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**The Negative Impact of Learning in English
on the Cognitive Development of Second Language Learners of English**

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**THE NEGATIVE IMPACT OF LEARNING IN ENGLISH ON THE
COGNITIVE DEVELOPMENT OF SECOND LANGUAGE
LEARNERS OF ENGLISH**

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DEDICATION

This work is dedicated to the following people:

My husband, Sandile, for believing in me and his never-ending support, patience and understanding throughout the challenging exercise, it was worth it.

My precious gifts, my children Thandolwethu, Lwandile and Mvuzomuhle. Thank you for your patience and sacrifice. I love you more than you can imagine.

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ABSTRACT

This study focuses on the negative impact of English on the cognitive development of second language learners of English. The study was conducted in Empangeni District (Ngwelezane Ward) in KwaZulu-Natal. The negative impact of English on the cognitive development of second language learners of English was identified as the main cause of the high failure rate, especially at matric level. Second language learners of English in rural and some township schools end up unemployed and not in tertiary institutions as most teachers are not adequately trained to detect, explain, diagnose and try to remedy the problems these learners encounter when they are taught in English.

This study highlights the negative impact of learning in English on the cognitive development of second language learners of English that result on the high failure rate in rural and some township schools. Challenges facing the different stakeholders that are affected by this problem are outlined. Suggestions towards alleviating the negative impact of English on the cognitive development of second language learners of English are also provided.

CHAPTER ONE

1.1 Introduction and Background to the Study

The majority of South African learners study a wide variety of school subjects using a language that is not their mother tongue. However, they need to understand what needs to be learnt in all these subjects since they experience difficulties when they switch from mother tongue instruction to English. Language and thinking are key aspects that are associated with gaining insight to problems. Cognitive development, which is the ability to think and reason, is crucial when addressing the issue of English second language speakers and the challenge they face of being instructed in a language which is not their mother tongue. The way that children learn and mentally grow plays a central role in their learning processes and abilities.

In presenting this argument, mention was made followed by a discussion of the relationship between language and cognitive development. The negative impact of learning in English on the cognitive development of English second language learners and the rationale for these problems was given, that is, why cognitive development becomes more difficult for these learners. This was followed by a discussion on the elimination of itemised problems. Practical examples of facilitation situations and textbook extracts are used to explain the way in which language makes cognitive development either possible or impossible. The study highlights the problems that cause high failure rate in rural and township schools due to under-developed cognition.

The last section of the study presents the challenges facing education planners such as subject advisers in implementing changes in the syllabi that would result in the elimination of the language problems on the cognitive development of English second language learners. Furthermore, implications of English as a language of learning and teaching (LoLT) in South African schools are presented. It was also considered whether there are any prospects of using an African language as a language of learning. After outlining the problems faced by second language speakers of English when learning in a language that is not their mother tongue, a suggestion for the need to address the problems that arise and the shift from the English for social contact, to English for specific school subjects was provided.

1.2. Statement of the Problem

This study aimed to probe the difficulties encountered by English second language speakers when learning their school subjects in English and how that affects their thinking ability. In particular, the study focused more on the slow mental activity of English second language speakers to acquire knowledge when learning takes place through English because of the mental translations that have to be undertaken. Some English second language speakers could be at a disadvantage owing to that. The absorption of what is learnt might be different from first language speakers who have conceptual understanding of the instruction language. This could lead to high failure rate at matric level, which also results in unemployment. The negative impact of learning in English on the cognitive development of English second language learners limits their English proficiency, which is the leafage of higher education.

1.3. Motivation for the study

It has been noted by Ash (2007) that there is a strong correlation between matriculation pass rate and the use of mother tongue as a language of teaching and learning. By and large, most learners who write in their mother tongue pass and most of those who write in their second language (English) fail. The way children learn and mentally grow plays a central role in their learning processes and abilities. One cannot ignore the views of Ash (2007) that not all students fit into what traditional high schools offer. The underachievers, 'free spirits' or individualist students often suffer academically within the four brick walls called classrooms. These students struggle and there is very little help for them.

Over the past few years, there has been a decrease in the matric pass rate in all subjects with English in the lead (Mesthrie, 1995). Poor performance has been recorded and the more rural provinces such as KwaZulu-Natal, Limpopo, Mpumalanga and Eastern Cape are taking the lead. Far overshadowing the matric results over the past few years is the generally disconcerting observation that the education system in the country is in serious trouble (Mesthrie, 1995). Various reliable surveys and tests conducted by international organisations and comparing the literacy levels of children worldwide reveal a serious backlog among South African children.

Recently, issues surrounding the rural schools leading in the high failure rate at matric level, resulting in the rural learners finding themselves unemployed and not in tertiary institutions, are frequently debated in South African education circles. However, these debates are often fruitless because there does not seem to be a shared understanding of what causes these problems. In this study, a case about the existing need was looked at in particular. This focused on the negative impact of learning in English on the cognitive development of English second language learners in Empangeni District, Kwa-Zulu Natal. This problem has been considered by the researcher in terms of feasibility, uniqueness, scope and topicality of the failure rate.

The educational authorities are aware of this problem and do realise that it will, of course, affect the speed and nature of the growth of the national economy. There have been many highly publicised attempts by government to improve the quality of the products of the South African national education system, but the real picture cannot be said to be encouraging. The ritual of condemning teachers and schools for the poor matric results occurs yearly, but there seems to be no solution. In 2006, it was announced that English first additional language, as usual, highly contributed to the matric failure rate. Unquestioningly, the large problems including the negative impact of learning in English on the cognitive development of second language learners of English need to be identified.

Fosnot (1996) outlines the constructivism approach to teaching and learning which needs to be considered in this regard. This approach is based on the premise that cognition is the result of mental construction. This means that students learn by fitting new information together with what they already know. Ghatala and Hamilton (1994) share the same belief that learning is affected by the context in which an idea is taught as well as by students' beliefs and attitudes. The Russian scholar, who is an enormously significant contributor to the cognitive development component, Vygotsky (1962) views language as an essential factor in thinking and an important mediator (sign). Children below the age of two, use language merely to communicate with others. However, after that time, speech is used to solve problems. Vygotsky (1997) describes the following types of speech:

Social Speech (below two years)

This kind of speech is used for communication and has no relation to cognition. This is because social aspects of speech are separate from intellectual aspects.

-Egocentric Speech (two to seven years)

Children use speech to form thoughts and regulate intellectual function. They talk to themselves, as they cannot internalise and use language to guide behaviour.

-Inner Speech (seven years onwards)

At this stage, language is still used to regulate thoughts but the child can also use it internally.

In Vygotsky's theory (1997), development is limited by the size of the Zone of Proximal Development, which is Vygotsky's term for the range of tasks that are too difficult for the child to master alone, but that can be learned with the guidance and assistance of adults or more skilled children. It can prove to be difficult for children to master such tasks if learning takes place in a language that is not their mother tongue. The Zone of Proximal Development captures the child's cognitive skills that are in the process of maturing. Since language plays a central role in cognitive development, it can, therefore, be viewed as a tool for determining the ways in which a child learns how to think. Complex concepts are conveyed to the child through words. As indicated by Vygotsky's theory (1997), learning always involves some type of external experience being transformed into internal processes through the use of language. Therefore, it is difficult for a child to transform cultural experiences into internal processes using a second language whose culture the child is not familiar with.

Tudge (1990) defines the Zone of Proximal Development as the difference between the actual development level (what the child is capable of now) and the potential development level. This is the difference between what the child can do now and what the child can do with adult guidance or the guidance of more capable peers. It is true that development occurs through social interaction with those who are more capable. Raggoff (1990) states that learning can be improved when more skilled peers provide guidance.

Another crucial factor in learning is culture. Vygotsky (1997) suggests that mediators are culturally specific. A good example is that of formal logic and mathematics which are typical of Western culture. Cultural differences were also spotted in solving techniques among literate and illiterate Uzbeks. The Literate individuals approached problems as logical puzzles, whereas, the illiterate ones concrete examples based on past experiences.

Piaget (1976) argues that small children start their mental activity or start to think before they have acquired a language. Piaget (1998) further argues that language helps to speed up and make learning processes more efficient.

The views of the famous theoretical linguist, Chomsky (1957) on mother- tongue acquisition and his Language Acquisition Device (LAD), only made mention of the innate ability to acquire mother-tongue. Human beings are equipped, unlike animals, to acquire a rule-based language system simply by being exposed to the language spoken around infants. This kind of a language need not always be “correct” or “standard” or even intended for the infant. He called this kind of language the Primary Linguistic Data and the ability to acquire it via a high level of motivation as the Language Acquisition Device (LAD). He clearly states that this specifically applies to acquisition of the mother tongue. There is no mention of the LAD for a second, third or any language acquired after mother- tongue, and if there was, it is doubtful that its automaticity would be as the LAD meant for mother- tongue acquisition.

The LAD makes thinking as well as communication of ideas and views in mother tongue easier. Since the LAD is associated with mother tongue, it can, therefore, operate only where there is mother tongue thinking and communication, be it verbal or written. The relationship between language and cognition is evident in Chomsky’s views. The term cognition describes a mental activity of acquiring knowledge. The process of acquiring knowledge implies to thinking. Thinking is a crucial part in the learning and teaching process. It has been indicated that learning or acquiring a second or foreign language does not operate in exactly the same way as acquiring mother tongue. This means that thinking in one language and communicating in a different one is likely to create barriers. It is even worse in instances where English second language learners listen and hear the language of instruction, which is English, then interpretations and thinking have to be in mother tongue and communicating both oral and written responses takes place in English. Barriers can lead to communication breakdown and a failure to interpret adequately and produce right responses. These learners will eventually fail to acquire knowledge in the same way as their counterparts, whose mother tongue is the same language used as a medium of instruction, in this case, English. Therefore, learning in English impacts negatively on the cognitive development of English second language learners.

All learners are equally capable of challenging achievements irrespective of their language status. It is, therefore, imperative that the language hindrances that deprive English second language speakers equal chances to excel in challenging fields or careers must be identified and strategies to solve them must be devised. In his theory, Piaget (1957) states that what limits, what children can learn next is their level of cognitive development and biological maturity. A biologically mature learner can acquire knowledge and reason, but this is not the case with all second language speakers. The conclusion could, therefore, be that learning in a second language as it happens for many in South Africa, might be negatively affecting the mental activity of acquiring knowledge.

The important part of this study was to clarify the role played by language in reasoning, whether language affects the reasoning pace or not, and how the two are related. An example is that of a learner who has to solve a Mathematical Literacy problem that is presented in the form of language and not numbers. Language plays an important role here because the learner must understand the given scenario or case study before formulating the equation to be solved. A learner who fails to understand the instruction language will formulate an incorrect equation, thus resulting in the wrong answer. In this case, the instruction language can be viewed as a barrier to reasoning.

The mental activity of English second language speakers to acquire knowledge through learning in English is not as strong as that of their counterparts (English first language speakers). Second language speakers of English might not perform exceptionally well at some stage in their studies and chosen careers due to the language barrier. The problem of language as a barrier to learning has not been dealt with directly although some attempts have been made.

1.4. Research Aim and Objectives

1.4.1. Aim of the research

The general aim of this study was to provide information to language planners and teachers about the negative effects of learning in a second language like English by African learners.

1.4.2. Objectives of the Research

In order to attain the above general aim, the following objectives guided the study:

- i. to investigate the role of language as an essential factor in thinking, i.e. the relationship between language and cognitive development.
- ii. to investigate the role played by learning in English in the cognitive development of English second language learners.
- iii. to provide guidelines and suggestions that could be used by authorities (education planners) that might effectively develop the cognition of English second language learners even when learning takes place in English.

1.5. Hypothesis

Learning in English might result in the reasoning of English second language speakers to appear weaker due to translations, which could lead to misunderstanding.

1.6. Research Methodology

1.6.1. Data Collection

Information was obtained by means of well-thought-out procedures that include a literature search, structured questionnaires and interviews.

1.6.1.1. Literature Search

A literature search was conducted from relevant literature on the study. This was done in order to clarify the relationship between language and cognitive development and the role of language as an essential factor in thinking. Information gained from relevant literature was used to formulate questions relating to that relationship.

1.6.1.2. Structured Questionnaires

Structured questionnaires were administered to twenty educators and ten principals from ten rural schools and five urban schools in Empangeni District in KwaZulu-Natal. Views regarding the effects of learning in English on the thinking ability of English second

language learners were obtained. Two questionnaires, the principals' questionnaire and the teachers' questionnaires, were used in the present research as a technique for collecting data. The two questionnaires were unique. The teachers' questionnaires were subject-specific and the principals' questionnaires focused mainly on the overall performance of learners.

1.6.1.3. Interviews

Ten educators as well as five school principals (those who were not given questionnaires) in both rural and urban schools were interviewed to obtain their perceptions about the effects of learning in English on the thinking ability of English second language learners. It was then ensured that the measuring instruments were valid and reliable.

1.7. The Significance of the Research

This research would be useful to educational planners and teachers when mother tongues are included in the teaching and learning of content subjects that are currently learned in English. Understanding the progression of the thinking ability might assist teachers to better cater for the unique needs of learners.

1.8. Ethical aspects of the Research

The ethical code was followed in this research. Participants' freedom was respected. The nature of the study was clearly explained to the participants and participants were permitted to withdraw from the study if they so felt. Matters of confidentiality were explained to all the participants and their names or positions were not identified in the study.

1.9. Limitations of the Study

The sample was limited in size because of the limited time frame of the project. There is a possibility, however, that the effects of learning in English on the thinking ability of second language speakers would be similar to all affected learners.

1.10. Definition of concepts used in chapter 1

Multilingualism is the act of using, or promoting the use of, multiple languages, either by an individual speaker or by a community of speakers.

Interlanguage describes the linguistic stage second language learners go through during the process of mastering the target language.

Acquisition is the process by which humans acquire the capacity to perceive, produce and use words to understand and communicate.

Learning is acquiring new or modifying existing knowledge, behaviours, skills, values, or preferences and may involve synthesising different types of information.

Critical period is a limited time in which an event can occur, usually to result in some kind of transformation.

English as a First Language is the ability to speak and understand English until one receives a native-like competence or the ability to use English as home language.

English as a Second Language refers to learning English after a person has acquired a mother tongue.

Cognition is the scientific term for "the process of thought". In this study the term is used to refer to the level at which learners process information available in English.

Metacognition is defined as "cognition about cognition", or "knowing about knowing". It can take many forms and includes knowledge about when and how to use particular strategies for learning or for problem solving.

Diversity encompasses acceptance and respect. It means understanding that each individual is unique. In other words, recognising and appreciating individual differences.

(LoLT) refers to the language of learning and teaching.

1.11. Outline of the thesis

Chapter one discusses the conceptual framework of conceptual and cognitive development among learners. Chapter two of the study presents literature review on the role of language as an essential factor in thinking. Chapter three presents the research methodology, explaining how data was collected. Chapter four deals with data presentation and analysis. Data are interpreted in chapter five. Chapter six concludes the study and recommendations are given.

1.12. SUMMARY

This chapter has presented the relationship between language and cognition and highlighted how learning and teaching in English negatively impacts on the cognitive development of English second language learners. This is indicated in the introduction and background to the study, statement of the problem, research aim and objectives, hypotheses, research methodology as well as motivation for the study. The next chapter, will present literature review.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

As stated in the South African Education Policy Act (Act 27 of 1996), language has always been a contentious issue in education in South Africa. From the drive for mother-tongue education to the ever pressing need to be able to use international languages such as English. There is a need to look at the current national policies regarding language in education and the current language situation in South Africa in order to understand the language issue better. The National Education Policy Act (Act 27 of 1996) empowers the Minister of Education to determine a national policy for language in education. The government's commitment for multilingualism and the promotion of language rights in all spheres of public life indicate that it is aware of the problems associated with learning in English. These problems include the negative impact of English on the cognitive development of English second language learners. Besides these attempts by the government, the education sector and the total linguistic situation in society do not totally reflect the multilingual nature of South Africa.

Language is used as an instruction and explanation tool for teaching and learning to take place. Language is also used to communicate ideas and for social interaction. Human beings also use language to think. Language can, therefore, be viewed as a vital thinking tool. However, problems emanate when a person has to think in one language and communicate ideas in another language. This is the case with most South African learners. Rural and township learners speak a variety of languages in South Africa, that is, isiZulu, isiXhosa, isiNdebele, seSotho, seTswana, seSotho sa Leboa, Afrikaans, siSwati, tshiVenda and xiTsonga. A new reality emerges when these learners become part of the formal school environment. They are instructed in a language they are not used to, a language they are not in contact with where they live. They only hear this language inside the four walls of the classroom. In South Africa, this language is English. If these learners are fortunate, they might hear the language of instruction (English) spoken in the staffroom or in the corridor, which of course is very rare. This then impacts negatively on the cognitive development of English second language learners.

The effects of English on the cognitive development of its second language learners are constantly and indirectly debated by the public. Hardly a day passes without media

reports about disastrous matriculation results with the most rural provinces such as KwaZulu-Natal and the Eastern Cape in the lead. The roots of the high failure rate in these provinces lie in the negative effects of English on the cognitive development of English second language learners. As a result, many rural Black learners end up unemployed. Many of those who pass and obtain poor results in English and other subjects do not graduate in tertiary institutions, the few fortunate ones struggle and eventually graduate. The effect is that these learners will never be lifelong learners, as they fear the difficulties they encountered at tertiary institutions. They will then be in possession of junior degrees for the rest of their lives. In other words, education has not empowered them to the maximum.

The use of English as a language of instruction is considered an important aspect in learning. One of the aims of the English Language (EL) syllabus, as explained by the Minister of Education, is to enable pupils to speak, write and make presentations in internationally acceptable English that is grammatical, fluent and appropriate for purpose, audience, context and culture. This does not only apply to English as a language, but to all subjects offered in English. Teachers' knowledge of English and how it functions is acknowledged to contribute to effective language use. The effective language use would eliminate barriers that might emanate as a result of learning in English. On the contrary, not all teachers have knowledge of English and how it functions, therefore, this view cannot solve the problem.

2.2 Literature Presentation

The complex web of the negative impact of learning in English on the cognitive development of second language learners, which underlie the difficulties they later face in life, was unravelled in this study. English is a world language. In South Africa, it is used in schools as a language of learning and teaching (LoLT) or medium of instruction. Granville et al (1998) maintain that English must be accessible to ensure that it is no longer an elitist language. They further argue that while all South African learners must learn at least one African language, they should also have access to English. In this way, English could come to be seen as a resource, not as a problem (Granville et al., 1998). It should be noted, however, that not all learners have access to English. Therefore, the biggest challenge now is that even the learners who do not have access to English are learning all subjects (with the exception of isiZulu, as mother tongue, in this case) in English. English, as a medium of instruction, is now used as an opportunity for learners

to gain access not only to knowledge, but to the command of English as well. This is done at the expense of the cognitive development of learners who are second language speakers of English. In this case, English can be seen as a problem rather than a resource, as stated by Granville et al. (1998), since it affects the cognitive development of second language learners because of the translations that have to be undertaken.

2.2.1 The term cognition

Webster's New World Medical Dictionary defines cognition as an act or process of knowing or perceiving. Cognition is more precisely the process of being aware, knowing, thinking, learning and judging. The concept cognition can be described as a mental activity as it is the process of acquiring knowledge, which applies to thinking. The awareness of the process of cognition is referred to as metacognition.

Metacognition needs to be considered in teaching and learning. Metacognition is defined by Anderson (2002, 2005) as simply thinking about thinking. It is the ability to reflect on what is known, and does not simply involve thinking back on an event. It is the ability to describe what happened and feelings associated with it. Metacognition results in critical, but healthy reflection and evaluation of thinking that may result in making specific changes in how learning is managed, and in strategies chosen for this purpose. Strong metacognitive skills empower learners when reflecting upon their learning as they become better prepared to make conscious decisions about what they can do to improve their learning.

O'Malley and Chamot (1990) emphasise the importance of metacognition when they state that students without metacognitive approaches are essentially learners without direction or opportunity to plan their learning, monitor their progress or review their accomplishments and future learning directions. Again, it is evident that cognitive development plays a crucial role in learning.

O'Malley and Chamot (1990) further note that metacognition in language learning can be divided into five primary and intersecting components which are:

1. preparing and planning for learning
2. selecting and using strategies
3. monitoring learning
4. orchestrating strategies
5. evaluating learning.

The above components are important even when learning takes place in a learner's first language. Surprisingly, when teaching content subjects that are taught in English, the medium of instruction, a language that is a second language for many rural and township school learners in South Africa, the above is not catered for. Surely, the medium of instruction, in this case, English, is likely to impact negatively on the cognitive development of its second language learners.

This negative impact has given rise to a variety of structural patterns and even own communicative styles of English second language learners. Rommaine (1992: 254) comments that, "this is the price English has to pay on the linguistic market for being a world language." Some writers refer to this phenomenon as, "the empire strikes back phenomena."

The second language speakers of English use an African form of English, which is reflected in the English language, hence a variety of South African Black English (SABE). No one is to blame for that, as Widdowson (1994:385) states that: "English is an international language, no nation can have sole custody over it. All languages are culture bound, so accepting another language like English as a medium of instruction amounts to breaking its first cultural ties (with Britain) and assimilating it into another culture." Soukhanov (1994) contends that language is a lens turned towards the culture of those who speak it.

It is, therefore, not surprising for English second language learners to display forms, which on the surface look like English, but underlying, they have intrinsic meanings of their own which reflect the import of the African culture and values to their different content subjects when instructed in English. If English second language learners have to retain their vitality and their capabilities, there have to be continual adjustments regarding the medium of instruction, in this case, English. The problems manifest mainly in a transfer and borrowing of features from the first languages into English. Thinking here would be taking place in the learner's first language, but communicating ideas would be in English, so translations occur which might result in misunderstanding. Learning a content subject in a second language requires mastery of that second language. This means being proficient in English. Failure to master English might negatively affect their cognitive development. The linguistic stages that second language speakers go through cannot be ignored when analysing the negative impact of English on

the cognitive development of English second language speaker. Interlanguage theories, which will be discussed below, are part of the second language theories.

2.2.2 Interlanguage Theories

It must be noted that understanding second language acquisition theories is crucial to having a clear picture of what second language learners go through when they are instructed in English. Second language theories include interlanguage theories. The term interlanguage was coined and first used by Selinker (1969) to describe the linguistic stage second language learners go through during the process of mastering the target language. Since then, “interlanguage” has become a major strand of second language acquisition research and theory. There are three main approaches to the description of interlanguage systems. Krashen (2003) argues that second language acquisition theorists view grammar learning as best accomplished when learners are primarily focused on meaning rather than form. Even when providing responses in the different subjects, grammar is paramount to conveying meaning.

According to Selinker (1972), interlanguage is a temporary grammar that is systematic and composed of rules. Selinker’s first assumption is that interlanguage consists of the overgeneralisation rule, which states that some of the rules of the interlanguage system may be the result of the overgeneralisation of specific rules and features of the target language. The second assumption which Selinker (1972) holds is that of Transfer of Training, which asserts that some of the components of the interlanguage system may result from transfer of specific elements through which the learner is taught the second language. The third assumption is that of the Strategies of Second Language Learning. This assumption holds that some of the rules in the learner's interlanguage may result from the application of language learning strategies, “as a tendency on the part of the learners to reduce the target language (TL) to a simpler system” (Selinker, 1972:219). The fourth assumption is that of Strategies of Second Language Communication, which asserts that interlanguage system rules may also be the result of strategies employed by the learners in their attempt to communicate with native speakers of the target language. The fifth is the idea of Language Transfer. This assumption asserts that some of the rules in the interlanguage system may be the result of transfer from the learner’s first language.

Selinker's description of the interlanguage system has a cognitive emphasis and a focus on the strategies that learners employ when learning a second language. Original

meaning might be lost due to overgeneralisation, transfer of training, transfer from the learners' first language. As learners reduce the target language to a simpler system, the cognitive development of English second language speakers might be negatively affected.

A different approach to the theory of interlanguage was adopted by Adjemian (1976) in his attempt to describe the nature of the interlanguage systems. Adjemian argues that interlanguages are natural languages, but they are unique in that their grammar is permeable. He also differentiates between the learning strategies that learners employ and the linguistic rules that are 'crucially concerned in the actual form of the language system' (Adjemian, 1976:302). Adjemian concludes that the description of these linguistic rules that would reveal the properties of the learners' grammar should be the primary goal of linguistic research.

The interlanguage theory was also greatly emphasised by Tarone (1979) who believes that interlanguage is a continuum of speech styles. Learners shift between styles according to the amount of attention they pay to language form-from the superordinate style, in which attention is mainly focused on language form to the vernacular style in which the least attention is paid to language form. The new target language forms first appear in the more careful style and progressively move towards the vernacular style. The systematic variability of interlanguage systems is reflected to the variable effect which the different tasks and different linguistic contexts have on the learners' use of language structures (Tarone, 1982). Even though Tarone does not deny that other theories can provide explanations of second language acquisition, she argues that 'any adequate model of second language acquisition (SLA) must take interlanguage (IL) variation into account' (Tarone, 1990:398).

2.2.3 The relationship between language and cognition

The most well-known and influential theory of cognitive development is that of a French psychologist Piaget (1896-1980). Piaget (1957) demonstrates that small children start their mental activity, which is to start thinking, before they have acquired language. He later pointed out that language helps to speed up and make the learning processes more efficient. This simply means that in the early years of development, especially, language need not be a vital or essential element in cognitive development although later on it is. At the centre of Piaget's theory (1957) is the principle that cognitive development occurs in a series of four distinct universal stages, each characterised by increasingly

sophisticated and abstract levels of thought. These stages always occur in the same order and each builds on what was learned in the previous stage. These four stages are categorised as follows: sensorimotor, pre-operational, concrete operational and formal operational.

2.2.3.1 Sensorimotor stage (infancy)

In this stage, intelligence is demonstrated through motor activity without the use of symbols. Knowledge of the world is limited in this stage.

2.2.3.2 Pre-operational stage (toddler hood and early childhood)

Intelligence is demonstrated through the use of symbols, language and memory, and imaginations are developed but thinking takes place in a non-logical, non-reversible manner. Egocentric thinking predominates.

2.2.3.3 Concrete operational stage (elementary and early adolescence)

In this stage intelligence is demonstrated through logical and systematic manipulation of symbols related to concrete objects. Operational thinking develops in this stage, meaning mental actions are reversible. Egocentric thought diminishes.

2.2.3.4 Formal operational stage (adolescence and adulthood)

Intelligence is demonstrated through the logical use of symbols related to abstract concepts. Wadworth (2003) highlights that most learners do not obtain formal operations, as many people do not think formally during adulthood. Learners aged twelve to eighteen should be at the 'formal operations' stage of Piaget's cognitive development theory. This stage is characterised by an increased independence for thinking through problems and situations. Learners are therefore expected to think in ways that are more advanced, more efficient and generally more complex.

The Russian scholar, Vygotsky (1962) supported a view, which gave greater importance to language as an essential factor in thinking. Vygotsky (1962) further points out that parents in the early years of cognitive development act as mediators. They help children to understand what they observe and hear around them. Mothers, for example, use very simple language, sometimes called motherese, when they talk to babies. This process looks almost as if mothers have a built-in ability to gauge the level of cognitive and linguistic development of the child. This is the level that Vygotsky referred to as the

zone of proximal development. The mother then mediates to help the child reach the next level and, in this way, helps the child to understand the world around him.

Mothers are not the only ones that act as mediators. Two researchers in Natal, Craig (1985) and Kok (1986) noted the well-known cultural circumstances that in the case of Zulu children, often it is the grandmother who plays an important role of acting as the mediator to the child. The fact that remains here is that cognitive development takes place via language, and this language is the mother tongue, which the child has acquired so naturally and easily.

2.2.4 The use of language in multilingual classrooms

Classroom interaction is the most important element in the second and foreign language acquisition situation and for learning to take place. Ormorod (1995) defines learning as a process that brings together cognitive, emotional and environmental influences and experiences for acquiring, enhancing or making changes in one's knowledge, values and world views. The approach to second or foreign language acquisition requires that learners are involved in communicative situations by making provision for interaction in the target language in the classroom and by relating classroom activities to authentic communicative situations as far as possible. This does not mean that a cognitive approach should be thrown out of the window, as learners need to develop cognitive insight into what is learnt in the classroom.

At some stage in the English second language learners' life, teachers take over a part of the role of parents and grandparents, and act as mediators. At first, this takes the form of one class teacher in the early grades and several subject teachers as the learning environment changes after some years. The child starts to be affected as the scene changes. The child is no longer in a relaxed environment but in a more formal and even western oriented learning environment. This may have quite a negative impact on the way new knowledge is acquired. As if that is not enough, the biggest change emerges when the child switches to English as the language of learning. This further complicates the learning environment of being taught by several teachers, instead of one class teacher who could almost be viewed by the child as replacing the mother figure as mediator. It is interesting to note that English and Afrikaans speaking children do not experience this difficulty in the same way as English second language learners, because they use their mother tongue as their language of learning for the rest of their lives. The implications of learning in English for a learner whose mother tongue is neither English nor Afrikaans

are devastating when this child is expected to switch to English as a language of learning. The difficulties these learners come across will negatively affect their cognitive development considering the relationship between language and cognition since the learners are not ready for the switch.

Learners are taught the kind of English that is used for social purposes. This is Basic Interpersonal Communicative Skill (BICS), which is not the kind of language that is used for the different school subjects. Mathematics uses terms such as diagonal, inscribe circle, etc in geometry. Geography deals with pressure belts, climatic conditions and rainfall patterns. History is about revolution, declaration of wars and so on. This English is called English for Specific Purposes (ESP). This is English for Mathematics, English for Geography, etc. The vocabulary items for the different content subjects are part of a broader and more extensive set of linguistic abilities needed by learners for thinking and learning their school subjects. The description of this combination is called the Cognitive Academic Language Proficiency (CALP). Learners need to know that a physical science textbook uses passive instead of personal pronouns. Without this knowledge, teachers will not sufficiently mediate the required knowledge for the different content subjects, and learners' cognitive development will be severely hampered. The situation could be worsened by the fact that the English second language teacher might not use English in the same way as the English first language-speaking teacher would. English second language learners fail to understand because their vocabulary is limited compared to that of English first language learners. As a result of that their cognitive development will be severely impaired. Most teachers are aware that learners often do not understand what is explained in English, forcing them to resort to code switching. This simply means that teachers revert to mother tongue when complex concepts have to be explained. It must be noted however, that when learners are assessed question papers do not cater for code switching.

2.2.5 Code-switching

Code-switching is the practice of moving back and forth between two languages or between two dialects or registers of the same language. Code-switching occurs when an individual alternates between two or more languages. In South Africa, it is now widely accepted that learners' main languages need to be treated as a resource, rather than as a problem. Ways to enable learners to use their main language as a thinking tool need to be found. Code-switching could be the right device as one way of enabling learners to use their main language as a thinking tool. It must be noted, as Setati (1998) states, that

code switches can be deliberate, purposeful and political. Setati (1998) further indicates the important social and political aspects of switching between discourses, registers and dialects. As pointed out by Setati (1998), code-switching in South Africa has had an inferior status. As a result, it is regarded as a grammarless mixture of languages. It is also generally believed that people who code-switch know neither language well enough to converse in either one consistently and exclusively. Grosjean (1982) points out that it is because of these attitudes that some bi and multilinguals prefer not to code-switch, while others restrict their switching to situations in which they will not be stigmatised for doing so. Learners usually choose to switch only when interacting with other learners and not with the teacher. There is also the view that those who code-switch are fully competent in the two languages

Merrit, Cleghorn, Abagi & Bunyi (1992) argue that code-switching provides an additional resource for meeting classroom needs. Poplack cited in Grosjean (1982) argues that code-switching is a verbal skill requiring a large degree of competence in more than one language rather than a defect arising from insufficient knowledge of one or the other. Code-switching is also viewed as a verbal strategy in the same way that a skillful writer might switch styles in a short story. Code-switching can be used in many ways for different reasons. A teacher uses the learners' main language as a code for encouragement and this implies that the teacher is on the learners' side and is helping them to overcome learning barriers. Adendorff, 1993, Merrit et al. (1992) state that code-switching is motivated by cognitive and classroom management factors, and it helps to focus or regain the learners' attention or to clarify, enhance or reinforce lesson material. Baker (1993) postulates that code-switching can be used for different purposes, such as:

1. to emphasise a point
2. because a word is not yet known in both languages
3. for ease and efficiency of expression
4. for repetition to clarity
5. to express group identity and status or to be accepted by a group
6. to quote someone
7. to interject in a conversation
8. to exclude someone from an episode of conversation.

Teachers need to support and enable the switching between learners' main language and the language of instruction. In most rural schools, English does not function as an additional language in an 'additional language learning environment', instead it

functions as a foreign language in a 'foreign language learning environment'. In foreign language learning environments, English is used like a foreign language. This means that English is used only inside the classroom and rarely heard or spoken anywhere else. In these environments, there is very limited English infrastructure in the surrounding community on which teachers could build. Exposure to English is through the teacher only. The question that could be asked is: 'what if the teacher is not sufficiently competent in English?' Teachers find themselves with two options, the teacher would obviously switch to the learners' main language to teach the content subject, come examinations, tests or any other form of assessment, learners would have to respond in the medium of instruction, in this case, English. It is then that the cognitive development of second language learners would be negatively affected. The second option could be for teachers to use English as much as possible. Being the only source of English, this also puts pressure on teachers to use English as much as possible and forget about code-switching whether learners understand or not.

There are, at the moment, two opposing views about the use of language in multilingual classrooms. The first one views English as a viable language of wider communication (Makua, 1997). The second view is that of developing and promoting African languages (Mda, 1997; Friedman, 1997; Heugh, 1997). Both these views are about identity and access to economic and political power. Setati (1998) feels that these debates cannot only be resolved by policy, but by engaging with the practicalities of the policies. The two views do not give solutions to the kind of difficulties encountered in classroom interaction during teaching and learning situations. They also do not make provision for feedback, that is, the need to determine whether learners managed to understand what was presented to them, not only in the teaching of English as a subject but any subject offered through the medium of English.

Learning does not take place on its own accord. Learning goes concurrently with thinking. As the child grows, that child is expected to think maturely. This is also the case with learners, as they progress from one grade to another, there has to be signs of cognitive development. A grade eight learner's response should be different from that of a grade twelve learner. Foertsch (1998) describes second-language learning as an important factor that influences how children learn to read. Gay (1988) and Snow (1992) indicate that the ways in which children communicate in their home cultures are critical to the development of written language models of reading and writing. The home language of students provides the foundation for the emergence of reading and writing

behaviours. If there is a mismatch between the structures, values, and expectations of the home language and school language, children may be at a disadvantage for success in early reading tasks, and thus spend their entire school careers attempting to catch up. This does not only materialise in language learning, but encompasses all subjects that are learnt in English at school.

As long as the majority of South African families speak a variety of languages, many children would be entering school with a language other than English. The majority of learners would, therefore, be English second language speakers. Literacy has always been an important term in the education sector. Snow (1992) suggests that literacy can be defined in light of language variety. This means that literacy should be defined in terms of what it takes to function in one's culture on a daily basis rather than solely upon an undefinable standard language. Therefore, literacy is much more than simply being able to read and write. It is a set of complex tasks and behaviours that may encompass the use of several languages and ways of being literate. These tasks and behaviours require that one should be a perfect thinker. In order to be a perfect thinker, cognition must be well developed. Cognitive development is possible when learning in one's own language might be affected when learning in a second language like English.

2.2.6 Linguistic diversity

Setati (1998) states that the linguistic diversity is an important feature of South Africa. Linguistic diversity means that all languages have had a profound effect on each other where the majority of people are multilingual. South African English, for example, has many words and phrases from Afrikaans, isiZulu, and other African languages. This diversity creates a variety of educational challenges, especially when it comes to the use of languages in multilingual classrooms. Makua (1997) believes in the view that in a multilingual country like South Africa, English is a viable language of wider communication. Friedman (1997) contends that the above view maintains that English is increasingly the language of international communication and commerce and, therefore, speaking it opens doors that are closed to vernacular speakers. Makua (1997) also is of the view that English can be a unifying factor. Heugh (1997) mentions the cognitive advantages to early learning in a main language and to acquiring proficiency in two or more languages and how that impacts favourably on the development of scientific and mathematical thought. This simply indicates the need to develop and promote African languages. One way of doing this is to encourage their use in schools. Rather than promoting English as the language of international communication, other languages

should be given more prominence to ensure that they do not fade away (Mda, 1997; Friedman, 1997; Heugh, 1997). A crucial benefit of developing and promoting African languages is that the cognitive development of English second language speakers would not be negatively affected by the use of English as a language of instruction.

2.2.7 Classroom challenges faced by second language learners

Adler, Slonimsky and Reed, (2002) indicate that there is a specific challenge that is immediately visible in classrooms during the teaching and learning of content subjects. Learners find it difficult to communicate with each other and with the teacher if the language of instruction is not the main language they share. Learners' main language here is not the same as the language of instruction and the language in which texts for the different subjects are produced. For English second language learners, clear articulation of their thinking is not always easy and for that reason, they might be more reluctant in general to voice their thinking.

Second language learners could also be referred to as language minority students. Research shows that language minority students face many challenges in school. For example, Cardenas, Robledo and Waggoner (1988) state that second language learners are 1.5 times more likely to drop out of school than native speakers. In South Africa, these minority language learners are English second language speakers. Barriers created by the medium of instruction, in this case, English, might demotivate them to further attend school. This does not only apply to English second language learners who attend rural and township schools, but also those who attend former model C schools. Learners who attend former model C schools are affected differently. Moss and Puma (1995) indicate that second language learners who attend former model C schools receive lower grades and are judged by their teachers to have lower academic abilities and score below their classmates (who are native speakers of English) on standardised tests.

The best way to assist students as they learn and are instructed in a second language continues to be hotly debated. Collier (1995) asserts that it is a mistake to believe that the first thing students must learn is English, thus isolating the language from a broad complex of other issues. This implies that English second language learners should know English before they are instructed in the language (English) in all the other subjects in order to accommodate their cognitive development. This would also ensure that these learners produce responses that are at the same level as those of their counterparts (English first language speakers). Both cognitive development and academic

development in the first language have been found to have positive effects on second language learning (Bialystock, 1991; Collier, 1989, 1992; Garcia, 1994; Genessee, 1987, 1994; Thomas and Collier, 1997). It must be noted that literacy is socially situated, therefore, it is equally critical to provide a supportive school environment that allows academic and cognitive development in the first language to flourish. Such an environment would ensure that academic skills, literacy development, concept formation, subject knowledge and strategy development learned in the first language are transferred to the second language.

August and Hakuta (1997) and Cuevas (1997) support the idea that native language use is advantageous in English language acquisition. English language acquisition is important to English second language speakers since English is a medium of instruction in South African schools. There has to be a range from commitment to a bilingual programme to programmes in which almost all instruction takes place in English and the native language is used to clarify and extend students' understanding. The consequences of various programme designs for non-English first language students, who are learning and instructed in English are devastating.

In US schools where all instruction is given through the second language (i.e. English), Cummins (1981) states that non-native speakers with no schooling in their first language take seven to ten years to reach age-level as well as grade-level norms. Immigrant students who have had two to three years of schooling in their first language (in their home countries) take at least five to seven years to reach age-level and grade-level. This means that there would always be a ten and seven-year' gap that separates learners who are second and native language speakers. Collier (1995) is of the view that non-native speakers schooled in a second language for part or all of the day typically do reasonably well in early years, from the fourth grade. However, when academic and cognitive demands of the curriculum increase rapidly, students with little or no academic and cognitive development in their first language fail to maintain positive gains. Students who have spent four to seven years in a quality bilingual programme sustain academic achievement and outperform monolingually schooled students in the upper grades. The views of Cummins (1981) and Collier (1992) reveal the importance of cognitive development in the academic field and how learning in English negatively impacts on the cognitive development of English second language learners.

Hudelson (1987) contends that the school environment should be filled with print examples in both languages as this is important to successful language acquisition. This means that literature in both languages should be available in classrooms and school libraries for children to access at both school and home. Newspapers and other examples of community literacy should be available in both languages at home and at school. It is appropriate that signs in classrooms should be in both languages. Janopoulos (1986) and Moll (1992) stress the importance of a variety of opportunities to read and write in both languages to avail in the classroom. This would ensure parallel growth for both languages, in this case, English and mother-tongue, thereby increasing chances of cognitive development at both levels, that is, in the mother tongue as well as in the global language, English.

Understanding and decoding is vital for English second language learners to master the subject content. English vocabulary is a primary determinant of comprehending. According to Garcia and Naggy (1993) students whose first language has many cognates with English have an advantage in English vocabulary recognition but they often require explicit instruction to optimise transfer for comprehension. Bialystock, 1991; Goodman and Flores, 1979; Hudelson, 1987 as well as Mace-Matluk, 1982) believe that literacy skills related to decoding tasks of reading have been found to transfer between languages. However, these skills must be contextualised within meaningful instructional contexts for full transfer to occur. This is not the case in South African schools as teachers stress on familiarising English second language learners with English in preparation for the examinations, which are conducted in English. August and Hakuta (1997), Cuevas (1997) and Roberts (1994) believe that reading and writing in the first language assist with reading and writing in the second language. Therefore, in order for English second language speakers to overcome barriers due to the use of English as a language of instruction, mother tongue should not be ignored in the teaching of the content subjects. Students whose first language is not English need a balanced and appropriate literacy programme.

Goldenberg and Gallimore (1991) argue that a balanced literacy programme provides a balance of explicit instruction and student-directed activities that incorporate aspects of both traditional and meaning-based curricular. It must be noted that there is no single best way to teach English second language learners in English. Educators must find a potential for reciprocity between the two languages. August and Hakuta (1997) state that different approaches are also necessary because of the great diversity of conditions faced

by schools and the varying experiences of learners with literacy and schooling in their first language. Knapp and Shields (1990) caution that instruction for cultural, ethnic and linguistic minority students that is primarily skill-based may limit children's learning. Skill-based instruction fails to develop children's analytical or conceptual skills and fails to provide purposes for learning. Research by Au (1993) as well as O'Donnell and Wood (1992) suggest that instructional methods for teaching second language learners should focus on meaning construction. Heath and Mangiola (1991); Ovando (1993) and Tharp (1989) believe that the focus should be on language development. Chamot (1993); Crawford (1983); Cummins (1986) and Pogrow (1992) are in favour of the focus on higher-order thinking skills including metacognition and prior knowledge whereas Gay (1988) advocates a 'balanced curriculum' for English second language learners that provide explicit and flexible instruction in English within a meaningful context.

2.2.8 Language acquisition and learning

The way children acquire native language (L1) and the relevance of this to foreign language (L2) learning has long been debated. Although evidence for L2 learning ability declining with age is controversial, a common notion is that children learn L2 easily and older learners rarely achieve fluency. This assumption stems from 'critical period' (CP) ideas. A CP was popularised by Lenneberg (1967) for L1 acquisition, but considerable interest now surrounds age effects on second language acquisition (SLA). SLA theories explain learning processes and suggest causal factors for a possible CP for SLA, mainly attempting to explain apparent differences in language aptitudes of children and adults by distinct learning routes, and clarifying them through psychological mechanisms. Research explores these ideas and hypotheses, but results are varied: some demonstrate pre-pubescent children acquire language easily, and some that older learners have the advantage, and yet others focus on existence of a CP for SLA. A study by Mayberry and Lock (2003) recognises that certain aspects of SLA may be affected by age, though others remain intact. Language acquisition is important here because of the capacity for vocabulary acquisition that decreases with age. This means that if English second language learners do not have sufficient vocabulary by the time they are in grade eight, there are bound to be problems that would eventually affect their cognitive development negatively.

It is necessary to review SLA theories and their explanations for age-related differences before considering empirical studies. The most reductionist theories are those of Penfield and Roberts (1959) and Lenneberg (1967), which stem from L1 and brain damage

studies. These studies reveal that children who suffer impairment before puberty typically recover and (re-) develop normal language, whereas adults rarely recover fully, and often do not regain verbal abilities beyond the point reached five months after impairment. Both theories agree that children have a neurological advantage in learning languages, and that puberty correlates with a turning point in ability. They assert that language acquisition occurs primarily, possibly exclusively, during childhood as the brain loses plasticity after a certain age. It then becomes rigid and fixed, and loses the ability for adaptation and re-organisation, rendering language (re-) learning difficult.

Penfield and Roberts (1959) claim that children under nine can learn up to three languages. Early exposure to different languages activates a reflex in the brain which allows them to switch between languages without confusion or translation into L1 (Penfield, 1964). Lenneberg (1967) asserts that a language should be learnt by puberty because afterwards, it cannot be learned in a normal, functional sense. He also supports Penfield and Roberts' (1959) proposal of neurological mechanisms responsible for maturational change in language learning abilities. Lenneberg (1967) maintains that this coincides with brain lateralisation and left-hemispherical specialisation for language around age thirteen as infants' motor and linguistic skills develop simultaneously. However, by age thirteen the cerebral hemispheres function separately and become set, making language acquisition extremely difficult.

Cases of deaf and feral children provide evidence for a biologically determined CP for L1. Feral children are those not exposed to language in infancy or childhood due to being brought up in the wild, in isolation and/or confinement. A classic example is 'Genie', who was deprived of social interaction from birth until she was discovered at age thirteen (post-pubescent). She was completely without language, and after seven years of rehabilitation still lacked linguistic competence. Another case is 'Isabelle', who was incarcerated with her deaf-mute mother until the age of six and a half (pre-pubescent). She also had no language skills, but, unlike Genie, "Isabelle" quickly acquired normal language abilities through systematic specialist training. Isolation can result in general retardation and emotional disturbances, which may confound conclusions drawn about language abilities. Studies of deaf children learning American Sign Language (ASL) have fewer methodological weaknesses. Newport and Supalla (1987) studied ASL acquisition in deaf children differing in age of exposure; few were exposed to ASL from birth, most of them first learned it at school.

Results showed a linear decline in performance with increasing age of exposure, those exposed to ASL from birth performed best, and 'late learners' worst, on all production and comprehension tests. Their study thus provides direct evidence for language learning ability decreasing with age, but it does not add to Lennerberg's CP hypothesis as even the oldest children, the 'late learners', were exposed to ASL by age four, and had therefore not reached puberty, the proposed end of the CP. In addition, the declines were shown to be linear, with no sudden 'drop off' of ability at a certain age, as would be predicted by a strong CP hypothesis. The fact that children performed significantly worse, however, suggests that the CP may end earlier than originally postulated.

Krashen (1975) reanalysed clinical data used as evidence, challenged the biological approach and concluded cerebral specialisation occurs much earlier than Lenneberg calculated. Therefore, if a CP exists, it does not coincide with lateralisation. Despite concerns with Lenneberg's original evidence and the dissociation of lateralisation from the language CP idea, however, the concept of a CP remains a viable hypothesis. The effects of English on the cognitive development of second language learners proves the existence of the CP. Contrary to biological views, behavioural approaches assert that languages are learned as any other behaviour, through conditioning. This is contrary to biological views. Skinner (1957) details how operant conditioning forms connections with the environment through interaction. Mowrer (1960), applies the ideas to language acquisition. Mowrer (1960) hypothesises that languages are acquired through rewarded imitation of 'language models'. He believes that the model must have an emotional link to the learner (e.g. parent), as imitation then brings pleasant feelings which function as positive reinforcement. As new connections between behaviour and the environment are formed and reformed throughout life, it is, therefore, possible to gain new skills, including language(s), at any age. English second language learners can struggle and eventually learn to express themselves in English, but their thinking ability will seldom match that of their counterparts (English first language speakers).

To accommodate observed language learning differences between children and adults, Felix (1985) explains that children, whose brains create countless new connections daily, may handle the language learning process more effectively than do adults. This assumption, however, remains untested and is not a reliable explanation for children's aptitude for L2 learning. The problem of the behaviourist approach is its assumption that all learning, verbal and non-verbal, occurs through the same processes. Pinker (1995) notes that a more general problem is that, almost every sentence anybody voices is an

original combination of words, never previously uttered, therefore, a language cannot consist only of word combinations learned through repetition and conditioning, the brain must contain innate means of creating endless amounts of grammatical sentences from a limited vocabulary. Chomsky (1965) precisely argues this with his proposition of a Universal Grammar (UG).

Chomsky (1965) asserts that environmental factors must be relatively unimportant for language emergence, as so many different factors surround children acquiring L1. Instead, Chomsky claims language learners possess innate principles building a 'language acquisition device' (LAD) in the brain. These principles denote restricted possibilities for variation within the language, and enable learners to construct a grammar out of 'raw input' collected from the environment. Input alone cannot explain language acquisition because it is degenerated by characteristic features such as stutters, and lacks corrections from which learners discover incorrect variations.

Singleton and Newport (2004) demonstrate the function of UG in their study of 'Simon'. Simon learned ASL as his L1 from parents who had learned it as an L2 after puberty and provided him with imperfect models. Results showed Simon learned normal and logical rules and was able to construct an organised linguistic system, despite being exposed to inconsistent input. Chomsky developed UG to explain L1 acquisition data, but maintains it also applies to L2 learners who achieve near-native fluency not attributable solely to input and interaction (Chomsky, 1965). This is possible when considering language as a subject and not language for a subject.

The theory does not describe an optimal age for SLA, but it implies that younger children can learn languages more easily than older learners, as adults must reactivate principles developed during L1 learning and forge a SLA path, children can learn several languages simultaneously as long as the principles are still active and they are exposed to sufficient language samples (Pinker, 1995). The parents of Singleton and Newport's (2004) patient also had linguistic abilities in line with these age-related predictions; they learned ASL after puberty and never reached complete fluency. One wonders whether English second language learners who have not mastered English by the time they are in grade eleven will ever do as most of them are no longer in the puberty stage.

There are, however, problems that L2 learners usually face, one being that they go through several phases of types of utterance that are not similar to their L1 or the L2 they

hear. Other factors include the cognitive maturity of most L2 learners, that they have different motivation for learning the language and already speak one language fluently. Dehaene (1999) investigates how cerebral circuits used to handling one language adapt for the efficient storage of two or more. He reports observations of cerebral activation when reading and translating two languages. They found the most activated brain areas during the tasks were not those generally associated with language, but rather those related to mapping orthography to phonology. They conclude that the left temporal lobe is the physical base of L1, but the L2 is 'stored' elsewhere, thus explaining cases of bilingual aphasia where one language remains intact. They maintain that only languages learned simultaneously from birth are represented, and cause activity, in the left hemisphere. Any L2 learned later is stored separately (possibly in the right hemisphere) and rarely activates the left temporal lobe.

This suggests that L2 may be qualitatively different from L1 due to its dissociation from the 'normal' language brain regions, thus the extrapolation of L1 studies and theories to SLA is placed in question. Felix (1985) came up with the 'Competing Cognitive Systems' idea. This idea is supported by empirical evidence, which consequently supports Chomsky's ideas.

Piaget (1926) is one psychologist reluctant to ascribe specific innate linguistic abilities to children as he considers the brain as a homogeneous computational system, with language acquisition being one part of general learning. He agrees that this development may be innate, but claims there is no specific language acquisition module in the brain. Instead, he suggests that external influences and social interaction trigger language acquisition and information collected from these sources constructs symbolic and functional schemata (thought or behaviour patterns). According to Piaget, cognitive development and language acquisition are life-long active processes that constantly update and re-organise schemata. He proposes that children develop L1 as they build a sense of identity in reference to the environment, and describes phases of general cognitive development, with processes and patterns changing systematically with age. Piaget assumes language acquisition is part of this complex cognitive development, and that these developmental phases are the basis for an optimal period for language acquisition in childhood. Interactionist approaches derived from Piaget's ideas support his theory. Newport and Supalla (1987) support Piaget (1976) by showing that, rather than abrupt changes in SLA ability after puberty, language ability declines with age, coinciding with declines in other cognitive abilities.

Other researchers like Felix (1985), however, remain unconvinced that language acquisition is part of general development. Felix (1985) claims cognitive abilities alone are useless for language learning, as only vocabulary and meaning are connected to cognition, lexicology and related meanings have conceptual bases. Felix' criticism of the assumption that L2 fluency simply requires skilful applications of the correct rules is supported by the lack of psychological empirical evidence for Piaget's idea.

Krashen (1975) also criticises this theory but does not discredit the importance of age for second language acquisition. Krashen (1975) and Felix (1985) proposed theories for the close of the CP for L2 at puberty. This idea was based on Piaget's cognitive stage of formal operations which begin at puberty as the 'ability of the formal operational thinker to construct abstract hypotheses to explain phenomena.' They believe that this inhibits the individual's natural ability for language learning. The term 'language acquisition' became commonly used after Stephen Krashen (1975) contrasted it with formal and non-constructive 'learning'. SLA mostly examine naturalistic acquisition, where learners acquire a language with little formal training or teaching.

According to Krashen (2003), there are two independent systems of second language performance: 'the acquired system' and 'the learned system'. The 'acquired system' or 'acquisition' is the product of a subconscious process very similar to the process children undergo when they acquire their first language. It requires meaningful interaction in the target language - natural communication - in which speakers are concentrated not in the form of their utterances, but in the communicative act.

The 'learned system' or 'learning' is the product of formal instruction and it comprises a conscious process that results in conscious knowledge 'about' the language, for example, knowledge of grammar rules. According to Krashen (2003) 'learning' is less important than 'acquisition'. If it is this difficult to learn a second language after certain stages have been passed, it is clear that it is more difficult to be instructed in that same language and be expected to reason and give matured responses. The negative effect of English on the cognitive development of second language learners is evident here as these learners fail to understand English as a language.

However, contrary to Krashen's position, these theories also claim that some attention to form is necessary for learning to take place. The problem is that learners are limited language processors who find it difficult to attend to both form and meaning at the same

time. Thus, when they are focused on meaning they are unable to attend simultaneously to form and, conversely, when they are focused on form, their ability to understand or make themselves understood suffers. Again, cognitive development of second language learners would be negatively affected.

For this reason, they need meaning-based tasks that also allow them the opportunity to process language as in meaning, form and function. Students must first be required to process a text for meaning and then, afterward, attend to how a particular grammatical form is used in the text. This requires a lengthy period of time. Syllabi used in schools for content subjects do not cater for that, therefore processing language as in meaning before giving learners tasks is impossible in real school situations.

2.2.10 The reading problems of the English second language learner

The English Second Language (ESL) learners have not developed full linguistic competence in the second language by the time they are instructed in English and may find it difficult to participate in the target language activities. Sampling the graphic, syntactic and semantic cues in the written text may prove quite a problem for the ESL learner. The student may understand all the lexical items in the passage and yet may not understand the passage, because the syntactic rules of his native language differ from those of the second language and could therefore not have adequate grammatical control of the language. In the case of content subjects, these learners might fail to express themselves because they lack enough subject specific vocabulary.

The ESL reader's literacy in his own language may help to a certain extent as he or she is able to transfer the more mechanical aspects of reading automatically to reading in a new language. However, his or her unfamiliarity with the grammatical rules of the target language and words that he or she may never have encountered before will severely hinder him or her from developing appropriate sampling strategies. He or she is, therefore, forced to rely heavily on the graphic display in the text in order to achieve meaning. Not only do these learners struggle with English as a subject but also with English for a subject. The right terminology for a different, specific content subjects is required to deal with everyday teaching and learning challenges. Most rural learners do not have enough subject related, specific terminology because even their English as a subject is not that well developed.

Yorio (1971) believes that a degree of proficiency in the target language is required for the ESL student to read fluently. Interference from the native language may also hinder the student's progress. Yorio (1971) points out one problem of the ESL learner: The prediction of future cues is restricted by his imperfect knowledge of the language; moreover, because he has to recall unfamiliar cues, his memory span is very short; he therefore easily forgets the cues that he has already stored. These two factors make associations insecure, slow and difficult. Conceptual abilities and background knowledge are important in reading acquisition for an ESL learner. A student who is not able to draw on his conceptual experience may not be able to comprehend what he is reading. For example, a history student may be at a loss when he reads a highly scientific passage on the electron microscope.

Coady (1979) believes that background knowledge is an important variable. He states that students with a Western background of some kind seem to learn English faster on the average than those without such a background. Learners of English as a second language tend to depend more on the graphic information than on the contextual information when they read in English. The underlying assumption is that ESL learners do not have an adequate command and vocabulary of the English language. The cognitive development of English second language is negatively affected as most rural and township learners do not have a Western background that assists them to learn English faster.

English second language learners engage with the language in both written and spoken forms. Reid (1998) acknowledges that student errors in writing reflect the student's underlying system. She notes that teachers need to develop strategies that will lead students to correct their own work. Leki (1992) begins a chapter entitled 'sentence-level errors' with the following observation: Problems at the discourse level are often fairly subtle, leaving the reader with the feeling that something is not quite right with a text but with no clear picture of where the problem lies. The spoken form reveals limited problems and syntactic problems are more evident in writing. The teacher's central concern is how to respond to what students do. Ferris, Pezone, Tade, and Tinti (1997) note that response to writing is, arguably the teacher's most crucial task. It allows for a level of individualised attention and one-on-one communication that is rarely possible in the day-to-day operations of a class, and it plays an important role in motivating and encouraging students. Truscott (1996) takes the strong position that problem correction in ESL learner writing is useless and should be abandoned. Owing to the fact that he or

she understands language acquisition to be a gradual developmental process unlikely to be furthered by any transfer of explicit suggestions, he rejects error correction. Moreover, he claims there are no studies which show its effectiveness. Truscott (1999) sketches some minimal criteria that an approach to error correction would have to satisfy.

With some exceptions (Rutherford, 1983; Rutherford, 1987 and Bardovi-Harlig, 1990), there is no known work which offers insights into how text concerns interface with sentence-level grammatical choices. All but one of the ‘troublespots’ in Raimes (1992) considers syntactic problems at the sentence-level and does not provide the student with any insight into the grammar of sentences. Moreover, Raimes’ (1992) ‘troublespots’ only consider errors from a target-language perspective, and therefore, provide little help for teachers who are attempting to address non-target-like structures. Campbell (1998) discusses how to respond to sentence-level problems. Grabe and Kaplan (1996:394) recommend that ‘comments should avoid exclusive attention to surface conventions (e.g. spelling, punctuation, paragraphing, and hyphenation) and should also avoid various commentary or notation.’

2.2.11 Learning Theories

Hill and Mannheim (1992) describe learning theories as an attempt to describe how people and animals learn, thereby assisting in understanding the complex process of learning. A number of learning theories indicate the negative impact of learning in English on the cognitive development of second language learners of English.

2.11.1 Constructivist Theory

According to Vygotsky (1978) constructivism is the label given to a set of theories about learning which fall somewhere between cognitive and humanistic views. Piaget (1967) describes constructivist theory as a theory of knowledge, which argues that humans generate knowledge and meaning from their experiences. Behaviourism treats the organism as a black box, cognitive theory recognises the importance of the mind in making sense of the material with which it is presented. Nevertheless, it still presupposes that the role of the learner is primarily to assimilate whatever the teacher presents. Vygotsky (1978) states that constructivism, particularly in its ‘social’ forms, suggest that the learner is much more actively involved in a joint enterprise with the teacher of creating (‘constructing’) new meanings. He further distinguishes between ‘cognitive

constructivism' which is about how the individual learner understands things, in terms of development stages and learning styles as well as 'social constructivism', which emphasises how meanings and understandings grow out of social encounters.

Conversational theories of learning fit into the constructivist framework. The emphasis is on the learner as an active 'maker of meanings.' The role of the teacher is to enter into a dialogue with the learner, trying to understand the meaning to that learner of the material to be learned, and to help the learners to refine their understanding until it corresponds with that of the teacher.

Dewey (1938) indicates one strand of constructivism and emphasised the place of experience in education. Piaget (1976) also demonstrated empirically that children's minds were not empty, but actively processed the material with which they were presented, and postulated the mechanisms of accommodation and assimilation as key to this processing. George Kelly (1955) makes connections at the theoretical level in his Personal Construct Theory.

The most significant basis of a social constructivist theory were laid down by Vygotsky (1896, 1934 and 1962), in his theory of the 'Zone of Proximal Development' ('ZPD'). 'Proximal' simply means 'next'. He observed that when children were tested on tasks on their own, they rarely did as well as when they were working in collaboration with an adult. It was by no means always the case that the adult was teaching them how to perform the task, but that the process of engagement with the adult enabled them to refine their thinking or their performance to make it more effective. Hence, for him, the development of language and articulation of ideas was central to learning and development. The common-sense idea which fits most closely with this model is that of 'stretching' learners.

This idea is common in constructing skills' check-lists to have columns for 'cannot yet do', 'can do with help', and 'can do alone'. The ZPD is about 'can do with help', not as a permanent state but as a stage towards being able to do something on your own. The key to 'stretching' the learner is to know what is in that person's ZPD and what comes next, for them.

An important concept in Vygotsky's theory is that 'the potential' for cognitive development is limited to a certain time span which he calls the 'Zone of Proximal Development' (Kearsley 1994e). The 'Zone of Proximal Development' is defined as having four learning stages. These stages 'range between the lower limit of what the

student knows and the upper limits of what the student has the potential of accomplishing' (Gillani and Relan 1997). Tharp and Gallimore (1988) indicate that the stages can be further broken down as follows:

1. Stage 1 - assistance provided by more capable others (coaches, experts, teachers),
2. Stage 2 - assistance by self,
3. Stage 3 - internalisation automatisisation (fossilisation) and
4. Stage 4 - de-automatisation: recursiveness through prior stages.

Vygotsky (1978) claims in his theory that instruction is most efficient when students engage in activities within a supportive learning environment and when they receive appropriate guidance that is mediated by tools. These instructional tools can be defined as 'cognitive strategies, a teacher, learners, textbook, printed materials, or an instrument that organises and provides information for the learner.' The role of the teacher is to organise dynamic support to help [learners] complete a task near the upper end of their Zone of Proximal Development [ZPD] and then to systematically withdraw this support as they move to higher levels of confidence. It must be noted that full cognitive development requires social interaction and also Cognitive Development is limited to a certain range at any given age.

Vygotsky's Theory of Social Cognitive Development reasons that social interaction plays a fundamental role in the development of cognition. Instruction can be made more efficient when learners engage in activities within a supportive environment and receive guidance mediated by appropriate tools. Appropriate tools for English second language learners include libraries that are well equipped with relevant media to boost learners' understanding of the language of instruction (English) and references for different content subjects. This is not the case with most rural schools. Classrooms with insufficient or outdated textbooks are used as libraries and learners are not encouraged to visit those so called 'library structures'.

Vygotsky's theory of social cognitive development is complementary to Bandura's Social Learning Theory (which will be discussed below). Its major thematic thrust is that 'social interaction plays a fundamental role in the development of cognition' (Kearsley 1994e). This theory mainly focuses on language learning in children.

Bruner (1966) views constructivist theory as based upon the study of cognition. A major theme in this theory is that 'learning is an active process in which learners construct new ideas or concepts based upon their current or past knowledge' (Kearsley 1994b). Cognitive structures are used to provide meaning and organisation to experiences and allow the individual to go beyond the information given. According to Bruner, the teacher should try and encourage students to construct hypotheses, make decisions, and discover principles by themselves. (Kearsley 1994b). The teacher's task is to 'translate information to be learned into a format appropriate to the learner's current state of understanding' and organise it in a spiral manner so that the student continually builds upon what they have already learned.

The learner selects and transforms information, constructs hypotheses, and makes decisions, relying on a cognitive structure to do so. Cognitive structure (that is, schema, mental models) provides meaning and organisation to experiences and allows the individual to 'go beyond the information given.' Bruner (1966) states that a theory of instruction should address the following aspects:

1. the most effective sequences in which to present material
2. the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner.

When applying Bruner's constructivist theory to instruction, Kearsley (1994b) states that the following principles must be applied:

1. Instruction must be concerned with the experiences and contexts that make the student willing and able to learn (readiness).
2. Instruction must be structured so that it can be easily grasped by the student (spiral organisation).
3. Instruction should be designed to facilitate extrapolation and or fill in the gaps (going beyond the information given).

The problems encountered by English second language learners in the different subjects taught in English are unimaginable. They have to reason irrespective of the language barrier. An example that requires a lot of thinking is that which is taken from Bruner (1973). Bruner (1973) uses the concept of prime numbers and states that they appear to be more readily grasped when the child, through construction, discovers that certain handfuls of beans cannot be laid out in completed rows and columns. Such quantities have either to be laid out in a single file or in an incomplete row-column design in which

there is always one extra or one too few to fill the pattern. These patterns which the child learns, happen to be called prime. It is easy for the child to go from this step to the recognition that the so called multiple table is a record sheet of quantities in completed multiple rows and columns. The content that is taught includes factoring, multiplication and primes in a construction.

Bruner's Constructivist Theory asserts that learning is an active process in which learners construct new ideas based upon their current knowledge. Instruction can be made more efficient by providing a careful sequencing of materials to allow learners to build upon what they already know and go beyond the information they have been given to discover the key principles by themselves. The use of English as a medium of instruction might hinder this view as English second language learners might face difficulties while building upon what they know due to interpretations.

As far as instruction is concerned, the teacher should try and encourage students to discover principles by themselves. The teacher and student should engage in an active dialogue (referred to as socratic learning). The task of the teacher is to translate information to be learned into a format appropriate to the learner's current state of understanding. The curriculum should be organised in a spiral manner so that the student continually builds upon what they have already learned and this includes mother-tongue knowledge.

Bruner (1966) states that a theory of instruction should address four major aspects which are predisposition towards learning, the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, the most effective sequences in which to present material and the nature and pacing of rewards and punishments. Good methods for structuring knowledge should result in simplifying, generating new propositions and increasing the manipulation of information.

In his more recent work, Bruner (1986, 1990, 1996) has expanded his theoretical framework to encompass the social and cultural aspects of learning as well as the practice of law upon the study of cognition. Bruner's theory is linked to child development research. Bruner illustrated his theory in the context of mathematics and social science programme for young children. Bruner, Goodnow & Austin (1951) describes the original development of the framework for reasoning. Bruner (1983) focuses on language learning in young children.

2.11.2 Gagne's Conditions of Learning Theory

The main focus of this theory is on intellectual skills as indicated by Kearsley (1994a) that the focus of Gagne's theory is on 'intellectual skills'. Gagne's theory is very prescriptive. In its original formulation, special attention was given to military training. Gagne (1962) indicates that in this theory, there are five major types of learning levels which are identified as:

1. verbal information
2. intellectual skills
3. cognitive strategies
4. motor skills
5. attitudes

The importance behind the above system of classification is that each learning level requires 'different internal and external conditions' (Kearsley 1994a) that is, each learning level requires different types of instruction. An example that is provided by Kearsley is that of cognitive strategies to be learned, where he stresses that there must be a chance to practice developing new solutions to problems. He further states that in order to learn attitudes, the learner must be exposed to a credible role model or persuasive arguments. English second language learners can not be engaged in persuasive arguments because they face interpretation challenges which might result in misunderstanding and failure to express themselves accordingly. Gagne (1962) also contends that learning tasks for intellectual skills can be organised in a hierarchy according to complexity. That hierarchy should follow the following order:

1. stimulus recognition
2. response generation
3. procedure following
4. use of terminology
5. discriminations
6. concept formation
7. rule application
8. problem solving

The primary significance of this hierarchy is to provide direction for teachers so that they can ‘identify prerequisites that should be completed to facilitate learning at each level’ and a basis for sequencing instruction. Gagne (1962) further outlines the following nine instructional events and corresponding cognitive processes:

1. gaining attention (reception)
2. informing learners of the objective (expectancy)
3. stimulating recall of prior learning (retrieval)
4. presenting the stimulus (selective perception)
5. providing learning guidance (semantic encoding)
6. eliciting performance (responding)
7. providing feedback (reinforcement)
8. assessing performance (retrieval)
9. enhancing retention and transfer (generalisation)

Gagne’s nine instructional events and corresponding cognitive processes serve as the basis for designing instruction and selecting appropriate media (Gagne, Briggs and Wager, 1992.) In applying these instructional events, Kearsley (1994a) suggests that it must be kept in mind that learning hierarchies define a sequence of instruction. Learning hierarchies define what intellectual skills are to be learned and that different instruction is required for different learning outcomes. Gagne’s hierarchy of intellectual skills is similar to Bloom’s Taxonomy of Educational Objectives. Bloom outlines the following cognitive activities organised from least to greater complexity:

1. knowledge
2. comprehension
3. application
4. analysis
5. synthesis

Analysing and synthesising is a mystery to second language learners as some of them often find it difficult even to comprehend. Gagne’s Conditions of Learning Theory is based on a hierarchy of intellectual skills organised according to complexity. That can be used to identify prerequisites necessary to facilitate learning at each level. Instruction can be made more efficient by following a sequence of nine instructional events defined by

the intellectual skills that the learner is required to learn for the specific task at hand. The problem here is that English second language learners are not provided with such opportunities because the most important thing is to finish the syllabus.

2.11.3 Bandura's Social Learning Theory

Bandura's Social Learning Theory 'emphasises the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others' (Kearsley 1994c). Bandura (1973) states that it has been applied extensively to the understanding of aggression and psychological disorders.

Bandura (1977) emphasises that learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behaviour is learned observationally through modelling from observing others, one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action. English second language learners have to observe their subject teachers using subject specific terminology. That will help them to use that coded information as a guide during assessment. The question that may be asked is whether all teachers model the kind of behaviour that assists learners. There are different processes underlying observational learning as Kearsley (1994c) explains and they are:

1. attention
2. retention (including cognitive organisation and motor rehearsal)
3. motor reproduction (including physical capabilities, self-observation of reproduction, and accuracy of feedback)
4. motivation (including external and self reinforcement)
5. observer characteristics (such as sensory capacities, arousal level, perceptual set, and past reinforcement).

In applying Bandura's Social Learning theory, Kearsley (1994c) suggests the consideration of the following three principles, firstly, the highest level of observational learning is achieved by first organising and rehearsing the modelled behaviour symbolically and then enacting it overtly. Secondly, coding modelled behaviour into words, labels or images result in better retention than simply observing. Lastly, individuals are more likely to adopt a modeled behaviour if it results in outcomes they

value. Individuals are more likely to adopt a modeled behaviour if the model is similar to the observer and has admired status and the behaviour has functional value.

Teachers need to teach English second language learners how to model cognitive processes as well as behaviours using real-world problems. Jonassen (1998) defines two types of modelling and they are behavioral modelling of the overt performance as well as cognitive modelling of the covert cognitive processes. Behavioural modeling 'demonstrates how to perform the activities' while cognitive modeling 'articulates the reasoning that learners should use while engaged in performing the activity.' Jonassen (1998) reasons that 'conventional teaching focuses on answers, which are often artificially 'tidy,' lacking the complexity and messiness of the real world.' He suggests using 'authentic problems' to make learners' learning experiences 'more appealing, engaging, and meaningful.'

Bandura's Social Learning Theory emphasises the importance of observing and modelling the behaviours and attitudes of others. Instruction can be made more efficient by modelling desired behaviours of functional value to learners and by providing situations which allow learners to use or practice that behavior to improve retention. Modelling is impossible to English second language learners as teachers communicate with them in mother-tongue yet the responses have to be in English.

2.2.12 Understanding different learning styles

Moll (1992) indicates that the best way for a person to learn depends on the person. It is well known that people have different learning styles that work best for them. The best approach for a teacher is to take to address a variety of learning styles with their teaching plan. Teachers must encourage students to understand their preferred learning style. It is assumed that learners have figured out the best and most productive to study and retain information. This assumption is not correct. Teachers should make students aware of the various learning styles and encourage them to consider their preferred style as they complete their studies.

2.2.13 Providing the right environment conducive to learning

The classroom environment can have a big effect on the amount of learning that occurs. Carroll (1992) notes that people are different and have different environmental preferences. Therefore, it is important to know the effects of the learning process. Carol

indicates that teachers must consider the following common learning styles and environmental factors when attempting to create the best learning conditions:

2.2.13.1 Structure of lessons

Most students learn best when there is a logical sequential and delineated lesson that provides the objective and systematic steps to do the tasks at hand. It must also be noted that some learners do not like much structure and appreciate being given choices and allowed to be creative.

2.2.13.2 Sociological

Some learners benefit greatly from group activities and others do not. Peer learners should be paired with other learners. Self-learners should not be forced to engage in group activities all the time. Co-operative learning is an important learning tool but it must be remembered that some learners are more introverted than others and may have difficulty participating in group activities.

2.2.13.3 Auditory

There are also learners who learn best by listening. Auditory learners perform well with class discussions and telling methods. Telling methods are considered the least effective teaching method but auditory learners learn best by simply listening. These learners are sometimes sensitive to outside noises.

2.2.13.4 Visual

Other learners benefit from a variety of ocular stimulation. They like images and written information. They like to be able to read instruction or the text on their own. This increases their understanding. It is helpful for these learners to use different highlighters or pens as they read and take notes. These learners are usually more sensitive to visual distractions.

2.2.13.5 Tactile

There are also learners who learn best with hands-on activities but some gain a lot more from it than others. Teachers need to know that some learners increase their potential when they are given an opportunity to do something. This should be done more especially in science classrooms where there should be plenty of opportunities to learn by doing.

2.2.14 Environmental factors

2.2.14.1 Formal versus informal

Formal setting would be the traditional desk and chair or a table. An informal setting could be a floor, a couch, etc. Learners' brains do not function the same in the same postural position. A learner who slouches in a traditional desk or chair may indicate that s/he may learn better in an informal setting.

2.2.14.2 Noise versus quiet

Sound is distracting to some learners and calming to others. This means that several study areas must be established. In one study area noise must be kept to a minimum and in another background noise must be present

2.2.14.3 Temperature

Room temperature plays a key role in learning. Students find it hard to concentrate on their learning tasks if they feel too hot or too cold. The classroom temperature must always be kept cool if possible as learners who do not like being cold can simply wear another layer of clothing and be comfortable.

2.2.14.4 Bright versus dim

Learners' eyes react differently to light. There are learners who need to use a bright reading lamp while others are distracted by the presence of too much light. Therefore, a comfortable light level for all should be sought.

2.2.14.5 Kinesthetic

There are also learners who need to have a continuous movement when they are studying like tapping their fingers or foot on the floor, fooling with their hair or chewing gum. This is natural but it must be ensured that these learners do not disturb others.

2.2.14.6 Mobility

The human body is built for movement and it does not like to be still for a long time. Learners must stand, stretch and take short breaks. Research has shown that it only takes thirty minutes to rest and recharge the brain.

2.3 Summary

This chapter has presented relevant literature on the effects of learning in English on the cognitive development of second language learners. It has further given a solid theoretical base on the study and, therefore, lays a base on the discussed theories of learning and in the learners' cognitive development as they progress with their learning in English. It has outlined different opinions by different experts in language profession. There is so much that needs to be done in order to assist the English second language learners, especially those in rural and township schools. Using English as a medium of instruction in all content subjects without considering the different approaches of using and teaching a language that is not one's mother tongue is the source of the negative effects of learning in English on the cognitive development of English second language learners. The following chapter will present different methods which the researcher used to gather data.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

As stated in chapter one, this study aimed to investigate the difficulties encountered by English second language speakers when learning their school subjects in English, and how that affects their thinking ability. The focus of the study was more on the slow mental activity of English second language speakers to acquire knowledge when learning takes place through English due to mental translations that have to be undertaken. The absorption of what is learnt might be different from first language speakers who have conceptual understanding of the instruction language. One of the consequences could be the high failure rate at matric level, which also results in unemployment and further hinders learners' from being accepted in tertiary institutions. The negative impact of learning in English on the cognitive development of English second language learners limits their English proficiency, which is the leafage of higher education. This chapter presents methods that were used by the researcher to examine this problem.

3.2 Data Collection

An outline of how data were collected is provided in this chapter. Three different techniques were used to collect data. The three techniques comprised literature search, structured questionnaires and structured interviews. Learners from seven rural and three township high schools were given tasks on selected subjects.

3.2.1 Literature Search

A literature search was conducted in order to clarify the negative impact of learning in English on the cognitive development of second language learners of English. Information gained from relevant literature was used to formulate questions relating to that negative impact. The literature search assisted the researcher to compare the views of other researchers regarding the issue of negative impact of English on the cognitive development of second language learners of English. The literature search also assisted the researcher to avoid needless duplication of effort, and to reveal newly identified questions and to decide what variables to include in the study, how to measure them, what apparatus and procedures to use.

3.2.2 Structured Questionnaires

The formulated questions were in the form of structured questionnaires. They were handed to a convenient sample of twenty educators and ten principals in seven rural and three township high schools in Empangeni District (Ngwelezane Ward) in KwaZulu-Natal. The objective was to obtain their perceptions regarding the negative impact of learning in English on the cognitive development of second language learners of English. Two questionnaires, namely, the school principals' questionnaire and the teachers' questionnaire were used in this research as a method for collecting data.

Questionnaires were of different forms, from tick boxes to free text responses and factual to opinion-based responses. Questionnaires were of two formats, namely, free-format and fixed-format. In free-format, respondents had the freedom in providing responses and responses were recorded in the provided space. In fixed-format questions, specific responses were required and respondents had to choose from available responses. Respondents were given the questionnaires to fill in and the researcher collected them afterwards.

3.2.2.1 School Principals' Questionnaires

Questionnaires for school principals were handed to a convenient sample of ten principals in seven rural high schools and three township high schools in Empangeni District (Ngwelezane Ward) in KwaZulu-Natal.

3.2.2.2 Teachers' Questionnaires

Teachers' questionnaires were distributed to a convenient sample of ten English teachers and ten content subject teachers teaching in rural and township high schools in Empangeni District (Ngwelezane Ward) in KwaZulu-Natal. After the questionnaires were filled in they were later collected by the researcher.

Using questionnaires for both school principals and teachers has advantages and disadvantages. These are discussed below.

3.2.2.3 Advantages of Using Questionnaires for Data Collection

Collecting information using questionnaires is quick. Questionnaires are also more objective. Potential information can be collected from a large portion of a group

simultaneously. When using questionnaires, people's responses may be compared since questionnaires provide structured results. Questionnaires are also inexpensive. It is good that questionnaires are identical and so respondents get the same set of questions. There is a high rate of honest responses since questionnaires are submitted anonymously and honesty is what researchers desire in order to fairly conduct their studies. Questionnaires are also advantageous in that there is no interference from the researcher and, therefore, respondents are allowed plenty of time to complete them. With questionnaires, open or closed questions can be asked. Questionnaires are also easy to analyse and administer.

3.2.2.4 Disadvantages of Using Questionnaires for Data Collection

Using questionnaires for data collection has its share of disadvantages. It must be noted that badly designed questionnaires may mislead and complicate the research process, and it may not be possible to explain as questionnaires are standardised. Another disadvantage of using questionnaires is that respondents may also not be willing to respond to questions. Questionnaires are unsuitable if responses need follow up, which is unlikely in the present study. With questionnaires, respondents may leave blank spaces or they may deliberately write inappropriate responses given that questionnaires are anonymous. Also with questionnaires, the researcher cannot observe respondents' body language, which is important in conducting a research.

3.2.3. Interviews

Ten educators and five school principals were interviewed to obtain their perceptions about the issue of cognitive development. The number of school principals and teachers was minimal due to the limited time frames of the study. The researcher aims to find out both the principals' and the teachers' perception on the negative impact of learning in English on the cognitive development of second language learners of English. It was ascertained that the measuring instruments were valid and reliable.

3.2.3.1 Structured Interviews

Both formal and informal interviews were conducted. The researcher had a specific set of questions to ask the respondents. Additional questions were asked for clarity. Three principals were interviewed informally and two were interviewed formally. Out of the ten educators, five were formally interviewed and the other five were interviewed informally.

With the informal interviews, some questions emerged from the immediate environment. Both open-ended and close-ended interview questions were used. Questions were read out loud to the respondents who answered verbally. The researcher then wrote down the responses. The researcher was in charge of structuring and directing the questioning. A framework within which respondents could respond in a way that accurately and thoroughly represent their point of view about the negative impact of learning in English on the cognitive development of second language learners of English was provided. However, the use of structured interviews for data collection has advantages and disadvantages.

3.2.3.2 Advantages of using Structured Interviews for Data Collection

Structured interviews are useful for data collection because the responses highlight aspects that cannot be observed directly. An inner perspective to outward behaviour is added. Interviews allow for probing, thus increasing accuracy of response. They also ensure the correct or intended interpretation of questions. Respondents can also raise concerns. Interviews enable modification to lines of inquiry. They also allow respondents to describe what is meaningful using their own words, and the researcher is able to observe interviewees' body language.

3.2.3.3 Disadvantages of Using Structured Interviews for Data Collection

The success of using interviews for data collection depends on the researcher's communication skill. Using interviews is time-consuming and requires considerable experience without which the researcher might fail to get the required data. Using interviews is also more intrusive and respondents may say more than what they intended to say and later regret.

The present researcher chose interviews as one of the ways of gathering information because interviews yield a great deal of useful information. The questions that were asked by the researcher related to facts, feelings, motives, present and past behaviours. Interviews also assisted the researcher to obtain information regarding standards for behaviour, meaning what the interviewees think should be done in certain situations as well as the conscious reasons for actions (why people think that engaging in a particular behaviour is desirable or undesirable.)

3.2.4 Learners' tasks and interviews

Lastly, two learners per subject were given tasks to complete in class under the supervision of the teacher. The tasks were for the following subjects, English, Life Sciences, Business Studies and Life Orientation for grade ten, eleven and twelve as well as English, Economic and Management Sciences, Life Orientation and Natural Sciences for grade eight and nine. These tasks comprised of higher order questions. Learners were given these tasks in order to assess how much they understand the given questions and whether they are able to express themselves in English by providing matured and relevant responses. The researcher was looking for solutions to the negative impact of learning in English on the cognitive development of English second language learners. This would then assist the researcher to identify the damage caused by learning in English on the cognitive development of English second language learners.

A group of fifteen learners, comprised of three learners from each grade (grade eight to twelve) were interviewed simultaneously in a focus group. These interviews were conducted in two out of the ten selected schools. The researcher gathered these learners and spent an hour discussing the negative impact of learning in English on the cognitive development of English second language learners. The researcher introduced the issues to be discussed and ensured that no one dominated the discussion and kept learners focused on the topic. The researcher chose the focus group interview because of the limited time frame of the study. Another reason was that learners feel more comfortable talking in a group than individually. The researcher also felt that information among participants would be more informative than individually conducted interviews, especially with learners who cannot always be trusted.

4. Summary

In this chapter, the researcher has outlined how data was collected using different methods and techniques. A literature search, structured questionnaires, structured interviews, the tasks given to learners and learners' interviews in the form of focus groups were means of collecting data. Advantages and disadvantages of each method used were provided. The reasons why the chosen methods were found to be suitable for this study were also provided. The quantitative method could not be used in this study as it expresses findings in mathematical terms and specifies the variables and constants with which it deals numerically and relates the numerical states of these variables and constants to one another. In the next chapter, findings emanating from the data that was gathered are presented and interpreted.

CHAPTER FOUR

DATA PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the findings on how participants responded to questionnaires, interviews, tasks and focus group. Firstly, data that were collected from questionnaires administered to school principals are presented. This will be followed by data collected using teachers' questionnaires. Data collected through interviews will then be presented. Lastly, data collected using tasks that were given to learners and how the focus group responded to interview questions are also presented.

4.2 School Principals' Questionnaires

There were twenty questions in the principals' questionnaires. Nineteen questions were of the fixed-format type and respondents had to choose a response from those that were provided. Only one question was of a free-format where respondents had to write responses in the space that was provided.

The researcher initially distributed twenty questionnaires, but only ten school principals returned the questionnaires and the findings are based on those. School principals gave various reasons for not returning the questionnaires. Some school principals said they misplaced the questionnaires. Questionnaires were distributed to these principals for the second time. The researcher went to collect the questionnaires for the second time only to be told that again some were misplaced. Another excuse was that they were too busy and did not find time to complete the questionnaires.

Seven out of ten respondents were male school principals and three were female. About eight respondents were high school principals with the exception of the two who were secondary school principals. Primary school principals were not included because the focus of the research included mainly the high failure rate in matric due to the negative impact of English on the cognitive development of second language learners of English. Six school principals have between five hundred and one thousand learners. Two of them have more than a thousand learners in their schools. The remaining one has less than five hundred learners in her school. Most of these principals' schools have between ten and twenty teachers except for two schools that have more than twenty teachers. No school principal has less than ten teachers in his or her school.

One school principal has been a principal for more than eleven years. Again, one has been a principal for less than five years. Eight of them have been principals for between six and ten years. All respondents have English as a medium of instruction in the school policy and English is also a language of instruction in grades eight to twelve. Six school principals responded to using English most of the time when interacting with learners and the same applies to teachers. This is contrary to learners who use their mother tongue, isiZulu, to interact with each other.

Out of the ten schools where the research was conducted, seven are rural and three are township schools but most learners in these schools come from rural areas. The township school principals indicated that most township learners attend former model C schools as their parents are literate and want the best-resourced schools to secure the educational success of their children. This is the reason they have learners from rural areas. Most school principals responded that content subject teachers use isiZulu during teaching and learning, although this is often discouraged in meetings. Three schools obtained a pass percentage of between seventy (70%) and one hundred (100%) percent. Four schools obtained a pass percentage of between forty (40%) and sixty-nine (69%) percent. Two schools obtained a pass percentage of between ten (10%) and thirty-nine (39%). The remaining school scored below ten (10%). Seven school principals feel that teaching content subjects in isiZulu, the learners' mother tongue, might improve the matriculation pass rate in their schools only if responses will also be provided in the same language. The remaining three feel that English should be the language for teaching content subjects.

The reason given by the three school principals for choosing English as a language of teaching content subjects was that they feel that English will open doors for learners. They will get better employment opportunities as English is widely seen as a language of the work place. This confirms what was mentioned earlier in chapter two, that English is a world language, further supporting Widdowson's (1994) belief that English is an international language. The school principals' views and Widdowson (1994) are similar on this issue, as they all believe that English is an international language. Besides that, these school principals also feel that the availability of adequate learning and teaching support material in learners' mother tongue will take a long time to materialise, and they do not want to waste time on unrealistic possibilities (use of mother tongue to improve matric pass rate.) They point out that English is here to stay. This is evident in the

responses of the seven principals who are for the idea of the use of isiZulu to teach content subjects. These principals do not just agree, but there is a condition that is put forward, that is, questions and responses should also be provided in Isizulu. Teaching content subjects in isiZulu and giving responses in English does not help learners in any sufficient way. Teaching in isiZulu will ensure maturity in the cognitive development of English second language learners, but they will still find it hard to maturely express themselves due to the language barrier. This fulfills the researcher's objective of investigating the role of language as an essential factor in thinking or rather the relationship between language and cognitive development. English has again negatively affected the cognitive development of English second language learners.

School principals were asked whether they were satisfied with the cognitive development of learners in their schools (see annexure A, principals' questionnaire, number 16) and whether they really feel that there has to be an alternative to the use of English as a medium of instruction. They were then asked whether they were happy with the thinking level of their grade twelve learners and whether they would opt for code switching if it were in their power to choose the language of teaching and learning (see annexure A, principals' questionnaires, number 15). Most school principals would opt for code switching (isiZulu and English) if it were in their power to choose the language of teaching and learning. These school principals believe in what O'Malley and Chamot (1990) stated that students without metacognitive approaches are essentially learners without direction or opportunity to plan their learning, monitor their progress or review their accomplishments and future learning directions. This seems to be the case with the English second language speakers as their language command hinders them to think maturely. Cognitive development plays a crucial role in learning. About nine school principals indicated unhappiness regarding the thinking level of their grade twelve learners which they feel shows immaturity in most cases.

One indication of the cognitive development of English second language learners would be being employed or furthering one's studies. This is not the case as indicated by the findings. The school principals were then asked what most of their learners did after completing matric. The majority of school principals indicated that a number of learners stayed at home after completing matric and very few further continued with their studies or worked. If these learners' cognition is well developed by then, there is surely no reason for them to stay at home instead of working or studying. It must be noted that this is not usually the case with their counterparts (English first language speakers'). This

proves the researcher's view that there are few English second language speakers in most challenging professions, therefore, the hindrance that deprives English second language speakers an equal chance to excel in challenging fields or careers is undoubtedly the language, in this case, English (see chapter one, page nine, paragraph two). It must be remembered that one objective of this study was to investigate the role played by learning in English in the cognitive development of English second language learners. (see chapter one, page ten, number 1.4.2. ii). The given responses clearly indicate how crucial language is in order for cognition to develop.

All participants responded positively regarding the negative impact of English on the cognitive development of second language learners of English. Ten out of ten, that is one hundred percent (100%) positive responses resulted as participants responded to whether speaking English to learners might help solve the negative impact of English on the cognitive development of second language learners of English.

Respondents felt that the use of English as a medium of instruction negatively affect learners' performance in all subjects that are taught in English. This was shown by the respondents' unanimous positive response regarding the above-mentioned problem. Nine respondents felt that the academic performance of learners is affected, as learners tend not to understand the instructions and the questions. This leads to their failure to respond to English questions, in all content subjects that are taught in English, correctly. These responses support the researcher's assumption, which was stated earlier in the introduction that, language and thinking are key aspects that are associated with gaining insight to problems. Respondents clearly indicated through their responses that without the language, in this case English, second language speakers of English find it difficult to think maturely. This negative effect of learning in English on the cognitive development of English second language speakers does not end there, as pointed out by two respondents who feared for learners' inability to ask questions for clarity in class during teaching and learning. Most respondents felt that the use of English as a medium of instruction, impacts negatively on the cognitive development of second language learners of English and that further affects learners and the school in terms of academic performance.

Most respondents would like English teachers to engage learners in English using interesting activities such as debates, talk shows, symposiums, etc, in order to encourage them to speak English. Furthermore, respondents felt that content subject teachers must

interact with learners in English to familiarise them with the different subject terminology. Respondents also felt that competition must be encouraged and learners must be awarded as part of incentives. Educators themselves must lead by example and interact with learners in English, as this was not the case.

A feeling of engaging learners in English formally and informally was also a unanimous response. Two respondents felt that English teachers must strategise the means of forcing both teachers and learners to use English whenever communicating with each other. Other respondents indicated the on the issue of spelling, dictation, recitation and memorisation, reading activities using freely available local newspapers as well as oral work to form a foundation of all activities as one way of promoting fluency and confidence in the use of language.

4.3 Teachers' Questionnaires

The findings on teachers' questionnaires were based on the twenty questionnaires that were distributed to both English and content subject teachers and returned to the researcher. Sixteen questions were included in the teachers' questionnaires. Fifteen (99%) of those were fixed-format questions and one (1%) was of a free-format type. Respondents had to choose the suitable option from the given ones in fixed-format type of questions. For the free-format type ones, they had to write their views in the space provided.

Seventeen respondents on teachers' questionnaires were females and three were males. The researcher wanted to find out whether lack of experience on the teachers' side could be blamed for the negative effects of English on the cognitive development of English second language learners. The respondents were then asked to indicate their teaching experience. Two respondents have been teaching for more than fifteen years, four have been teaching between nine and fourteen years, seven have been teaching for a period of between zero and three years and about six have been teaching for between four and eight years. Only one respondent belongs to the zero to three years teaching experience. The present researcher also wanted to detect whether content subject teachers majored in English or not. This was done in order to assist the researcher to see how confident content subject teachers are when it comes to the use of English as a language of learning and teaching. The researcher also wanted to acknowledge the teachers' effective use of language in the elimination of barriers that emanate as a result of learning in English. Respondents were asked whether they majored in English or not. Six

respondents majored in English and they indicated the least problems in using English as a language of learning and teaching. This is the same group that uses English to communicate with learners inside the school premises. The other fourteen majored in other disciplines and this is the group that mostly preferred code-switching or pure isiZulu during learning and teaching, and it is the same group that does not use English to communicate with learners inside the school premises.

Most respondents teach grades eleven and twelve and a quarter of them teach grades eight, nine and ten. Only two respondents had grade twelve in English. Eight had Diplomas. Seven had Degrees and three had Honours Degrees. It was important for the researcher to find out whether there is any assistance that is rendered by the department of education in the form of workshops and the like (see annexure B, teachers' questionnaire, number seven and eight). The findings indicate that not all English teachers attend workshops organised by the Department and solutions to the problems encountered during teaching and learning are rarely discussed in those workshops which further poses difficulties regarding identifying and treating teaching and learning problems.

The important part of this study was to identify the effects of English on the cognitive development of English second language speakers. One way of doing that was to get teachers' perceptions about the level of maturity when it comes to responses that are given by learners (see annexure B, teachers' questionnaire, number eleven and thirteen). The findings indicate that responses given by learners in English are not indicative of maturity and are not in line with their respective grades. This immaturity is more evident in written mode compared to spoken mode. More than ten teachers feel that there is progress and understanding during teaching and learning in their subjects when they teach in both isiZulu and English (code switch). They also indicated that they are unhappy about the immaturity, which is evident in the learners' responses.

According to the respondents, grade eight learners do not understand English fairly well when they enter grade eight. English teachers were mostly satisfied with the English pass rate (due to the fact that English is a language and not a content subject, therefore, it assesses less reasoning and more language structures and less reasoning) contrary to the content subject teachers who indicated a high failure rate in their subjects especially those that assess reasoning more than recalling.

It is evident from the findings that participants feel helpless when it comes to solving the negative impact of English on the cognitive development of second language learners of English. Most respondents, who are English teachers, stressed the issue of being qualified to teach English before these problems can be minimised. A large number of participants also emphasised the use of English as a language of communication for both learners and teachers inside the school premises.

4.4 Structured Interviews

Five school principals and ten English teachers were interviewed. The interviews were structured in a specific set of questions, which were asked by the researcher to find out perceptions of the school principals and teachers about the negative impact of learning in English on the cognitive development of second language speakers of English. The findings indicated that most teachers use isiZulu to interact with learners inside the school premises. The body language of the English teachers indicated that there is a percentage of teachers who use isiZulu even during the teaching and learning process. Half (50%) of the interviewed English language teachers were unsure about how to enforce the use of English as a medium of instruction by the content subject teachers.

The content subject teachers felt that English language teachers are duty bound to ensure that learners understand English fairly well to cope with content subject challenges. Moyo (2003) reasons that there is a lack of sufficient trained teachers in indigenous languages to effectively teach these languages. This also applies to English as both a second language and a language of instruction. Most teachers are not adequately trained to detect, explain, diagnose and try to remedy the problems caused by the impact of learning in English on the cognitive development of second language speakers of English. Twelve interviewed respondents believed that the workshops organised by the Department are not as fruitful as they are meant to be, which is the reason why they prefer not to attend them.

4.5 Learners' Tasks

The most important group in this study was the group that comprised of English second Language learners, as they were the ones whose cognitive development was questionable. A total of forty-eight learners from different grades were given tasks to complete under the strict supervision of the teacher. More than thirty respondents did not show any maturity in their responses for the different tasks. Low order responses were

provided for higher order questions. Less than five respondents provided matured responses that are in line with their respective grades.

Not only did the researcher give learners written tasks to complete, but they were also interviewed, wanting to find out whether learners were aware of the effects of English on their cognitive development. The researcher also asked them whether they always provided matured response in both written and spoken form. The interviewed focus group unanimously agreed to responding immaturity in most cases. Thirty-five learners also felt that being taught in one language and giving responses in another was the main reason for failing to express themselves maturely. More than fifty percent of the respondents felt that they could produce expected matured responses in mother tongue if they were given such an opportunity.

4.6 Summary

This chapter has presented and interpreted the findings of the data that were collected. The experiences, perceptions, and thoughts of both the school principals and the English language teachers as well as the learners' responses to different tasks that were given to them were presented. The next chapter will present data analysis.

CHAPTER FIVE

DATA ANALYSIS

5.1 Introduction

This chapter analyses the data that were collected and presented in the previous chapter (see chapter four for analysis).

5.2 Analysis

Language has a powerful influence on the outcomes of schooling. Language is also a crucial means of gaining access to important knowledge and skills, and this can determine academic achievement. Learners with limited proficiency in the medium of instruction are most at risk of school failure. Proficiency in the medium of instruction can open or close the door to academic success. Learners who attend Afrikaans medium schools study English as a compulsory second language. These learners are required to acquire functional knowledge of English in order to take their place in society, but are not required to use English as a medium of instruction and of learning.

Second language speakers of English learn through the medium of their mother tongue only during their lower primary classes. Higher primary marks a transition to English as a medium of instruction. The data that were collected clearly indicate many problems which are caused by this transition. There is a disparity between the English proficiency of these learners and the proficiency required of them in order to learn all their academic subjects through the medium of English.

A number of learners who are sufficiently fluent in English, but seldom have the command of English necessary for school success. Second language learners of English not only have to acquire English proficiency on a par with the English speaker, but also have to use English as a medium of learning for all academic disciplines. The negative impact of English on the cognitive development of second language speakers of English is a result of the dual educational challenge second language learners are faced with, which is, the mastery of academic content through the medium of a language other than the mother tongue. It is good that so many people are aware and concerned about the negative impact of English on the cognitive development of English second language learners. This is indicated by the fact that some textbook authors and publishers have taken it upon themselves to find a solution to this problem. They have gone to the extent of supplying lists of important terms at the beginning of each section, and at the back of

the textbook is a glossary in which terms are explained in alphabetical order. This draws a conclusion that normal English, that is, English for communication, is not enough for the mastery of the content subjects. Therefore, the ever-changing face of education further poses an enormous challenge to teachers. Teachers are faced with the challenge of providing appropriate education and ensuring that learners from diverse backgrounds succeed, a challenge for which their previous training and experience in educational institutions have not fully prepared them. Second language learners of English are at risk of school underachievement, therefore, it is essential that each teacher, not only the language teacher, becomes aware of the needs of second language learners of English. The issue of Language Transfer was identified as one tool that is used by second language speakers of English in their everyday struggle with the target language. The assumption suggests that English second language learners transfer some rules from their first language and apply them in the target language.

Different learners showed different syntactic problems as per their grades. Those who were in higher grades (grades 11 to 12) showed fewer mistakes and / or errors compared to those who study in lower grades (grades 8 to 10). Their errors were omissive, additive, substitutive types as well as those related to word order. They showed syntactic problems in both the spoken and the written form. The syntactic problems faced by rural Black learners are evident in the following structures: Noun, pronoun, verb, preposition and article. The above errors were identified in many learners who were in lower grades.

5.2.2 Structural Problems in the Written Mode

The following examples illustrate the syntactic problems shown by learners in writing. Knowledge of grammatical terms such as countable and uncountable nouns', 'transitive and intransitive verbs', 'stative and dynamic verbs', 'main and subordinate clause' enables one to describe and discuss the problems identified in language. Therefore, it could be argued and strongly emphasised that teachers should focus on the above-mentioned elements of speech for the success of rural Black learners. An introduction to basic concepts and terminology is required to identify and analyse syntactic problems faced by rural Black learners in English.

Omissions, over-generalisations and unnecessary insertions need to be examined closely by the English language teachers as well as language practitioners in the contexts of the learners because they act as prompts in explaining the nature of the problems identified. It could therefore, be argued that grammatical concepts should be taught by providing

learners with adequate definitions and diverse authentic examples related to language use in global context, since English is a global language. Careful attention and close textual analysis of the types of problems rural learners face in constructing texts, could work towards resituating grammar within the context of textual production rather than having grammar focused at the individual level of isolation.

There is a need for teachers to balance the problems faced by rural Black learners and the efforts at overcoming those problems. It is believed that learners should be given the responsibility of finding, diagnosing, and correcting their own syntactic problems and those of their peers after they have been thoroughly taught rules that govern the use of language. With such knowledge, learners, it is hoped, would be in a position to check their own language, for example, compositions, before they submit them as class assignments.

ESL learners who are not properly taught the lexical resources of the language focus on the decontextualised lexical items as listed in the dictionaries thereby losing sight of word association. Such learners often belabour their speech using one word at a time and simple vocabulary to express both simple and complicated ideas.

The researcher concludes that learners are not involved in extensive exposure to relevant English literature. Therefore, teachers should encourage learners to be involved in extensive reading of literature written in English. This would be through the use of class readers in English lessons. This would not only expose to learners a massive amount of vocabulary, but could also help them to discover and acquire new collocations. The English syntactic problems faced by rural Black learners might be minimised and even eliminated if the South African education stakeholders could ensure the employment of qualified personnel in relevant positions, particularly in government schools, where there is a shortage of skilled and qualified English teachers.

5.3 Summary

Vygotsky (1962) views language as an essential factor in thinking. This was proven to be true by the respondents. Learners indicated that they failed to give matured responses due to language barrier. Teachers indicated that learners did not produce matured responses and English as a medium of instruction was to blame for that. Therefore it is crucial to think in the same language that will be used to give responses, or to be competent in that language. Teachers have a rather major task in this educational endeavour, which is to thoroughly assist the English Second language learners to be competent in English. Looking at the different purposes for code-switching as postulated by Baker (1993). The researcher feels that code-switching can be used by content subjects teachers but not as often as it is used presently. Teachers indicated a specific challenge that is visible during teaching and learning of content subjects. This was earlier stated by Adler, Slonimsky and Reed (2002). The challenge is that of the negative impact of English on the cognitive development for English second language learners.

Based on the data which have been presented in this chapter, the researcher believes that learners are neglected by teachers. It is believed that in most government schools, especially those in rural areas, not much is done to deal with the negative effect of English on the cognitive developments of English second language learners, even teachers themselves do not like to speak in English to learners and even among themselves. This practice highly demotivates learners to speak and to practice speaking English. Rudwick (2004) postulates that if teachers struggle to speak in English, how much knowledge could be imparted to learners if teachers, too, struggle to express themselves in English? This was observed in most schools which participated in this study. Most respondents who were interviewed by the researcher in English showed similar language problems, in such a way that code-switching was used by respondents as a sign that they ran short of the appropriate lexical item in the target language. This implied that the teachers' and learners' competence in the target language, i.e. English, was rather questionable.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter will give conclusion of the study as a whole and provide recommendations.

6.2 Conclusion of the Study

It is a fact that most South African learners use English as a language of learning and teaching (medium of instruction). It must be noted that this English is not just the English for communication purposes only but it is a special kind of English that is used in schools, which might not necessarily be the same as the English used to interact with one another, when we chat over coffee, tell people about our health or talk about the weather. The English in question here is the language for learning which obviously vary from one school subject or activity to another, or that kind of language peculiar to a specific topic area or subject, which is also called a register. A good example is that of circle, diagonal, etc. when discussing geometry in mathematics. There is a specific register that is used in education. Examples include carrying out experiments, defining terms, observing, drawing conclusions and so on.

Knowing a language and expressing oneself in a language involve technicalities. In natural science, personal pronouns like ‘you’ and informal words like ‘throw’ or ‘get’ are not used. For example, if you throw sulphuric acid into water, you will get dilute sulphuric acid, instead they talk of, if sulphuric acid is added to water, dilute sulphuric acid is formed. In Social Sciences, attorneys do not write like this: If you do not pay this account by 7 June, I will take legal action. Instead, something like this will be written: If this account is not paid by 7 June, legal action will be taken. There is more in a language than just mere communication of ideas. This means that English second language learners have to learn to manipulate formal and informal language markers, in order to satisfy the requirements of different activities within the school situation. Language markers are those features in a language that enable one to recognize formal language, objective or subjective information, factual language etc, just like symptoms that assist one to recognize an illness. Subjective and objective communication, levels of abstraction, note-taking skills, summarising systematic organization of information are all prerequisites for academic success. This applies to matriculants as well. They too need this to pass their matriculation. The question that arises is: Are the English second language learners well equipped to identify, deal and conquer these challenges while at

the same time mastering the language? English second language learners might wish to politely argue, frame questions in class, share points of view during discussions, etc. only to find that they lack the communicative skills that are so essential for interaction in the classroom. This stresses that there is a special kind of language skills needed in schools.

6.3 Recommendations

Despite the challenges that are mentioned above, surprisingly, for the vast majority of learners, teachers and parents, English is still a preferred language for learning or medium of instruction. This indicates that it is not easy to run away from English. The solution is, therefore, to deal with English head on by applying certain strategies. It all begins with teachers. Teaching is indeed the mother of all professions and the World is dead without knowledge. Teachers are the ones who discover the learners' potential and nurture the minds of learners for a better future. They, therefore, need to be strengthened, encouraged and inspired in their marvelous work. Teachers are custodians of knowledge and wisdom and are vested with the duty of empowering young minds with quality education via a language, which is a medium of instruction, and that is English. They are also the ones who usually get the better out of many youngsters and instill a sense of discipline, purpose and drive in learners' lives.

Retraining of teachers might be a solution. It is true that this recommendation can be viewed as too late for teachers who have already joined the profession, it is recommended that in-service training, in the form of subject workshops, facilitated by the exceptionally good facilitators must be conducted to address the language issue. The workshops that are conducted are usually not as fruitful as they are meant to be. The reason that was given by some respondents was that even the so called subject specialists do not tackle the language issue head on, as if they too, are unsure about how to deal with it. It must be noted that textbooks use specific language for the different content subjects. There is, therefore, a great demand for teachers to be creative and inventive in order to come up with the approaches to classroom methodology that will fit and accommodate English second language learners. The era that the education system has moved into culminates the demonstration of learning and achievement of outcomes which are speculated per subject. The outcomes in question here are not just a list of discrete skills but they are a description of performances that demonstrate that significant learning has been achieved and verified by learners.

Learners are able to identify and use an appropriate language for classroom interaction but fail to identify the special kind of language needed to cope with different school subjects in order for them to be able to produce matured responses. The problem of the effects of English on the cognitive development of second language learners is not only limited to the school situation. Many organizations have found that their training programmes fail if they do not at the same time address the language problems of their target groups. This indicates that for every institution or target group, the starting point should be to determine specific communicative needs. Each content subject has its own register or specific language and so are the different professions. Content subjects are characterised by their own terminology and there is someone who should be responsible for the problems that arise. The question that arises is, should it be the language teachers or the content subject teachers? It is unfortunate that many subject teachers seem to think that teaching English is the responsibility of English teachers and this is actually not the case. It is as for the content subject teachers as the English second language teachers that their pupils should be able to cope with the terminology and register of their subject, that learners should be able to follow explanations, be able to ask questions and generally benefit from classroom interaction as well as being able to put their reasoning and their thoughts in both spoken and written modes. This calls for the use of English on the part of content subject teachers during teaching and learning.

It is not possible for the language teachers to assess the specific needs of the different content subjects and address them. It is, therefore, recommended that there should be cooperation amongst the teachers. English second language teachers can help the content subject teachers with the methodological approach to implement language teaching. Team effort is strongly recommended here as English second language teachers can not deal with the negative effects of English on the cognitive development of second language learners on their own. Various subject teachers must all become involved in the cognitive development of English second language learners. This again calls for training. Teachers should be trained to make their contribution while they are still being trained. One important consideration for subject advisors is that teachers should be trained to teach language for the different content subjects while they are still at tertiary. Language should become a vital aspect of the training of every subject teacher, both at primary and secondary schools. Another recommendation is that teachers should be exemplary by being role models of acceptable English. These recommendations can never succeed if tertiary institutions, where teachers are trained, are not involved.

Since many rural teachers struggle to speak English themselves, it is recommended that they undergo thorough training in order to improve their English language proficiency. Not only should they be trained at training institutions but also in the workplace through workshops. Training them might assist in imparting relevant knowledge to learners. Learners as well should be exposed to the target language more often. In this way, their competence will be solid.

There is also a problem with the readability level of textbooks. The readability level must neither be too low nor too high, but be of an acceptable level by using the right subject terminology. Geography uses terms such as coastlines, escarpment, rising slopes, etc. This is one subject and part of one lesson. If this is multiplied by the number of different school subjects and the number of periods, it is not surprising that English second language learners experience difficulties during their entire schooling period. It is, therefore, the duty of teachers to try to help English second language learners throughout their school years in all subjects in order to deal with the negative effects of English on their cognitive development.

Longer words and longer sentences as well as complex sentences increase readability level, and make textbooks for English second language learners more difficult to understand. At the same time, it is as important for English second language learners to be good readers as their counterparts (English first language learners). Unfortunately, there is a very serious language problem that has to do with reading skills of English second language learners. Learners have to be able to read textbooks in order to cope with their studies. The reading skill is the most vital skill needed in learning from textbooks in a language other than mother tongue.

There are English second language learners who have the intellectual ability, but not the language to follow for examination courses. This gives rise to high failure at matric level. This means that language has to be simplified, but simplification alone will not help. A structured approach to the language content of the specialist subject is required. As if that is not enough for the English second language learners, they also have to cope with visual support such as tables and graphs. If it is difficult for them to cope with a spoken and written form of English, they will definitely find it even more difficult to interpret tables and graphs.

English second language learners are also able to demonstrate high order thinking, such as arguing, generalising, etc. in their home language, but lack the vocabulary required to carry out higher cognitive operations through the medium of English. It is recommended that subject teachers must share curriculum objectives of the content subjects with language teachers in order to address them in the language class. They must also develop instructional strategies to meet the need of English second language learners.

Should they be taken into consideration, these recommendations might yield a shift from the obstacles outlined in this study towards alleviating the negative impact of learning in English on the cognitive development of second language learners of English.

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ANNEXURE A

School Principals' Questionnaire

Kindly fill in the blank spaces or tick the appropriate box(es).

1. What is your gender?

Male	
Female	

2. What type of institution where you are stationed?

Primary school	
Secondary school	
High school	

3. What is the number of learners in your school?

-500	
500-1000	
1000+	
2000+	

4. What is the number of teachers in your school?

-10	
10-20	
20+	

5. For how long have you been a school principal?

0-5 years	
6-10 years	
11+	

6.

(a) What is the medium of instruction in the school policy of your school?

English	
isiZulu	
Other	

(b) What is the language of instruction in Grades 8 to 9?

English	
isiZulu	
Other	

(c) What is the language of instruction in Grades 10 to 12?

English	
isiZulu	
Other	

7. Which language do you use to interact with learners?

English	
isiZulu	
Other	

8. Which language is mostly used by teachers to interact with learners?

English	
isiZulu	
Other	

9. Which language(s) is/are the learners' mother tongue in your school?

English	
isiZulu	
Other	

10. Where is the school situated?

Rural area	
Township	
Urban area	

11. Where do most of your learners come from?

Township	
Rural area	
Shacks	

12. Which language is used by content subject teachers during teaching and learning in your school?

isiZulu	
English	
Both isiZulu & English	
Other	

13. What is the previous year's (2009) matriculation results' pass percentage?

70%-100%	
40%-69%	
10-39%	
Below 10%	

14. Do you think that teaching content subjects in isiZulu might improve the matriculation pass rate in your school?

Yes	
No	
Not sure	

15. If it were in your power, which language would you prefer to be used in your school during teaching and learning?

Isizulu only	
English only	
Code switching (Isizulu & English)	
Other	

16. Are you happy with the thinking level of the grade 12 learners in your school?

Yes	
No	
Not Sure	

17. What do most learners in your school do after completing matric?

Further studies	
Work	
Stay at home	
Not sure	

18. What would you like the content subject teachers to do in order to improve the cognitive development of learners in your school?

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Thank you for your time.

ANNEXURE B

Teachers' Questionnaire

Kindly fill in the blank spaces or tick the appropriate box(es).

1. What is your gender?

Male	
Female	

2. What is your teaching experience?

0-3 years	
4-8 years	
9-14 years	
15+	

3. Is English one of your major subjects?

Yes	
No	

4. Which content subject taught do you teach?

Maths	
Life Sciences	
Other	

5. In which grade(s) do you teach that content subject?

Grade 8/9	
Grade 10/11	
Grade 12	

6. What is the highest qualification in the subject taught?

Grade 12	
Diploma	
Degree	
Honours	
Masters Degree	
PhD	

7. Do you attend workshops, organised by the department, for the subject you teach?

Always	
Rarely	
Not at all	

8. Are solutions to the problems encountered during teaching and learning ever discussed in those workshops?

Always	
Sometimes	
Not at all	

9. Do you identify and treat these problems after attending such workshops?

All the time	
Sometimes	
Not at all	

10. Which language do you use to communicate with learners during your period?

English	
isiZulu	
Other	

11. Do responses given by learners in English indicate maturity and are they in line with their respective grades?

Yes	
No	
Sometimes	
Not Sure	

12. Progress and understanding in your subject is mostly evident when teaching in.....

English	
isiZulu	
Both isiZulu and English	

13. Are you satisfied with the cognitive development (thinking ability) of your learners as they progress from one grade to another?

Yes	
Partly	
Not at all	

14. Do learners understand English fairly well when they enter Grade 8?

Yes	
Partly	
Not at all	

15. How do learners pass your subject?

100%	
60-99%	
30-59%	
0-29%	

16. What do you think should be done by educators and learners in rural and township schools to solve the negative impact of English on the cognitive development of second language learners of English?

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Thank you for your time.

ANNEXURE C

Principals' and Teachers' interview Questions

1. Which language do you use to communicate with learners during your period?
2. Which language is mostly used by other teachers to interact with learners?
3. Which language is mostly used by content subject teachers during teaching and learning in your school?
4. Are you happy with the thinking level of grade twelve learners (or learners in general, in your school) as they progress from one grade to another?
5. What would you like the content subject teachers to do in order to improve the cognitive development of English second language learners?
6. Do you attend workshops, organised by the department, for the subject that you are teaching?
7. Are solutions to the problems that you encounter during teaching and learning ever discussed in those workshops?
8. Do learners understand English fairly well when they enter grade eight?

Thank you for your time.

ANNEXURE D

Grade 10, 11 and 12 Learners' Questionnaires

Kindly fill in the blank spaces or tick the appropriate box.

1. What is your gender?

Male	
Female	

2. Which grade are you currently studying?

10	
11	
12	

3. How old are you?

15	
16	
17	
Other	

4. For how long have you been in this grade?

1	
2	
3	
Other	

5. What type of school do you attend?

Rural	
Township	
Former model C	

6. In which subject were you assessed?

EFAL	
LO	
Life Sciences	
Business Studies	

Thank you for your time.

ANNEXURE E

Grade 8 and 9 Learners' Questionnaires

Kindly fill in the blank spaces or tick the appropriate box.

1. What is your gender?

Male	
Female	

2. Which grade are you currently studying?

8	
9	

3. How old are you?

13	
14	
15	
Other	

4. For how long have you been in this grade?

1	
2	
3	
Other	

5. What type of school do you attend?

Rural	
Township	
Former model C	

6. In which subject were you assessed?

EFAL	
LO	
Natural Sciences	
EMS	

Thank you for your time.

ANNEXURE F

Learners' Interview Questions

1. What is your gender?
2. Which grade are you currently studying?
3. How old are you?
4. For how long have you been in this grade?
5. What type of school do you attend?
6. In which subject were you assessed?
7. What is your favourite subject?
8. Which subject is your least favourite?
9. Why is that subject your least favourite?
10. Which subject is used by content subject teachers during teaching and learning in your class?
11. Do teachers of English use English throughout their periods or do they code- switch to mother tongue at times?
12. Do you encounter thinking and understanding difficulties when responding to essay type questions?
13. What do you think are the reasons for those difficulties?
14. Which language makes thinking and understanding easier for you?
15. Which language would you prefer to be used as a language of teaching and learning?

Thank you for your time.

ANNEXURE G
PRINCIPALS' LETTER

P.O. Box 3129
Empangeni
3880

The Principal

A REQUEST TO CONDUCT A RESEARCH IN YOUR SCHOOL

The researcher is conducting an inquiry about the Negative Impact of English on the Cognitive Development of Second Language Learners of English.

I kindly request permission to use your school to conduct this research. Questionnaires will be distributed to the principal, teachers and learners and they are all requested to complete them. Questionnaires will be treated with the highest level of confidentiality. Interviews will also be conducted with the principal, teachers and learners.

The findings of this investigation might help in the alleviation of the problems caused by the Impact of English on the Cognitive Development of Second Language Learners of English and the improvement of the matric pass rate.

Thank you in advance for completing the questionnaire.

N.D. Ntshangase

ANNEXURE H
EDUCATORS' LETTER

P.O. Box 3129
Empangeni
3880

The Educator

I kindly appeal for your assistance regarding the tasks to be given to the learners which will help me with my research on The Negative Impact of Learning in English on the Cognitive Development of Second Language Learners of English.

The subjects and grades for the different tasks are indicated on the cover page. I further request that the tasks must be written in class in the presence of the educator and not be given to learners as homework.

Your co-operation will be highly appreciated.

Thank you

N.D. Ntshangase