rd (ed). Philadelphia: Open University Press.

Rosenthal, B.S., R.N & Brueggeman, M.S., R.N: 2001: *Adult learning,* Partners in Agricultural Health, Rural Wisconsin Health Cooperative.

Ruhnau, K 2006: *An analysis of Learning Outcomes of Adult Students: Learning Styles versus Teaching Styles*. The Graduate School University of Wisconsin Stout.

Sawadogo, G. 1995: *Training for the African Mind*, International Journal of Intercultural Rel., 19 (2).

Schaie, K.W & Willis, S.L. 1986: *Adult Development and Aging*. 2nd (ed). Boston, Little Brown.

Seizoo, S., Malhotra, N. and Bearson, J. 2003: *A Gender-based comparison of learning strategies of adult business students*. College Students Journal. March 2003.

Slater, J.A., Lujan, H.L. and DiCarol, E. 2007: *Does Gender Influence Learning Styles Preferences of First Year medical Students*? Advanced Physiology of Education. 31, 336-342.

Slebert, H. and Gerl, H. 1975: *"Lehr-und Lernverhalten bai Erwachesenen.* Braunschevely: Westermann.

Seaberg, J.R.1998: *Utilizing Sampling Procedures*. In Grinnell, R.M. (Ed), *Social work research and evaluation*, 3rd (ed). Itasca. IL: Peacock.

Small Enterprise and Human Development Limpopo, 2003: *Economic Profile of Limpopo Province and Vhembe District Municipality.* [Online] http://www.sehd.org.za/limpopo.html (Date of access: 28/11/2007).

South Africa's Top 300 National Companies.
[Online] http://www.top300.co.za/National/profiles/compDetail.asp?CompanyID=54 (Date of access: 05/01/2006).

Tennant, M. 1988: *Psychology and adult Learning*. Worcester, Billings & Sons.

Tomkiewicz, J. and Bass, K. 2008: *Differences between male students and female student's perception of professors*. College Student Journal. June 2008.

Thorndike, E. 1921: *The Teacher's Word Book*. New York: Teachers College.

Thorndike, E. 1922: *The Psychology of Arithmetic*. New York: Macmillan.

Thorndike, E. 1932: *The Fundamentals of Learning*. New York: Teachers College Press.

Thorndike, E.L., Bregman, E.O., Tilton, J.W., & Woodyard, E. 1927: *The Measurement of Intelligence*. New York: Teachers College Press.

Thorndike, E.L., Bregman, E.O., Tilton, J.W., & Woodyard, E. 1928: *Adult Learning*. New York: Macmillan.

Tuinjam, A. 1995: *International Encyclopedia of Education*, Oxford Pergamon Press.

Understanding Local Government [online] file://A\UNDERSTANDING%20LOCAL%GOVERNMENT.htm. (Date of access: 9/28/2005).

UNESCO. 2009: *Global Report on adult learning and education*: Institute for Life Long Learning, FeldbrunnenstraBess, Hamburg.

Van Dyk, P. S.; Nel, P. S. & Leodolff, P. v Z. 1992: *Training Management*, A *Multidisciplinary Approach to Human Resource Development in South Africa*. Pretoria: Southern Book Publishers.

Viljoen, M.J., Schepers, J.M. & Van Zyl, K. 2001: *The construction and evaluation of a normative learning style preference Questionnaire*, Journal of Industrial Psychology, 27(3): 51-60.

Watson, J.B. 1916: *The place of conditioned reflex in Psychology*, Psychological review. 23:89-116.

Watson, J.B. 1925: *Behaviourism.* New York: Norton.

Wang, L. 2007: *Variation in Learning Styles in a group of Chinese English as Foreign Language Learners*. International Education Journal, 8(2): 408-417.

Wikipedia,: The free Encyclopaedia. [Online] http://en.wikipedia.org/wiki/Municipality (Date of access: 9/1/2006).

Zywno, M.S. 2003: *The Effect of Individual Differences on Learning Outcomes through Hypermedia-Base Instruction*, Doctoral Dissertation, Glasgow Caledonian University.

APPENDIX A

QUESTIONNAIRE

SECTION A

Biographical information

Please supply the following information by putting a cross in the appropriate block:

1. Gender

Male	1
Female	2

2. Age

20 years or younger	1
21-30 years	2
31-40 years	3
41-50 years	4
51 years or older	5

3. Population group

Black	1
White	2
Coloured	3
Indian	4
Other: (specify)................	5

4. Home language

Afrikaans	1
English	2
Isindebele	3
Sepedi	4
Isiswati	5
Xitsonga	6
Tshivenda	7
Isizulu	8
Setwana	9
Isixhosa	10
Other: Specify)…………………	11

5. Level of Education

Below STD 10/Grade 12	1
Equivalent to STD 10/Grade 12	2
One year certificate	3
National diploma	4
Bachelor's degree	5
Honour's degree	6
Master's degree	7
Doctorate	8
Other: (Specify)……………	9

6. For how long have you been working in this department?

Less than 1 year	1
1-3 years	2
4-6years	3
7-9 years	4
10 years and above	5

7. Number of training sessions attended each year

0	1
1-3	2
4-6	3
Other: (Specify)…………….	4

SECTION B

Please indicate the degree to which you agree or disagree with the following statements by putting a cross in the number that best describes your learning style.

	STRONGLY DISAGREE	DISAGREE	DON'T' KNOW	AGREE	STRONGLY AGREE
8. I remember better what I see than what I hear.	1	2	3	4	5
9. I like trainers who put many diagrams on the board.	1	2	3	4	5
10. I enjoy watching television than listen to the radio.	1	2	3	4	5
11. I prefer to get new information through verbal communication.	1	2	3	4	5
12. I prefer to study alone than to study in a group.	1	2	3	4	5
13. I understand something better after I have thought it through.	1	2	3	4	5
14. I remember well something I have done.	1	2	3	4	5
15. I learn best when I am emotionally involved	1	2	3	4	5
16. I prefer to learn from practical exercises.	1	2	3	4	5
17. I enjoy doing experiments to see how things work.	1	2	3	4	5
18. I am good at grasping new concepts.	1	2	3	4	5

	STRONGLY DISAGREE	DISAGREE	DON'T KNOW	AGREE	STRONGLY AGREE
19. I am good at memorizing facts.	1	2	3	4	5
20. When given study materials, I prefer to work from the beginning of the material.	1	2	3	4	5
21. I prefer trainers who start with the outline of what they will cover.	1	2	3	4	5
22. When dealing with calculations I prefer to repeat all steps.	1	2	3	4	5
23. I only see how different sections of the chapter fit in, once I have understood the whole chapter.	1	2	3	4	5
24. When I solve mathematical problems, I get the answer without following the steps.	1	2	3	4	5

SECTION C

What is your opinion about how each of the training methods listed below helps you learn most? Answer by putting a cross in the box that best describes your preference.

	INEFFECTIVE	PARTIALLY EFFECTIVE	DON'T KNOW	EFFECTIVE	HIGHLY EFFECTIVE
25. Lecture	1	2	3	4	5
26. Video tapes	1	2	3	4	5
27. One-on-one instruction	1	2	3	4	5
28. Role play	1	2	3	4	5
29. Brainstorming	1	2	3	4	5
30. Computer-based training	1	2	3	4	5
31. Group discussions	1	2	3	4	5
32.Games	1	2	3	4	5
33.Case studies	1	2	3	4	5
34. Demonstrations	1	2	3	4	5

P.O. Box 2
MASHAU
0943
21 September 2005

The Municipal Manager
Makhado Municipality
Private Bag X 2596
Makhado
0920

Dear Sir/Madam

REQUEST FOR PERMISSION TO CONDUCT RESEARCH AMONGST MAKHADO MUNICIPAL EMPLOYEES.

I Kgomommu Selaelo, a master's students at the University of Venda request permission to conduct an empirical academic research among the employees of Makhado municipality.

The topic if my study is: Understanding the learning styles of adult learners in the Vhembe District Municipality

I will be grateful if my request is taken into account.

Yours Faithfully

Kgomommu

Kgomommu S. (Ms)

MAKHADO MUNICIPALITY

e-mail: town.secretary@makhado.co.za
www.makhado.gov.za

Tel: (015) 519 3000
Fax: (015) 516 1195
Private Bag X2596
LOUIS TRICHARDT
0920

Ref.: 5/3/1
Enq.: N Tshikosi

4 March 2010

CERTIFICATE

ITEM B.125.25.10.05

PERSONNEL: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN COUNCIL'S RECORDS FOR STUDY PURPOSES: MS. KGOMOMMU SELAELO OF THE UNIVERSITY OF THE UNIVERSITY OF VENDA FOR SCIENCE AND TECHNOLOGY
[5/3/1]

RESOLVED B.125.25.10.05 –

1. THAT Ms. Kgomommu Selaelo be authorized to access Council's records for partial fulfillment of the Masters degree with the University of Venda for Science and Technology.

2. THAT authorization per paragraph 1 above be in line with provision of access to information, legislation and approved by the relevant Head of Department with regard to the classification of information.

3. THAT the applicant's authorization must not interfere with the normal operation of the Council's daily administration.

4. THAT approval of the application is granted, subject to the further following conditions:
   - 4.1. Applicant must furnish Council with a copy of the research once completed.
   - 4.2. Applicant must indemnify Council against any claims which may result directly or indirectly from the research activity.
   - 4.3. Research information may not be used for any form of public media but only for the purpose of applicant's Master's degree.

5. THAT the Municipal Manager formulates a policy governing permission to undertake research in Council records.

* * * * *

I, the under mentioned hereby declare that the above is a true and correct extract from the 37th Council Minutes which was held on 27 October 2005.

T S NDOU
DIRECTOR CORPORATE SUPPORT & SHARED SERVICES
NT/lh/0403

UNIVERSITY OF LIMPOPO

Private Bag X1106
Sovenga, 0727
South Africa

Tel: (015) 268 2586
Fax: (015) 266 3299
Please note that the e-mail address has changed from unorth to ul

UNIVERSITY OF LIMPOPO

This serves to certify that I edited Ms S. Kgomommu's mini-dissertation entitled *Understanding Learning Styles of Adult Learners in the Vhembe District Municipality.*

Yours faithfully

M.J. Cloete

PROF. M.J. CLOETE
PH.D (ENGLISH STUDIES)

2 March 2010