THE ROLE OF ENVIRONMENTAL QUALITY AND TIME PERSPECTIVE ON THE ACADEMIC PERFORMANCE OF GRADE 12 LEARNERS

by

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Gerhard Johan van der Linde **Date**

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"You call me master and obey me not;
You call me light and see me not;
You call me the way and walk me not;
You call me life and live me not;
You call me wise and follow me not;
You call me fair and love me not;
You call me rich and ask me not;
You call me eternal and seek me not;
If I condemn you, blame me not."

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Summary

The aim of this study was to determine to what extent time perspective and environmental quality can account for the variance in the academic performance of Grade 12 learners. This research was of non-experimental nature and a prospective design was used. The dependent variable was considered to be academic performance, while the independent variables were time perspective and environmental quality. Time perspective was defined as the multidimensional cognitive structure that influences the individual's motives and personality and determines the way in which he or she views time, and was assessed by using the Zimbardo Time Perspective Inventory (ZTPI). Five types of time perspectives were identified which were past negative, past positive, present hedonistic, present fatalistic and future time. Environmental quality was defined as the quality of the environment as determined by the subjective assessment regarding the degree to which it supports the individual's psychosocial and physical needs. A total of 413 Grade 12 learners from four English medium-schools in the Mangaung area were involved in the study. It was found that time perspective together with environmental quality accounts for approximately 14% of the variance found in the academic performance of Grade 12 learners. Although statistically significant relationships were found between time perspective and academic performance these relationships were concluded to be of little practical importance.

Keywords: Time perspective, environmental quality, academic performance, Grade 12 learners, housing.

Opsomming

Die doel van die studie was om te bepaal watter bydrae tydsperspektief en omgewingskwaliteit tot die variansie in die akademiese prestasie van graad 12-leerders lewer. Die navorsing was van 'n nie-eksperimentele aard en 'n prospektiewe ontwerp was ter sprake. Die afhanklike veranderlike was akademiese prestasie terwyl omgewingskwaliteit en tydsperspektief as die onafhanklike veranderlikes beskou is. Tydsperspektief is omskryf as die multidimensionele kognitiewe konstruk wat die individu se motiewe en persoonlikheid beïnvloed en bepaal hoe hy of sy tyd beskou. Verlede-negatiewe, verlede-positiewe, hedonisties-huidige, fatalisties-huidige en toekomstydsperspektief was die vyf tipes tydsperspektiewe wat geïdentifiseer is. Omgewingskwaliteit is omskryf as die kwaliteit van die omgewing soos bepaal deur subjektiewe assessering rakende die graad waarin die omgewing die individu se psigososiale en fisiese behoeftes ondersteun. 'n Totaal van 413 graad 12-leerders van vier Engelsmedium skole in die Mangaung-omgewing is in die studie betrek. Daar is was bevind dat tydsperspektief tesame met omgewingskwaliteit ongeveer 14% van die variansie in die akademiese prestasie van graad 12-leerders verklaar. Alhoewel statisties beduidende verhoudings tussen tydsperspektief en akademiese prestasie gevind is, is hierdie verhoudings bevind om van min praktiese waarde te wees.

Sleutelterme: Tydsperspektief, omgewingskwaliteit, akademiese prestasie, graad 12 leerders, behuising.

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Chapter 1 – Introduction

The academic success of South African learners is of great importance to the South African government as well as the learners themselves. The goal of the Department of Education is to ensure that no province has a school that performs below 50% in terms of the pass rate of its Grade 12 learners for the 2005 academic year (Pandor, 2005). For every South African learner, the Grade 12 examination is also of primary importance as the results from this examination are generally viewed as primary selection criteria for access to tertiary institutions (Huysamen, 2001; Swartz, 1998; Uys, 1993).
In view of this it is therefore necessary to have adequate knowledge of the factors that influence the academic performance of these learners.

Time perspective (De Volder & Lens, 1982) as well as the quality of the environment (Malefo, 2000; Desai, 1991) may influence the academic performance of learners. The influence of the environment on academic performance is of primary importance as approximately 11 percent of all South African households live in informal dwellings, which means that more than 2 million South Africans, many of whom are children, are subjected to inadequate living conditions (Statistics South Africa, 2005).

In this study the definition of academic performance as well as the factors that influence academic performance will be discussed. Regarding the concept of time perspective, the definition, dimensions as well as types of time perspective will be examined. The influence of time perspective on the individual will also be investigated.

Concerning the role of environmental quality, the definitions of the environment as well as environmental quality will be discussed. The various elements that constitute the environment will also be examined after which the effect of environmental elements on the individual will be discussed.
After describing the methodology and statistical procedures followed in this study, the results will be discussed. This discussion regarding the role of environmental quality and time perspective on the academic performance of Grade 12 learners will be concluded with comments regarding the shortcomings of this study and recommendations for future studies.

Chapter 2 – Academic performance

2.1. Introduction

The education of the South African youth is a priority at all government levels. This can clearly be seen from the amount of resources allocated to the achievement of this goal. For the current financial year the amount of R 6,9 billion was made available for education as well as the improvement of teachers' salaries (Sunday Sun, 2005). This amount accounts for almost 18% of budgetary expenditure, which makes education the governmental department that receives the most financial resources (Sunday Sun, 2005). The goal of the Department of Education is to ensure that no province has a school that performs below 50% in terms of the pass rate of its Grade 12 learners for the 2005 academic year (Pandor, 2005).

For every South African learner, the Grade 12 examination is also of great importance as the results from this examination are generally viewed as primary selection criteria for access to tertiary institutions (Huysamen, 2001; Swartz, 1998; Uys, 1993). Although the national pass rate for the 2004 examination was 70,7%, there were still 1 463 out of 6 140 schools that had a pass rate below 50% (Pandor, 2005). It becomes apparent that improvement is necessary if it is considered that of the 493 447 candidates who registered for the national examination, 22 367 candidates did not write or complete the examination (Pandor, 2005). Although there are various undisclosed reasons for this occurrence it is clear that, whatever the reason, the number of such learners should be kept as low as possible to reach the primary goal of the Department of Education, which is to improve the quality of learner attainment and learner participation. To be able to make informed decisions concerning educational policy and interventions, sufficient knowledge regarding the factors that contribute to learners' academic success needs to be available. In this chapter academic performance will be defined and conceptualized. Furthermore, an overview of existing research findings regarding the different factors that influence academic performance will be given.

2.2. Defining academic performance

Academic performance is a complex and problematic concept to define (Jansen, 2004; Swartz, 1998). According to Swartz, (1998) the context in which the term is used, the aim of the study as well as the researcher's perspective on the subject all play a role in defining academic performance.

Jansen (2004) defined academic performance as the cognitive and associated abilities that enable the learner to master academic information to a given standard to subsequently be able to be promoted to the next year of study. Although Jansen (2004) does not clearly define exactly what academic performance involves, she focuses on the abilities necessary to achieve academically. It is important to keep in mind that academic performance may largely be a function of the context in which it takes place, and therefore the necessary abilities may also vary according to the context. In this regard it may be concluded that the concept, meaning and criteria of academic success may also vary according to the context in which it is found.

Marais (1993) stated that there is uncertainty, even among learners, surrounding the concept of academic performance and specifically what academic success entails. Learners defined academic success as "being able to think maturely, independently and critically" as well as "being able to converse about a wide spectrum of topics". Other learners defined academic success as "the achievement of 60% in a subject", "the achievement of academic goals" or "the completion of a course". Another group of learners defined academic success as "hard work" or "as the reinvestment of knowledge into the community".

From these definitions it can be seen that learners define academic success in numerous ways. Some learners describe academic success as a state of being, where, after success has been attained, one will be able to think maturely or converse about certain topics for an indefinite period of time. Other learners see academic success as a specific goal to attain, for example to achieve 60% in a subject. This type of success is time specific and long-term success will depend on a number of short-term successes. For the final group of learners success is defined by an activity. In this regard success will be to work hard or to reinvest knowledge into the community. This kind of success depends on the individual's responsibility and commitment towards a certain activity, which should be kept up in order to remain successful. It can be seen that individual perceptions regarding achievement and success vary significantly. It is therefore necessary to determine precisely what is meant by achievement, and what criteria can be used to determine whether or not an individual has been successful or a goal has been reached.

Plug, Louw, Gouws and Meyer (1997) defined achievement as the attainment of the goal of a specific action; that is the completion of a task or the standard of success obtained with a specific undertaking. Using this definition as a basis, academic performance, for the purpose of this study, will be defined as the degree of success obtained as determined by the criteria set within the academic context. In this study a learner's academic performance will be determined by the success obtained in the Grade 12 record examination, which is to be completed during the mid-year examinations during 2005.

2.3. Factors that influence academic performance

There are a number of factors that play a role in academic success. For the purpose of this discussion these factors will be grouped as cognitive factors, personal factors and environmental factors.

2.3.1. Cognitive factors

Cognition refers to the processes and products of the intellect and involves numerous cognitive factors such as concentration, perception, memory and reason, and is subsequently of primary importance in general as well as academic performance (Louw, Van Ede & Louw, 1998).

Two of the major cognitive factors that are mentioned in previous research are aptitude and intelligence (Myburg, Grobler & Niehaus, 1999). Grobler, Grobler and Esterhuyse (2001) found that verbal as well as non-verbal scholastic aptitude plays an important role in learners' achievement in mathematics. Swartz (1998) mentioned that intelligence is of primary importance within the academic context and that it can be used as indication to determine if an individual is performing under his potential level of academic performance. Although intelligence and aptitude can be considered two of the most important determinants of academic performance, other factors also need to be considered in this regard (Myburg, Grobler & Niehaus, 1999).

Further factors that also have an influence on academic performance are a learner's cognitive learning style (Ross, Drysdale & Schulz, 2001) and learning strategy (Bosch, Boshoff & Louw 2003) as these will play a vital role in a learner's study methods and attitude (Swartz, 1998), which will have an effect on his academic performance.

Additional factors that currently receive attention in research are language proficiency (Marais, 1993; Jansen, 2004; Van Eeden, de Beer & Coetzee, 2001) as well as reading-related skills such as visual cognition and verbal cognition (Watson, Horner, Connell, *et al*., 2003). These are all skills that are important for the learning process.

2.3.2. Personal factors

As found in Moller (1995) personal factors refer to factors that are associated with the learner's individual functioning and may directly or indirectly have an influence on the learner's academic functioning and performance. These may include factors such as an individual's self-concept, time perspective and emotional intelligence (De Volder & Lens, 1982; Swartz, 1998; Grobler, 2005).

According to Plug, *et al*. (1997), self-concept refers to a person's view and evaluation of himself or herself and includes cognitive, emotional and evaluative elements. Although Grobler (2005) found that self-concept play a role in the academic functioning of learners, Meyer (1988) stated that learners' scholastic self-concepts play a more important role in their academic performance than their general self-concept. Scholastic self-concept refers to a dimension within the individual's general self-concept, which involves an individual's self-evaluation regarding his or her own scholastic abilities and performance (Meyer, 1988). Moller (1995) supported this finding by stating that self-esteem is an important factor that needs to be considered as influential to academic performance. Self-esteem refers to the evaluative aspect of the self-concept, and therefore to the individual's acceptance and approval of his or her own characteristics (Plug, *et al*., 1997). In contrast, Ochse (2001) found that poor performance is not always associated with negative self-perceptions and low expectations. In some cases positive self-perceptions and unrealistically high expectations can lead to poor academic performance. The key to successful academic performance may therefore be in realistic self-perceptions and expectations.

De Volder and Lens (1982) stated that a learner's time perspective has an effect on a learner's academic performance. Grobler (2005), Grobler and Myburg (2001) as well as Myburg, Grobler and Niehaus (1999) stated that a learner's concept of time played an important role in his or her academic functioning, as the dominant way to view time in a specific situation will play a role in how the individual experiences and treats the demands of time restrictions. In this regard, time perspective can be seen as a cognitive-motivational concept that will have definite implications for academic performance. The effect of time perspective on academic performance will be discussed in the following chapter.

Further factors that may influence academic performance are a learner's emotional intelligence (Kapp 2000; Swartz, 1998), level of discipline (Legotlo, *et al*., 2002), morale and motivation (Bosch, Boshoff & Louw 2003; Legotlo, *et al*., 2002), reaction to life stress and coping strategies (Malefo, 2000), medical conditions (Naudé & Maree, 2002) as well as extracurricular activities (Eccles, Barber, Stone & Hunt, 2003).

2.3.3. Environmental factors

Malefo (2000) found that environmental factors might also have an influence on learners' academic performance. According to Rapoport (1980), these environmental factors can either be of a psychosocial or physical nature.

2.3.3.1. Psychosocial environmental factors

One of the greatest social-environmental factors is the home environment (Moller, 1995). Factors such as parental involvement (Moller, 1995), parental interest (Cherian & Cherian, 1997; Hong & Lee, 2003), parents' level of education and occupation (Jubber, 1994) as well as parents' educational aspirations and values (Moller, 1995) contribute significantly to the creation of a home environment, which will either support or hinder a learner's academic performance. Inadequate parental involvement was found to have a negative influence on learners' academic performance (Legotlo, *et al*., 2002). The educational attainment of preceding generations may also influence the social-environment in which a learner functions (Moller, 1995).

Social-environmental as well as psychological stressors also have an influence on academic performance. Naudé, Du Preez and Pretorius (2003) found that traumatic environmental stressors, such as child abuse, had a negative influence on the scores obtained during intelligence assessments. The reason for this may be that brain functions are reorganized with stress and that various memory functions are selectively either depressed or activated.

2.3.3.2. Physical-environmental factors

A number of researchers found that a lack of resources have an effect on academic performance. This may partly be due to the fact that learners with the required resources are able to afford more and better study resources as well as better schools (Jubber, 1994; Legotlo, *et al*., 2002; Marais, 1993).

Evans, Saltzman and Cooperman (2001) investigated the effect of housing quality on children's socio-economic health and found that housing quality is related to psychological distress and a behavioural index of learned helplessness, which reflects an important component of human motivation. Independent of household income, children who reside in poorer quality housing

have more psychological symptoms, which include symptoms of depression or anxiety, and less task persistence than their counterparts living in better quality housing. By referring to Naudé, Du Preez and Pretorius (2003) it may be said that this influence is bound to have an effect on a learner's academic functioning as well as academic performance. Similar results are discussed by Evans, Wells, Chan and Saltzman (2000) as well as by Evans (2004).

The effect of physical environmental factors will be investigated further in the chapter on environmental quality.

2.4. Summary

From the above discussion it can be seen that academic performance is a complex and important matter in economical as well as social terms, with implications on a wide range of areas. Academic performance was found to be definable in various ways depending on the context as well as the researcher and aim of the research. Adding to the complexity of academic performance is the number of influential factors that can be identified. Numerous cognitive, personal and environmental factors play a role in academic performance and academic success. For the purpose of this study the role of only two factors will be investigated in depth. These factors are time perspective and environmental quality, and will be discussed in the following chapters.

Chapter 3 – Time perspective

3.1. Introduction

The possible time span across which individuals project actions and their consequences ranges from zero to a lifetime. Knowledge about the time span a person considers when making decisions is important in predicting how he or she will act and what goals will be pursued. The perspective an individual fosters in regards to his or her future determines to a large extent what decisions will be made and how the individual will behave. The ability to foresee and anticipate, to make plans for and organise future possibilities, represents one of the most important traits of individuals (Seijts, 1998) and is an essential factor which has a profound effect on human motivation and behaviour. This ability refers to an individual's time perspective which can generally be defined as the unique way in which an individual considers and views time. This rudimentary definition will only serve as basis for a more thorough and complete discussion of time perspective. In this chapter the nature and dimensions of time perspective will be discussed, after which different types of time perspectives will be investigated. In addition the influence of time perspective on individual functioning will be discussed. By referring to the nature, dimensions and types of time perspective a functional definition will be conceptualised which will serve as a basis for this project.

Pienaar and Bester (1996) stated that the volume of research on time perspective is very limited, and that many older, original sources are still recognised as being valuable. This will also become apparent throughout the discussion as numerous older sources still provide the most useful information on time perspective.

3.2. Defining time perspective: Nature, types and dimensions

Time perspective can be defined in various ways (Zimbardo & Boyd, 1999; Pienaar & Bester, 1996). Hall (1983) defined time perspective as the often unconscious process whereby the continual flow of personal and social experiences is assigned to temporal categories, or time frames, that help to give order, coherence, and meaning to those events. Seijts (1998) stated that a lack of understanding generally exists regarding the nature and dimensions of time perspective.

In this regard, to successfully define time perspective a more comprehensive understanding of the concept is needed. It is therefore necessary to clarify the aspects surrounding the nature, the types, and the dimensions of time perspective.

3.2.1. Nature of time perspective

The exact nature of time perspective is a matter of disagreement as it has diversely been identified as a motive, a personality characteristic and a cognitive schema (Pienaar & Bester, 1996). These three approaches to the nature of time perspective will subsequently be discussed.

Time perspective is regarded as an important factor which has a profound effect on human motivation and behaviour (Seijts, 1998). Motivation refers to a general term used for a number of factors, which determines or regulates behaviour. Human behaviour is influenced by a number of internal determinants, among others the individual's characteristics, needs, capabilities and motives. A motive is an internal aspect that directs behaviour (Plug, *et al*., 1997), and is subsequently linked with the individual's needs (Thomae, 1981). An individual who is faced with a need will reach forward in time and categorise the need within a category of anticipation. This anticipation that the need will be satisfied is an important aspect which influences the individual's motivation to pursue certain goals and activities. The temporal classification of the need within the future will inevitably be related to the individual's personal perspective of time. Thomae (1981) stated that the future relatedness of psychological reactions to specific needs can be seen as characteristic of the individual's motivational processes. Although it can therefore be contended that time perspective may have an influence on the motives within the individual's general motivational framework (Hall & Fong, 2003), it is erroneous to define time perspective exclusively as a motive as motives are, in comparison to general motivation, commonly associated with conscious reason (Plug, *et al*., 1997). The nature of time perspective can therefore not be described purely as a motive, but factors such as cognition and personality should also be taken into consideration.

Personality refers to the dynamic internal organisation within an individual, which determines his or her characteristic behaviour and thoughts. Personality may also refer to all of an individual's natural and learned response habits (Plug, *et al*., 1997). As individuals differ in regard to personality, individuals also differ in terms of their perspective on time. As with differences in personality, individual differences in time perspective can be associated with individual differences in behaviour. Differentiation of time perspective can be regarded as a major factor in problem-solving behaviour and in the construction of general beliefs. Various forms of behaviour

can be interpreted as consequences of variations in the differentiation and structuring of time perspectives (Thomae, 1981). Although certain personality factors such as impulsivity may be associated with differences in time perspective (Zimbardo & Boyd, 1999) it is not stated that time perspective is entirely a factor of the individual's personality. The approach frequently held in regard to the nature of time perspective states that time perspective is a cognitive structure that underlies personality (Lennings, Burns and Cooney, 1998); subsequently the cognitive nature of time perspective needs to be considered.

Zimbardo and Boyd (1999) stated that time perspective is a pervasive and powerful, yet largely unrecognised, influence on much human behaviour. Zimbardo and Boyd (1999) supported Hall's (1983) statement that time perspective is the often unconscious process whereby the continual flow of personal and social experiences is assigned to temporal categories, or time frames, that help to give order, coherence, and meaning to those events. These cognitive frames may reflect cyclical, repetitive temporal patterns or unique, non-recurring linear events in people's lives (Hall, 1983). From this time perspective is taken to be of a cognitive nature (Zimbardo & Boyd, 1999; Suto & Frank, 1993). This assertion is supported by Lennings, Burns and Cooney (1998) who stated that time perspective is an important cognitive construct underlying personality, decision-making and goal setting. As the capacity to experience and estimate time has been found to gradually develop with age, Seijts (1998) stated that time perspective is a cognitive structure rather than a stable disposition, such as a personality characteristic. It can also be seen that cognitive treatment programmes have influenced the length of future time perspective, suggesting that perceived life circumstances are an important determinant of future time perspective, and are therefore also influenced by cognitive factors. Further evidence indicates that time perspective is an outcome of the socialisation process (Seijts, 1998). Individuals learn that society as a whole, as well as the specific social class and groups to which people belong, provides an organised array of events and goals. These goals are not only learned, but are also integrated into the cognitive time structure, thus influencing thoughts and behaviours.

For the purpose of this study, time perspective will be understood as being of a cognitive nature, underlying and influencing the individual's personality as well as motives on numerous levels.

3.2.2. Types of time perspective

Striking differences exist in the extent to which individuals are inclined to consider distant outcomes in choosing present behaviours. Individuals further differ in the consistency and persistence with which they project the future. While individuals with remorse often think about

the past, others may think little about the future or future consequences of their behaviour (Seijts, 1998). It is clear that variation exists in regard to individual inclinations towards the future as well as time in general.

Time frames are used in encoding, storing and recalling experienced events, as well as in forming expectations, goals, contingencies and imaginative scenarios. When considering these frames Zimbardo and Boyd (1999) stated that between the abstract, psychological constructions of prior past and the anticipated future events lie the concrete, empirically centred representations of the present. These representations influence many important judgments, decisions and actions. When a tendency develops to habitually overemphasize one of these three temporal frames when making decisions, it serves as a cognitive temporal bias toward being past, future or present orientated. A person's time orientation may therefore be balanced between future, present and past realms, or may focus predominantly in one realm (Suto & Frank, 1993). It is clear that a distinction can be made between past, present and future time orientations, or time perspectives. Within the framework of past, present and future time perspective Zimbardo and Boyd (1999) further distinguished between five different kinds of time perspectives, namely future time perspective, present-fatalistic, present-hedonistic, past-negative and past-positive time perspective.

Future time perspective is defined as the timing and ordering of personalised events (Wallace, 1956) as well as a general concern for future events (Platt and Eisemann, 1968). Gjesme (1983) conceptualised future time perspective as a searchlight which helps illuminate events ahead. This idea is supported by Seijts (1998) who stated that an individual's future orientation highlights objectives not yet in the present. The stronger the searchlight, the farther individuals see, the more objects they discover, the brighter and clearer these objects appear, and the nearer and more real individuals perceive them. As a consequence, individuals are better able to structure and plan future actions and to take precautions against future events.

Future time perspective refers to a general future orientation with behaviour that is dominated by striving towards future goals and rewards. Individuals with a future time perspective will associate with statements such as: "I am able to resist temptations when there is work to be done", "It upsets me to be late for appointments" and "I complete projects on time by making steady progress" (Zimbardo & Boyd, 1999). Future time perspective is the most acknowledged type of time perspective as it is generally assumed that an extended future time perspective leads to a well-adapted and psychologically healthy personality (Seijts, 1998). To bring the future into the present, the individual has to have or develop the capacity to plan his or her activities. Planning is facilitated by developing proximate goals that intervene between one's present state and desired ultimate distant goal (Seijts, 1998).

Present time perspective can be divided into two distinct subtypes namely present-fatalistic time perspective and present-hedonistic time perspective (Zimbardo & Boyd, 1999). Present-fatalistic time perspective refers to a general fatalistic, helpless and hopeless attitude towards the future and life. Individuals with a general present-fatalistic time perspective will associate with statements such as: “My life path is controlled by forces I cannot influence”, “You can’t really plan for the future because things change so much” and “Often luck pays off better than hard work”. Present-hedonistic time perspective refers to a hedonistic risk-taking attitude towards time and life. Individuals with a general present-hedonistic time perspective will associate with statements such as: “Taking risks keeps my life from becoming boring”, “I do things impulsively”, “I often follow my heart more than my head” and “When listening to my favourite music, I often lose track of time”. This perspective suggests an orientation toward present pleasure with little concern for future consequences (Zimbardo & Boyd, 1999).

As with present time perspective, past time perspective can similarly be divided into two subtypes, namely past-negative time perspective and past-positive time perspective. Past-negative time perspective refers to a general negative, aversive view of the past. Because of the reconstructive nature of the past, this negative attitude may be due to a number of reasons, namely actual experiences of unpleasant or traumatic events, or the negative reconstruction of benign events, or both. Individuals who have a general past-negative time perspective will associate with statements such as: “I think about the bad things that has happened to me in the past”, ”I think about the good things that I have missed in my life” and ”I often think of what I should have done differently in my life”. Past-positive time perspective refers to a general positive view towards the past. This factor reflects a warm, sentimental attitude towards the past. Individuals who have a general past-positive time perspective will associate with statements such as: “It gives me pleasure to think about the past”, “I get nostalgic about my childhood” and “I like family rituals and traditions that are regularly repeated” (Zimbardo & Boyd, 1999).

From the above discussion it can be seen that an individual’s general time perspective will have an effect on individual judgments, thoughts and decisions, thereby influencing behaviour. The types of time perspective as proposed by Zimbardo and Boyd (1999) will serve as a guideline during this study.

3.2.3 Dimensions of time perspective and future time perspective

Various researchers described the dimensions of time perspective as well as future time perspective. Although it is generally expected that a distinction should be made between the dimensions of time perspective and future time perspective, it has become apparent from the literature that little distinction is made. A possible reason for this may be that the underlying cognitive structures that influence time perspective may also determine future time perspective, as future time perspective is a component of general time perspective (Pienaar & Bester, 1996; Kastenbaum, 1961). It has further become apparent that little attention is paid to the dimensions of past and present time perspective. A general notion might exist that the study of future time perspective may be of more value as it is closely related to individual motivation and performance (Zimbardo & Boyd, 1999). Seijts (1998) summarised this idea by stating that "…the past provides important lessons, but for most of us, has little interest in itself for everyday life…" In the following discussion the dimensions of time perspective as well as future time perspective will be described. Throughout the discussion, differences as well as similarities between the dimensions of time perspective and future time perspective will be examined.

Table 1 provides a summary indicating the similarities and differences as found in existing literature on the dimensions of time perspective and future time perspective.

Table 1. The dimensions of time perspective and future time perspective

Time Perspective / Temporal Perspective			**Future Time Perspective**		
Lennings (1994)	Lennings, Burns & Cooney (1998)	Pienaar & Bester (1996)	Wallace (1956)	Suto and Frank (1993) & Kastenbaum (1961)	Seijts (1998)
- Temporal attitude - Temporal extension - Temporal orientation	- Temporal attitude - Temporal extension - Temporal structure	- Structure - Locus of control - Optimism - Continuity	- Coherence - Extension	- Coherence - Extension - Density - Directionality	- Coherence - Extension - Density - Directionality - Affectivity

Uncertainty regarding the concept of time perspective is aggravated by the use of diverse concepts such as "time sense", "time orientation" and "time perspective" without the necessary

theoretical classification and explanation (Kastenbaum, 1961). For the purposes of this discussion the concepts of "temporal perspective" and "time orientation" will be used as synonyms of time perspective (Pienaar & Bester, 1996).

3.2.3.1 Dimensions of time perspective

Lennings (1994) stated that three questions can be asked in determining the dimensions of time perspective. These are "Does the person live in the future or the present?", "Does the person perceive time as the enemy or friend?" and "What is the farthest realistic time span the person can imagine?" These questions refer to the dimensions of temporal orientation, temporal attitude and temporal extension. Although the effects of variations in these dimensions on the individual have not been examined thoroughly, Lennings (1994) stated that individuals with moderate temporal extensions and positive temporal attitudes would be highly motivated towards long-term goals, whereas individuals with moderate temporal extensions but negative temporal attitudes would most likely be underachievers.

The dimensions of time perspective is expanded by Lennings, Burns and Cooney (1998) who stated that time perspective can be considered to consist of three primary dimensions. These dimensions are temporal extension, temporal attitude and time structure. Temporal extension refers to the time span a person is prepared to entertain when thinking of personal and social goals or events and is considered to be the primary index of time perspective as it is highly related to goal setting and motivation. Temporal attitude refers to the individual's feeling towards time, whether positive, negative or neutral. Positive attitudes reflect time as continuous and integrated, with the emphasis on creative or goal-achieving possibilities. Negative attitudes portray time as inconsistent and limited, with a sense of discontinuity. Negative attitudes refer to a situation where the future is avoided, and the past is a source of guilt or of problems. Time structure involves two interconnected abilities which are the capacity to structure events into temporal sequence and the ability to integrate past, present and future time zones. The second ability implies a sense of temporal orientation which is necessary to successfully integrate the different time zones. The integration of time zones is important as individuals seek to understand the connection between the past and the future and, in doing so, become aware of the relationship between the past and the future (Lennings, Burns & Cooney, 1998).

Integrating the various dimensions, Pienaar and Bester (1996) provided a complete summary of the dimensions of time perspective by integrating eight aspects into four broad dimensions. The aspects of extension, density, structure, coherence, locus of control, optimism, continuity and

directionality are integrated into the four dimensions which are structure, locus of control, optimism and continuity.

The dimension of structure encompasses three aspects which firstly refer to the number of events an individual can picture in his future, also known as density; secondly, how far into his or her future these events stretch, which refer to extension, and thirdly, how these events are linked together, also known as coherence. Together these aspects form the dimension of structure, which serves as basis for the temporal aspect of time perspective. Locus of control is considered the second dimension of time perspective. Pienaar and Bester (1996) contended that individuals who are internally orientated, would be more future-orientated, more capable of conceptualising segments of time, and might perceive passage of time in a different manner than externally orientated persons. It is concluded that a third important dimension in time perspective is optimism. More future orientated individuals appear to be more optimistic. The hope that positive changes can be expected in the future would be intimately related to the person's plans and future vision. A person without hope and confidence concentrates his or her attention on his or her immediate surroundings, gaining whatever satisfaction he or she can in the present (Pienaar & Bester, 1996). The final important dimension of time perspective is continuity. Continuity refers to the sense that actions that are separated in time can be linked in thought. An example in this regard is that a learner with a fragmented time experience will have difficulty in recognising action-outcome connections, as actions and outcomes are separated by longer lengths of time. Pienaar and Bester (1996) classied the concept of directionality, the sense that one is moving towards events in the future with momentum, within the concept of continuity, as it appears to be very similar to continuity.

Concerning the effect of these dimensions on individuals, it was found that high academic achievers seem to be characterised by more optimistic attitudes and a greater concern for future goals. This may be due to the fact that the setting up of goals implies a temporal orientation that is geared towards the future, since a person's goals imply expectations and anticipations of future successes (Teahan, 1968). Similarly, low achievers have a short-range or emergency type of future orientation, while high achievers have a long-range or foresightful type. Learners high in future extension also appear to be more optimistic. The person without hope and confidence concentrates his or her attention on his immediate surroundings gaining whatever satisfaction he or she can in the present. Optimism, or the hope that positive changes can be expected in the future, would be intimately related to the extensiveness of a person's plans (Athawale, 2004; Teahan, 1968).

Regarding locus of control, shortened time perspectives are related to a belief in external control of reinforcement. The person who sees the consequences of his actions as being under the control of outside forces seems less capable of conceptualising segments of personal and impersonal time, whether past or future, and sees his personal future as being populated with fewer events than does the person who believes in control over the consequences of his or her own behaviour (Platt & Eisenmann, 1968). Individuals with internal control of reinforcement had more active, fuller time perspectives, were better adjusted and less anxious. Internally orientated individuals are generally more future-orientated in their time perspectives, more capable of conceptualising segments of time and might perceive the passage of time in a different manner than externally orientated persons. It is further stated that highly optimistic learners were also more future-orientated than the generally more pessimistic learners (Platt & Eisenmann, 1968).

The structure proposed by Pienaar and Bester (1996) is useful for integrating the different dimensions of time perspective. This structure is especially useful as it incorporates aspects such as locus of control and optimism which are considered to be important determinants of academic performance (Myburg, Grobler & Niehaus, 1999) which is of primary importance in this study.

3.2.3.2 Dimensions of future time perspective

Concerning future time perspective, a number of dimensions can be identified. Wallace's (1956) description of the dimensions of future time perspective focuses on the dimensions of extension and coherence. Extension refers to the length of the future time span, which is conceptualised while coherence is utilised to refer to the degree of organisation of the events in the future time span.

The dimensions of future time perspective are further expanded to include the dimensions of density and directionality (Suto & Frank, 1993; Kastenbaum, 1961). Kastenbaum (1961) stated that when inquiring into a person's view of the future it can be asked (a) how far ahead does he extend his thought? (b) how densely populated does the future appear to him? (c) how well organised or coherent is his outlook?, and (d) to what extent does he think of himself as moving forward from the present moment into the future? Seen as a whole, these four questions constitute the variables of a four-dimensional model of future time perspective. Density could be regarded as the "stuffings" contained within the framework that is limited by extension, organised by coherence, and set in motion at the pace dictated by directionality. Extension is further defined as "*the length of the future time span which is conceptualised*" while coherence is

defined as "*the degree of organisation of events in the future time span*" (Kastenbaum, 1961:206). One person anticipates many experiences and looks forward to functioning in a variety of social and vocational roles. Another person expects few things to happen in his life, and can imagine himself in an exceedingly limited number of situations and activities. Density therefore refers to the number of experiences and activities anticipated in the future. Directionality refers to a relative preference for a directional, active conception of time, as contrasted with preference for a static conception in which a strong sense of movement from "now" to "later" is missing (Kastenbaum, 1961:207). Kastenbaum (1961) further stated that a relationship exists between directionality and the need to achieve and that young adults who are delinquent, pessimistic or unsuccessful academically might be expected to organise their futures less consistently and foresee fewer events, experiences and roles for themselves. Seijts (1998) supported and expanded on these dimensions by including the dimension of affectivity. Affectivity refers to the extent to which a person is gratified or pleased by anticipated future events.

3.3. The influence of time perspective on individual functioning

In recent years various researchers investigated the influence of time perspective on a number of individual characteristics (Zimbardo & Boyd, 1999; Seijts, 1998; Pienaar & Bester, 1996). Generally it was found that time perspective can be regarded as an important factor that has a profound effect on human motivation and behaviour (Seijts, 1998). Following on this, specific findings will be discussed. The focus will fall specifically on the effect of different time perspectives on individual functioning.

Zimbardo and Boyd (1999) acknowledged that a past-negative time perspective is associated with depression, anxiety, self-reported unhappiness and low self-esteem whereas a past-positive time perspective is associated with high self-esteem and low tendency for aggression, depression and anxiety. A general present-fatalistic time perspective is associated with aggression, anxiety, and depression as well as a low tendency towards consideration of future consequences. A present-hedonistic time perspective is associated with sensation-seeking, risk-taking and a low preference for consistency. A general future time perspective is associated with contentiousness, consideration of future consequences, and preference for consistency as well as self-reported hours spent studying per week (Zimbardo and Boyd, 1999). It is further stated that time perspective provides a foundation on which many more visible constructs are erected or embedded. These include aspects such as achievement, goal-setting, risk-taking, sensation-

seeking, addiction, rumination and guilt. Platt and Eisenmann (1968) found that delinquent adolescents were less future-orientated than non-delinquent adolescents.

De Volder and Lens (1982) found that time perspective plays an important role in learners' academic performance. Grobler (2005) stated that the dominant way of viewing time in a specific situation will play a role in the way in which the individual experiences and treats the demands of time restrictions. This is also true in the case of academic performance where more efficient time management may lead to better academic performance. Simons, Dewitte and Lens (2000) found that individual motivation is influenced by time perspective. This finding is supported by Lennings, Burns and Cooney (1998) who found that time perspective has an influence on decision-making as well as goal-setting. Öner (2001) found that behaviour in romantic relationships with individuals of the opposite sex is also influenced by an individual's time perspective. Seijts (1998) stated that time perspective determines, to a large extent, the kind of goals that are set or accepted, and whether goal conflict is likely to occur. This may account for the extensive influence of time perspective on numerous aspects of individual functioning.

3.4. Summary

For the purpose of this study, the researcher will conceptualise time perspective as a multi-dimensional cognitive structure that influences the individual's motives and personality and determines the way in which he or she views time. Time perspective consists of four primary dimensions which include structure, locus of control, optimism and continuity. Table 2 provides a summary of the dimensions of time perspective as well as future time perspective which will serve as basis for this study. Five different types of time perspectives can be identified. These are future, present-fatalistic, present-hedonistic, past-negative and past-positive time perspective.

Table 2. The dimensions of time perspective and future time perspective

Time Perspective		**Future Time Perspective**
- Structure:	Density	- Coherence
	Extension	- Extension
	Coherence	- Density
- Locus of control		- Directionality
- Optimism		- Affectivity
- Continuity and directionality		

Chapter 4 – Environmental quality

4.1. Introduction

For many of us the environment is no more significant than the surrounding air, and only intrudes on our consciousness when it causes particular harm, discomfort or pleasure (Zimring, 1981). This is also the case with home environment which is, in contrast with this perceived insignificance, of tremendous significance to human beings as this is the setting where people typically spend most of their time. The home environment is also the venue for contact with the most important members of one's social network, and for most people represents their major financial and personal investment. Despite these facts, the influence of the home environment on the individual is remarkably unclear (Evans, Wells & Moch, 2003). Given the significance of the residential environment to human beings, it is appropriate to ask whether, and in what ways, the environment can influence individuals.

In this discussion, an attempt will be made to explain the concepts of the environment and environmental quality. The elements that constitute the environment will be described after which various approaches to determining environmental quality will be discussed. Finally the possible effects of environmental elements on the individual will be explained by referring to Maslow's hierarchy of basic needs.

4.2. Defining the Environment

Definitions regarding the environment variously focus on either the physical conditions (Universal Dictionary, 1987) or the social or psychological conditions (Evans, 2004) that surround the individual. Rapoport (1982:59) provided a general definition of the environment when stating that "*the environment can be seen as a series of relationships between things and things, things and people and between people and people.*" There are four distinct aspects within the environment that determine the way individuals experience these relationships. These are space, time, communication and meaning (Rapoport 1982).

Space refers to the three-dimensional organisation of the physical space around us and is found on all levels and at various scales within the environment as it takes place from the level of a neighbourhood to the level of furniture groupings within a room. The purpose of this organisation is to support the physical, psychological and social needs of individuals or groups. The environment is also of a temporal nature and time may directly influence the arrangement of the

environment in two distinct ways. The first refers to the cognitive structuring of time or time perspective which influences behaviour, decisions and needs, and subsequently the environment. The second way concerns the tempos and rhythms of human activities which refer to the number of activities per day, and the distribution of these activities in time which will also have an effect on the individual's needs and the way in which the environment is arranged.
The third aspect refers to communication between people, whether it is verbal or non-verbal. Communication can contribute to need satisfaction and is reflected, modulated, channelled, controlled, facilitated and inhibited by the arrangement of the environment.
The fourth aspect is meaning and refers to communication from the environment to people. While space organisation itself can express meaning, meaning is often expressed through aspects such as signs, materials, colours, forms, sizes, furnishings, landscaping and maintenance. These aspects are interrelated, as the purpose of structuring space and time is to organize and structure communication (e.g. interaction, avoidance and dominance) and this is done partly through organising meaning, with the ultimate aim to contribute to individual and community need satisfaction. These needs can be of a physical, social or psychological nature. It is important to note that while the individual influences the environment, the individual is also influenced by the environment (Rapoport, 1982).

From this it can be stated that the environment contributes to the physical, social and psychological need satisfaction by the structuring of space, time and communication through the organisation of meaning. The extent to which these needs are satisfied by the environment will depend on the success with which environmental elements can be structured and organised to contribute to need satisfaction.

4.3. Different environments and environmental elements

As previously stated, the environment consists of a series of relationships between things and things, things and people and people and people which are organised to contribute to need satisfaction. It may be contended that not all environments are the same, as differences in regard to the organisation of space, time, communication and meaning as well as the "things", or elements, which form specific environments, might occur. It is therefore necessary to firstly distinguish between different environments and secondly clarify what elements constitute these environments.

It is clear from literature on the environment that a distinction can be made between natural environments (Leff, 1978) and designed (Zimring, 1981) or man-made (Brebner, 1982)

environments. The designed environments can further consist of urban environments (Parkar, 2002), commercial environments (Spangenberg, Crowley & Henderson, 1996), neighbourhood environments (Roodt & Steyn, 1996) and residential environments (Evans, Wells & Moch, 2003). The residential environment, which is situated within the neighbourhood environment, will be examined in this study. The elements that determine the quality of the neighbourhood and residential environments will therefore be discussed.

From the available literature concerning residential and neighbourhood environments it is apparent that a great number of diverse elements are considered to constitute these environments. Although Rapoport (1980) provided a useful method to categorise environmental elements as either being of a physical or social nature, it was necessary to differentiate to a greater degree between these elements. The researcher therefore defined a three-levelled approach by which environmental elements can be categorised. Through this approach all environmental elements can be categorised as belonging on one of three levels, namely the primary, secondary or tertiary level. The elements on these levels are in constant interaction with each other and collectively determine the quality of the environment.

Elements on the primary level refer to the environmental elements that constitute the physical structure of the residential and neighbourhood environments, and include the general material quality of the house (Human, 1981; Desai, 1991; Westaway & Seager, 2003; Devey & Møller, 2003). The physical quality of the structural components such as the walls, floors, doors, windows, roof (Human, 1981; Mehlomakulu & Marais, 1999), ceiling, paintwork, woodwork, plumbing (Human, 1981; Mehlomakulu & Marais, 1999; Devey & Møller, 2003), bathroom (Desai, 1991), lavatory (Desai, 1991; Devey & Møller, 2003), type of lighting (Desai, 1991; Devey & Møller, 2003), garden (Human, 1981), and decorations (Moore & Canter, 1993), are also found on this level. The physical distance to schools, commercial areas and green areas (Bender, *et al*., 1997) as well as the distance to water (Desai, 1991), together with the physical qualities of roads, parks (Human, 1981) and street lighting (Westaway & Seager, 2003) are included on this level. These elements are primarily of a physical nature and their quality can be assessed easily. Although easily assessed, the direct effect of these elements on the individual or community is not easy to determine. Because of this, the effect of these elements on environmental quality, where environmental quality focus on need satisfaction, cannot be determined simply by assessing the elements on this level alone.

Elements on the secondary level are influenced by the elements on the primary level, but are not purely of a physical nature. These elements include temperature (Human, 1981), noise (Human,

1981; Moore & Canter, 1993; Bender, *et al*., 1997), privacy (Human, 1981), access to shops, banks, schools and entertainment (Human, 1981), transport (Human, 1981; Bender, *et al*., 1997; Westaway & Seager, 2003), space available inside (Human, 1981; Moore & Canter, 1993; Mehlomakulu & Marais, 1999) as well as outside the home (Human, 1981), safety of self and others (Human, 1981), security (Mehlomakulu & Marais, 1999), view (Bender, *et al*., 1997), appearance (Human, 1981) and general layout (Mehlomakulu & Marais, 1999). The quality of the elements on this level is more difficult to assess than elements on the primary level, but the effect of these elements on the individual is easier to assess than the impact of the elements on the primary level.

On the tertiary level elements are found that are influenced by the primary as well as secondary levels, but which are largely determined by the individual's psychological response to, and assessment of, the elements on the primary and secondary levels. Elements on the tertiary level are determined by the extent to which the environment satisfies individual needs and focus primarily on the experiential and perceptual aspects of the environment. These include feeling safe (Moore & Canter, 1993), feeling comfortable (Moore & Canter, 1993), being able to do what one wants (Mehlomakulu & Marais, 1999), to feel proud (Mehlomakulu & Marais, 1999) and to be satisfied with the conditions of the home or neighbourhood (Devey & Møller, 2003). These elements are of a psychological nature and are determined by the individual's assessment of the degree to which the environment supports his or her personal goals, needs and socio-cultural structures (Rapoport & Hardie, 1991). Although the quality of these elements is more difficult to assess than the elements on the primary and secondary levels, the effect of these elements on the individual is possibly the easiest to determine. If the individual's basic needs are taken into consideration it may be possible to determine how elements on the primary and secondary levels interact to satisfy the individual's needs and therefore improve the quality of the elements on the tertiary levels.

For the purpose of this study, environmental quality will be determined by considering the elements on all three levels. It is, however, first necessary to determine how environmental quality can be defined and assessed.

4.4. Defining environmental quality

As with the environment, environmental quality can be defined in primarily two ways. The first deals with the quality of the physical elements of the environment and concerns aspects such as air and water pollution, the consequences of overpopulation, depletion of resources, radiation

and pollution (Rapoport, 1980). The second approach is related to the sensory qualities of the environment and the positive and negative effects these have on human feelings, behaviour or performance. The meaning of the environment to the individual is also included in this approach. It further refers to the psychological and socio-cultural aspects of the environment and to what extent it supports the social and cultural structures of individuals (Rapoport & Hardie, 1991; Rapoport, 1980).

Concerning the second approach, cities, neighbourhoods and houses are, in ideal terms designed to meet the individual's environmental preferences and notions of environmental quality. These notions are influenced by expectations, values, cultural norms and previous experience. Individuals test reality against these notions and evaluate environmental quality against their ideals. This suggests that people react to environments generally on an affective basis before evaluating and analysing them in more specific terms. Environmental evaluation is therefore more a matter of overall affective response than of a detailed analysis of specific aspects, and is largely affected by individual images and ideals. Environments that match individual images should consequently be more successful than those that meet objective criteria, but violate individual images and expectations (Rapoport, 1982).

It was mentioned that the structuring of space, time, communication and meaning is carried out to facilitate individual or community need satisfaction (Rapoport, 1982). Where the individual's ideals and images correspond to the possibilities of structuring space, time, communication and meaning to facilitate need satisfaction, a high degree of environmental quality might be present. When the individual is unable to structure the environment according to physical, social or psychological needs, lower levels of environmental satisfaction can be expected. As the individual's needs are central in determining environmental quality, it is necessary to determine what needs individuals typically have. Maslow (1968) provided a summary of five basic human needs which are the physiological, safety, belonging, esteem and self-actualisation needs that require satisfaction if individuals are to be psychologically healthy. From this it can therefore be said that, for the purpose of this study, environmental quality will refer to the quality of the environment as determined by the way in which it supports the physiological, safety, belonging, esteem and self-actualisation needs of the individual. Environmental quality will be determined by the individual's subjective assessment regarding the quality of specific elements on all three environmental levels, as well as the extent to which these elements contribute to the satisfaction of the individual's needs. After identifying the individual's specific needs, it is necessary to determine how the environment can influence the individual and individual need satisfaction.

4.5. The effect of environmental quality on the individual

As discussed Maslow's (1968) five basic human needs provide a summary of needs typically experienced by an individual. It is, however, unclear how the environment can influence these needs. Evans, Wells and Moch (2003) identified five psychosocial processes that are influenced by the environment, which might partially account for linkages between the environment and the psychological well-being of individuals. These are stress, control, social support, parental behaviour and identity. By reviewing the processes identified by Evans, *et al*. (2003) within the context of Maslow's (1970) hierarchy of basic needs, the link between the environment and the basic need satisfaction can partially be explained. The basic needs identified by Maslow will subsequently be discussed by referring to the psychosocial processes of stress, control, social support, parental behaviour and identity.

Concerning Maslow's physiological needs, Evans (2001) documented the physiological effect of crowding and noise on the individual. It is repeatedly stated that these elements, which are largely influenced by the environment, can have a detrimental effect on the individual's physiology through raised blood pressure and increased neuroendocrine functioning. When considering an environmental element such as temperature, it is simple to comprehend how this might influence the individual perception of physiological need satisfaction.

When discussing the individual's need for safety, physical security as well as the processes of stress and control are important, as these might influence the individual's perception of the satisfaction of the safety need. Bartlett (1999) found that low-quality residences are more generally found on land unsuitable for housing, where landslides, flooding, fires and major storms are more likely to occur. The physical environment was further found to affect actual rates of crime as well as fear of crime. Concerning psychological security, individuals in low-quality, or informal housing, are generally more exposed to higher rates of involuntary relocation (Evans & Kantrowitz, 2002). In low-quality housing, concerns about safety and hygiene could reasonably elicit considerably anxiety and worry in both adults and children (Wells & Evans, 2003). In regard to stress Zimring (1981) stated that the environment can influence the individual's stress level by either supporting or hindering individual goals. Aspects such as light levels, acoustic qualities, temperature or the arrangement, separation, and size of spaces may be inappropriate for the successful completion of specific tasks. The design of an environment may further influence need satisfaction by making desired and undesired social interactions easier or more difficult to achieve. A clear transition between public and private space, for example, may support the need for privacy of the occupants of a house (Zimring, 1981). The

following elements are also associated with increased stress levels and decreased psychological well-being in children in particular: inaccessibility to outdoor play areas (Bartlett, 1998), lack of access to green and outdoor spaces (Taylor, Wiley, Kuo & Sullivan, 1998) and the inability to spend time in natural areas (Wells & Evans, 2003; Wells, 2000). Referring to the amount of control the individual experiences, the home is a place that provides security and maximum control. Good housing can offer protection from the elements, but also from negative social conditions or negative social interactions, thereny satisfying the need for control and subsequently the need for safety (Altman, 1975). Housing quality can also be related to learned helplessness. The inability to control and regulate social interaction and access to space might further contribute to the perceived amount of safety (Evans, Saltzman and Cooperman, 2001).

Referring to Maslow's third basic need, the need for belonging, the processes of social support and parental behaviour are important. Fanning (1967) found that high-rise buildings' verticality, and lack of garden or play space could deter social interaction and result in isolation and loneliness. Further environmental elements that can influence social interaction are the proximity to other living units, doorway orientation (Festinger, Schacter & Back, 1950), the presence of porches, balconies, outdoor gardens, terraces and patios. Elements that increase visual exposure to neighbours elevate social contact and subsequently social interaction and support. Where inadequate residential space is available, adults (Evans, Wells, Chan & Saltzmann, 2000) and children (Evans, Saltzman & Cooperman, 2001) exposed to chronic residential crowding and noise tend to have strained interpersonal relationships and diminished motivation associated with learned helplessness. Parental behaviour was found to be influenced by the quality of the home environment as parents living in substandard housing may attempt to exert tighter, more rigid control over their children's activities to minimise problems. The cumulative demands of dealing with the disturbances associated with substandard housing might well lead to frustration and irritability that could manifest in more punitive parenting (Evans, Saltzman & Cooperman, 2001). Parental self-esteem and confidence as well as feelings of self-efficacy might be impacted on by chronic housing problems (Evans, Saltzman & Cooperman, 2001). In substandard housing environments, social withdrawal in response to uncontrollable social interaction is a typical coping strategy. Parents whose privacy needs were not supported by the environment were further found to be less able or willing to interact socially with their children. Regarding these children, it is clear that their need for belonging may be indirectly influenced by the environment. Both crowding (Evans, Maxwell & Hart, 1999) and noise (Wachs & Camli, 1991) are negatively associated with parental responsiveness to young children. Satisfaction in regard to the need to belong can therefore be strongly influenced by negative environmental elements.

Regarding the esteem needs, the quality of the environment can also play a meaningful role. Symbolically, both the structural quality and maintenance of the home provide feedback to the residents about the quality in their environment and often determine how others view the residents (Kearns, Hiscock, Ellaway & Macintyre, 2000). Residents of substandard housing may feel stigmatised and may internalise others' negative perceptions of them (Halpern, 1995). Failure to reside in a place common with one's ideals might influence self-esteem as the house is a symbol of self, reflecting both inwardly and outwardly individual identity, individual accomplishments and individual values (Evans, *et al*., 2000; Freeman, 1984). In regard to children, poor housing quality can directly affect children's self-esteem, particularly as they interact with peers (Evans, Saltzman & Cooperman, 2001). From this it is clear that the environment can influence the satisfaction of the individual's esteem needs.

From the preceding examples it is clear that the environment can influence individual need satisfaction and psychological well-being. Evans, *et al*., (2000, 2001) documented the changes that occurred after individuals moved from low quality to better quality housing. After relocating, psychological well-being, social relations with neighbours, and children's school performance improved significantly in relation to residents who did not relocate. The group that relocated showed reduced symptoms of depression and anxiety in comparison with the group that remained behind (Evans, Saltzman & Cooperman, 2001; Evans, Wells, Chan & Saltzmann, 2000). Although no psychosocial process is associated with the need for self-actualisation, as envisioned by Maslow, it is clear from this example that the environment can play a meaningful role in the general need satisfaction and psychological well-being of individuals. The influence of the environment on self-actualisation can be examined by referring to Heylighen's (1992) cognitive restructured version of Maslow's theory of motivation and personality.

Essentially, Heylighen (1992) stated that all needs originate from the basic goal of survival. These needs are ordered according to their urgency, which corresponds to the probability of, and expected period of time before destruction as a result of the unsatisfied need. It is further stated that the gratification of a need is not objectively given, but depends on how the individual perceives his needs as well as his external situation. The subjectivity of this perception is obvious for higher needs such as esteem, but can also be illustrated for lower needs, as is the case with anorexia where the subject does not experience any need for food, although physiologically the intake of food is urgently required for survival. The perception of urgency will depend largely on the cognitive system through which the subject interprets the world. According to Heylighen (1992) self-actualisation is not the actual satisfaction of needs, but the perceived

competence to satisfy individual needs in due time, where required time depends on the subjective urgency of the need.

Perceived competence has three components, namely material competence, which refers to the availability of the required material resources; cognitive competence, which refers to the cognitive distinction systems needed to determine how the needs are to be satisfied; and subjective competence. Subjective competence results from the successful implementation of cognitive competence through material competence. If the inability to satisfy a basic need exists during the period in which basic cognitive distinctions are developed, either because of the absence of needed resources and environmental support or cognitive incompetence, the individual may develop a perception of subjective incompetence. This perceived subjective incompetence tends to be self-enforcing since it diminishes the motivation to solve problems and to learn from experience and hence increase competence.

Within the context of this study, Heylighen's (1992) approach is of significance as it confirms a possible link between the individual's development and the support provided by the environment. If the environment does not provide the required resources or support to satisfy the individual's basic needs, subjective incompetence may result. This subjective incompetence is of a cognitive nature and may influence future need satisfaction. This may specifically be true in regard to children as they are still in a stage where cognitive distinction systems are being formed. As it is stated that individual needs as well as the perception regarding the urgency of the need is of a subjective nature, the individual's perception of time might also influence need satisfaction.
The concept of perceived competence may influence the attributions individuals make concerning the causes of perceived events, such as success or failure to solve personal problems (Heylighen, 1992). Perceived competence may further influence the individual's self-concept, self-evaluation, optimism and the perceived locus of control (Meyer, 1988; Swartz, 1998; Moller, 1995; Platt & Eisenmann, 1968). All these aspects are subsequently related to academic performance, while locus of control and optimism are dimensions of time perspective that can influence academic performance (De Volder and Lens, 1982).

4.6. Conclusion

It was found that the environment consists of a series of relationships between things and things, things and people and people and people and is largely determined by the organisation of space, time, communication and meaning. The ultimate aim of this organisation is to support and satisfy the physical, social and psychological needs of an individual and a community.

Environmental quality was defined as the quality of the environment as determined by the way in which it supports the physiological, safety, belonging, esteem and self-actualisation needs of the individual. Environmental quality is determined by the individual's subjective assessment regarding the quality of specific elements on all three environmental levels, as well as the extent to which these elements contribute to the satisfaction of the individual's needs. The influence of the environment on individual functioning and need satisfaction was discussed by referring to Maslow's hierarchy of basic needs. Heylighen's (1992) cognitive restructuring of Maslow's approach provided a system by which the effect of the environment on individual need satisfaction, time perspective and academic performance can partially be accounted for.

Chapter 5 – Research methodology and Results

5.1. Problem statement and research hypothesis

The aim of this study is to determine to what extent environmental quality and time perspective can account for the variance in the academic performance of Grade 12 learners. This research is of non-experimental nature and a prospective design is used (Huysamen, 1988). The dependent variable is considered to be academic performance while the independent variables are environmental quality and time perspective. Time perspective consists of five factors which will be discussed in detail.

The following research hypotheses will be tested in this study:

Hypothesis 1: Time perspective has a significant influence on the academic performance of Grade 12 learners;

Hypothesis 2: Environmental quality has a significant influence on the academic performance of Grade 12 learners.

5.2. Target population

Four English-medium schools from the Mangaung area were selected by making use of the incidental cluster sampling method (Huysamen, 1993). A total number of 413 Grade 12 learners participated in the study. Of these 165 learners were male and 243 female. Five learners did not indicate their gender on the questionnaire. The vast majority of learners were Black while a small minority were Coloured. All learners indicated that they were able to read and comprehend Sesotho as well as English, which is supported by the fact that these are all English-medium schools.

5.3. Measuring instruments

5.3.1. Questionnaires

A bilingual questionnaire, in English and Sesotho, was used to record information regarding the environmental quality and time perspective of the individual learners. This was done using an environmental quality questionnaire as well as the Zimbardo Time Perspective Inventory (ZTPI)

(Zimbardo & Boyd, 1999). The complete questionnaire was originally compiled in English after which it was translated to Sesotho. The method of back translation was used. With this method the original document was translated from English to Sesotho after which another translator translated the Sotho version back to English. The researcher then compared the two English versions and discussed any differences found. This method was used to ensure that the two translations were as identical as possible in regard to content and meaning. Both translators had previous experience in academic translation as well as postgraduate qualifications in respectively Sociology and Psychology. The translators are both fluent in reading, writing and speaking Sesotho and English as these are their first and second languages. Information regarding the gender of the learners was the only biographical information requested on the questionnaire.

5.3.2. Determining academic performance

Academic performance, in this study, refers to the degree of success obtained by Grade 12 learners as determined by the criteria set within the academic context, and was determined by the academic average each learner obtained in the record examination completed in July 2005. These results were included in the study as the majority of papers written in this examination were set by the Free State Department of Education. Because of this, a more standardised measure of academic performance was possible and variance in academic performance was less likely to be the result of differences in the academic standard between various examination papers. Although the majority of papers in this examination were set by the Department of Education, a number of papers were set individually by the schools. Even though the possibility exists that this might influence the validity of these scores the number of these papers were kept to a minimum, as the majority of papers were set commonly by the Department of Education. Table 3 provides a summary of how the examination papers were set.

Table 3. Commonly set examination papers against individually set examination papers.

Examination papers set commonly by the Department of Education	Examination papers set individually by the various schools
Accounting (HG)	Business Economics (HG)
Accounting (SG)	Business Economics (SG)
Afrikaans 2nd Language (HG)	Economics (HG)
Biology (HG)	Economics (SG)
Biology (SG)	Home Economics (HG)
English 2nd Language (HG)	Home Economics (SG)
Geography (HG)	Sesotho 1st Language (HG)
Geography (SG)	Sesotho 1st Language (SG)
History (HG)	Typing (SG).
History (SG)	
Mathematics (Higher Grade (HG))	
Mathematics (Standard Grade (SG))	
Physical Science (HG)	
Physical Science (SG)	
Setswana 1st Language (HG).	

The academic average for each learner was used as an indication of the learner's general academic performance. As this score was a percentage it was used as a raw score, with a maximum of 100 and a minimum of 0, and not further transformation to a standardised score was necessary.

5.3.3. Determining environmental quality

Environmental quality refers to the quality of the environment as subjectively assessed by the degree to which it supports the various needs of the individual (Rapoport, 1982). Although various environmental quality measures have been used with success during previous studies (Khattab, 1993), no existing measure seemed relevant for the environment of this study's target population. During an unpublished pilot study performed by the researcher in 2004 a preliminary measure was compiled. This measure was based on information collected after performing a literature review as well as a focus group session with the target group. A group of 50 Grade 12 learners from a school in the Mangaung area participated in the focus group. The discussion in the group concerned environmental aspects that were in the learners' opinion important determinants of environmental quality. These elements were included in the preliminary

measure. The measure resulting from this discussion consisted of 20 items, and had an alpha coefficient of 0.889. For the purpose of this study, the existing measure was revised by referring to existing literature and additional items were added.

The final environmental quality measure used in this study consisted of 51 items (Appendix A). All items except two consisted of a 5-point Likert scale. These two items provided a space where the learners were required to write down information regarding their environment. These items required learners to indicate the number of people who share their bedroom and study with them. During the fieldwork it became apparent that, for the majority of learners, no distinction could be made between the bedroom and the study and this led to confusion regarding these two items. Subsequently these two items were not taken into consideration during the final analysis. A total of 49 items were therefore used to determine environmental quality.

Items used in determining environmental quality required learners to subjectively rate the satisfaction they experienced in regard to various environmental elements. Elements from the primary, secondary and tertiary levels of the environment were included in the questionnaire. Learners were required to indicate their satisfaction on a Likert scale, where 5 indicated complete satisfaction with the environmental element and 1 complete dissatisfaction. The rationale behind this being that learners who experienced their environments as less satisfying would in general select lower ratings on the scale in contrast with individuals who are more satisfied with their environment. The ratings from all items were added to provide a general environmental quality score. This raw score was used in the final statistical analysis.

By using Cronbach's α-coefficient the internal consistency of the environmental quality measure, for this study, was determined as 0.932. This was done by using the SPSS computer program (SPSS Incorporated, 2001).

5.3.4. Determining time perspective

Time perspective refers to a multidimensional cognitive structure which influences the individual's motives and personality, and determines the way in which time is viewed. Five different types of time perspectives can be identified. These are future, present-fatalistic, present-hedonistic, past-negative and past-positive time perspective. As noted, time perspective was measured by means of the Zimbardo Time Perspective Inventory (ZTPI). This Inventory consists of 60 items on which respondents have to rate the value of each statement on a five-point Likert scale according to the degree in which the statement is characteristic of the

individual. A score of 1 corresponds with the statement “Very Untrue” while 5 corresponds with “Very true”. The inventory comprises five different time perspective factors which correspond with the five types of time perspectives identified.

Previous research in the United States by Zimbardo and Boyd (1999) determined Cronbach’s alpha coefficients for the 5 scales to vary between 0.74 and 0.8. Athawale (2004) utilised this inventory within the South African context and found the alpha coefficient to be 0.8512. This is in contrast with the alpha coefficients determined for the sample group of this project. The calculated alpha coefficients were found to vary between 0.443 and 0.661 as can be seen in Table 4. These are relatively low coefficients for this study and may partly be due to the fact that the target group of this project differs significantly from that of Zimbardo and Boyd (1999). This is supported by the fact that Athawale (2004) utilised a more heterogeneous group, including individuals from Asian, Black, Coloured as well as White cultural groups which might have resulted in a more regulated alpha coefficient. Athawale (2004) further involved learners from schools with a higher socio-economic status than those involved in this study, and this might also account for the differences in the alpha coefficients. A further aspect that might account for these low alpha coefficients may be that the measure was translated into Sesotho and that, although a back translation was performed, certain concepts might have more various meanings in Sesotho than in English. This is supported by the fact that Athawale (2004) did not make use of a Sesotho version of this measure even though Black and Coloured learners were involved in her study. A further possibility that may account for this might be the length of the battery used in this study. As the time perspective items were the last items found on the questionnaire, learners might have been reluctant to consider each item carefully before answering. This may have resulted in the impulsive and thoughtless completion of the final items which might have had an influence on the alpha coefficients.

Table 4: Cronbach’s a-coefficients for the 5 time perspective factors

Factor	Number of items	a-coefficient
Present Hedonistic	15	0,635
Past Negative	12	0,661
Future	15	0,469
Past Positive	8	0,443
Present Fatalistic	10	0,594

Because this study is considered to by an exploratory study it was decided to continue with the statistical analysis even though the alpha coefficients were found to be below 0,75 and therefore considered relatively low for research purposes.

5.4. Data gathering: Procedure and ethical considerations

As the research project involved learners from various secondary schools in the Mangaung area, it was necessary to obtain permission to conduct the research from the Free State Department of Education. This was done by contacting the Institution Research Registration and Independent Schools Subsidies (IRRISS). After permission was obtained from the IRRISS a letter requesting permission to conduct research was sent to the principals of the various schools (Appendix A). After receiving permission, the necessary arrangements were made to visit the various schools to conduct the fieldwork. The researcher was given the opportunity to meet the various grade 12 classes during their weekly guidance periods. The aims of the research as well as the voluntary nature of participation were explained to each class, after which the questionnaires were handed out. Afterwards the completed questionnaires were collected. The academic results of the learners were received from the respective headmasters or guidance teachers.

Concerning the ethical considerations for this study, a number of aspects were considered. Although the necessary permission to conduct the research was obtained from the Department of Education as well as the respective headmasters, the learners were also consulted in this matter. A cover letter was attached to the questionnaire providing information regarding the aim of the project to provide for the learners' informed consent. Space was provided where each learner was required to write his or her name and surname. Learners were also asked to complete a permission form on the cover letter if they granted the researcher the necessary permission to use their academic results in the study. Learners were able to withhold permission without any negative consequences, by simply not completing the letter. All learners voluntarily agreed to take part in this study.

A further ethical consideration was the fact that learner participation could not be anonymous as individual academic performance had to be associated with the appropriate time perspective and environmental quality scores. Although this might have had an effect on the research results, no other appropriate method, that was practical for the specific situation existed in matching the academic performance of the learners with the time perspective and environmental quality scores. Learners were further assured that, to protect their privacy, no identifying information was to be published in the final research report.

5.5. Statistical analysis

For the purpose of this study descriptive statistics were firstly used to determine the means and standard deviations of the different variables. The correlations between the variables were calculated, after which hierarchical regression analysis was performed to determine what percentage of variance in academic performance can be explained by environmental quality and time perspective. The calculations were performed by using the SAS computer program (SAS Institute, 2003). For the purposes of this study time perspective, which consists of five factors, and environmental quality, which consists of one factor, served as the predictors, while academic performance was the criterion variable.

5.5.1. Descriptive statistics

The descriptive statistics, which include the averages and standard deviations of the criterion variables as well as the predictive variables for the total research group, are shown in Table 5.

Table 5: Averages and standard deviations for the criterion and predictor variables

Variable	N	$\overline{X}$	s
Criterion variable:			
Academic performance	413	39,94	9,89
Predictor variables:			
Environmental quality	373	164,41	31,37
Time perspective:			
Present hedonistic	411	49,33	7,29
Past negative	413	39,42	6,77
Future	411	52,85	5,82
Past positive	412	29,74	4,04
Present fatalistic	412	26,61	5,83

From Table 5 it can be seen that the average academic performance was approximately 40% with a standard deviation of approximately 10%. The lowest percentage was 17% and the highest 73%. Regarding the predictor variables it can be seen that the results of 373 questionnaires were used in the environmental quality calculations. This is in contrast with the number of 413 used in academic performance. Questionnaires on which items were left incomplete were not taken into consideration and therefore account for the difference in these

numbers. Between a minimum of 49 and a maximum of 245 the average environmental quality score obtained was 164,41. This score had a standard deviation of 31,37. The average score obtained on the various subscales of time perspective varied between 26,61 (present fatalistic) and 52,85 (future) while the standard deviations for these factors varied between 4,04 (past positive) and 7,29 (present hedonistic).

5.5.2. Correlation between the determinants and the criterion

The relationships between the predictive variables in regard to each other as well as in regard to the criterion were determined by using of the Pearson product moment correlation coefficients. The result of this for the total group is shown in Table 6.

Table 6: Correlations between the determinants as well as the criterion

Variable	2	3	4	5	6	7
1 Academic performance	0,06	0,09	-0,08	0,15**	0,03	-0,24**
2 Environmental quality	-	0,21**	0,02	0,04	0,20**	0,11*
3 Present hedonistic		-	0,34**	-0,07	0,25**	0,42**
4 Past negative			-	-0,02	0,11*	0,34**
5 Future				-	0,19**	-0,20**
6 Past positive					-	0,14**
7 Present fatalistic						-

** p <= 0,01

* p <= 0,05

From Table 6 it is clear that there are relationships, significant on the 1% level, between the criterion (academic performance) and two of the predictive variables, namely future time and present fatalistic time perspective. The coefficient between future time perspective and academic performance is positive while this relationship is negative for present fatalistic time perspective. From this it can be concluded that the higher the scores of Grade 12 learners on future time perspective are, the higher their academic performance tends to be. It can further be concluded that the lower Grade 12 learners score on present fatalistic time perspective, the higher their academic performance tends to be. This conclusion is supported by the negative relationship that was found between future and present fatalistic time perspective. No further significant relationships were found between the predictors and the criterion (academic performance).

5.5.3. Hierarchical regression-analysis

For the purpose of this study it was necessary to determine to what extent the predictor variables contribute to the total variance found in the academic performance of Grade 12 learners. The method of hierarchical regression analysis was used (Van der Westhuizen, Monteith & Steyn, 1989). To determine if the contribution associated with a specific variable is of a significant nature the hierarchical *F*-test was used. Although it can be found that a variable contributes significantly towards the variance in the academic performance of Grade 12 learners, it is further necessary to determine if this contribution is of practical value. This can be established by determining the effect size associated with the specific variable. As an example from this study it will firstly be determined if environmental quality contributes to the total variance found in the academic performance of Grade 12 learners. It will subsequently be necessary to determine if this contribution is significant, and lastly if this contribution is of practical value. If environmental quality is found to have a large effect size it might imply that environmental quality plays an important role in influencing the academic performance of the Grade 12 learners included in this study.

The percentage of variance which can be explained by a specific set of variables is indicated by the squared multiple correlation coefficient which is R^2. This can be done by firstly calculating the total variance of the six predictors (five time perspective factors and environmental quality) in regard to the criterion. This calculation was repeated by each time removing one predictor from the calculation, thereby determining the specific predictor's contribution to the total variance. Finally all the variables of a specific set of predictors (only in the case of time perspective which consists of 5 factors) were removed to determine their combined effect on the variance in academic performance.

To determine if a specific variable (environmental quality), or set of variables (time perspective), contributes significantly to the R^2-value the hierarchical *F*-test can be used. This was done by using the following formula:

$$F = \frac{(R^2_{y.1\ldots k1} - R^2_{y.1\ldots k2}) / (k_1 - k_2)}{(1 - R^2_{y.1\ldots k1}) / (N - k_1 - 1)}$$

where:

$R^2_{y.1\ldots k1}$ = squared multiple correlation coefficient for the greater number of independent variables

$R^2_{y.1\ldots k2}$ = squared multiple correlation coefficient for the lesser number of independent variables

k_1 = Greater number of independent variables

k_2 = Lesser number of independent variables

N = Total number of cases

(Van der Walt, 1980)

To determine the practical importance of the contribution to R^2 of a specific variable, or set of variables it is necessary to determine the effect size of the contribution of the variable. The effect size provides an indication regarding the contribution to R^2 in terms of the proportion of unexplained variance of the complete model. According to Van der Westhuizen, Monteith and Steyn (1989) the effect size of the individual contributors can be determined in terms of f^2 by means of the following formula:

$$f^2 = \frac{R^2 - R^2_1}{1 - R^2}$$

where:

R^2 = proportion variance explained by the complete model

R^2_1 = proportion variance explained by the smaller number of independent variables.

According to Cohen (Steyn, 1999) the following can be used as a guideline:

$f^2 = 0{,}01$: small effect

$f^2 = 0{,}15$: medium effect

$f^2 = 0{,}35$: large effect

As stated these effect sizes provide information regarding the practical importance of the relationships that might possibly be found between the variables. The results of the above calculations are found in Table 7.

Table 7: Contributions of the different variables, and sets of variables, to R^2 of the academic performance of Grade 12 learners

Variables included in analysis	R^2	Contribution to R^2: total minus decreased model	F	f^2
1. [environment]+[timepsc]	0,1284	1–7=0,1248	12,480**	0,14
2. [environment]+present fatalistic	0,0708	2–7=0,0672	33,600**	0,07
3. [environment]+past positive	0,0045	3–7=0,0009	0,450	
4. [environment]+future	0,0253	4–7=0,0217	10,85**	0,02
5. [environment]+past negative	0,0081	5–7=0,0045	2,250	
6. [environment]+present hedonistic	0,0115	6–7=0,0079	3,950*	0,01
7. [environment]	0,0036			
8. [timepsc]+[environment]	0,1284	8–9=0,0107	5,350*	0,01
9. [timepsc]	0,1177			

Key: [environment=environmental quality]; [timepsc=time perspective]; [ ] indicate the sets of variables

** $p \leq 0,01$

* $p \leq 0,05$

From Table 7 it can be seen that the six predictors result in an R^2 value of 0,1284 which is significant on the 1% level [$F_{6;362}$ = 8,89; p = 0,0001]. From this it can be concluded that the five time perspective factors together with environmental quality account for 12,84% of the variance in the academic performance of the Grade 12 learners. Although this finding is statistically significant, [$F_{5;406}$=12,48; $p \leq 0,01$], the associated effect size (f^2) of 0,14 is indicative of a finding with moderate practical value.

It can further be seen that present fatalistic, present hedonistic and future time perspective respectively contribute significantly to the variance in academic performance (6,72% ($F_{1;410}$ = 33,6; $p \leq 0,01$); 0,79% ($F_{1;410}$ = 3,95; $p \leq 0,05$) and 2,17% ($F_{1;410}$ = 10,85; $p \leq 0,01$)). With the

exception of present hedonistic time perspective, which is significant on the 5% level, the other two contributions are significant on the 1% level. The effect size of these three factors is such, however, that the individual contributions of these factors are of little practical importance. It can further be seen that past positive as well as past negative time perspective does not contribute significantly to the total variance found in academic performance.

Environmental quality was found to have an R^2 value of 0,0107 which indicates a contribution of 1,07% to the variance found in the academic performance of Grade 12 learners. Although significant on the 5% level ($F_{1;410} = 5,35$; $p \leq 0,05$) this result is indicative of a small effect size and is subsequently of very little practical value.

Chapter 6 – Discussion, conclusions, shortcomings and recommendations

6.1. Discussion and conclusions

Within the context of the theoretical and statistical information provided in the preceding chapters, a number of findings warrant further discussion. It was stated that the results of the Grade 12 examinations are of great importance to both the learners and the Department of Education which has the aim that no school in any province should have a Grade 12 pass rate lower than 50% (Pandor, 2005). It was seen that the average percentage obtained by the Grade 12 learners involved in this study was approximately 40%, with the lowest and highest percentages being 13% and 73% respectively. It is clear from this that more attention needs to be paid to the factors that influence these learners' academic performance.

Regarding the Grade 12 learner's academic performance, it was found that environmental quality, together with the five types of time perspective, can account for 12.84% of the total variance found in the academic performance of Grade 12 learners. In practice this finding is of moderate practical value. The fact that time perspective and environmental quality account for only approximately 13% of the variance in academic performance is supported by previous research which found that a multitude of factors can influence academic performance (Van der Westhuizen, Monteith & Steyn, 1989). Among these are aptitude and intelligence (Myburg, Grobler & Niehaus, 1999), verbal as well as non-verbal scholastic aptitude (Grobler, *et al*., 2001), intelligence (Swartz, 1998), cognitive learning styles (Ross, Drysdale & Schulz, 2001), learning strategy (Bosch, Boshoff & Louw 2003) and the learners' study methods and attitude (Swartz, 1998). Language proficiency (Marais, 1993; Jansen, 2004; Van Eeden, de Beer & Coetzee, 2001), reading skills (Watson, Horner, Connell, *et al*., 2003), learner's emotional intelligence (Kapp 2000; Swartz, 1998), level of discipline (Legotlo, *et al*., 2002), morale and motivation (Bosch, Boshoff & Louw 2003; Legotlo, *et al*., 2002), reaction to life stress and coping strategies (Malefo, 2000), medical conditions (Naudé & Maree 2002) as well as extracurricular activities (Eccles, Barber, Stone & Hunt, 2003) were all found to play a role in academic performance. Concerning research hypothesis 1 it was found that, although of little practical value, statistical significant relationships have been found between academic performance and future time perspective. Academic performance was found to be negatively related to present fatalistic time perspective, while present fatalistic time perspective was found to be negatively related to future time perspective. This finding suggests that learners who score high on future time perspective and low on present fatalistic time perspective are more inclined to higher academic performance. This finding is supported by Zimbardo and Boyd (1999) who found that a

general future time perspective is associated with self-reported hours spent studying per week. Teahan (1968) found that optimism was associated with higher academic performance, while Platt and Eisenmann (1968) found that a relationship exists between future orientation and optimism. These findings can be supported by considering the dimensions of future time perspective, which are coherence, extension, density, directionality and affectivity. Future orientated individuals typically have an extended time perspective (extension) as well as a clear picture of anticipated future events (density). These individuals typically have a better idea of how these events influence one another (coherence) as well as a general optimism towards the future (affectivity). The possibility may exist that as these individuals experience themselves as moving "forward" in time (directionality) they may be more considerate of the future consequences of their actions.

The negative relationship found between future time perspective and present fatalistic time perspective is supported by Zimbardo and Boyd's (1999) description of differences between individuals who are more inclined to a future orientated time perspective in contrast to those inclined to a more present fatalistic approach to life. A general present-fatalistic time perspective is associated with aggression, anxiety, and depression as well as a low tendency towards consideration of future consequences (Zimbardo & Boyd, 1999). In contrast to this, future time perspective is associated with a high regard for future consequences. From these results it can be concluded that although time perspective and environmental quality only have a moderate effect on the academic performance of Grade 12 learners, it might prove valuable to investigate ways in which the time perspective of learners can be influenced.

Although evidence was found that statistically significant relationships might exist between the various types of time perspective, these relationships fall beyond the scope of this project and these relationships were subsequently not discussed in depth. Specific recommendations concerning these possible relationships will, however, be made in section 6.2. It was further found that past positive and past negative time perspective had no significant contribution to the variance found in academic performance, and therefore no practical effect on academic performance. The relative importance of present as well as future time perspective over past time perspective supports the idea of Seijts (1998) who stated that although the past may provide important lessons it is of little interest in itself. This idea seems to be supported by the findings of this study.

Although it was stated that the environment can influence the individual in various ways (Evans, Saltzman & Cooperman, 2001), it was found that environmental quality contributes

approximately 1.07% to the variance found in the academic performance of Grade 12 learners. While this contribution is significant on the 5% level, in practice it is of very little value. Regarding this finding, research hypothesis 2, which states that environmental quality significantly influences academic performance, could not be proven. This may indicate that the quality of the environment, as defined in this study, has little influence on the academic performance of the Grade 12 learners. It may also be that the subjective method used in determining environmental quality may not be the most appropriate method to determine environmental quality and that other unknown factors may influence the subjective ratings individuals give when making assessments of their environmental quality. As environmental quality in this study is predominantly based on need satisfaction, a possible explanation for the above finding may be that basic need satisfaction may not be an important factor influencing academic performance. Another possibility, in explaining the above finding, may be the effect the target group may have had on the results. As all learners involved were from Grade 12 this might also have had an influence on the results. Even though the quality of the environment might have had an effect on learners' academic performance, these learners have had to manage this effect for a minimum of 11 academic years to be able to reach Grade 12. In some instances learners might even have failed previous grades before passing to Grade 12. A possibility might therefore exist that these learners had the opportunity to develop personal and interpersonal skills to minimise the effects the environment might have had on their need satisfaction and academic performance. This might be supported by Heylighen's (1992) cognitive approach to need satisfaction which stresses the importance of adequate environmental support during the individual's early years. Similar to this, it is important to note that if environmental quality had an important influence on academic performance, the learners whose academic performance have been influenced by the environment might not have been able to reach Grade 12 and were subsequently not included in this study.

6.2. Shortcomings and recommendations

A number of shortcomings which might have had an effect on the results of this study can be identified; the most important of these being the relatively low alpha coefficients associated with the five time perspective factors. In future it might prove useful to examine the role of cultural, socio-economic and language variables on the concept as well as assessment of time perspective. Results from studies concerning the cultural variability of time perspective has provided contradictory results (Athawale, 2004). Especially within the South African context this might prove to be a problem as significant variations in socio-economic status exist within similar cultural groups. It might prove valuable to involve a large heterogeneous sample of individuals

from various cultural, socio-economic and language groups in future studies. Although this might not necessarily solve the problem associated with these differences, it may provide useful information regarding different approaches to time perspective. It might also be necessary to determine if the five types of time perspective is universally applicable to all individuals, and if cultural variations exist in regard to this aspect.

Concerning the five types of time perspectives, future researchers might examine the relationships that exist between these types. In this study it was found that significant correlations might exist between the various types of time perspectives. Possible relationships between past negative and present fatalistic time perspective, past negative and present hedonistic time perspective as well as past positive and future time perspective could be identified. Just by considering a possible relationship between past negative and present fatalistic time perspective it may be contended that individuals who are generally negative towards their past, might feel helpless in influencing the future, thereby generally exhibiting a present fatalistic time perspective. The feelings associated with past negative time perspective are similar to those associated with present fatalistic time perspective, which are depression, anxiety, aggression and low self-esteem (Zimbardo and Boyd, 1999). It might further prove useful to examine the roles various dimensions of time perspective and future time perspective play in influencing the various types of, and relationships between, time perspectives. The dimension of optimism found in time perspective might, for example, partly account for a relationship between past positive and future time perspective as optimism might influence the dimension of affectivity found in future time perspective. Finally the influence of aspects such as intelligence on time perspective as well as the development of time perspective over time can provide valuable contributions to the study of time perspective.

The effect of the environment on time perspective in general may also be a valuable topic to examine. Evans, Saltzman and Cooperman (2001) stated that substandard residential environments might influence learned helplessness in children. By referring to Heylighen's (1992) development of perceived competence, the possibility may exist that environmental quality might influence the cognitive elements of perceived competence thereby, contributing to the development of a present fatalistic time orientation which is characterised by a feeling of helplessness.

Regarding the aspect of environmental quality it might be of value to determine if the concept of environmental quality comprises more than one factor such as is the case with time perspective. This might be important as it was outside the scope of this study to identify possible factors of

environmental quality. It was identified that the elements of the environment can be categorised on three distinct levels. These levels may each contribute in a unique way to the general quality of the environment. It might further prove useful to review the environmental quality questionnaire to create a more appropriate measuring instrument.

Regarding the assessment of academic performance it was mentioned that a number of examination papers were set individually by the various schools. As this might have had an influence on the final results it is recommended that for future studies the results of a more standardised examination, such as the final Grade 12 examination be used.

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Appendix A

Environmental quality questionnaire and the letter to the principals.

Research regarding the role of environmental quality and time perspective on academic performance of Grade 12 learners.

Dipatlisiso mabapi le karolo eo boleng ba tikoloho le tsebo ya nako ho atleheng dithutong ba baithuti ba Grade 12.

First name/ Lebitso la pele:_____

Second name / Lebitso la bobedi:_____

Surname / Last name / Fane:_____

School / Sekolo:_____

Class / Sehlopha:_____

Dear Learner

This questionnaire is part of a project conducted by the researcher to determine the role of environmental quality and time perspective on academic performance. You are reminded that your participation is completely voluntary. For the successful completion of this project, the researcher will need to obtain information regarding your academic performance. This information will be acquired through your results obtained during the provincial record exam that was written during July of 2005. No information that will identify you will be published in the final research report, and the information you provide will strictly be used for research purposes. If you have any questions regarding this please ask them to the facilitator now. If you are willing to participate in this study, please complete the following consent form.

I, the abovementioned, hereby state that I understand and give permission that my academic results may be obtained and used for research purposes. I have no further questions, and voluntarily take part in this project. I understand that I may return this questionnaire to the facilitator right now if I do not want to take part in this project.

Moithuti ya ratehang

Lengolo lena la dipotso ke karolo ya porojeke e etswang ke mmatlisisi ho batlisisa karolo eo boleng ba tikolohong le tjhebo ya hao ya nako ho atleheng dithutong. O hopotswa hore ke boithaopong ba hao ho nka karolo dipatlisisong tsena. Ho netefatsa katleho ya dipatlisiso tsena, mmatlisisi o tla hloka dintlha tse itseng mabapi le tshebetso ya hao dithutong. Dintlha tsena di tla fumanwa ho tswa diphetong tsa hao tsa hlahlobo ya porofensi tse tlang ho ngolwa ka kgwedi ya Phupjane 2005. Ha hona dintlha tse amanwang le moithuti ofe kapa ofe tse tlang ho phatlalatswa reporotong ya ho qetela ya diplatlisiso, hape moithuti o tshepiswa hore dintlha tsohle tse a fanang tsona di tla sebediswa feela mabapi le dipatlisiso. Ha o nale dipotso dife kapa dife mabapi le dipatlisiso, ka kopo di lebise ho mookamedi honajwale. Ha o dumela ho nka karolo dipatlisisong, ka kopo tlatsa foromo ena ya ditumellano.

Nna, ya boletsweng ka hodimo, ke ikana hore ke utlwisisa hap eke fana ka tumello ya hore diphetho tsa ka tsa dihlahlobo di ka fumaneha le ho sebediswa bakeng sa dipatlisiso. Ha kena dipotso tse ding ebile ke a ithaopa ho nka karolo dipatlisisong tsena ntle le kgatello. Ke utlwisisa hore nka kgutlisetsa lengolo lena la dipotso ho mookamedi hona jwale ha ke sa batle ho nka karolo dipatlisisong tsena.

_____ _____

Signature **Date /** Lehla

Thank you for your participation. / Ke lebohela ho nka karolo ha hao.

Gerhard van der Linde
Researcher / Mmatlisisi
Department of Psychology
University of the Free State

Luzelle Naude
Supervisor / Mookamedi
Department of Psychology
University of the Free State

Questionnaire 1 – Environmental Quality / Lengolo la dipotso 1 – Boleng ba maemo

Please answer ALL the questions as honestly as possible. / Ka kopo araba dipotso TSOHLE ka boitshepehi bo kgonahalang. Ka kopo tshwaya e leng fela.

			1-3

Are you male or female?	Male	1	**4**
	Female	2	

1. **How many people share the following room with you?** Ho nale batho ba ba kae ba ba arolelanang phaposi e latelang le wena?		
Room in which you sleep / Phaposi e o robalang ho yona		**5**
Room in which you study / Phaposi e o ithutang ho yona		**6**

	Please indicate on the following scale to what extent you are satisfied with your environment: / Ka kopo hlahisa sekaleng se se latelang hore o kgotsofetse ha kae ka tikolohong ya hao: **1 = Completely Dissatisfied** / Ha ke a kgotsofala ka hohlehohle **2 = Dissatisfied** / Ha ke a kgotsofala **3 = Neutral** / Ke mahareng **4 = Satisfied** / Ke kgotsofetse **5 = Completely Satisfied** / Ke kgotsofetse ka hohlehohle **Please use a circle to indicate your choice, e.g.:** **1** **2** **3** **4** **5** **To what extent are you satisfied with the: /** O kgotsofetse ha kae ka:	**Completely dissatisfied** Ha ke a kgotsofala ka hohlehohle	**Dissatisfied** Ha ke a kgotsofala	**Neutral** Ke mahareng	**Satisfied** Ke kgotsofetse	**Completely Satisfied** Ke kgotsofetse ka hohlehohle	**FOR OFFICE USE ONLY**
1	**Noise in your neighborhood** Lerata sebakeng sa bodulo ba hao	**1**	**2**	**3**	**4**	**5**	**7**
2	**Street Lighting in your neighborhood** Mabone a setareteng sebakeng sa boahisane/tikolohongng yaka	**1**	**2**	**3**	**4**	**5**	**8**
3	**Safety in your neighborhood** Polokeho sebakeng sa boahisane/tikolohongng yaka	**1**	**2**	**3**	**4**	**5**	**9**
4	**Roads in your neighborhood** Ditsela sebakeng sa boahisane/tikolohongng yaka	**1**	**2**	**3**	**4**	**5**	**10**
5	**Sidewalks in your neighborhood** Ditsela tse ka thoko sebakeng sa boahisane/tikolohongng yaka	**1**	**2**	**3**	**4**	**5**	**11**
6	**Public transport in your neighborhood /** Dipalangwang tsa setjhaba sebakeng sa boahisane/tikolohongng yaka	**1**	**2**	**3**	**4**	**5**	**12**
	To what extent are you satisfied with the distance from your home to: O kgotsofetse ha kae ka bohole ho tloha ntlong ya hao ho fihlela:						
7	**School** / Sekolo	**1**	**2**	**3**	**4**	**5**	**13**
8	**Shops /** Mabenkele	**1**	**2**	**3**	**4**	**5**	**14**
9	**Communal toilets / washrooms** Matlwana a setjhaba/ diphaposi tsa ho hlapa	**1**	**2**	**3**	**4**	**5**	**15**
10	**Drinking water /** Metsi a ho nwa	**1**	**2**	**3**	**4**	**5**	**16**
11	**Park/green area /** Paraka (park) / sebakeng se botala	**1**	**2**	**3**	**4**	**5**	**17**
12	**Sports ground /** Lebala la dipapadi	**1**	**2**	**3**	**4**	**5**	**18**
13	**Medical help (hospital or clinic) /** Thuso ya bophelo bo botle	**1**	**2**	**3**	**4**	**5**	**19**
14	**Friends /** Metswalle	**1**	**2**	**3**	**4**	**5**	**20**
15	**Library (other than school library) /** Library (ntle le ya sekolo)	**1**	**2**	**3**	**4**	**5**	**21**
16	**Telephone /** Founu	**1**	**2**	**3**	**4**	**5**	**22**
	To what extent are you satisfied with the following physical aspects of your home: O kgotsofetse ha kae ka dintlha tse latelang ka sebopeho sa ntlo ya hao:						
17	**Walls** / Mabota	**1**	**2**	**3**	**4**	**5**	**23**
18	**Floor /** Fuluru	**1**	**2**	**3**	**4**	**5**	**24**
19	**Roof /** Marulelo	**1**	**2**	**3**	**4**	**5**	**25**
20	**Windows /** Difensetere	**1**	**2**	**3**	**4**	**5**	**26**
21	**Doors /** Menyako	**1**	**2**	**3**	**4**	**5**	**27**
22	**Electricity /** Motlakase	**1**	**2**	**3**	**4**	**5**	**28**

23	**Toilet /** Ntlwana	**1**	**2**	**3**	**4**	**5**	**29**
24	**Bath/shower /** Bate/shawara	**1**	**2**	**3**	**4**	**5**	**30**
25	**Washbasin** / Basebaka	**1**	**2**	**3**	**4**	**5**	**31**
26	**Garden /** Tshimo	**1**	**2**	**3**	**4**	**5**	**32**
27	**Noise /** Lerata	**1**	**2**	**3**	**4**	**5**	**33**

Please turn the page…

	To what extent are you satisfied with the following aspects of your home: O kgotsofetse ha kae ka dintlha tse latelang tsa ntlo ya hao:	**Completely dissatisfied** Ha ke a kgotsofala ka hohlehohle	**Dissatisfied** Ha ke a kgotsofala	**Neutral** Ke mahareng	**Satisfied** Ke kgotsofetse	**Completely Satisfied** Ke kgotsofetse ka hohlehohle	
28	**Temperature /** Temperetjha / Temphoretjha	**1**	**2**	**3**	**4**	**5**	**34**
29	**Lighting /** Mabone	**1**	**2**	**3**	**4**	**5**	**35**
30	**Smell /** Monko	**1**	**2**	**3**	**4**	**5**	**36**
31	**Appearance /** Shebahalo / Tjhebahalo	**1**	**2**	**3**	**4**	**5**	**37**
32	**Available space inside your home** Sebaka se fumanehang ka hara ntlo ya hao	**1**	**2**	**3**	**4**	**5**	**38**
33	**Storage space available inside your home** Sebaka sa ho boloka se teng ka hara ntlo ya hao	**1**	**2**	**3**	**4**	**5**	**39**
34	**Rodents, mice or insects** Diroto, ditweba kapa dikokonyana	**1**	**2**	**3**	**4**	**5**	**40**
35	**Flooding or dampness** Morwallo le mongobo	**1**	**2**	**3**	**4**	**5**	**41**
	To what extent does your home satisfy the following needs: Ntlo ya hao e kgotsofatsa diTlhoko tse latelang ho le ho kae:						
36	**Your need to wash /** Tlhoko ya hao ya ho hlapa	**1**	**2**	**3**	**4**	**5**	**42**
37	**Your need to sleep /** Tlhoko ya hao ya ho robala	**1**	**2**	**3**	**4**	**5**	**43**
38	**Your need for space /** Tlhoko ya hao ya sebaka	**1**	**2**	**3**	**4**	**5**	**44**
39	**Your need for safety /** Tlhoko ya hao bakeng sa polokeho	**1**	**2**	**3**	**4**	**5**	**45**
40	**Your need for comfort /** Tlhoko ya hao bakeng sa boiketlo	**1**	**2**	**3**	**4**	**5**	**46**
41	**Your need to socialize and have friends visit you** Tlhoko ya hao ya ho kopana le batho le ho etelwa ke metswalle	**1**	**2**	**3**	**4**	**5**	**47**
42	**Your need for privacy /** Tlhoko ya hao bakeng sa poraefete	**1**	**2**	**3**	**4**	**5**	**48**
43	**Your need for control /** Tlhoko ya hao bakeng sa taolol	**1**	**2**	**3**	**4**	**5**	**49**
44	**Your need for the opportunity to develop your potential, talents and capabilities /** Tlhoko ya hao ya monyetla wa ho ntshetsapele bokgoni le dineo tysa hao	**1**	**2**	**3**	**4**	**5**	**50**
45	**To what level are you satisfied with the extent to which your environment supports your academic goals? /** O kgotsofetse ha kae ka mokgwa o tikoloho ya hao e tshehetsa boikemisetso ba hao ba dithuto?	**1**	**2**	**3**	**4**	**5**	**51**
46	**To what extent does your home satisfy your needs? /** Ntlo ya hao e kgotsofatsa ha kae ditlhoko tsa hao?	**1**	**2**	**3**	**4**	**5**	**52**
47	**To what extent are you satisfied with the general quality of your home? /** O kgotsofetse ha kae ka boleng ba ntlo ya hao ka kakaretso?	**1**	**2**	**3**	**4**	**5**	**53**
48	**To what extent are you satisfied with the quality of your neighborhood? /** O kgotsofetse ha kae ka boleng ba boahisane/tikoloho ya hao?	**1**	**2**	**3**	**4**	**5**	**54**
49	**To what extent does your neighborhood satisfy your needs? /** Boahisane/tikolohong ya hao e kgotsofatsa dihloko tsa hao ho le ho kae?	**1**	**2**	**3**	**4**	**5**	**55**

Please make sure that you have answered all the questions
Ka kopo netefatsa hore o arabile dipotso tsohle

Thank you for your participation, it is greatly appreciated
Ke lebohela ho nka karolo ha hao, ke leboha ho menahane

		116-117

LETTER TO SCHOOLS REQUESTING PARTICIPATION IN RESEARCH PROJECT

Dear Sir / Madam

Participation of your school in research for a master's thesis on the effect of environmental quality and time perspective on academic performance.

I am currently conducting research as requirement to complete my Masters degree in Research Psychology at the University of the Free State in Bloemfontein. My area of interest lies in the effect of environmental quality and time perspective on the academic performance of Grade 12 learners.

For this project I aim to involve Grade 12 students from various secondary schools in the Mangaung area.I would also like to involve your school in this project and therefore ask your permission in this regard.

Data will be collected by means of bilingual English and Sotho questionnaires (attached) which will take the learners about 30 minutes to complete. Information regarding learner's academic performance will be obtained through the use of the results of the provincial record exam which is to be completed during July 2005. Before any results are acquired the learner's informed consent will be obtained. I am aware of the fact that the teachers as well as the learners of your school are working under a substantial workload. Because of this, your participation as well as the participation of your school's learners is completely voluntary and anonymous. I would like to add that your schools participation in this study will contribute significantly to the research project, and directly help to acquire vital information regarding this important research topic. After successful completion of the project you will also receive a copy of the research report.

If you have any questions or reservations concerning this project please contact me directly. I personally believe that this project can make a vital contribution to our knowledge concerning the effect of environmental quality on academic performance. If you are willing to participate in this project, please complete the consent form at the bottom of the page. I would greatly appreciate it if you would give this matter your serious consideration. Thank you for your attention.

Kind regards

_____ _____

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Researcher

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CONSENT TO PARTICIPATE IN ENVIRONMENTAL QUALITY RESEARCH PROJECT

Name of School:_____ Name of Principal:_____

Telephone number:_____

☐ I hereby give permission to involve the above mentioned school in the research project

☐ I donot give permission to involve the above mentioned school in the research project

_____ _____

Signature of Principal Date