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**THE LEARNING STYLES OF TEACHER COLLEGES'
STUDENTS AS DETERMINED BY THE LASSI
QUESTIONNAIRE**

by

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BLOEMFONTEIN

NOVEMBER 1998

DECLARATION

I declare that this dissertation, being submitted towards a M Ed degree at the University of the Orange Free State, is my original and independent work.

It is submitted at this University for the first time; it has never been submitted to any other university for degree purposes.

I waive all copy right in this script in favour of the University of the Orange Free State.

NN DUNJWA

November 1998

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ABSTRACT

This research was undertaken to study the learning styles of teacher colleges of education students and the effect that these learning styles had on their academic performance. This was done by means of literature and empirical studies.

Data was collected by administering a questionnaire (LASSI), getting examination marks to calculate the percentage pass of students and by a review of related literature. The findings of the literature review showed that students use varied styles of learning. Kolb (1984:77-78) for example, refers to his learners as accommodators (learning by concrete experience and active experimentation), convergers (abstract conceptualisation) divergers (from concrete experience to reflective observation) and assimilators (learning by abstract conceptualisation and reflective observation). Dunn and Griggs (1988:64) identified different learners as idealists, analysts, realists, pragmatists and synthesists. Results of the empirical study revealed that the college students used a "realist" learning style. The "realist" learns by seeking empirical facts, expert opinions on current needs, is solution seeking and likes concrete results. Their percentage pass was low. This is an indication that the type of style (realist) they use does not bring about success in their learning.

The researcher, therefore recommends that educators should guide students on the use of all study strategies as these determine academic success. They should also provide affective and social education and a motivating learning environment to learners as these have an effect on learning styles.

To the students, the researcher recommends that they should assess their study strategies, accept and use even those they are not familiar with, to maximise their learning and achievement.

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CHAPTER 1

GENERAL ORIENTATION

1.1 INTRODUCTION

The researcher has been lecturing at a College of Education for a number of years. She has been involved with students at all levels of the 3-Year Primary Teachers' Diploma.

The researcher has observed the performance of these students with some interest over the years. The researcher's experience prior to lecturing at a College of Education was teaching at a Senior Secondary School. When she joined the College of Education as a lecturer, she expected the teacher education students to perform better academically and to be more motivated to study than the Senior Secondary Students as teacher education students are admitted having passed Grade 12.

What inspired the researcher to conduct this study is the fact that the college students do not perform well in terms of their percentage pass at the end of their training term. This has been confirmed by the analysis of results (University of Transkei, Examinations Schedules, 1983-1996) for all the Primary Teachers Diploma Colleges at the end of the third year of their training. Their percentage pass ranged between 11% and 23%.

The researcher's interest is to find out what affects their learning and their academic achievement.

1.2 BACKGROUND OF THE PROBLEM

The Colleges of Education in the Transkei region of the Eastern Cape are affiliated with the University of Transkei. These colleges cater for the

Senior Secondary Teachers' Diploma and the Junior Primary Teachers' Diploma students.

For this study only the Junior Primary Teachers' Diploma students have been selected. The duration of the Junior Primary Teachers' Diploma is three years. The minimum requirements for admission to the course of study are a Standard 10 certificate with an "E" aggregate and an "E" symbol for English.

Large numbers of students were admitted to the colleges of education in the Transkei region of the Eastern Cape due to less career options for them and a few tertiary institutions in the region. This resulted in physical and hygienic deterioration of classrooms and hostel facilities. These conditions coupled with the lack of electricity and study facilities, could have had an affect on the students' learning. On this factor Milgram and Dunn and Price (1993:10-12) comment that learners have different needs for studying; this refers to light, noise, time of the day and movement.

Science laboratories and libraries are small and under-resourced. Subject lecturers, therefore, find it difficult to create activities that would enrich students' learning and also prepare an environment conducive to active participation of students in their learning. Qutami and Abu-Jaber's (1997:65) view is that active involvement of learners in their learning activities motivates them to learn.

The shortage of teaching and learning aids and study facilities negatively affects the students' preparations for lectures and for teaching practice. This causes them to be demotivated to learn and less confident to handle their practising classes. Duchastel (1994:227) therefore, suggests that the environment for learning should be designed to have learning resources to arouse the students' interest in studying.

The fact that the students are large in numbers and there is a shortage of study and learning aids, poses as a problem to both lecturers and students. The lecturers tend to emphasise that students follow certain methods of studying, which may not necessarily match how some students would like to learn. Ewing and Yong (1993:40) see this as a problem at traditional schools where educators want students to conform and they do not realise that they have their own preferences to learning.

To students it has probably become apparent that as there are many students in the class, they may not all get the chance to actively involve themselves in some learning activities. This is also exacerbated by the fact that they were not assessed for attitudes, aptitudes and interest towards their proposed training course before they were admitted. These factors can affect learning which, as Main (1985) in Moelwyn - Hughes and Sayed (1993:15) puts it, can be effective if skills, attitudes and approaches are appropriate so that the learner builds on these strengths.

It is therefore important that educators be aware that learners have different learning preferences, so that, as they present information to them, they accommodate all learner types.

1.3 STATEMENT OF THE PROBLEM

Stephen (1987:41) reports that students display typical ways of processing information when they engage in learning. These have an effect on the student's performance. Cushner, McClelland and Safford's (1992:119) observation is that teachers expect students to succeed in their learning due to having potential. They see those who do not perform well in their studies as being low in intelligence rather than associating this to use of ineffective styles of learning. It is at this point that Dumse's

(1995:39) study reveals that the intelligence of the student does not relate to how he/she would prefer to learn.

What determines academic achievement for Ashman and Conway (1993:33) is the ability of the learner to re-structure information, for instance his/her study strategies, which relate to one's cognitive style.

The research question that therefore arises, is what the learning styles of colleges of education students are, and if their styles do affect their performance and learning.

1.4 PURPOSE OF THE STUDY AND ITS SIGNIFICANCE

The main purpose of the study is to determine the learning styles of teachers' college students and how these affect their learning performance and achievement.

The research should be significant in teacher education. It should arouse the awareness of lecturers about different learning styles as determinants of students' achievement. They should then use an encompassing paradigm when lecturing for the effective learning of students. The students' knowledge of their own styles of learning could help them to shift from one style to another as the work to be studied demands, instead of focussing on one style or approach only.

1.5 METHOD OF RESEARCH

Out of seven Primary Teachers Diploma Colleges in the former Transkei region of the Eastern Cape Province, four colleges were randomly chosen for this research. Students from course 1-3 levels were chosen to

participate in this investigation.

The research starts with a review of related literature on learning styles and strategies to learning and teaching and factors that affect these.

The LASSI Questionnaire study was used as an empirical survey to establish the learning style of the students.

1.6 OPERATIONAL DEFINITIONS

□ Learning style

A distinctive and habitual manner of acquiring knowledge, skills or attitudes through study or experience (Sadler-Smith, 1996:186).

□ Learning strategy

A plan of action adopted in the acquisition of knowledge, skills or attitudes through study or experience (Sadler-Smith, 1996:186).

□ Teachers' College students

Students who undergo a 3-year teacher education training course in a college of education.

□ LASSI Questionnaire

Learning and Study Strategies Inventory Questionnaire used to assess learning.

1.7 FURTHER COURSE OF STUDY

In the next chapter attention will be given to the learning process and the learning styles, concepts and determinants of styles as referred to by the Learning And Study Strategies Inventory (LASSI) (Van Aard, Van Wyk and Steyn, 1993:226). The last chapter (4) will deal with the summary, conclusions and recommendations.

1.8 SUMMARY

This chapter has dealt with the following:

An introduction to the study, background to the problem, purpose of the study, method of research, operational definitions and the further course of study.

In the following chapter the concept of learning styles, the learning process, determinants of learning styles as in LASSI will be discussed. Attention will also be given to learning strategies and how these affect achievement.

CHAPTER 2

THE PROCESS OF LEARNING

2.1 INTRODUCTION

South Africa is faced with a challenge of providing high quality education to its incumbents.

One of the important areas in addressing this need is that of teacher training and therefore trainee educators and educators in the field of learning. They should be made aware of the concept of learning styles and preferences, and how these impact on a learner's performance and academic achievement. Instructors in higher education and education administrators need to understand styles of learning of students so that these can be considered when planning and designing courses and course content of subjects to be offered. Teachers should see it as their role and responsibility to present information "to address the multiple styles of learning" of students (Tach, 1993:29).

Researchers have not done much in South Africa on how to measure students' acquisition of knowledge and skills. Van Aard, Van Wyk and Steyn (1993:226) developed the Learning And Study Strategies Inventory (LASSI), which is used in the empirical section of this study. This has answered the question of factors that determine learning styles, such as motivational and cognitive strategies.

This research is concerned with finding out whether academic performance is influenced by determinants of learning styles and the extent to which the students assume responsibility for their learning tasks.

Learning as a concept should therefore be understood before one will be able to come to terms with the fact that learners learn differently.

2.2 LEARNING

Learning is defined by Kimble and Garnezy (1963) in Sims and Sims (1995:2) as a "relatively permanent change in an attitude or behaviour that occurs as a result of repeated experience". Their view is that learning should be applied by students. Ashman and Conway (1993:32) see learning as acquisition of skills and knowledge. They refer to the behaviourists' description of learning, who view it as a process which is relatively permanent in nature, resulting from practice, and observed in terms of performance changes in a person. For learning to occur, behaviourists believe that the environment should be conducive to it. Ashman and Conway (1993:33) also believe that there are observable outcomes in learning. They mention the following learning processes:

- Attending to the information to be learned;
- Understanding the relationship between presented information and prior knowledge;
- Understanding how one learns;
- Controlling the rate of learning of the learner and the quality of learning;
- Awareness that learning has occurred.

For Slabbert (1994:38) learning is a "constructive process where the learner constructs meaning through competencies employed for the purpose". The emphasis is on content presentation and relevance for

learning to be meaningful. How learning occurs is important as it relates to the development of learning styles.

According to Kolb (1984), cited by Stewart (1990:31), learning begins with concrete experience, followed by reflective observation, abstract conceptualisation followed by active experimentation. These learning abilities interact with one another which results in learning styles. Sadler-Smith (1996:190) refers to Honey and Mumford's (1992) stages of the learning cycle as experience, reflection, conceptualisation, practical application and testing. Slabbert (1994:38) and Coetzee (1994:51) hold the same view as Sadler-Smith (1996:190) who feels that a balanced approach to learning be used to accommodate each stage of the learning cycle by providing or designing learning activities and learning materials congruent with style or preference of the individual.

Sims and Sims (1995:2) suggest that instructors should understand the learning principles before they design and implement learning or teaching programs, hoping for success to occur. The researcher therefore sees learning as important for the acquisition of knowledge and skills. Learning also results in a change in the learner's attitude and behaviour.

Learning occurs whenever there is new information disseminated to a person regardless of age. The need for it and how it is acquired, however, differ across the age and education levels.

2.3 ADULT LEARNING

Adult learning relates to learning and learning styles in that its theory is based on the match between learning and the needs and interests of the learner.

Adult learners are self-directed in their learning in that they are responsible for their own learning. The teacher's role is to facilitate learning by creating an environment which is conducive to learning: to help them develop enquiring and analytical skills and decision-making abilities (Coetzee, 1994:50; Sims and Sims, 1995:4).

According to Knowles (1984) in Sims and Sims (1995:22) and Buchanan (1988:5) adult learning activities should, therefore, be designed based on their needs and interests to enable the learners to apply their experiences in real life situations. The learner should be able to match his/her learning preferences to objectives of learning which determine the outcomes.

Sims and Sims's (1995:4) observation is that individual differences in adult learners increase as the learners get older and more experienced. These researchers suggest that the learning programs of adult learners should provide for different styles, time, place and the learning pace of a learner. Coetzee's viewpoint (1994:51) is that differences in learning style, social background, language, life experiences and personal interests of learners should be considered when allocating work to them and also when grouping them.

Adult learning is, therefore, viewed as life-long learning, because it addresses the needs of learners in real life.

How people behave and do things seems to be individualistic due to past experiences. This shows itself in how they learn.

2.4 LEARNING STYLES

Researchers define styles of learning in various ways, according to their observations of learners as they engage in their learning situations. Keefe

(1986:45), Stephen (1987:41) and Tennant (1988:89) see learning styles in information processing or perceptual methods, personal characteristics, emotional, psychological and biological terms. All researchers have, however, observed "consistency" as the major factor in a learner to be able to exhibit a style or preference in learning. For Cushner et al (1992:108) learning style refers to a set of characteristics that make the same teaching method effective for some learners and ineffective for others.

Bonham (1988:14) reveals that some researchers use learning style and cognitive style interchangeably. He cites Kirby (1979) who advocates that cognitive styles arise within one's personality cognitive sphere. He also refers to styles as "surface characteristics of underlying cognitive orientation". Cognitive style refers to mental functioning, structure in the thought process or thinking method. It indicates how a person deals with new information; this refers to sorting it out, transforming it, mastering learning content, remembering and using it to discover his/her world (Ehrman and Oxford, 1990:311; Lemmer and Squelch, 1993:58; Milgram et al 1993:8).

Cushner et al (1992:102) say that learning style is concerned with perceptual and conceptual organisation of the external world. These include variations in perceptions, thinking, problem solving and how one interacts with others. Their view is that the structure of thought is determined by one's socialisation, at home, by the peer group and the local environment. Kolb (1984:63) and Vigna and Martin (1986:39) define styles of learning as stable states which indicate how an individual adapts to his/her environment. Kolb (1984:63) calls these stable states "transaction patterns" or "possibility-processing structures" in which an individual has a choice in making decisions.

According to Schmeck (1988:10) learning style is seen in terms of task accomplishment in which the learner is inclined to use the same strategy in different situations.

Keefe (1986:44) maintains that learning styles are cognitive, affective and physiological traits which reflect genetic coding, personality development and environmental adaptation of a person.

The researcher's observation is that learning style pertains to habitual patterns shown by a person when dealing with new information. These are influenced by various factors.

2.5 FACTORS THAT DETERMINE LEARNING STYLES

According to the Learning And Study Strategies Inventory (LASSI), learning styles are affected by motivational factors (motivation, attitude, concentration, anxiety and time management) and cognitive strategies (selection of main ideas, information processing, study aids, self-testing and test-taking strategies) (Van Aard, Van Wyk and Steyn, 1993:226).

Students who are in autonomous situations such as in tertiary institutions, no longer work under supervised and scheduled study times as it has been in the school settings. They need, therefore, to be motivated to learn and be able to manage their time effectively and study on their own.

2.5.1 Motivation

Motivation shows itself in the behaviour of students when they perform school work. Motivation is seen by Ashman and Conway (1993) as the desire of the learner to be involved and to continue in the learning and problem-solving activities. Keefe (1986:48) reports that motivation results

from attention activity and interest of the learner.

Motivation is seen by Fontana (1988:133) as intrinsic or extrinsic depending on the student's driving force to learn. Intrinsic motivation originates from within a person. It results from interesting learning experiences and their relevance to the learner's life. Morgan (1993:32) refers to personal intrinsic motivation which involves self-improvement or broadening when the student faces challenging and interesting work. He also mentions vocational intrinsic motivation which entails relevance of the course to one's future career. Blignaut and Kriel (1987:8) point out that the presence or absence of intrinsic motivation accounts for changes in learning orientation and learning style. Intrinsic motivation has an effect on learning in that it enables the student to study widely and use a deep approach (meaningful learning).

Extrinsic motivation is imposed upon the learner from an external environment. It originates from the learner's hope to pass or his/her fear of failure. The most important type of extrinsic motivation is achievement motivation or need for achievement. Its expectations direct the student to purposeful work and it results in success and rewards (Entwistle 1990:68, Fontana, 1988:134). Its disadvantage is that it can breed failure and competition in its intense form (Fontana, 1988:134).

Morgan (1993:34-35, 38) claims that students show the following types of extrinsic motivation:

- Personal extrinsic motivation which is concerned with one's proof of capability;
- Social extrinsic motivation where the student is interested in a good time and social activities;

- Vocational extrinsic motivation involving motivation by qualifications' worth.

Newstead (1992:300) and Morgan (1993:38) mention the academic extrinsic motivation where students learn to obtain high grades as they see education as means of progress and career advancement. According to Entwistle (1990:69) all forms of motivation in their extreme tend to promote the surface (rote learning) approach to learning.

Motivation also affects learning in that it increases the learner's energy and directs his/her behaviour towards learning activities. Wittrock's (1979) view, cited by Bellard, Taylor, Canelos, Dwyer and Baker (1985:196), is that motivation can be manipulated to change the outcomes of learning.

Wilson (1995:15) and Qutami and Abu-Jaber (1997:65) report that learners become motivated to learn when asked to actively participate. According to Coetzee (1994:50) co-operative learning where students learn as groups stimulates motivation and learners become more actively involved. Knowles (1986) cited by Coetzee (1994:53) points out that to increase motivation in adult learners, one should help them form learning contracts between the learner and the facilitator. The learning contracts reveal objectives of learning strategies and resources, leading to opportunity to achieve objectives, proof of accomplishment, assessment criteria and target dates.

Bodi (1990:114) and Entwistle (1990:116) argue that the teacher plays a motivational role if he/she shows interest, enthusiasm, is energetic, plans and organises work well, presents it explicitly to learners and inspires confidence in their knowledge of the subject. Lynch (1986) recommends that the teacher has to reckon with differences in learning and use varying motivational and re-enforcement techniques so that all pupils achieve at

their best. Entwistle's (1990:113) view is that it is the teacher's responsibility to enhance motivational levels and provide different rewards to accommodate emotional, cognitive and moral motivational styles to promote the personal development of the learner.

Bireley and Hoehn (1987:440) and Mc Elroy-Johnson (1993:100) suggest that counselling and affective education, awareness of conditions in the environment and suitable content to each learner would increase motivation and result in success in teaching and learning. McElroy-Johnson's view is also that teachers should provide social education so that students develop a sense of identity, express their views and believe in themselves, which will motivate them to learn. Newstead (1992:301) cites Entwistle et al (1979) who claim that students who have a positive attitude and are highly motivated to learn are more successful than those with a low self-esteem. Ashman and Conway (1993) believe that poor study habits result from low motivational patterns and coping skills.

Motivation is important for learners, especially those who must study on their own, because it enables the learners to remain focused to their learning goals. It helps the students to use study habits which promote learning, leading to success.

Entwistle (1990:73) argues that motivation is a reaction of the learner to present and past experiences at home and at school. A student who performs poorly, is criticised repeatedly and bored with school, becomes demotivated to learn. This causes fear of failure which results in anxiety in the learner.

2.5.2 Anxiety

The type of anxiety that affects students is called cognitive worry. This shows itself by negative thoughts, statements about one's intelligence abilities, future and social interactions. This behaviour diverts one's efforts away from studying as the fears become more irrational and self-defeating (Weinstein, Zimmerman & Palmer 1988:7). Bodi (1990:115) states that "learning by its very nature is a tension and conflict filled process, as new knowledge, skills or attitudes are assimilated". His view is that people who learn best are those who adapt their styles of learning as each situation demands.

Anxiety in a mild form can be useful in learning, but too much of it can inhibit and interfere with it. The degree to which anxiety motivates one to learn varies from learner to learner and from task to task. In higher education anxiety is habitual, and it motivates a student to better use of time outside of lectures (Fontana 1988:131).

In an interview with a Biologist, Katz and Henry (1988:131) discover that fear of failure interferes with the students' learning approaches. Entwistle (1990:68) says that anxiety causes the students to develop the "fear of failure or assessment anxiety" which is associated with a surface approach to learning. To reduce anxiety, the Biologist involves the students in analytic work to tap their intellectual abilities rather than engage them in memorisation (Katz & Henry, 1988:131).

The relationship between learning style, mathematics achievement and anxiety is explored by Hadfield, Martin and Wooden (1992:174). Their study reveals that mathematics anxiety is associated with attitudinal orientation. To prevent and reduce mathematics anxiety these researchers suggest the following:

- the promotion of persistence on tasks until completed;
- give challenging work to build confidence by hands-on activities;
- use relevant ideas to make Mathematics meaningful to real life situations;
- use of a non-threatening tone by the teacher;
- suitable study skills; and
- relaxation techniques.

Their conclusion is that these factors increase mathematics achievement.

The researcher notes that anxiety in the mild form motivates the student to learn, but in excess it tends to cause a negative attitude towards learning, which decreases the student's performance.

2.5.3 Attitude

Morgan and King (1971) cited by Behr, Cherian, Mwamwenda, Ndaba and Ramphal (1986:29) refer to attitude as "a tendency to respond either positively or negatively to certain persons, objects or situations". Behr et al (1986:29) mention that attitudes are learned and developed due to the student's experiences.

Students whose attitude is that they will do well, achieve better marks than those who anticipate that they will score less in their work (Conti & Welborn, 1986:21). Langan's (1992) view is that a positive attitude helps in that, even if a student fails, he/she does not lose hope. Self-doubt kills a

learner's spirit and this person may refuse to try again or continue with his/her course of study.

The student's diligence in studying depends on his/her general attitude and motivation. There should be a relationship between the school and life goals, clear attitude about self and the world to promote good work habits and attention to school tasks (Weinstein et al 1988:6).

A positive attitude towards learning encourages the student to learn and to remain within the school system even if the learner encounters failure. It also enables the student to concentrate and attend to school tasks.

2.5.4 Concentration and attention

For Weinstein et al (1988:8), concentration entails focusing one's attention to relevant activities at school, such as listening in class and studying. Milgram et al (1993:79) argue that persistence is correlated with a long attention span, no fatigue, sustenance of interest and a long period of involvement in work. They also claim that these are characteristics observed in the "gifted" learners. The "gifted" like tasks that are complex and challenging and they produce new and imaginative products.

Qutami and Abu-Jaber's (1997:63) observation, in a study to examine self-efficacy of students in computer skills, is that attention is the determinant of self-efficacy in learning and training situations. Salisbury (1990) in Qutami and Abu-Jaber (1997:64) notes that what maintains self-efficacy is continuous attention which results from motivation on the part of the learner.

Concentration depends on the environment for studying, for example need to be alone, with other students or a combination of these. To

increase concentration the environment should also be planned considering different preferred senses of hearing, seeing, manipulation, (writing, note-taking, experiencing) and a combination of these. Some learners attend to their work better if allowed to eat or drink when studying (Dunn and Griggs, 1988:3). Weinstein et al (1988:8) suggest that students should learn techniques that will help maintain and enhance concentration as well as prioritise their activities in all spheres of their lives.

Langan (1992) feels that when one is in a college of education, one should give that institution a chance and stay long enough to finish the course being studied for growth in spirit and in life. Persistence is necessary for learners to succeed in their studies. Learning styles are determined by a learner's persistence in doing his/her work. Good management of one's time is important to increase the attention span of the learner for success to occur.

2.5.5 Time management

To manage time successfully the student should create schedules that are workable and fit in everything within his/her daily life and stick to these. The student should also consider his/her preference as a learner, for example best and worst times of the day, learning methods and subjects to be studied. Effective time management helps in dealing with distractions, other competing goals and procrastination problems (Weinstein et al 1988:7).

Newble and Cannon (1989:154) and Wilson's (1995:15) observation is that time management and good organisation of study materials leads to success in studying. They suggest that the subject teachers should help their students develop time schedules and study plans by drawing up a

list of all tasks to be done in a timetable fashion for the week.

Wilson (1995:15) mentions that some students develop effective management of time on their own. Others need to be taught so that they improve their study skills. Time management is a motivating factor to a learner as it encourages him/her to make workable schedules (Weinstein et al 1988:7).

Time management regulates one's daily living. If study times are well planned, no work piles up. The learner is able to balance extra-curricular activities with study time and recreation. It enables the student to get started, gather and organise his/her information properly and meaningfully and deal with difficult and disliked subjects without the pressure of time. It makes studying enjoyable with good results.

2.5.6 Information processing

Learning becomes meaningful if knowledge is organised and stored properly. Information refers to the integration of new information with the previous knowledge, past experiences, attitudes, beliefs and cognitive skills (Weinstein et al 1988:8).

The view by Mc Carthy (1987:11) and Stewart (1990:32) is that learners process information actively or reflectively depending on how comfortable one is with these processes. Schools ask learners to watch, listen and reflect on information and then act on it and they develop from concrete to abstract experiences.

Pressman and Dublin (1995:2) and Sims and Sims (1995:2) argue that class projects which are grounded in real life situations encourage use of various strategies to appeal to different learning styles. Children are

allowed to learn through the visual, auditory and kinaesthetic approaches. Pressman and Dublin's (1995:13) observation is that other learners process information according to their natural styles of learning. This entails brain-based modalities where some students use their left brain hemispheres and others their right.

Sadler-Smith (1996:187) refers to information processing as holistic - analytical and verbal-imager types. The holistic deals with information in global terms, while the analytic looks at component parts. The verbaliser uses information in word form and images in picture form.

Slabbert (1993:39) and Ashman and Conway (1993:35) recommend that the learner should plan his learning and select suitable strategies. They stress the awareness of one's mental processing of information or metalearning. This involves intention, planning, executing, monitoring and evaluating one's learning. Ehrman and Oxford (1990:312) include affective strategies to manage emotions and attitudes and social strategies for co-operative learning and empathise with other learners as part of metalearning.

Alesandrini, Langstaff and Wittrock (1984:151) state that deep processing of information facilitates learning because the student is analytic and focuses on deeper meaning and associated concepts of new information. Ehrman and Oxford (1990:312) refer to this processing as a cognitive strategy.

Factors which affect cognitive processing of information are listed by Bellard et al (1985:186) as the following:

- Semantic and abstract processes of memory, e.g. rules, schema;

- distinctive or episodic memories, e.g. images or verbal memories;
- attention;
- motivation.

How a person processes information is influenced by cognitive biography, which includes values of the child that are determined by socialisation and cultural background. Students use other strategies which they do not prefer due to experiences in their upbringing and previous schooling as they were demanded in learning (Ehrman and Oxford, 1990:323).

According to Gibbs and Jenkins (1992) the student should use support mechanisms to enhance learning strategies. These are self-check tests, remedial lectures, additional reading and computer assisted learning, especially in large classes as pertaining to higher education. They also suggest that content should be clearly structured to help students make choices and to develop independence when studying. Weinstein et al (1988:8) suggest that a student should use a combination of processing methods such as paraphrases, summaries, analogies, schemes, outlines and inferences. The learner should also be analytic, creative and should apply information gathered innovatively.

The view by Entwistle and Waterson (1988:264) and Newstead (1992:1) is that study strategies should be modified in consideration of the environment as this increases academic achievement. Pressman and Dublin (1995:36) feel that the environment of the classroom be organised to fit in well with whole class projects such as small groups, a quiet zone, individual lessons and for co-operative work.

Ehrman and Oxford (1990:312) report that proficient learners use various

strategies, are self-directed and show an increase in their performance. They conceive that there is a close relationship between learning styles, learning strategies and an aptitude for language learning. Alesandrini et al (1984:156) are of the opinion that if the study strategy conflicts with a learner's typical style, learning may not be facilitated.

Weinstein et al (1988:8) mention that autonomous and classroom learning increases if information processing strategies are used. Ashman and Conway (1993:33) argue that the individual's ability to use the existing organised text and prior knowledge for information recall and comprehension is related to cognitive style. It is a reflection of the general ability of the learner to restructure information. Learners should therefore be able to process their information and select main ideas from it to make learning meaningful.

2.5.7 Selecting main ideas

This involves extracting meaningful ideas from learning materials such as books, passages to read, essays and assignments. It is important that a student be able to select appropriate information and concentrate on it for success in learning. Failure to do this may result in poor performance because the student would not be able to cover huge amounts of didactic material presented to him in class (Weinstein et al 1988:9).

Alesandrim et al (1984:151) refer to the ability of the student to select main ideas as analytic or deep information processing. The student critically classifies and categorises information and extracts what is relevant, which facilitates learning.

Entwistle and Ramsden's (1983:202) study to find out the students' approaches to learning, shows that lack of interest when one studies,

results in leaving out more facts and examples which make the work meaningful. It also reveals that achievement in learning depends on selection of important information and organising it, being motivated to learn and concentration on learning materials.

If the learner does not master the selection of important information from learning materials, she/he may not cope with large amounts of educational information presented in subjects and may not make it in examinations. For learning to have meaning, study aids used must be relevant to the subject and to the learner they are designed for.

2.5.8 Study aids

These are learning and instructional materials used by students and teachers to increase learning. They can be books, charts, diagrams, group reviews on past lessons or comparing notes for accuracy and completion and underlining in textbooks. Learning materials can be constructed by learners themselves or by other people. Proper use of study aids by students benefits learning. Learning really becomes meaningful if students create their own aids for learning (Weinstein et al 1988:9). If students use study aids constructed by another person, some of these students may experience problems. The designer may unconsciously reveal his/her styles and preferences that may not necessarily match those of the learners they are intended for (Sadler-Smith, 1996:185).

According to Honey and Mumford (1992) in Sadler-Smith (1996:190), learning materials should be designed to match the styles of the learners. Sadler-Smith points out that learners should be encouraged to use even those study aids that do not match their preferences if they would

enhance learning.

Tach (1993:295) states that technology has an impact on learning styles. His view is that the instructor should consider differences in styles of learning when designing a course. Barnard (1992) cited by Tach (1993:296) recommends that technology should include various representations of learning material for stimulation of different learning styles. He notes that visual colour images, animation and sound be used as a means of concept understanding.

Hedberg and Mc Namara (1989) in Tach (1993:296) maintain that there is a need for building in-depth learning using technology to address learning and cognitive style differences. They envisage that the satellite, video-conferencing or video-tape presentations can be used via use of technology. The computer can also be used to generate knowledge as it could be manipulated to restructure elements of learning to various situations. The role of the deliverer is evaluation of information to match all learning preferences. He/she would also develop and explain activities and give feedback and counsel learners as they engage in learning activities.

Study aids should therefore be constructed that they be valuable to see if they lead to learning. They must be related to the objectives of the course and to what needs to be learned.

2.5.9 Self-testing and test-taking strategies

Sims and Sims (1995:8) refers to evaluation as a measure of finding out if learning has occurred. It can be self-evaluation or evaluation given by the instructor to students.

Self-testing is done by the student to review one's understanding, to consolidate information and to integrate new and related knowledge. Self-testing monitors the student's comprehension, identifies problem areas and corrects them, it includes structured and mental reviews of study material, asking oneself questions and being systematic when studying (Weinstein et al, 1988:9). Test taking strategies are concerned with preparation for the type of test a student should expect. This includes study methods that will enhance recall, characteristics of tests, items of tests and how to make a test-taking plan effective. Types of tests are short answer, multiple choice, application of ideas, essays, assignments, orals and problem-solving (Weinstein et al 1988:10).

Fransman (1991:72) refers to Thomas and Bain's (1984) work. Thomas and Bain (1984) report that the manner used to examine students determines how they will learn. They mention that many students are forced to use superficial learning methods to cover all work for examination purposes. Students use any approach as long as it will maximise examination marks. Some students become anxious and neurotic due to fear of failure and therefore study only to cover work for examinations.

Fransman's (1991:75) investigation to find out the relationship between questioning and learning preferences shows the following:

- Tertiary education students prefer essays as they are frequently subjected to them;
- Multiple choice questions lead to a reproduction learning style;
- Problem solving uses memorisation only in cases needing a formula to solve a problem;

- Some students prefer meaningful learning;
- Other strategies are used as the method of evaluation demands.

Vrey (1979), in Fransman (1991:72), sees examinations as promoting memorisation because students who perform best are those who remember most of the information they learn through preparation for examination time. The students who do badly or fail are disadvantaged because they do not reproduce as well as those who perform well. This shows that the type of examination does not appeal to how they prepare for the examination. According to Weinstein et al (1988:10), knowledge about test-taking and preparation thereof enables students to set up and implement effective study goals, resulting in improved achievement.

Evaluation is part of teaching and learning. It is beneficial to both teacher and student in that it monitors the progress in learning and seeks to identify if the objectives of learning are attained.

Apart from what has been mentioned so far, learning is also determined by the following factors: personality, masculine-feminine behaviour, sociological factors, age, environmental and physical factors and culture, past experiences and psychological factors Bodi, (1990:114); Coetzee, (1994:54); Hadfield et al (1992:174).

2.5.10 Personality

According to Biehler and Snowman (1993) personality refers to characteristics of an individual which include abilities, habits and preferences. Blignaut and Kriel (1987:7) and Bonhan (1988:15) argue that learning style arises from one's personality or cognitive sphere. To support this view, Milgram et al (1993:235) state that students who are

similar in personality display more or less the same learning styles.

Entwistle (1990:124) describes personality in terms of extraversion, introversion and academic self-concept. The socially extraverted learners, unlike the introverted learners, are not shy. They, therefore, find it easy to join study and discussion groups. Academic self-concept shows itself in students who manage school work well.

The effect personality has on learning style is also shown by interaction between the teacher and his/her students. Student personalities may also be a reflection of this. A teacher, who is enthusiastic about his/her subject and is sympathetic, pleasant and understanding towards his/her students, positively affects and motivates them to learn. A student who is confident in personality is able to attribute failure in his/her studies to lack of effort and may thus study harder. Students who are not confident, get more despondent and lose hope when faced with failure (Biehler and Snowman, 1993).

In a study done by Katz and Henry (1989:38) to help students in their learning, results indicate that students are able to identify the reason they have chosen different areas of study, as a match between the styles of learning and one's personality.

Milgram et al (1993:21) compare students who have hyperactive and passive personalities. They find that those seen as hyperactive prefer to learn by actively doing something or moving about. The passive students prefer to sit still and listen to the teacher. The hyperactive personality is associated with the behaviour of boys whom they regard as preferring mobility during learning - and passivity with girls - who like sitting down and prefer quiet zones for studying.

The researcher notices that the academic performance of the student is determined by his/her personality. A confident learner is able to persist in learning even during difficult times, whereas the one who is not confident gives up on his/her studies. Personality influences also manifest themselves in how males and females learn.

2.5.11 Masculine-feminine behaviour

Masculine-feminine behaviour affects learning styles in the responses of brain behaviour of males and females. Most males use the left brain hemisphere - which is sequential, orderly and detailed - and are perceived to be analytic learners. Males are observed to do well mathematically. Most females are right brain hemispheric learners who are metaphorical, analogic and verbal. They are referred to as holistic thinkers (Sims and Sims, 1995:75).

In a study conducted by Hadfield, et al (1992:174) on mathematics ability and anxiety in males and females, the findings show that males are more confident and show less anxiety in their mathematical abilities than females. Females become confident only if all the other cognitive and spatial abilities are above average.

Males and females differ in how they learn. This may also be due to sociological influences which affect one's behaviour and styles of learning.

2.5.12 Sociological factors

Cushner et al (1992:108) state that one's structure of thought is determined by socialisation in one's family, peer group and local

environment. The learning style model based on sociological characteristics also includes learning with an authoritative, collegial adult or a variety of interactions.

Dunn, Dunn & Price (1989:53) contend that the peer-oriented learners learn well in small groups through brainstorming and case studies. They use multisensory interactions and different styles of processing information and are thus able to help themselves where the teacher's style is incongruent with theirs.

Research done by Mclear (1992) and cited by Sims and Sims (1995:75), shows that students' interaction within themselves and with the instructor increases their confidence and competence in learning. Interaction exposes students to learning styles and thinking skills of their peer group.

Dunn et al (1989:53) note that peer influence is strong during the junior high school years, but begins to decrease in grade nine, when students are required to study alone. This indicates that the age of the student has an influence on how she/he learns and it also shows how a learner interacts with other learners.

2.5.13 Age

The age of the learner is critical in that an adult learner's approach to learning differs from that of a young learner. Adult learners are more responsible for their learning than young learners who are more dependent on teachers' supervision (Sims and Sims, 1995:4).

Fransman's (1991:72) view is that if a particular learning style is adopted in early years, it will be used until the learner is at tertiary level, unless

modified in favour of a more meaningful one. Sims and Sims (1995:4) claim that learning preferences become more important as children grow older.

Price (1980) in Dunn et al (1989:53) reports that the higher the grade level of the learner, the less teacher motivated he/she becomes. The learners prefer small well-organised groups with their peers that involve co-operative learning. Observation is that these learners set realistic goals and work targets.

Dunn et al (1989:52) argues that high school learners prefer an environment which is distraction free and that they are less interested in conventional settings. During elementary school years and the beginning of adolescence, students like noise when studying consistently, and this tends to normalise at the end of adolescence. This shows that the environment influences how a student learns. Students prefer different aspects within their environment depending on their age.

2.5.14 Environmental and physical factors

Effective learning takes place if the environment is structured to enhance it. Fry and Kolb cited by Sims and Sims (1995:134) point out that learning environments suit particular learning styles.

Keefe (1986:50), Dunn et al (1989:52) and Milgram et al (1993:10) report that learners show differences in their need for light, temperature, nutrition, noise and time of the day. Katz's (1989 : 38) view is that students prefer either a structured environment, an informal one or self-initiated projects. How the learner reacts to these factors, affects how he will learn.

Sims and Sims (1995:134) cite Fry and Kolb (1979), who identify environments which are oriented towards certain learning modes. These are :

- The affectively oriented environment which corresponds to concrete experience focusing on attitudes, values and feelings;
- Perceptual oriented environment concerned with reflective observation emphasising a relationship between concepts, events and how things are done;
- Symbolic or cognitive environment oriented towards abstract conceptualisation which relates to skills mastery;
- Behaviourally oriented environment concerned with active experimentation of knowledge and skills to solve real life problems and situations.

Duchastel (1994:227) emphasises that the environment should provide access to learning resources, arouse interest for task completion, structure content to meet objectives of learning, provide for monitoring of learners and for academic support and validation structures, to determine if learning has occurred. Newble and Cannon (1989:152) suggest that the environment should be improved by critically looking at the philosophy of education or the curriculum of a learner's discipline and its impact on the learner's learning approach.

Coetzee's (1994:51) view is that the teacher should provide a democratic and non-threatening environment, create mutual respect, and discourage destructive competition among learners.

The learning environment should, therefore, be conducive to learning. It

must be so structured that it can cater for all types of learners. The environment of the learners is also affected by their culture that also determines how they will learn.

2.5.15 Culture, past experiences and psychological factors

Culture relates to one's life and how one does things. This includes values, beliefs and mother tongue. A learner brings these cultural experiences to the school and the learning situation. Cushner et al (1992:108) and Sims and Sims (1995:134) argue that a person learns in a certain manner because of socialisation in his/her culture. Van Reyneveld-Grove's (1993:60) study on the learning of multicultural students shows that many students do not achieve according to their potential due to the fact that the content and methods of teaching in the classroom do not match their cultural experiences and knowledge. There is a communication problem as the language used as the medium of instruction, differs from the student's mother tongue. Evaluation and assessment procedures are not culturally acceptable or suitable for them.

Lewthwaite's (1996:167) view is that this increases stress, frustration and depression in the learner, who must adapt socially to the language and academically to new methods and procedures entailed in learning.

Clough and Driver (1991:265) mention that the learner interprets a task using past experiences and concepts acquired formally. These are not used and "tapped" in a different cultural situation.

Another point of view observed by Woodbridge (1996:99) is that, from a cultural perspective there are differences in the brain functioning of people. Certain cultures show dominance in the right brain hemisphere, while others are left brain hemisphere oriented. The differences in learning determined by these brain orientations pose problems to both

teachers and learners. Conflict occurs because of expectations in behaviour and characteristics from both parties. This has a negative effect on the learning and teaching process thus decreasing academic performance of learners.

Educators should address a cultural misfit between the learner and the teacher in a positive manner. Cultural differences should be taken as a challenge and as part of learning. Teachers should consider the learner's past experiences, and establish the best way to accommodate these in the learner's new learning environment for the learner's academic benefit. Learners are affected emotionally and psychologically once their teachers do not accept their differences and guide them accordingly. The researcher's view is that learning is determined by various factors that lead to differences in learning approaches and learning styles.

2.6 LEARNING APPROACHES AND LEARNING STYLES

Entwistle and Ramsden (1981) cited by Schmeck (1988:8) use the term "approach" to refer to strategies and tactics which are observed in students when studying. They argue that the approach a person uses for a learning task results from a relationship between personal characteristics and the learning environment.

Entwistle (1990:124) sees consistency in approach as style-like and calls it orientation. But Lemmer and Squelch (1993:58) refer to consistency in approach, in organising and processing information as learning style. Schmeck's (1988:10) view is that an approach is formed by a combination of intention and strategy, using metacognition.

Newble and Cannon (1989:151) and Entwistle (1990:124) point out that

an approach is influenced by the students' reasons for furthering their education, academic discipline and on the individual. An approach determines learning style or how a person will learn.

2.6.1 Learning approaches

Learners differ on how they approach their learning. This depends on the individual's personal characteristics, intention, motivation, requirements and assessment methods of the course (Entwistle and Waterson 1988:264; Fransman, 1991:76). Approaches used are: surface, deep, strategic, global, analytic, collaborative and the multi-faceted.

□ Surface versus deep approaches

According to Katz (1988:127) and Newble and Cannon (1989:151), learners use either the surface or deep approach to learning. Those who prefer the surface approach read "word for word" (rote learning) and reproduce their work in tests and examinations. Learners who use the deep approach analyse their work and get meaning from it. Students also use the deep and surface approach and this is called the strategic approach. They are motivated by need to obtain high marks, competition with others, fear of failure and need to finish the course. The student at times uses the surface approach in cases of demotivation and fear of failure. Students who use the deep approach are motivated by interest in the course or its vocational relevance.

Bruning (1993:25) emphasises the importance and types of knowledge organised by learners, resulting in adoption of new perspectives. His view is that comprehension and meaning should be a focus of learning as this makes it effective. For him, knowledge can be declarative or factual, meaningful if contextualised, and procedural if organised into action.

Newble and Cannon (1989:151) maintain that the awareness of approaches and how they affect learning would help educators in universities and colleges of education to plan their curriculum so that it promotes students to use the deep approach to learning. Learners can also learn using the global or analytic approach.

□ **Global versus analytic approaches**

Global learners restructure their work so that it becomes meaningful. They are also referred to as holistic, because they look at the overall view of the learning material (Entwistle, 1990:109). The global learners learn best by use of anecdotes (short stories) especially if these are interesting and meaningful (Milgram et al 1993:20).

Milgram et al (1993:19) perceive that analytic learners learn best if information is arranged and taught step by step. Their focus is on mastery of details. They are also called the "serialists" by Newble and Cannon (1989:151) and Entwistle (1990:61).

Schmeck's (1988:10) view is that individuals develop from global forms of information processing to the analytic. As development continues, both forms are combined to obtain a balanced approach to learning. He refers to global and analytic approaches as the major dimensions of cognitive style - one style, on one end and the other on another end. Learners also prefer to work as individuals or as groups using the collaborative approach.

□ **Collaborative approach**

The collaborative approach is observed by Tang (1993:115) and Slabbert (1993:39) as being spontaneously initiated by students. Students form

groups where they discuss their work by looking at it critically, classifying related thoughts together, sharing ideas, evaluating their work, discovering solutions to problems and generating new ideas and opinions in mutual support. The group discussions promote freedom of learner participation and save time as large amounts of work are covered within a short time. Group discussions also facilitate discovery learning, especially for students who use English as their second language. As students learn in groups they contribute various approaches to the learning situation resulting in use of the multifaceted approach.

□ **Multifaceted approach**

Katz and Henry (1989:45) argue that learners may use the aspects of other approaches to form a multifaceted approach to learning. These facets are reflective and complex-thinking, and aesthetic learning. Reflective thinking is developed by giving students work to read, think about and question issues followed by writing out what they think. Complex thinking allows students to examine and question concepts. Aesthetic learners relate the subjects and learning material to real life. The multifaceted approach helps learners to develop meaningful learning.

Learning styles develop from the consistency in use of certain approaches by learners. Researchers classify them in terms of information processing and the behaviours exhibited by learners as they engage in their learning.

2.7 LEARNING STYLES - TYPES OR MODELS

Researchers identify differences in learners and refer to such differences as learning styles or models of styles depending on how they have developed and how they are applied by learners.

2.7.1 Kolb's (1984:77-78) model of learning styles originated from his cycle of learning, where abilities interact - the dominant learning ability is abstract conceptualization and reflective observation. Learning is by inductive reasoning and fitting diverse observations into integrated explanation. Stereotypical occupations are in research and planning. Kolb (1984:63) refers to the following styles:

- The **Accommodator** - learns by concrete experience and active experimentation. The learner works well in sales and marketing.
- The **Converger** - learning is by abstract conceptualization and actual experimentation. He/she believes in practical application of ideas, and single correct answers to a question or problem. They prefer to work in the engineering field.
- The **Diverger** - starts learning from concrete experience to reflective observation with imaginative ability and use of various perspectives when looking at things. The learner prefers to work as a counsellor, personnel officer and in organization and development.
- The **Assimilator** - prefers to learn from abstract conceptualisation and reflective observation and assimilates diverse items of learning into an integrated whole. The learner prefers to work in the planning field.

Kolb's model is more suitable to an adult learner, as it gives an explanation on how people learn and how people adapt to life.

2.7.2 Honey and Muniford's (1993:15) learning styles are modified

from Kolb's model, and they classify learners according to their strengths and weaknesses.

- **Activist** - is an actively involved problem solver who prefers brainstorming when learning.
- **Reflector** - considers alternatives for decision-making and base actions on observations.
- **Pragmatist** - applies new information in immediate situations.

2.7.3 McCarthy's (1987:49) learning style types are the following:

- **Imaginative learner** - believes in own experiences and learns by watching, sensing, feeling, imagination and innovation.
- **Analytic learner** - reflects on ideas, seeks facts, models and concepts to form reality.
- **Common-sense learners** - integrate theory and practice and value strategic thinking and are skills oriented.
- **Dynamic learners** - experience and application are integrated and they believe in self-discovery.

McCarthy's view is that all four styles are important because each has its own strengths and weaknesses.

2.7.4 Claxton and Murrell's (1987:40-41) mentioned the following styles:

- **Independent learners** - this person is confident in his/her abilities

and can work alone and listen to the views of others, but learn what he/she needs to learn.

- ❑ **Dependent student** - uses the authority figure in the subject as a source of information and learns only what is expected.
- ❑ **Collaborative learner** - is co-operative with other learners and sees the environment of learning as a place where he/she interacts with others.
- ❑ **Competitive student** - competes with others and is motivated by performing better than other students.
- ❑ **Participant learner** - enjoys active involvement in class and with content of the subjects and works well with others.
- ❑ **Avoidant student** - shows less interest in learning and does not participate actively in class.

2.7.5 Schmeck (1988:10) identifies four learner types as:

- ❑ **Affective 1** - likes to learn in a group;
- ❑ **Affective 2** - prefers to work alone;
- ❑ **Cognitive 1** - is practical and bases decision on accurate information;
- ❑ **Cognitive 2** - learns by depending on factual material.

2.7.6 Dunn and Griggs (1988:64) came up with the following styles:

- **Idealist** - is receptive, an idealist, holist and interested in values.
- **Analyst** - is prescriptive, seeks "one's best way", logical and interested in scientific solutions.
- **Realist** - seeks empirical facts and expert opinions, current needs, is solution seeking and likes concrete results.
- **Pragmatist** - is adaptive, innovative and seeks shortest routes to solutions to problems.
- **Synthesist** - is integrative, speculative and seeks conflict and synthesis. Interest is in change of situations.

2.7.7 Reichman (1974) in Sims and Sims (1995:195) refers to the following styles:

Dependent, independent and collaborative. These overlap with Claxton and Murrell's styles. Milgram et al (1997:1) see the independent learner as characteristic of gifted students. They are also non-conformists and divergent learners.

Wills (1985) in Sims and Sims (1995:70) observed black children's learning styles as having the following characteristics:

- Social affective;
- Harmonious;
- Expressive creative;
- Non-verbal communication.

2.7.8 Bireley and Hoehn (1987:439) list style types used by gifted and learning disabled students. The combinations come out of Carl Jung's types of learners. These are:

- **Introvertive students** - information is processed internally, relating to ideas and concepts and is future focussed.
- **Extravertive students** - information is externally processed relating to "here and now" situations.
- **Sensors** - learn by detailed information through senses and are practical in nature.
- **Intuitors** - use a big picture, work with ideas and relate to the future.
- **Thinkers** - learn by factual, logical and impersonal means, and they use cause-effect relationships to make decisions.
- **Feelers** - are personal, subjective and use "heart" decisions and how these affect others.

2.7.9 Newble and Cannon (1989:150) classify learners into three types:

- **Operational learner** - relies on step by step and logical approaches, learning is factual, procedural, detailed and by reproducing learning materials.
- **Comprehension learner** - is concerned with broad outlines, analogies and meaning.

- **Versatile learner** - bases knowledge on broad principles supported by facts; the approaches that are used depend on the course.

2.7.10 Katz and Henry (1989:21-22) cite Perry's (1970) styles as:

- **Dualist** - depends on authority figures for information to be seen as absolute truth.
- **Multiplist** - challenges any type of truth even if proved true and sound.
- **Pluralist** - believes in pluralism of perspectives and applies learning in real life, sees it as skills development. The learner is open emotionally.

2.7.11 Keefe (1979) in Sims and Sims (1995:53-56) refers to;

- **Perceptual modality preference** - where learners learn by auditory, visual, tactile and kinesthetic means. These are referred to as the cognitive style dimensions.
- **Levelers** - they merge new concepts with previous information, over-generalise and like simplicity in the cognitive field.
- **Sharpeners** - tend to seek maximum differentiation and complex issues and separate prior experiences from current information.

2.7.12 Mathews (1991:253) mentions the following styles:

- ❑ **Independent** - works well alone, is self-paced and prefers self-selected projects.
- ❑ **Social** - likes teamwork and interaction with peers and teachers.
- ❑ **Applied** - prefers real life experiences and site visits.
- ❑ **Social/applied** - works well with others in real life, problems are solved as a group in role playing and work by teachers.
- ❑ **Conceptual** - likes organized work which is language based, in lectures and reading.
- ❑ **Social/conceptual** - interacts with peers and teachers with materials that are highly organized, and based on language, with lectures balanced with discussions.
- ❑ **Independent/applied** - likes to work alone in real life with individual instruction or self-supervised practices.
- ❑ **Independent/conceptual** - prefers to work individually with independent reading, literature searches and reviews, but materials must be highly organized in language form.
- ❑ **Neutral preference** - may match any learner type but at times experiences problems about involvement.

2.7.13 Bandt, Meara and Schmidt (1994:48) identify 12 learning style types as:

- ❑ **Illusionist** - can organize learning material well but masters very

little of it.

- **Pacifist** - is a daydreamer in class and achieves less work.
- **Idea man** - is good at challenging work, likes discussions but less in-depth study is achieved.
- **Detective** - spends most time searching for work in detail and learns by reproduction of facts, does not perform well in other forms of learning.
- **Cognitive prisoner** - can recall information but cannot apply it.
- **Technician** - the recall method is used and understanding is drawn from own experiences.
- **Isolationist** - prefers details but cannot associate work categories.
- **Revisionist** - uses selective perception and interpretation of ideas as central to everything learnt. Usually has a problem in performing well at school.
- **Shadow** - crams and uses recall in examinations but cannot apply knowledge effectively after qualifying from the course.
- **Mask** - always pretends to be confused and not knowledgeable in class but studies diligently alone and does well in examinations.
- **Pragmatist** - learns what is expected, exchanges ideas, questions and re-thinks existing ideologies and answers.
- **Innovator** - uses a critical approach and in-depth learning, can

handle a variety of subjects and teaching approaches and is flexible in learning.

Some of these styles show some overlapping with those identified by Mathews.

2.7.14 Learning styles observed by Woodbridge (1996:101) are:

- A **"see-and-do"** style - involves learning by observation, teachers use modeling and demonstrations for new or unfamiliar information.
- A **"spontaneous interjection"** communication style - a student breaks in and talks while others are talking.
- A **"socialized"** communication style - involves verbal and non-verbal language with voice tone and facial expressions used to further interpret meaning.
- A **"story-telling"** communication style - this occurs where other students tell the story in a linear - "straight" and others in a non-linear - "meandering" way.
- A **"sense-orientated"** style - refers to perceptual information processing or thinking. These can be visual, auditory and kinesthetic.
- **"Spontaneous integration"** - shows a holistic or integrative approach oriented towards the right hemisphere thinking and is also referred to as an intuitive dimension.

2.7.15 Field dependent versus field independent learning style

These styles differ on how learners process information. The field dependent learner makes use of large contexts and cues. They need structured information as they use the passive or "spectator-oriented" approach. They are termed global learners. According to Tennant (1988:89) and Cushner et al (1992:110) field independent learners focus on detailed information and need to be taught sequentially. They are also called analytic learners by Couch and Moore (1992:54).

Schmeck's (1988:8) view is that people start with being predominantly field dependent and achieve field independence as development progresses. The highest level of development is seen when there is integration of skills forming a flexible style with the advantages of both modes. This style is called the "versatile reduction in rigid cross-situational style-like consistency".

2.7.16 Versatile learners

Entwistle (1990:62) points out that some learners have the ability to use styles that vary at different times. Others shift from one style to the other easily. They are termed "versatile".

Newble and Cannon (1989:151) see a versatile learner as one who depends on a deep understanding level based on broad principles of knowledge supported by facts. In a recent study by Slabbert (1992:39) on metalearning, versatility is seen as important because the learner is able to achieve the requirements of a task.

2.7.17 Brain hemispherity and learning styles

Sims and Sims (1995:9) report that McCarthy (1987) claims that a person learns in a certain manner because of the part of the brain dominating his/her thinking. The right brain learner is holistic but less organized while the left brain learner is analytic, sequential and highly structured. Sims and Sims (1995:10) note that the weaker side of the brain can be stimulated or trained to work together with the stronger one to increase the learner's ability and to produce versatility in learning.

Learning styles are of benefit to learning in that learners use them to maximise their academic performance. Some styles seem to hinder meaningful learning, but if used in the suitable context they become useful and lead to effective learning.

For the researcher, the most relevant styles are those which show active involvement, independence, synthesis (synthesist) and confidence (idealist) on the part of the learner. The combination of these can bring about meaningful and successful learning.

2.8 LEARNING EFFECTIVENESS AND TEACHING

Coetzee (1994:48) reports that Meier (1985) maintains that educators and trainers should develop the curricula using the holistic approach, where the whole body is considered body, mind and spirit. For this, he suggests that learners should be motivated by active participation in their learning experiences and planning as well as addressing their needs.

Fullard and Beerlall (1986) contend that students should be

responsible for their own learning progress and increase their development, commitment, initiative and responsibility. This could be done by student counseling and support services which include life skills training. The overall result would be the ability to cope with life-demands and better performance academically.

Bireley and Hoehn (1987:440) suggest that a teacher should build on the student's sensitivities in the classroom by providing counselling and effective education to overcome their learning discrepancies. The learning disabled and the gifted students learn best in a warm and supportive atmosphere, suitable environment and content to suit each child.

Crawford's (1990:31) view is that when a teacher plans a program, he/she should consider the students' different levels of ability, learning styles, interests and suggestions of students. Entwistle (1990:92) reports that students comment that the enthusiasm of the teacher affects their learning positively. A suggestion by this researcher is that learning-to-learn workshops should be conducted by encouraging students to use the reflective and deep approaches, and outcomes assessed to test the success of strategies used. Teachers are advised to avoid adopting too extreme a style, as this would create difficulties in learning by pupils with an opposite learning style. Teachers should also be aware of their own styles and personalities so that these do not influence the learning of pupils.

Van Ryneveld-Grovè (1993:60) suggests the supply of compensatory, enrichment and remedial programs for pupils within their specific needs to increase academic achievement. Newble and Cannon's (1989) view is that there should be less overloading of content to avoid surface approaches, and give more contact time to students for critical

analysis of learning principles.

Pressman and Dublin (1995:87) point out that there should be solicitation of administrative support and encouragement for teachers as they take on risks in trying new learning methods and technologies and in terms of the creation resources. They also envisage that there should be parental involvement in children's classroom activities. Goals should be clearly specified for students to achieve and every student given opportunity to succeed.

Woodbridge (1996:102) reports that Shade (1994) envisages that teaching in a culturally diverse classroom needs that attitudes, approaches and strategies of teaching be restructured to cater for cultural needs of pupils. Teachers' attitudes should change and accept the cultural differences of pupils. They should integrate multiculturalism into the classroom situation and see it as a challenge rather than a problem. Teachers should be facilitators and not only give out information. The use of stimulating approaches e.g. groups and co-operative learning, demonstrations and modeling need to be encouraged. Tach's (1993:301) view is that multimedia could be of help for easy perception and processing of information. He also recommends flexibility in structure, use of dialogue in solving problems and encouragement of students to view their opinions and individual interests.

Dunn and Griggs (1988:3) and Tach (1993:299) maintain that for effective learning, the classroom environment should be innovative, with formal and informal sections, varied illumination, temperature control and be comfortable with low noise. Stephen (1987:44) says that the environment should also encourage self-esteem, respect for differences, confidentiality and privacy.

Pressman and Dublin (1995 :36) state that the rationale to use varied learning styles is to give students a chance to exercise different intelligences, use different skills at specific times so that schools could be more equitable places for learning. Their points of view are that a teacher should create a classroom where "everyone shines", bring out strengths in all students by provision of various learning resources, activities, integration of subjects across the curriculum and encourage intergration of experiences.

Nqadala (1994:53) recommends that lecturers should stress and adapt Kolb's cycle of learning and ensure a balance between learning experiences and learning styles.

Learning can be effective if both learners and teachers could be aware of their own styles of learning and how these affect learning. Structuring of learning content and the environment and study strategies training to all learners can help to balance up the learning situation, leading to academic achievement. Counselling of students by looking at their cognitive, emotional and motivational aspects of teaching and learning, can enhance the learning of students.

2.9 THE IMPORTANCE OF LEARNING STYLE RESEARCH

Learning style research has provided many ways of understanding talents, interests, personal needs and achievements of students. Learning styles are the channels through which educators could look at and nurture competence and creative productivity at high levels. Educators can individualize instruction for more success by students (Milgam et al 1993:41).

If students know their learning styles, they can discover their talents and their strengths, and teachers can help them develop their potential fully. This knowledge can also enhance the self-confidence and self-esteem of the student and that can lead to independent and self-directed learning. The awareness of learning styles by teachers has an advantage in that they could focus on how certain styles could be complemented and how each student's needs could be catered for. Styles can help to determine a person's creativity and how this energy can be channeled (Milgram et al, 1993:98).

Sadler-Smith (1996:186) sees the "ideal learner as one who has characteristics of all mentioned styles as no style is regarded as 'better' than others".

A view by Stewart (1990:31) is that one tends to use a style one is familiar with. People develop skills and abilities in all styles although they seem to use a certain style. This occurs over time through varied experiences that give one opportunities to exercise all the learning styles. Kolb (1984) in Stewart (1990:11) suggests that the learner should move systematically around the "learning wheel" to develop skills and abilities within each learning style. This refers to integrative learning which entails use of all styles that should be promoted to encourage effective learning.

Schmeck's (1988) view is that knowledge of styles could help teachers so that they use multiple methods of teaching to cater for all learners. They should also be aware of their own styles so that they do not impose their styles on students, but would make the learning environment appropriate and build on strengths and weaknesses of students. Teachers and lecturers in the higher education sector would be able to design courses considering the diversity of their students'

learning styles, if they were aware of how the differences in learning styles affect their learners.

Dumse's (1995:39) study reveals that there is no relationship between intelligence and styles of learning. The problem is that teachers tend to equate the need to use certain styles, such as using the concrete, factual and motor manipulations with low intelligence levels, instead of seeing it as a learning preference oriented towards perceptions. Research by Bodi (1990:114) has also shown that if there is a mismatch between the styles of students and those of their teachers, the performance of those students would be affected negatively as their teachers would assess them as determined by their own learning preferences. It is important, therefore, that learning style research be part of the system of education.

2.10 PROBLEMS OF LEARNING STYLES

According to Schmeck (1988) learning styles present problems to a teacher in that, encouraging one style at the expense of others would create problems to those not using that particular style. The teacher would also look at students as "types" of learners and would experience difficulty in presenting a lesson using different methods. To mention the concept of styles would complicate issues, as the students would feel incompetent if using their own styles, instead of the styles suggested by their teacher.

Alton-Lee, Nuthall and Patrick (1993:50) look at the private world of children during an ongoing lesson to observe how they learn. They report that the utterances those children make, show how they struggle with the overt and covert curriculum messages. Alton-Lee et al

(1993:50) comment that those messages reveal the cognitive and emotional responses and also indicate learning processes, use of prior knowledge and experiences and strategies the children use in their learning engagement. The results of the study conclude that researchers could use the learners' private world when investigating learning behaviour. This concurs with Parson's (1991:125) view that research on exploring perceptions of learning should move away from the "traditional" perspective of the observer's point of argument.

2.11 CONCLUSION

Most researchers agree that learning preferences of both teachers and learners should be determined, so that they become aware of them to enhance learning and good teaching. This knowledge would enable teachers to be facilitators in an environment conducive to effective learning. Students would be assisted to assume responsibility for their learning as they would actively participate as they engage in various learning activities and strategies that would also motivate them to learn.

2.12 SUMMARY

In this chapter a literature review has been done on the process of learning. Some topics of interest to this study include the concept of learning, definitions of learning styles, types of styles, determinants of styles, learning approaches and strategies and their relation to academic achievement, teaching and learning effectiveness, the importance of style research and problems of learning styles. The following chapter will discuss and explain the methods to be used to conduct the empirical study, and how the data will be analysed and

CHAPTER 3

RESEARCH DESIGN AND DATA ANALYSIS

3.1 INTRODUCTION

The previous chapter was concerned with the learning process in relation to learning styles. This chapter looks at the methods of conducting the study and the instrument to be used, its validity, reliability, characteristics, advantages and disadvantages. It will also deal with the data analysis.

3.2 THE SAMPLE AND SAMPLING PROCEDURES

Four Primary Teachers' Colleges of Education in the Transkei region of the Eastern Cape were randomly chosen for the research on learning styles. Two of these colleges train students for the Junior Primary phase and the other two colleges are for the Senior Primary phase. Students from the Junior Primary phase are all females and those from the Senior Primary phase are males and females.

The sample to be studied comprised students from the course 1 to the course 3 level. Systematic sampling was used in each course level. Every second student was chosen to participate in the study. The sample was 328 out of a student population of 656 students. They were given the LASSI questionnaire to fill in individually. It was administered according to course levels and the students availability.

3.3 THE MEASURING INSTRUMENT

3.3.1 Construction

Weinstein et al (1988:6), as Van Aardt, Van Wyk and Steyn (1993:226) report, created the Learning And Study Strategies Inventory (LASSI) based on how students acquire their knowledge.

The LASSI is composed of 77 items in the form of a questionnaire which can be self-scored by students within twenty minutes. It has 10 scales. Five of these scales deal with motivation and the other five are called cognitive strategies. The motivational scales include attitude, motivation, anxiety, concentration and time management. The cognitive strategies are information processing, selecting the main ideas, study aids, self-testing and test strategies (Weinstein, et al 1988:6-10). The motivational scales are:

- ❑ **Attitude** - this relates to how a learner responds to the study situations, his/her life goals and about herself/himself. If the attitude is good, the learner becomes motivated to be responsible for his/her own learning.
- ❑ **Motivation** - it pertains to the learner's interest to perform his/her school work. The learners who scores high on this, are goal directed and are able to work on their own.
- ❑ **Anxiety** - this relates to negative thoughts experienced by the learner in terms of his/her abilities, which tends to negatively affect how he/she learns, in its extreme form, but enables one to be conscientious about his/her work in its mild form.
- ❑ **Concentration** - this refers to attention which the learner pays to his/her learning activities. If the student scores high on it, it means

he/she can handle distractions in the learning environment.

- **Time management** - it relates to time schedules and how the learner sticks to these. These schedules must be realistic and fit in everything within the learner's life and his/her physical preferences - for example - the best and worst times of the day for studying (Weinstein, et al 1988:6-10).

Cognitive strategies are:

- **Selecting main ideas** - the learner should choose the important information when learning. If this is not accomplished by the learner, learning becomes complex and may not be facilitated.
- **Information processing** - the learner must be able to organize information and elaborate on it for meaningful learning to occur.
- **Study aids** - these are learning materials used by learners as they learn. They may be designed by learners or teachers or by commercial means, but are regarded as more useful if self-constructed by learners.
- **Self-testing** - this entails reviewing one's level of understanding of learning materials. It also helps to consolidate new information learned.
- **Test strategies** - this involves the learner's knowledge of and about how to prepare for tests and examinations. Methods of studying help the learner to perform better if they match how the learner will be tested (Weinstein, et al 1988:6-10).

The cognitive strategies and motivational factors are both used to assess the students' learning as they affect how the learner would

learn.

The format for answering each question was given so that they could choose an answer using:

- A - Not characteristic of me at all;
- B - Not very characteristic of me;
- C - To some extent not characteristic of me;
- D - To some extent characteristic of me;
- E - Very characteristic of me.

3.3.2 Validity

Validity refers to the "extent to which an instrument measures what it is intended to measure" (Ary, Jacobs and Raravich, 1979:175). Baily (1982:68) cite Sellfiz et al (1976) who states it as "the extent to which differences in scores on it reflect true differences among individuals on the characteristic that we seek to measure, rather than constant or random errors".

There are different types of validity. The LASSI is found to show construct validity and is suitable to assess learning and study strategies (Van Aard, et al 1993:232). Construct validity is seen as accumulation or progression of information (Baily, 1982:72).

3.3.3 Reliability

Reliability is defined by Ary et al (1979:175) and Bailey (1982:73) as a degree of consistency with which a test measures what it measures and does not change when the concept measured is constant in its value. The LASSI has proven to be reliable for assessing learning and study strategies, constant in performance, independent of faculties and years of study. It is also a valuable measurement of learning styles of

students (Van Aard, et al 1993:227).

3.4 THE LASSI QUESTIONNAIRE

3.4.1 Characteristics

According to Ary et al (1979:173) and Bailey (1982:111) a questionnaire should meet up to certain characteristics, namely:

A questionnaire should be:

- ☐ Relevant to the purpose of the study;
- ☐ Adequate for measuring;
- ☐ Relevant to its respondents;
- ☐ Not be ambiguous in wording and phrasing;
- ☐ Not be double-barreled, which asks two questions in one;
- ☐ Without bias to the respondents;
- ☐ Without sensitive or threatening questions - if they are needed they should be explained and the anonymity of respondents promised (Bailey, 1982:111);
- ☐ Brief and to the point to avoid consuming the respondent's time;
- ☐ Easy to understand;
- ☐ With a logical ordering of questions and without unnecessary information.

According to the evaluation of the researcher The LASSI meets up to

the characteristics of a questionnaire as laid down by Ary et al (1979:173) and Bailey (1982:111).

3.4.2 Advantages of a questionnaire

The LASSI has the advantages of a questionnaire as Ary et al (1979:174) and Bailey (1982:125-126) put it:

- A large sample was used;
- It was easy to administer, score and analyze.

3.4.3 Disadvantages of a questionnaire

The LASSI questionnaire's disadvantages are identified as that:

- Respondents feared that the information would be used against the person:
- They feared to appear stupid.

The LASSI questionnaire seems to meet the requirements of a good questionnaire, as the researcher has analyzed its advantages and disadvantages based on those referred to by Ary et al (1979:174) and Baily (1982:126).

3.5 DATA ANALYSIS

In the analysis of the data the following concepts will be used: the mean standard deviation and the stanine. For the interpretation of data analysed, different tables will be used to show the results of the research.

- **Mean** - calculates the average performance of subjects on each

LASSI scale.

- **Standard deviation** - measures the variation of data from the central measurement of each LASSI scale.
- **Stanine** - is calculated and based on the values from 1-9.

Table 3.5.1

Means, standard deviations and stanines of the different scales of the LASSI, n = 326.

SCALES	MEAN	STANDARD DEVIATION	STANINE	STANDARD DEVIATION
Attitude	24.88	5.41	2.33	1.50
Motivation	31.26	4.59	5.21	1.87
Time management	26.87	6.08	5.56	2.00
Anxiety	21.83	5.59	3.12	1.63
Concentration	27.19	6.73	4.40	2.22
Information processing	31.72	4.89	6.02	1.90
Selecting main ideas	16.80	3.77	3.98	1.93
Study aids	27.96	5.59	5.27	2.03
Self testing	31.66	5.50	6.91	2.03
Test taking	24.86	6.40	3.03	1.98
Strategies				

The highest stanine score is 6.91 and the lowest is 2.33. The score of 6.91 corresponds with the self-testing scale and 2.33 with the attitude scale. The stanines that have to be noticed are 5.21 (motivation), 5.27 (study aids), 5.56 (time management) and 6.02 (information processing). The lower stanine scores are also important as they indicate how the learners performed.

The highest mean is 31.72 (Information processing) followed by 31.66 (Self-testing) and 31.26 (Motivation). The lowest mean is 16.80 on the Selecting Main Ideas scale.

Test marks of students from four colleges - a, b, c and d are arranged into twelve groups. This is done according to the three year levels - over a three year period - 1994, 1995 and 1996. The pass rate of these students is expressed in percentages.

Table 3.5.2

Pass rate of students in percentages

Levels	1994				1995				1996			
	a	b	c	d	a	b	c	d	a	b	c	d
1	57	64	15	43	32	57	17	55	46	70	55	69
2	70	52	41	53	59	21	43	48	27	45	66	79
3	48	19	46	15	43	22	28	23	19	28	49	33

What is noted from table 3.5 is the following:

- For all the years, for both levels one and two, for most groups, the majority passed;
- In the case of level three, for all the years, for all the groups, the majority failed.

3.6 SUMMARY

In this chapter methods and procedures of research were dealt with. The sample, the instrument and other aspects needed for research were discussed. The data was analysed and discussed. The next

chapter is concerned with the summary, conclusions and recommendations of the study.

CHAPTER 4

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

This chapter deals with the discussion of results analysed in the previous chapter. Conclusions will be drawn and recommendations made.

4.2 SUMMARY OF RESULTS

4.2.1 Literature study

Learners use different learning styles (compare 2.5). If study strategies do not match the style of learning, learning is not facilitated (compare 2.5.6).

The most important study strategies are:

- **Information processing** - which deals with organising work (compare 2.5.6);
- **Selecting main ideas** - where the learner chooses important information from learning materials (compare 2.5.7);
- **Study aids** - these are learning materials used by students (compare 2,5,8);
- **Self-testing** - which is self-evaluation to check one's understanding of information (compare 2.5.9);

- **Test strategies** - these involve methods used to prepare work for examinations or tests (compare 2.5.9).

For learning to be effective, the learner should also be motivated to learn. Motivation is necessary in learning because it directs the learner towards learning activities (compare 2.5.1);

Other factors, which determine learning styles, are:

- The environment - factors within the learner's environment are - light movement, noise, and temperature. Learners' needs differ on these (compare 2.5.14);
- Socialisation in one's family, local environment and culture determines how one will learn (compare 2.5.12).
- Culture determines one's past experiences including the language used. If the learning situation and the language of instruction differs from that of one's culture, learning is affected (compare 2.5.15).

What is important is that learners need to know that each style has its strong and weak points. For learning to be effective, a learner should train himself/herself to use other learning styles when the situation or context or course content requires it (compare 2.7.16). Every learner should therefore benefit from learning (compare 2.8).

4.2.2 Empirical study

The results of table 3.5.1 show that there are high stanine scores of 6.91 (self-testing), 5.21 (motivation), 5.27 (study aids), 5.56 (time-management) and 6.02 (information processing). This indicates that the learners in this research used these learning strategies which can

be identified with the characteristics of the "realist" learner's style (compare 2.7.6). These learner attitudes towards learning is low as shown by the stanine of 2.33. Learners need to have a positive attitude towards learning to develop interest, and to be motivated to learn, for academic success to occur (compare 2.5.3 : 2).

From table 3.5.2 it follows that in the levels one and two, the majority of students passed. The pass rates were not high, with a highest pass rate of 70% in college b and the lowest pass rate of 15% in college c for the first level. The second level shows a highest pass rate of 79% in college d and a lowest pass rate of 21% in college b. For level three there is a decrease in pass rate. The highest pass rate is 49% in college c and 15% in college d being the lowest. This indicates that the majority of students failed at third year level.

The strategies these students use may not lead to effective learning. At the end of the third year level, in the colleges of education there is more work to be done as the students are examined on work that has been taught over all the three levels. Those vast amounts of educational material need a learner who is high in selecting main ideas, more anxious and persistent and one who considers how he/she will be tested. These attitudes correspond to the scales "attitude", "anxiety", selecting main ideas" and "concentration" which all have rather low stanine scores.

Learning, therefore, needs a balanced use of all strategies necessary for learning, for it to lead to success. The students in colleges need this most to do well at third year level, especially as external examiners who do not know which learning styles they have used, examine their work.

4.3 CONCLUSIONS

The findings of the literature review show that students use learning styles which are unique. These styles of learning depend on how learners approach their learning activities and the study strategies they use. Some of the important factors which affect learning, are identified as a suitable environment and a positive attitude towards learning. An interaction between study strategies, a conducive learning environment and a positive attitude seems to facilitate learning.

In the empirical research it was found that the predominant learning styles that the students use are a combination of study aids, information processing, time management and selftesting. Results of the empirical study reveal that the college students use a "realist" learning style. This style is characterised by the use of empirical facts, expert opinions, use of concrete results and solution seeking. The strategies the students use do not appear to promote effective learning. This is shown by their high failure rate. One can, therefore, conclude that their academic achievement is affected by the styles of learning.

4.4 RECOMMENDATIONS

4.4.1 To educators

Educators need to be aware of how students learn, in terms of approaches and strategies they prefer. Educators must try to identify the differences in these approaches and strategies so that they are able to determine their strengths and their weaknesses.

It may not be easy for educators to identify most learning styles used by learners. Use of the LASSI questionnaire for high school and tertiary level students is recommended in that, it is short (77 items) easy to score and students can self-score it within a short time (20

minutes) (Van Aard, et al 1993:226). Once the results of the questionnaire are out, the educator should discuss the LASSI scales with learners and their importance in learning. Those who use learning styles that do not promote learning, should be taught how to use other styles so that all learners develop meaningful learning which leads to success.

Educators need also to assess their own learning styles so that they do not impose these upon their learners. They should also adapt their styles - the teaching and learning - towards versatility and encourage their learners to do the same, so that the learners will be able to use a style which suits the particular context of learning.

Educators also need to be aware of the role an environment plays in learning. It can promote active participation and motivate students to learn if properly designed, taking into consideration the differences in how learners prefer to learn.

4.4.2 To curriculum planners

When planning the curriculum, educators should be involved so that those subjects which have overlapping information are combined. Repetitive work leads to boredom in learners and it encourages the use of a reproducing learning style. The subjects planned, should develop interest on their own and motivate learners by providing content which is related to the life goals of learners and their needs (Van Aard et al 1993:226). This lends itself to the use of meaningful learning styles and active involvement of learners.

The curriculum planners, therefore, should be aware of the use of different styles by learners and how these depend on the courses within the curriculum, as they develop the curriculum.

4.4.3 To learners

Students should know their learning styles and the effect these have on their learning situation and their academic achievement. No learning style should be emphasised more than the others by the learner, as assessment and evaluation of learning material, by their very nature, examine all forms of learning, such as practical skills, knowledge and attitudinal skills. Learners, therefore, need to train themselves to use various styles of learning to meet the assessment demands as well as to make learning interesting to avoid dropping out of school or certain courses.

Learners should also learn to adapt to certain learning environments. Some students may, for example, prefer to study alone. But some courses may need team work and co-operation by students. The student should learn to cope even with methods he/she does not like and use them for success in education.

4.4.4 Recommendations for further research

The findings of this study show that further research is needed in some aspects of the learning style field to discover more about it, as it is crucial to education as a tool for academic success. The following can be studied:

- The effect of gender and age on learning styles;
- The learning styles of teachers or educators;
- The teaching styles of teachers.

4.5 CONCLUDING COMMENTS

This study has shown that learners differ in learning styles. This implies that all role players in education should try to decide how best

they can provide a life-long learning to the children of this country. Learning should, therefore, be considered in its proper perspective - what it should develop in learners, what skills are needed and how to achieve these in the learners. The concept of learning styles should be seen as an important method of skills development to address the children's educational needs.

In deciding about the "best" way to teach, educators should realise that as indicated, there are many factors that influence the learner. Those teachers who consider as many as possible of these factors, facilitate purposeful and successful learning.

ATTACHMENT

LEARNING QUESTIONNAIRE FOR STUDENTS OF COLLEGES OF EDUCATION

This questionnaire attempts to investigate how students learn and study as well as their attitude towards learning in the Colleges of Education in the Eastern Cape - Transkei Region. It is hoped that the results of this study will contribute to more efficient and effective management of learning by students as well as good guidance by their lecturers, and consequently, improve academic achievement in the Colleges of Education.

No college or individual student will be identified in any response. It would be helpful if you could answer all the questions. Your co-operation will be beneficial as the results of this study will be crucial even to other students who are responsible for their own learning and academic attainment.

The questionnaire is part of the requirements for the fulfillment of a Master's Degree in Educational Psychology.

Thank you very much for your assistance.

NN DUNJWA

RESEARCHER

THE LEARNING AND STUDY STRATEGIES INVENTORY QUESTIONNAIRE

TO ANSWER THE FOLLOWING QUESTIONS, PLEASE TICK THE
APPROPRIATE LETTER CORRESPONDING TO EACH QUESTION.

FOR INFORMATION PLEASE FOLLOW THIS FORMAT FOR ANSWERING:

- A - NOT CHARACTERISTIC OF ME AT ALL
- B - NOT VERY CHARACTERISTIC OF ME.
- C - TO SOME EXTENT NOT CHARACTERISTIC OF ME
- D - TO SOME EXTENT CHARACTERISTIC OF ME
- E - VERY CHARACTERISTIC OF ME.

- | | | | | | | |
|----|---|---|---|---|---|---|
| 1 | I am worried about failing at college. | A | B | C | D | E |
| 2 | I am able to distinguish between less important information during a lecture. | A | B | C | D | E |
| 3 | I find it difficult to work according to a study schedule. | A | B | C | D | E |
| 4 | After a class or lecture I go through my notes again in order to help me to understand work better. | A | B | C | D | E |
| 5 | It is important to complete University studies if you are able to find a job. | A | B | C | D | E |
| 6 | During a lecture I tend to think about other things instead of listening properly to what is said. | A | B | C | D | E |
| 7 | I make use of special study aids like headings and words printed in italics which appear in my text book. | A | B | C | D | E |
| 8 | I try to identify the main points of a lecture or class while listening to it. | A | B | C | D | E |
| 9 | I tend to become dejected when I do poorly in a test or examination. | A | B | C | D | E |
| 10 | I keep up to date with my class tasks and exercise. | A | B | C | D | E |
| 11 | Problems not related directly to studies, like financial | A | B | C | D | E |

problems, conflict with my parents and relationship problems
cause me to neglect my studies.

- | | | | | | | |
|----|--|---|---|---|---|---|
| 12 | I reflect about a specific topic and decide what I am supposed to learn rather than just to read it. | A | B | C | D | E |
| 13 | Even though work is boring and uninteresting, I am able to persevere until I have completed it. | A | B | C | D | E |
| 14 | I am confused and undecided about what my aims should be with my studies. | A | B | C | D | E |
| 15 | I learn new words and ideas by imagining a situation in which it could occur. | A | B | C | D | E |
| 16 | I go to classes unprepared. | A | B | C | D | E |
| 17 | When preparing for examinations, I compile questions which I think could be asked. | A | B | C | D | E |
| 18 | I prefer not to be at college. | A | B | C | D | E |
| 19 | Notes that I make while studying make it easier to revise later. | A | B | C | D | E |
| 20 | I do poorly in tests because I find it difficult to plan my work properly. | A | B | C | D | E |
| 21 | During my daily revision of my class work, I try to identify potential test questions. | A | B | C | D | E |
| 22 | I only study when I prepare for a test or examination. | A | B | C | D | E |
| 23 | I express work, which I have to study in my own words. | A | B | C | D | E |
| 24 | In order to make certain my notes are complete, I compare notes with other students. | A | B | C | D | E |
| 25 | I am very tense when I study. | A | B | C | D | E |
| 26 | I revise my notes before the next class. | A | B | C | D | E |
| 27 | I am unable to summarize what I have heard in a lecture or read in text books. | A | B | C | D | E |

- 28 Even though I dislike a subject, I still would work hard to obtain high marks. A B C D E
- 29 It often feels as if I have lost control over what happens to me at school or college. A B C D E
- 30 While reading I pause periodically to review what I have read in my mind. A B C D E
- 31 Despite a definite awareness that I am well prepared for a test, I feel anxious. A B C D E
- 32 While studying a specific topic I try to arrange facts logically. A B C D E
- 33 Failing to complete a task given in class, I convince myself that I have an excuse for not doing it. A B C D E
- 34 When I study I find it difficult to determine how I have to approach the learning task. A B C D E
- 35 At the beginning of the examination I feel confident that I will do well. A B C D E
- 36 When I have to study I experience a tendency to postpone the task. A B C D E
- 37 I test myself to see whether I understand what the teacher or lecturer said. A B C D E
- 38 I do not want to learn a lot of unnecessary material, which will not help me to secure a good job. A B C D E
- 39 I find it difficult to concentrate because I am restless and moody. A B C D E
- 40 I always try to relate what I am busy learning and what I already know. A B C D E
- 41 My own demands regarding school and college achievement are very high. A B C D E
- 42 In almost every test I have to resort to cramming. A B C D E
- 43 I find it difficult to concentrate during a lecture. A B C D E

- 44 While reading, I pay particular attention to the first and last sentences of each paragraph. A B C D E
- 45 Actually, I only study for subjects, which I like. A B C D E
- 46 My attention is easily drawn away from my studies. A B C D E
- 47 I try to relate that which I learn to my own experience. A B C D E
- 48 I make effective use of free periods between classes to study. A B C D E
- 49 When I have to study difficult work, I either learn the simple parts or leave it altogether. A B C D E
- 50 I make use of diagrams or sketches to help me to understand what I learn. A B C D E
- 51 I dislike most of the work which is done in the lectures. A B C D E
- 52 I experience difficulty in understanding what answer a test question expects from me. A B C D E
- 53 I make simple maps, charts, diagrams or tables, summarizing the contents of my subjects. A B C D E
- 54 Concern about poor results influence my ability to concentrate while I write a test. A B C D E
- 55 I struggle to understand certain work, because I do not listen properly and with full attention. A B C D E
- 56 I do the reading tasks which are given in the class. A B C D E
- 57 I feel very panicky when I have to write an important test. A B C D E
- 58 When I decide to study, I reserve a certain number of hours and stick to it. A B C D E
- 59 During tests I often realise that I have learned incorrect material. A B C D E
- 60 I find it extremely difficult to determine which sections of textbooks material are important to know. A B C D E

- 61 I concentrate fully when I study. A B C D E
- 62 I make use of chapter headings to help me to identify important points. A B C D E
- 63 While engaged in writing examinations I become so nervous and confused that I am unable to answer the questions to the best of my ability. A B C D E
- 64 I tend to memorize formulae, technical terms, grammatical rules, etc. without clearly understanding what it means. A B C D E
- 65 I usually test myself to determine whether I know the material which I have learned. A B C D E
- 66 I postpone my studies more often than I should. A B C D E
- 67 I try to determine how material which I am busy learning could be applied to my everyday life. A B C D E
- 68 My thoughts easily wander while I study. A B C D E
- 69 I am of opinion that material which is presented in my courses, is not worth learning. A B C D E
- 70 I also consider my homework assignments when I revise. A B C D E
- 71 I find it difficult to adapt my study methods to different subjects. A B C D E
- 72 When studying I get the feeling of being trapped in detail and do not see the greater whole. A B C D E
- 73 When the opportunity arises I attend extra classes in which revision is done. A B C D E
- 74 I tend to spend so much time with my friends that my studies are neglected. A B C D E
- 75 When I write tests, examinations, essays, etc., it often happens that I misunderstand questions and consequently lose marks. A B C D E
- 76 I try to discover the relationship between different topics when A B C D E

I study.

- 77 I find it difficult to identify important points in material which I A B C D E
am reading.

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