SELF-REGULATED LEARNING AND TIME PERSPECTIVE AS PREDICTORS OF ACADEMIC PERFORMANCE IN UNDERGRADUATE ECONOMICS STUDIES

by

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DECLARATION

I hereby declare that the thesis hereby submitted by me for the Philosophiae Doctor degree in Higher Education Studies at the University of the Free State is my own independent work and has not previously been submitted by me at any other university/faculty. I furthermore cede copyright of the thesis to the University of the Free State.

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J.N Keyser **Date**

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 BACKGROUND, MOTIVATION AND LITERATURE FRAMEWORK

Economic education is needed for an economic system to function effectively and to utilise scarce resources optimally. All the choices made by individuals as consumers, producers, investors, voters and government are linked to the performance of the broader economy (Mishkin, 2008:1; Robinson, 2007:144).

South African tertiary institutions have, since 2000, experienced an increase of 4,2% per annum in the enrolment of students in higher education. The enrolment for BCom degrees has also increased at universities in South Africa (HSRC, 2008:1; IEASA, 2012:14, 15).

Economics forms the basis of all the BCom degrees offered at universities and at the University of the Free State. The pass rate for the undergraduate Economics courses at the University of the Free State has been dismal for the past couple of years. In 2011, the pass rates for EKN 114, EKN 214 and EKN 314 were 34%, 42% and 35% respectively (Department of Economics, UFS, 2012). The low pass rates in all the Economics undergraduate courses have prompted the question regarding which cognitive and non-cognitive factors predict academic performance in Economics.

Several studies have been done on different predictors of academic performance. Numerous factors such as general intelligence, previous academic achievement, self-efficacy, interest in the work, personality factors and health, physical and social environments, psychological strengths, personality traits, course experience, effort, motives, learning strategies, perceived control, motivation and self-regulation (Diseth, 2003; Diseth, Pallasen, Brunborg & Larsen, 2010; Ferla, Valcke & Cai, 2009; Mayes, Calhoun, Bixler & Zimmerman, 2009; Ning & Downing, 2010; Smrtnik-Vitulic & Maya, 2011; Van der Westhuizen, De Beer & Bekwa, 2011), and their influence on academic achievement have been researched.

Literature (Furnham, 2003:50–53; Leeson, Ciarrochi & Heaven, 2008:630–631; Ransdell, 2001:359–360) indicates the importance of both cognitive ability and non-cognitive variables as indicators of academic achievement. Research further indicates that at higher levels of formal education, non-cognitive factors seem to become more relevant in predicting academic achievement (Furnham, Monsen & Ahmetoglu, 2009:771).

The current study intended to focus on the effect of self-regulated learning (SRL) (Boekaerts, 1999; Pintrich, 1999; Puustinen & Pulkkinen, 2001; Winne, 1996; Zimmerman, 1990) and future time perspective (De Volder & Lens, 1982; Leondari, 2007; McKenzie & Schweitzer, 2001) as predictors of academic performance in under-graduate Economics studies.

Self-regulated learning (SRL) is concerned with how students generate and regulate their own learning. The theory of self-regulated learning (Zimmerman & Martinez-Pons, 1986:284; Zimmerman & Martinez-Pons, 1990:51) describes students who use self-regulated learning as motivationally, cognitively, meta-cognitively and actively regulating their own learning to reach their academic goals. SRL theories seek to explain students' differences in motivation and application of learning strategies. SRL is determined by personal processes, the environment and behaviour. Self-regulated learning encompasses the following processes (Pintrich, 2004:386): planning and goal setting, monitoring, control and regulation, as well as being reactive and reflective. Students which employ SRL will also be inclined to plan for the future, work towards set goals and strive for future accomplishments. These characteristics are synonymous with having a future time perspective.

An individual's ability to move into the past, present and future through the use of emotion and cognition is considered a unique ability of humankind and is called time perspective. Previous studies (De Volder & Lens, 1982; Leondari, 2007) have indicated that an individual's time perspective influences the behaviour of such individual, and academic achievers are characterised by optimistic attitudes and a concern for future goals. The current study anticipated that students who have a future time perspective would perform well academically, because someone's perception of time influences his or her judgments, decisions and actions. The relationship between future goals, motivation and various cognitive motivational measures, all aspects of SRL, and

performance measures can be expected to be positive; indicating that the interrelatedness of SRL and a future time perspective can directly or indirectly influence academic performance (Phan, 2009:156–158).

1.2 STATEMENT OF THE RESEARCH QUESTION

The research questions this study investigated were:

- *Does self-regulated learning predict academic performance in second year Economics studies?*
- *Does the future time perspective predict academic performance in second year Economics studies?*
- *Is there a relationship between self-regulated learning and the future time perspective?*

1.3 HYPOTHESES

The following hypotheses were tested in the study:

Null hypotheses (H_0): Self-regulated learning and future time perspective do not predict academic achievement in second-year Economics.

Research hypotheses (H_1): Self-regulated learning and future time perspective predict academic achievement in second-year Economics.

The following specific null hypotheses and corresponding alternative hypotheses were tested:

H_0a: Self-regulated learning does not predict academic performance in second year Economics.

H_1a: Self-regulated learning predicts academic performance in second year Economics.

H_0b: A future time perspective does not predict academic performance in second year Economics.

H_1b: A future time perspective predicts academic performance in second year Economics.

H_0c: No relationship exists between self-regulated learning and a future time perspective.

H_1c: A positive relationship exists between self-regulated learning and a future time perspective.

1.4 AIM AND OBJECTIVES

The purpose of this study was to integrate age, ethnicity, self-regulated learning and future time perspective in order to investigate how these variables relate to academic performance. This study investigated the integration of a multiple perspective on the determinants of individual differences in academic performance (AP) in Economics. Communalities among these determinants of academic performance (AP) contributed to provide an integrated perspective. A broader conceptual framework was provided to confirm the indirect or direct relationships between the different variables and academic performance in Economics.

1.5 RESEARCH DESIGN AND METHODOLOGY

This section provides a discussion of the independent variables, dependent variable and confounding variables of the study.

1.5.1 Identifying the variables

This section identifies the different variables namely: the independent variables, the dependent variable and confounding variables.

1.5.2 The independent variables

This study explored two independent variables, namely self-regulated learning and future time perspective. SRL was measured by the Motivated Strategies for Learning Questionnaire (MSLQ) and time perspectives were measured by the Zimbardo Time Perspective Inventory (ZTPI).

1.5.3 The dependent variable

The dependent variable for this study was the academic performance of students registered for EKN 214 and it was measured by using their final mark achieved for the course.

1.5.4 The confounding variables

The confounding variables for this study were age, gender, ethnicity and the various psycho-social backgrounds of the students. These variables were measured by means of a biographic questionnaire and the Psycho-Social Wellbeing scale controlled and built into the design as independent variables (McMillian & Schumacher, 2001:118).

1.6 RESEARCH DESIGN

A quantitative, non-experimental survey-type design based on a post-positivistic paradigm was used (Clark, 1998:1245).

1.7 SAMPLING

The population for the study comprised all registered undergraduate students in Economics. The sample consisted of a convenience sample of all second-year students registered for Economics 214 at the University of the Free State.

1.8 DATA COLLECTION

The following questionnaires were used as measuring instruments:

- Biographical questionnaire
- The Psycho-Social Wellbeing scale (PSQ)
- The Motivated Strategies for Learning Questionnaire (MSLQ)
- The Zimbardo Time Perspective Inventory (ZTPI)

The questionnaire was administered during lecture time. The final marks of the students were obtained from the Department of Economics of one semester.

1.9 ANALYSIS OF RESULTS

Results were analysed by describing the reliability of the measuring instruments, using descriptive statistics, a correlation matrix, multiple regression, and the uni-variate and multivariate statistics of the SPSS software package.

1.10 MEASURING INSTRUMENTS

1.10.1 Biographical questionnaire

The biographical questionnaire provided information on factors such as gender, age and ethnicity.

1.10.2 Psycho-Social Wellbeing scale (PSQ)

The PSQ (Viljoen, 2012) assesses psycho-social factors, namely emotional support, socio-economic situation, environment conducive to learning and depression during childhood. The questionnaire also measures the present life dimension in terms of the respondent's financial situation, romantic relationships, family relationships, depression and fear of having contracted HIV/AIDS.

1.10.3 Motivated Strategies for Learning Questionnaire (MSLQ)

The Motivated Strategies for Learning Questionnaire (MSLQ) is a measure of self-regulation (Zimmerman, 2008:169). Researchers use different constructs of self-regulated learning to suit their specific purposes. The current study used the MSLQ as measurement of self-regulatory learning of Economics at second-year level.

The Motivated Strategies for Learning Questionnaire (MSLQ) (Duncan & Mckeachie, 2005:119; Mills & Blankstein, 2000:1195, 1196; Pintrich & DeGroot, 1990:33, 34) assesses a student's motivation, study habits, and learning skills for the course.

The motivation section is based on three general motivational dimensions: expectancy, value and affect. *Expectancy* indicates the student's self-efficacy in terms of his or her beliefs in his or her ability, expectancy of success, judgments of ability to do the task and confidence in his or her ability to do the task. The *value* component focuses on why students engage in specific academic tasks, and the *affect* component determines the

student's level of test anxiety. The learning strategy section is based on three dimensions, namely cognitive, metacognitive and resource management. *Cognitive* strategies refer to the student's use of strategies in the processing of information. *Metacognitive* control strategies refer to strategies used by students in controlling and regulating their own cognition. These strategies include planning, monitoring and regulating of learning activities. *Resource management* includes the strategies used in controlling resources such as time, an appropriate place to study, regulation of effort, peer learning and seeking help.

The motivation section consists of 31 items, subdivided into six sub-dimensions. The six sub-dimensions are as follows:

1. *Intrinsic goal orientation* indicates the degree to which the student perceives herself or himself participating in the course for reasons such as seeing the tasks as a challenge, out of curiosity or to master the tasks.
2. *Extrinsic goal orientation* measures the student's reasons for doing the course, such as rewards, grades, performance and competition.
3. *Task value* measures whether the student finds the course useful, interesting or important.
4. The *expectancy component* comprises control of learning beliefs and measures whether the outcomes are determined by one's own effort.
5. *Self-efficacy* indicates the confidence a student has in his or her ability in doing the course.
6. The *affect component* measures test anxiety and provides a cognitive and emotional component.

The 50-item learning strategies section makes provision for nine sub-dimensions measuring study skills and strategies. The items measured include:

1. rehearsal;
2. elaboration;
3. organisation;
4. critical thinking;

5. metacognitive (planning, monitoring, and regulating);
6. time and study environment;
7. effort management;
8. peer learning; and
9. help seeking, as indicators of learning strategies.

1.10.4 Zimbardo Time Perspective Inventory (ZTPI)

The Zimbardo Time Perspective questionnaire (D'Allessio, Guarino, De Pascalis & Zimbardo, 2003; Volder & Lens, 1982) measures individual multiple time perspectives. The 55-item questionnaire has three sub-dimensions indicating past, present and future time perspectives.

1.11 CONCEPT CLARIFICATION

This section provides clarification on concepts which are used through-out the study. Concepts are also defined and explained in the appropriate sections where they are used.

Behaviorism: emphasizes observable indicators that learning is taking place (Jordan, Carlile & Stack, 2008:22).

Biographical questionnaire: The biographical questionnaire provided information on factors such as gender, age and ethnicity.

Cognitive theories: Cognitive theories (Lefrancois, 2000:227) share beliefs that people learn through changing insights, outlooks, understanding and information processing.

Connectivism: regards learning as forming connections, recognizing patterns, the ability to access sources and information, and using the sources in the application of knowledge (Bell, 2011:100, 102).

Constructivism: refers to the ability to mentally construct meaning of the environment and to create one's own knowledge (Jordan, Carlile & Stack, 2008:55).

EKN 214: refers to an Economics second year semester course. This microeconomics course is offered in the first semester of each year at the University of the Free State.

Future time perspective: is characterised by planning for future goals, and having a sense of purpose (Jackson, 2006:1).

Motivated Strategies for Learning (MSLQ): The Motivated Strategies for Learning Questionnaire (MSLQ) is a measure of self-regulation learning (Zimmerman, 2008:169).

Past-positive time perspective: People with a past-positive perspective is characterised by an optimistic, positive and nostalgic attitude towards the past (Liniauskaite & Kairys, 2009:68).

Past-negative time perspective: People who give preference to past-negative is characterised by a pessimistic, negative or aversive attitude towards the past (Liniauskaite & Kairys, 2009:68).

Post-positivist paradigm: Post-positivism research (Clark, 1998:1245) acknowledges the influence of the researcher's background, worldview, theories and knowledge of the researcher in observing reality.

Present-hedonistic time perspective: The present-hedonistic time perspective (Luyckx, Lens, Smits & Goossens, 2010:239) is characterised by an orientation towards present enjoyment, pleasure and excitement.

Present-fatalistic time perspective: A present-fatalistic perspective (Pluck, Lee, Lauder & Fox, 2008:160) is dominated by a belief that humans are at the mercy of fate or an external power or being.

Psycho-social Wellbeing scale: The Psycho-social Wellbeing scale measures psycho-social factors during a person's childhood years and present situation (Viljoen, 2012).

Self-regulated learning (SRL): Self-regulated learning is the process where the individual takes the initiative to identify needs, formulate goals, identify human and material resources for learning, choose and implement learning strategies, and evaluate outcomes (Ultanir, 2012: 201).

Zimbardo Time Perspective Inventory (ZTPI): The Zimbardo Time Perspective questionnaire (Volder & Lens, 1982) measures individual multiple time perspectives.

1.12 ETHICAL CONSIDERATIONS

To ensure that the study complied with ethical standards of research the following was required:

- The study accepted the guidelines as prescribed by the Ethics Committee of the Faculty of Education of the University of the Free State.
- Participants signed an informed consent form to ensure that their privacy would be honoured and that their identity would be protected.
- Participants were informed as to what was expected of them, what the process would entail and what they might expect from the researcher.
- The researcher sought the participants' cooperation and respect.
- Permission to conduct the study was requested from the authorities at the University of the Free State.
- It was the researcher's intention to be honest while gathering the data and to tell the truth in analysing the results, and to be as objective as possible in writing up the findings of the research.

1.13 SIGNIFICANCE OF THE STUDY

The significance of this study was that it could provide a better understanding of the predictors of academic achievement in Economics at tertiary level. Identifying the factors that influence academic performance could improve the targeting of interventions and support services for students at risk of academic problems. Higher education institutions could address the identified factors to improve the academic performance of students. The study could also assist in the development of teaching methods to improve academic performance.

1.14 LAYOUT OF CHAPTERS:

Chapter 1 Orientation to the study

Chapter 2 Self-regulated learning as predictor of academic performance

Chapter 3 Time perspective as predictor of academic performance

Chapter 4 Learning in Economics

Chapter 5 Research design and methodology

Chapter 6 Results and discussion of results

Chapter 7 Conclusions, limitations and recommendations

1.15 CONCLUSION

This chapter provided an outline of the orientation of this study. The outline included the motivation, statement of the research question, hypotheses, the measuring instruments, ethical considerations, the significance and the layout of the chapters for this study.

Chapter 2 provides a discussion on self-regulated learning as predictor of academic performance.

CHAPTER 2

SELF-REGULATED LEARNING AS PREDICTOR OF ACADEMIC ACHIEVEMENT

2.1 INTRODUCTION

As indicated in Chapter 1, both cognitive and non-cognitive variables influence academic achievement at university level. The focus of this study was on self-regulated learning and future time perspective as predictors of academic achievement. Chapters 2 and 3 provide a theoretical basis for self-regulated learning and future time perspective respectively. The purpose of Chapter 2 is to provide an overview of the theoretical framework and a conceptual framework of self-regulated learning (SRL).

The starting point of the chapter is the different definitions of learning. Self-regulated learning is defined, and the specific approach of this study to self-regulated learning is motivated. The traditional learning theories of the twentieth century, more recent learning theories, and the theoretical foundations and relationships between the theories and self-regulated learning are explained and discussed. The chapter further explores the different concepts of self-regulated learning, with specific emphasis on the concepts used in the measurement of SRL by this study. Discussion, interpretations, reflections and commentary by different scholars and the researcher are provided after topics had been explained.

2.2 DEFINING LEARNING

The concept *learning* and the way learning takes place have been argued and philosophised about since Plato's argument (Hergenhahn, 1982:32) that knowledge is inherited, that learning is a natural development of the human mind, and that knowledge is only available through reasoning. Aristotle argued that knowledge is the result of sensory experience, which relates to the laws of association. John Locke stated that

ideas came from experience. Thorndike was of the opinion that learning takes place by trial and error, and thus by selecting and connecting(Hergenhahn, 1982:32).

A variety of definitions are offered to define learning. Learning is defined as the acquisition of information (Lefrancois, 1972:7). The classic definition of learning is that it is a change of behaviour as a result of experience or practice (Hergenhahn & Olson, 1993:2).

Learning is also described as the process by which we receive and process sensory data, encode such data as memories within the neural structures of our brain, and retrieve those memories for subsequent use. The concern for learning focuses on the way in which people acquire new knowledge and skills and the way in which existing knowledge and skills are modified. Nearly all conceptions of learning include three criteria for defining learning (Shuell, 1986:412):

- a change in an individual's behaviour or ability to do something;
- a stipulation that this change must result from some sort of practice or experience; and
- a stipulation that the change is an enduring one.

A more recent definition of learning from Ambrose et al (2010:3) states, "Learning is a change in knowledge, beliefs, behaviours or attitudes."

Discussion

Self-regulated learning (SRL) provides a new perspective on academic learning. SRL includes different models and theoretical perspectives, and is referred to as a process used by learners or students to control and regulate their own cognition, motivation, affect and behaviour during learning (Pintrich, 2004:401).

2.3 SELF-REGULATED LEARNING

In this section the concept of self-regulated learning is discussed.

2.3.1 Background

Since the beginning of public schooling, educators have been intrigued by the differences between students' modes of learning and academic achievement. In the early 19th century, differences in academic achievement were attributed to intelligence and diligence. At the turn of the 20th century, with the emergence of psychology as science, individual differences in educational functioning became the focus of attention. Scholars, like Dewey, Thorndike and Montessori (see 2.8) recommended that the curriculum should be adapted to accommodate individual differences (Zimmerman, 2002:65).

Self-regulated learning, as a new perspective on students' learning, emerged as a mayor topic during the 1970s and 1980s. Research on metacognition and social cognition provided new insights to students' individual differences. "Metacognition is defined as the awareness of and knowledge about one's own thinking" (Zimmerman, 2002:65). *Social cognition* refers to the social influences on learning. The consequent research led to attributing differences in academic achievement to a lack of applying a process of self-regulated learning. Students applying self-regulated learning processes are more likely to succeed academically and view their future more optimistically (see Chapter 3).

2.3.2 Defining self-regulated learning

Self-regulated learning has been defined in several ways:

"Self-regulated students are self-regulated to the degree that they metacognitively, motivationally and behaviorally are active participants in their own learning process" (Zimmerman, 1989:329).

"Self-regulation refers to self-generated thoughts, feelings, and behaviors that are orientated to attaining goals" (Zimmerman, 2002:65).

"Self-regulated learning is an inclusive perspective on learning and includes cognitive, motivational, affective and social contextual factors" (Pintrich, 2004:386).

"Self-regulated learning is a deliberate choice to achieve specific goals, the development of self-regulated strategies, a process to achieve those goals and the willingness to change strategies" (Dowell & Small, 2012:142).

"Self-regulated learning is the process where the individual take the initiative to identify needs, formulate goals, identify human and material resources for learning, choose and implement learning strategies, and evaluate outcomes" (see figure 2.1) (Ultanir, 2012:201).

"Self-regulation refers to the ability of students to develop knowledge, skills and attitudes which can be applied to learning situations" (Boekaerts, 1999:446).

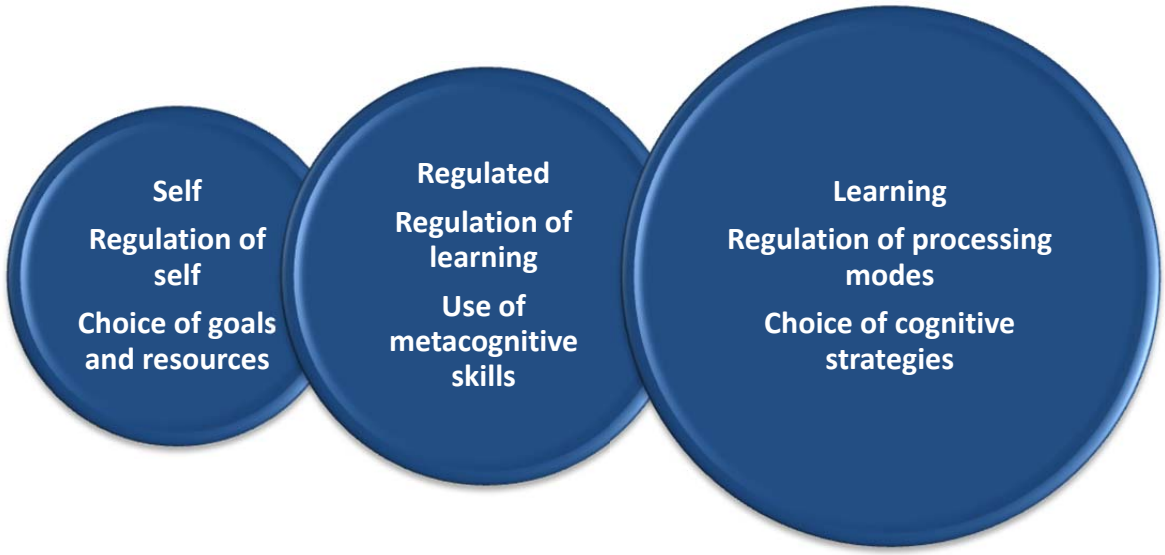


Figure 2.1: Self-regulated learning

Discussion

Definitions regarding self-regulated learning adapted from Boekaerts (1999:449) differ according to researchers' theoretical orientations. However, a few common conceptualisations emerged, namely that participants are metacognitively, motivationally and behaviourally involved in their own learning. Metacognitive processes refer to the planning, setting of goals, organising, self-monitoring and self-evaluation throughout the process of learning. Students are therefore able to be aware and

knowledgeable about their approach to learning. Motivational processes include self-efficacy, self-attributions and intrinsic task interest. Behavioural processes relate to the creation of an environment conducive to learning, seeking advice, self-instruction and self-reinforcement to contribute to the learning process (Boekaerts, 1999; Pintrich, 1999; Puustinen & Pulkkinen, 2001; Winne, 1996; Zimmerman, 1990:5).

Characteristics of students who apply self-regulated learning are described by Montaliro and Torres (2004:3, 4) as follows:

- being familiar with cognitive strategies, such as repetition, elaboration and organisation to assist in transforming, organising, elaborating and recovering information;
- knowing how to plan, control and direct their mental processes towards personal goals (metacognition);
- employing a set of motivational beliefs and adaptable emotions, such as a high sense of self-efficacy, adoption of learning goals, positive emotions towards tasks, and the capacity to control and modify these beliefs and emotions;
- planning and controlling time, effort, learning environments and help seeking to contribute to a favourable learning environment;
- controlling and regulating academic tasks; and
- using strategies to avoid external and internal distractions from performing tasks.

Self-regulated learning can therefore be described as a self-directed process by which learners transform mental abilities into academic skills (Wolters, 2003:189).

2.3.3 Self-regulated processes during learning

When defining self-regulated learning, it is important to distinguish between self-regulation processes and self-regulated learning strategies. Self-regulation processes include perceptions of self-efficacy, goal-setting, planning, monitoring, control, reaction and reflection of the learning process (Corno, 1986; Zimmerman & Martinez-Pons, 1986). Self-regulating strategies (see 2.13) involve the actions and processes to acquire information or skills that relate to agency, purpose and instrumentality perceptions by learners (Pintrich, Roeser & De Groot, 1994:140, 141).

Self-regulated learning is concerned with how individuals regulate their own cognitive processes within an educational setting (Puustinen & Pulkkinen, 2001:270–277). Self-regulated students are proactive learners who incorporate self-regulated processes (goal-setting, self-observation, self-evaluation, self-reflection and self-adoption) with learning strategies (management of study time, using resources, managing the environment) and self-motivational beliefs (self-efficacy, intrinsic interests) (Cleary & Zimmerman, 2004:539). These students will regulate their academic behaviour in four phases (Winne, 1996:331, Winne & Hadwin, 2008), namely forethought planning and activation, monitoring, control, and reaction and reflection (see Fig 2.2). These phases occur simultaneously and dynamically with interaction between the different phases. The following section explains the four phases of self-regulated learning.

2.3.3.1 Forethought, planning and activation

The first phase, forethought, planning and activation, sets the stage for engaging in activities such as studying or applying any learning strategies. This stage includes the setting of goals, strategic planning, as well as beliefs such as self-efficacy, goal orientation, intrinsic interest and outcome expectations. This stage includes activities such as specific objectives for the task, activating prior knowledge about the material and metacognitive knowledge, the activation of motivational beliefs and emotions, planning the time and effort required for the task, and activating perceptions regarding the task and class context (Torrano & Torres, 2004:6).

2.3.3.2 Monitoring

In the second phase of monitoring, students implement their strategic plan and use different self-monitoring techniques (self-questioning, writing down grades) to keep track of their progress. This phase contributes to the gathering of information to evaluate the effectiveness of the strategic plan and to improve or adjust future learning attempts (Cleary & Zimmerman, 2004:539).

2.3.3.3 Control

During the third phase of control (Cleary & Zimmerman, 2004:539; Torrano & Torres, 2004:6), activities encompass the selection of thought control strategies, motivation and emotions, as well as regulating time and effort, and control of the different academic

tasks. During this stage, students practice the skills they have observed and obtained in a self-controlled manner. To ensure optimal learning, students should use the skills and strategies that are represented in the successful self-regulated learning model.

2.3.3.4 Reaction and reflection

In the final phase of reaction and reflection (Zimmerman, 2002:68), the student judges and evaluates his/her task execution. By comparing the outcomes with previously set benchmarks, students reflect on future behaviour regarding the whole process of learning. The student therefore gathers information to evaluate the effectiveness of the strategic plan and to improve or adjust future learning attempts. In this phase, the student applies self-judgment and self-reaction activities (Butler & Winne, 1995:248). Self-judgment includes comparing the outcomes with criteria. This is referred to as *self-evaluation*. Also part of self-judgment is casual attribution, which refers to beliefs about the causes of failures and successes during the learning process. Self-reaction is used by students to adopt or modify their behaviour of learning. Self-reaction encompasses feelings of self-satisfaction and could result in a positive effect in reaction to the academic outcomes. Higher levels of self-satisfaction will contribute to higher levels of motivation, whereas lower levels will reduce further efforts of learning. Self-reaction may result in students responding by being defensive and withdrawing from learning activities, or students may react by adopting more effective strategies of learning to enhance academic performance.

The four phases of control are characterised by distinctive learners' self-regulating activities (Pintrich, 1999:459–470), namely cognitive, motivational and affective, behavioural and contextual activities. Zimmerman's social cognitive model of self-regulation (Zimmerman, 1990:330–337) integrates covert personal (self), behavioural and environmental events as determinants of SRL. Covert self-regulation involves monitoring and adjusting cognitive and affective states. Behavioural self-regulation includes self-observing and adjusting of strategic processes. Environmental self-regulation consists of observing and adjusting environmental conditions or outcomes. Students who apply these self-regulation activities display high levels of motivation and achievement (Jones, Alexander & Estell, 2010:380).

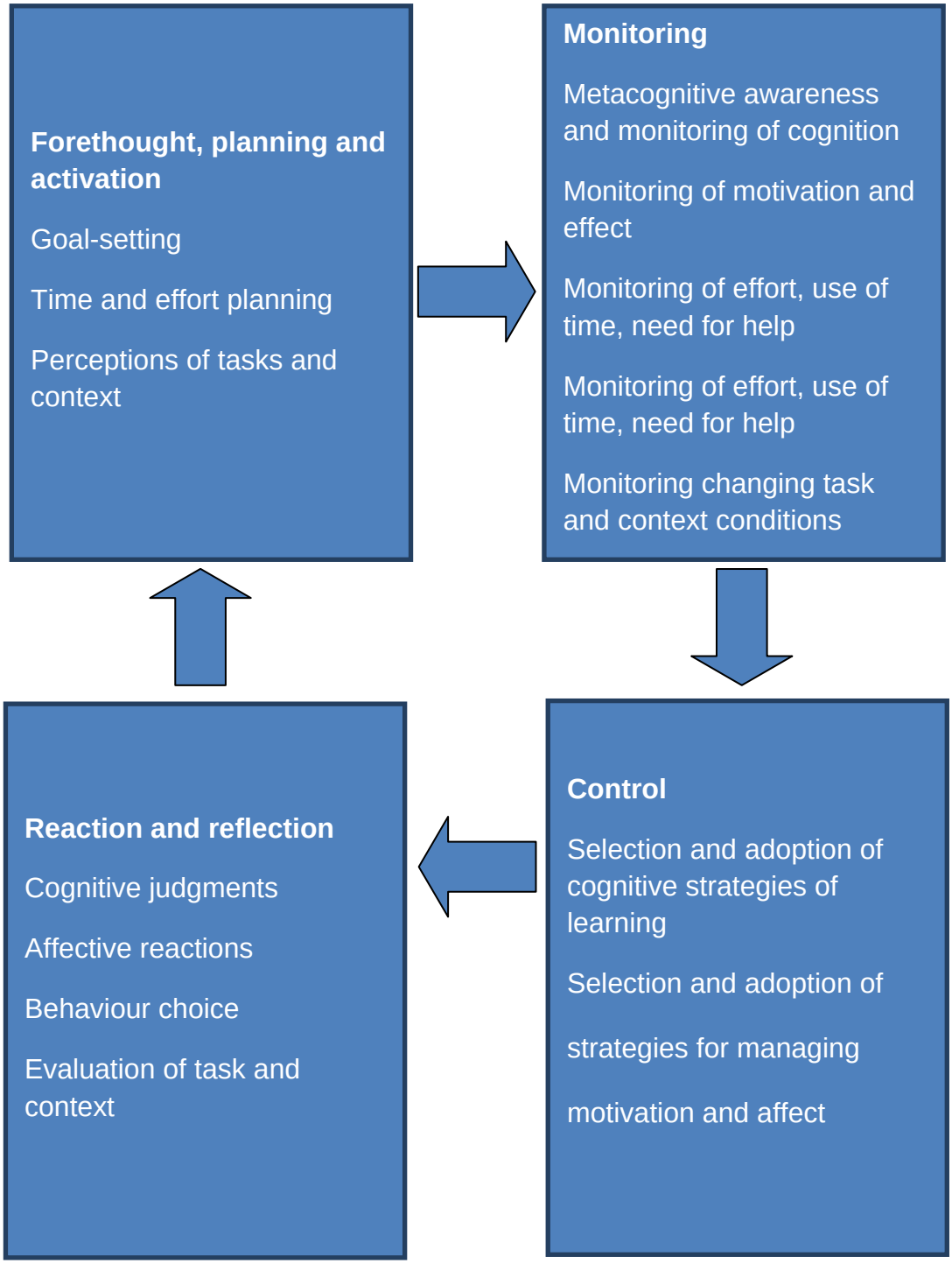


Figure 2.2: Phases of self-regulated learning

2.3.4 SRL: focus of this study

For the purpose of this study, the focus was on the following prominent self-regulatory actions (Jones, Estell & Alexander, 2008:2–3; Paulsen & Feldman, 2007:354; Zimmerman, 1989:2):

- self-motivation (goal-setting, value, expectancy and self-efficacy);
- using learning strategies (cognitive and meta-cognitive strategies);
- effort regulation (time management); and
- using environments successfully (physical locations and help seeking).

Students direct their own effort to acquire knowledge by using specific strategies to achieve goals on the basis of self-efficacy perceptions. In SRL, self-motivation is considered as intrinsic and would motivate students to undertake academic tasks, aim to understand the content, and regulate their learning in such a way as to continue when being challenged by academic tasks. Although this study acknowledged that students' backgrounds and classroom context influence students' use of motivational, cognitive and learning strategies. SRL in this context will analyse the process where students with well-developed self-regulation skills can monitor their understanding, regulate their effort and seek help when needed. Some self-regulated learning factors are domain-specific and others are more general. SRL abilities, in this study, focused on specific aspects of self-regulated learning in Economics.

Students who apply self-regulated learning need to use different strategies to plan, monitor, and evaluate their learning activities (meta-cognitive strategies), as well as control their motivation and emotion (volitional strategies) (Gonzales, 2013:46).

SRL includes various aspects of student learning. The focus of this study was guided by the concepts of SRL as measured by the Motivated Strategies of Learning Questionnaire (MSLQ) (see 2.11), which is used to measure SRL.

2.4 APPROACHES TO LEARNING

Johnston (2002:1) states that all lecturers bring to class an inbuilt informal theory on teaching. This theory may be either consciously stated or implicit in what lecturers do.

Lecturers' inbuilt informal theory may include the transfer theory, in which the subject matter is viewed as a commodity that can be transferred to a student waiting to receive it. The transfer theory amounts to the view that it is the student's fault if he/she does not learn. A second theory relates to the shaping of the student's mind into some predetermined form. In this case, teaching becomes training rather than educating, and resembles behaviourism. The third type of theory, namely a development theory, is one that takes the view that the student and lecturer are undertaking a journey together. According to this perspective, a range of perspectives are explored. The expectation is that the lecturer will learn along with the students. The lecturer's role changes from being an infallible expert in the first two theories to being a guide who is more responsive in the last.

The development theory sees the student making a significant contribution to his/her own learning in terms of the pace of learning, direction, objectives and processes. The development theory is flexible in its outcomes, both in terms of its overall direction and in the extent of those outcomes. The developmental theory relates closely to constructivism, and implies that students learn either holistically and task-directed or they rationalise contextually, that is, they perform either surface learning or deep learning (Johnston, 2002:8).

Students who use a deep approach to learning (Nolen, 1988:271; Rayner & Riding, 2010:16, 17) are personally involved in the task and seek to obtain some underlying meaning, look for relationships with other tasks or topics and are likely to read extensively around the given topic. To some extent, such a student is an independent learner and should be encouraged by teachers. A surface approach to learning arises when the student merely sees learning as a means to achieve an end and does just enough work to pass the assessment hurdle. The student is dependent on the teacher for knowledge and is unlikely to establish meaning and relationships between topic and tasks given. Students may adopt different approaches to learning according to the task, the course or the teaching context. In this sense, teachers have a direct impact on the learning outcomes of their students. Students should therefore be encouraged to develop the deep approach to learning and lecturers should adopt instructional strategies that would foster deep learning (Johnston, 2002:9).

The following have been identified as factors in fostering deep learning:

- the degree of interest, relevance and challenge provided by the subject context;
- workload which is not perceived as excessive by students;
- clarity and organisation of classes;
- provision of a framework by using concept maps, which demonstrates interrelationships;
- assessment instruments which reward deeper learning; and
- students' involvement in their own learning by way of strategies such as group work and the negotiation of topics (Johnston, 2002:10).

Knowledge about how students learn is important to evaluate the way educators facilitate learning and assess the students. In order for learning outcomes to be achieved, a good teaching system aligns learning facilitation and assessment with the learning activities of the students (Biggs, 1996:11). Meaningful or deep learning is created by students through learning activities. What students learn from teaching activities depends on their motives, intentions, what they already know and how they use their prior knowledge. Interaction with the teaching–learning environment will determine how students' conceptions change towards the world in which they live (Biggs, 1996:13).

Alignment of the whole teaching and learning process is important if students are to learn the desired outcomes in an effective manner(Biggs, 1996:25). It is the lecturer's task to engage students in learning activities and to assess them according to the outcomes. All aspects of teaching and learning are therefore integrated, interdependent and should be aligned to be effective (Biggs, 1996:25).

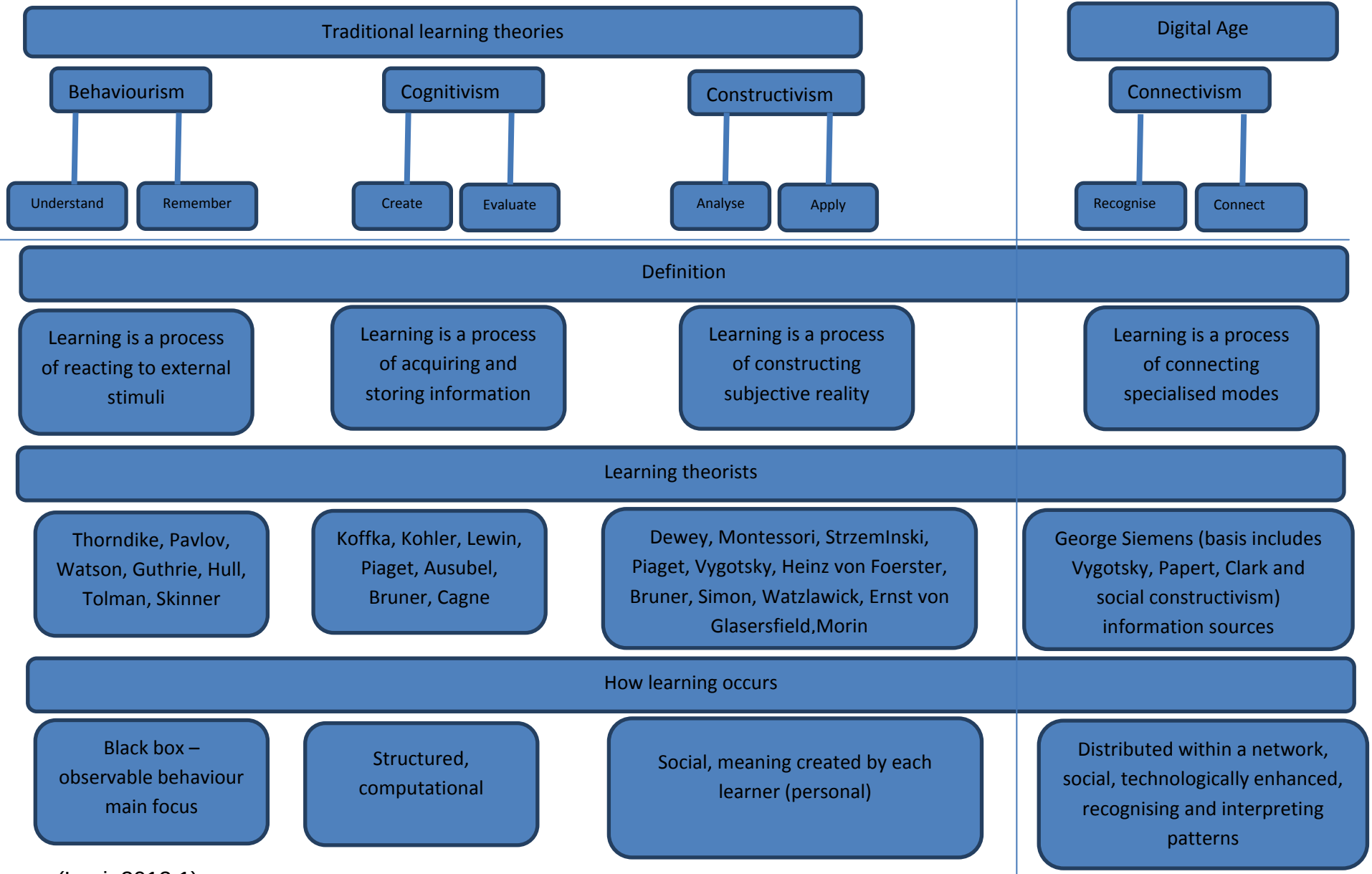
Discussion

The deep and surface approaches to learning are considered generic in nature. Deep and surface approaches tend to integrate motivational aspects and learning styles. Self-regulated learning emphasises that there are more strategies students can use to regulate their cognition than deep and surface learning. Self-regulated strategies are domain-specific, and students use different strategies and are differently motivated for different courses.

2.5 LEARNING THEORIES

Learning theories of the twentieth century are broadly classified as behaviourism, cognitivism and constructivism, and are referred to as the 'traditional theories of learning' (Maughan & Anderson, 2005:3). Connectivism has been established as the new learning theory of the digital age (Bell, 2011:100, 102). This section distinguishes between the different learning theories, namely behaviourism, cognitivism, constructivism and connectivism (see figure 2.3). Different theories of behaviourism, cognitivism, constructivism and connectivism and their relationship with SRL are discussed in 2.6.

Figure 2.3: Illustration of learning theories



(Lepi, 2012:1)

2.5.1 Behaviourism

The origins of behaviourism (Jordan, Carlile & Stack, 2008:22) can be traced back to the last years of the nineteenth century and to Ivan Pavlov's (1927) investigation into animals' automatic and involuntary responses to stimuli. Behaviourism emphasises observable indicators that learning is taking place. It focuses on the conditioning of observable human behaviour. Watson (1913), viewed as the father of behaviourism by many, defines learning as a sequence of stimulus and response actions in observable cause and effect relationships. The focus of behaviourism is on the objective and observable aspects of human behaviour. Other scholars of behaviourism include Thorndike (1911) who emphasised the role of experience in strengthening or weakening the stimuli–respond bond, Guthrie's (1952) research on stimuli leading to response, and Skinner's (1966) operant conditioning theory.

Discussion

Applying the theoretical principles of behaviourism to learning environments, it is easy to recognise that behaviourism has been used in learning through the concept of directed instruction, whereby the lecturer provides knowledge to the students, uses rewards and punishments to ensure learning, and breaks down the instruction process into conditions of learning within the learning environment (Forrenster & Jantzie, 1998:1). Traditionally, teaching and learning in higher education have been typified as content-based, teacher-based and behaviourist in nature.

2.5.2 Cognitivism

Cognitivism replaced behaviourism as the dominant learning theory in the 1960s. Cognitive theories (Lefrancois, 2000:227; Yilmaz, 2011:205) share beliefs that people learn through changing insights, outlooks, understanding and information processing. Cognitivism views learning as an active process of knowledge construction. Cognitive learning focuses on concepts such as *memory, attention* and *concept formation* with the emphasis on how knowledge is acquired, processed, sorted, retrieved and activated by students.

Work by scholars such as Edward Tolman, Jean Piaget, Lev Vygotsky, Jerome Bruner and the German Gestalt theories were responsible for the shift from

behaviourism to cognitive learning (Yilmaz, 2011:205). Contributions to the cognitive approach include Piaget's theory of human development, Vygotsky's incorporation of culture in the learning process, Festinger's cognitive dissonance theory, Spirot's cognitive flexibility theory, Sweller's cognitive load theory and Tolman's theory of sign learning. Kohler and Koffka's Gestalt theories focused on the learner's insight, perception and problem solving, and the search for relationships between related concepts and elements of a problem. Gestalt theories emphasise the whole or the broader picture of the problem (Hergenhahn, 1982:243). Piaget's and Vygotsky's theories are, however, considered as the basis of the cognitive theories. It is difficult to establish a clear distinction between cognitivism and constructivism, because constructivism is considered a natural progression from cognitivism. Theories by Piaget, Bruner, Vygotsky and others are related to both cognitive and constructivist learning theories (see 2.7 and 2.8).

2.5.3 Constructivism

Cognitivism (Jordan et al., 2008:55) studies how information is processed, while constructivism studies what people do with the information to construct meaning and develop knowledge. Constructivism as a learning theory focuses on students' ability to mentally construct meaning of their environment and to create their own knowledge (Hean, Craddock & Halloran, 2009:5). As a teaching practice, constructivism is associated with different degrees of non-directed learning. Constructivists believe that all humans have the ability to construct knowledge in their minds through the process of discovery and problem-solving (Forrester & Jantzie, 1998:2 of 16). To motivate students to exercise meaningful learning and become motivated learners, critical thinkers, problem-solvers and meta-cognitionists, one requires educational reform that provides the student with the necessary tools to participate and to take ownership of the learning process.

2.5.4 Connectivism

Learning theories describe the principles and processes of learning, and also reflect the social environment. The social environment is continuously changing, information is accessible and available, knowledge is growing exponentially, technology has advanced tremendously and has influenced all aspects of life including how we live,

how we communicate, and how we learn. Connectivism includes technology and connection as learning activities and relates these to the digital age (Dunaway, 2011:676).

According to Kop (2008:1), learning no longer has to be an internal, individual activity or experience. Connectivism regards learning as forming connections, recognising patterns, the ability to access sources and information, and using the sources in the application of knowledge. Learning can therefore reside outside of us, in a database; the focus is connecting specialised information sets in the process of meaning-making. For connectivism, our current state of knowing is of less importance than the insight and tasks needed for learners to use computers, cell phones, iPads, and any other resources to access knowledge and make decisions (Kop, 2011:21).

Principles of connectivism are as follows (Siemens, 2004:1):

- Learning and knowledge rest in diversity of opinions.
- Learning is a process of connecting specialised nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known.
- Nurturing and maintaining connections are needed to facilitate continual learning.
- Ability to see connections between fields, ideas and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.

Decision-making is considered a learning process. Choosing what to learn and the meaning of incoming information are seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

Discussion

Connectivism emphasises the importance of the social context within which the learner constructs his or her own learning and the connectedness of knowledge (Low

& O'Connell, n.d.:3, 4). Connectivism and technology allow the learner to use the different technological devices to capture, preserve (save), memorise and create information. Information can be recalled, used to communicate with other learners or the lecturer, and to recommend and share resources. Modern technological devices provide data to connect and communicate, to support social interaction, collaboration and the construction of learning. Connectivism is applicable to SRL in terms of how students learn and generate information, how they interact socially, and how they use sources in seeking help, making meaning, making decisions, and using connectivism as a learning strategy.

The following section provides different theoretical perspectives on SRL from the different groups of learning theories.

2.6 A BEHAVIOURAL PERSPECTIVE ON SRL

The following section discusses the behavioural perspective on SRL.

2.6.1 Skinner's operant theory

The operant theory (Schunk & Zimmerman, 1997:59) originates primarily from the work of Skinner (1953). The continuation of operant behaviour depends on the consequences of the behaviour. Behaviour that is reinforced will continue to occur and behaviour that is punished will occur less often (Skinner, 1966:213, 214; Skinner, 1981:502). Praise from a lecturer will encourage a student to continue to study hard, whereas criticism by a lecturer on misbehaviour may discourage a student from continuing the deviant behaviour. The operant theory explains how individuals establish reinforced contingencies and discriminative stimuli regarding behaviour patterns.

Discussion

Self-regulated behaviour includes choosing between different courses of action by deferring an immediate reinforcement and choosing a future reinforcement that will contribute to the achievement of desired outcomes. Operant conditioning recognises the importance of learners' internal characteristics (Jordan et al., 2008:24, 25) such as personality, motivation and habit. Students developing self-control and self-

monitoring skills will be able to identify their own reinforcers. Reinforcers may include materialistic rewards, such as prizes, social rewards, approval or praise, and intrinsic rewards, such as feelings of self-satisfaction. An operant perspective helps a person to decide which behaviour to regulate, establish positive and negative stimuli for their reoccurrence, compare performance against a set benchmark, and apply reinforcement. Three key sub-processes emerge from the operant theory, namely self-monitoring, self-instruction and self-reinforcement.

2.6.1.1 Self-monitoring

Self-monitoring (Schunk & Zimmerman, 1997:60) is the deliberate attention given to a specific aspect of someone's behaviour. The monitoring of behaviour can be done by recording the frequency of the specific behaviour. Different methods (Zimmerman, Bandura & Martinez-Pons, 1992:664) can be applied to record behaviour, namely narrations, frequency counts, duration measures, time-sampling measures, behaviour ratings, behaviour traces and archival records. Students who keep record of their activities during studying may learn that time is wasted on non-academic tasks. When students monitor their learning activities, this will result in responses such as the continuation of behaviour that leads to the desired outcomes or the discontinuation of undesirable behaviour.

2.6.1.2 Self-instruction

Self-instruction (Schunk & Zimmerman, 1997:60) encompasses the stimuli that enforce the self-regulating response of reinforcement. Self-instruction involves the review of class notes, arranging the environment, and verbalising statements. *Verbalising* refers to self-instruction by applying certain steps to academic tasks.

2.6.1.3 Self-reinforcement

Self-reinforcement (Schunk & Zimmerman, n.d.:61) refers to the process whereby behaviour is maintained or enhanced to achieve the desired outcomes. In an academic setting, self-reinforcement measures can be enforced by the teacher or classroom setting. Students do work when told by the lecturer to do so and continue with the work due to classroom control rather than self-reinforcement. Self-

reinforcement as a self-regulatory behaviour is important to reinforce successful learning behaviour.

2.6.2 Behavioural perspective: Bandura's social learning theory

The following section provides a discussion on the behavioural perspective with specific reference to Bandura's social learning theory.

2.6.2.1 The concept of human agency

According to Bandura (2001:3, 4), the concept *human agency* describes people as individuals who make things happen, set goals, motivate themselves, practice self-talk and take actions. People are capable of making good judgements about their capacities, analysing the effect of different actions and events, and regulating their behaviour. The self-concept of individuals (see 2.9) operates by means of individuals' belief systems, self-regulating capacities, phenomenology (see 2.10) and functional conscientiousness. People are seen as active agents of experiences, rather than as passive agents of experiences (Bratman, 2001:319; Elder, 1994:7). Their sensory, motor and cerebral systems are tools to set goals, be motivated, and regulate behaviour that will give meaning and direction to their lives. Although human agency is the capacity for humans to make choices and also capacities such as self-reactiveness, self-effectiveness, self-conscientiousness and self-guidance, the personal agency functions falls within a broader social network and is influenced by social self-conscientiousness.

The core features of human agency as described by Bandura (1991:249; 2001:6–10) are as follows:

1. Intentionality refers to a future course of action to be performed. The intended action will influence self-motivation and would in turn affect future actions. Intentionality therefore relates to planning or making plans for the future.

2. Forethought relates to having a future time perspective, and manifests itself in the setting of goals, anticipating certain outcomes, motivating oneself, guiding actions and anticipating future events. Forethought, if directed over a long time, provides direction, purpose and meaning to one's life, and guides the construction of outcome expectations and the regulation of behaviour.

3. Self-reactiveness relates to the propensity of individuals to make choices and plans, and who have the ability to regulate their execution thereof. The self-regulation of motivation and actions are governed by a set of sub-functions, namely self-monitoring, self-guidance and corrective reactions.

4. Self-reflectiveness in individuals makes them not only agents of actions, but also self-examiners of their behaviour. Individuals evaluate and judge their motivation, values and actions. Self-efficacy (Wood & Bandura, 1989:364, 366) plays a central role in the process of self-reflectiveness.

A person's belief in his/her capabilities (Bandura, 2001:10) to exercise control over his/her functioning and the environment influences that person's capacity for self-reflecting. If an individual believes that he/she has the capacity or ability to achieve set goals or outcomes, obstacles can be overcome by persisting with a specific strategy. Self-efficacy determines whether a person thinks positively or negatively, and relates to self-enhancement or self-hindering. Self-efficacy determines how individuals choose their goals and outcomes, how much effort they put in learning and whether obstacles are motivational or discouraging. Self-efficacy therefore plays an important role in the self-regulation of motivation, setting of goals and outcome expectations.

The informational, social and technological environment plays an important role in directing a person's self-efficacy (Bandura, 2001:11). The environment can either promote certain competencies or reduce a person's perception of his/her self-efficacy.

2.6.2.2 Relationship between the self-concept, metacognitive, cognition and affective subsystems

Metacognition plays an important role in the understanding of self as an agent, and is regarded as the bridge between the self and the cognitive system (McCombs & Marzano, 1990:52). Metacognitive awareness (see 2.7.1.2) and understanding help students to display the will to learn and develop the skills for self-regulation. Metacognition is a set of capabilities that supports the awareness of the self as agent in engaging in SRL. Metacognition contributes to self-awareness, self-reflection and strategies for control, planning and self-regulation. The metacognitive system is

supported by cognitive abilities that assist in planning and the setting of goals (Veenman, Van Hout-Wolters & Afflerbach, 2006:4, 5). The affective subsystem of emotional processes and knowledge activates the self-system to support the achievement of goals. The cognitive system, within the self, functions with certain beliefs of a self-concept, self-image, self-efficacy and self-esteem (Schraw, Crippen & Hartley, 2006:115). Negative beliefs in the cognitive system will result in negative perceptions and emotions. Negative emotions will again influence thinking and behaviour

2.6.2.3 Social cognitive learning

Learning occurs, according to Bandura (1971:2, 3), through observation of other people's behaviour, from direct experiencing and through modelling. Observing the behaviour of others and the consequences thereof enables the individual to acquire experience without the trial-and-error consequences. Emotional responses can be developed by observing the reactions of others, such as pain, pleasure, fear or confidence. Learning from direct experiences is largely guided by the rewarding and punishment consequences of each action. Learning through modelling can be obtained without making behaviour errors, by following the example of models who can demonstrate the correct behaviour or actions.

The individual's cognitive capacity will determine how the learning experiences affect his/her responses and future behaviour. Cognitive capacity leads the individual to insight and to using self-regulatory processes to manage the different experiences. Behaviour is therefore a product of both self-generated and external sources of influence (Bandura, 1971:2, 3).

Discussion

The social learning theory (Bandura, 1977:12, 13) acknowledges that human thought, affect and behaviour can be influenced by observation, direct experience and the consequences thereof. Individuals process experiences to serve as guidelines for future behaviour. Individuals furthermore initiate self-regulatory processes to guide their behaviour. The social cognitive theory speculates how cognitive activity translates into strategic cognitive activities (Showers & Cantor, 1985:276). Personal goals, moods and expertise are motivational elements that

provide positive and negative incentives that guide behaviour and actions of the students. The social learning theory explains human behaviour as an interaction between cognitive, behavioural and environmental determinants.

Students are considered as self-regulated when they are motivationally, meta-cognitively and behaviourally active in their own learning process (Zimmerman, 1989:329). Such students are personally involved in directing their own effort to learn and acquire skills, rather than depending on other agents for guidance or instruction. Self-regulated learning involves the achievement of own academic goals by the use of own learning strategies, based on the student's own perception of his/her self-efficacy.

The development of SRL is based on the social-cognitive view of motivation and learning strategies (Duncan & McKeachie, 2005:117; Pundie & Hattie, 1996:87; Schunk & Zimmerman, 1997). This motivation is dynamic and regulated by the student. SRL emphasises the relationship between motivation and cognition.

Learning and academic performance are influenced by various personal, environment and behavioural factors as separate entities, but which are also interrelated (Zimmerman, 1989:330). In contrast to only focusing on the ability of the student, self-regulated learning focuses on why and how students regulate their own learning. Students' motivation and learning strategies are considered dynamic and contextually bound, but can be learned and controlled by the students. Self-regulated learning is therefore also self-motivative. The setting of goals increases cognitive and affective reactions to performance outcomes. Self-regulation of motivation depends on self-efficacy beliefs and personal goals.

According to Zimmerman (1989:330, 333), the social cognitive theory emphasises the importance of 'self' or 'I' as generator of will and motivation to engage in SRL processes and activities. Students' perceptions of their self-efficacy relate to their use of learning strategies and environment. Social cognitive theorists are of the opinion that self-regulation by students involves a process of self-observation, self-judgement, and self-reaction. The social cognitive theory (Martin, 2004:140) explains how the Vygotskian social and cultural agents (see 2.7.3), and the Piagetian constructivism (see 2.8.2) determine self-regulated learning.

2.7 A COGNITIVE PERSPECTIVE ON SRL

Cognitivism (Jordan et al., 2008:36; Lefrancois, 1972:186, 187) studies mental processes such as sensation, perception, attention, encoding and memory. Cognitivists are of the opinion that learning results from organising and processing information effectively. Five basic processes of cognition have been identified, namely sensation, perception, attention, encoding and memory.

2.7.1 Information processing theory

Information processing (Linnenbrink & Pintrich, 2004:59; Schunk & Zimmerman, 1997:62, 63) is the encoding of information into the long-term memory. Information processing is a process whereby relevant portions of the long-term memory are activated and new knowledge is related to previous knowledge. The process involves the attention, comprehension and behaviour of individuals following the acquisition of new information and knowledge which are made available to learners.

2.7.1.1 Types of memory systems

Three types of memory systems can be identified, namely sensory memory, short-term memory (working memory), and long-term memory (Chinnappan & Chandler, 2010:6, 7). These memory systems interact continuously to provide us with memory of our everyday experiences. *Sensory memory* refers to experiences we perceive through sight, sound, smell, taste, and touch. Such experiences are stored in the sensory memory system, but are erased if they are not consciously attended to. *Short-term memory* is used to hold information consciously for a short time, while the brain is processing the information (Shiffrin & Schneider, 1977:157). However, the short-term memory has limitations in processing capacity and duration. *Long-term memory*, on the other hand, has a limitless capacity where information is stored to be retrieved at a later stage. Schemas are structures used to store information in the long-term memory (Shiffrin & Schneider, 1977:158). Long-term memories are classified as either declarative or procedural memories, and semantic or episodic memories (Connections, n.d.:1) according to the type of information and learning processes. *Declarative memories* are associated with facts and events learned through conscious recalls. *Semantic memories* refer to our abstract knowledge of the world and are independent of context, time, place or circumstances. *Episodic*

memories are memories that can be associated with events that occurred at a specific time and place and the emotional effects it had. *Procedural memories* refer to the 'how to' knowledge in doing certain tasks.

2.7.1.2 Metacognitive awareness

Information processing in terms of self-regulation is similar to meta-cognitive awareness. Meta-cognitive awareness (Ridley et al., 1992:294) is regarded as the process of applying reflective thinking to develop an awareness about oneself, and one's task and strategy knowledge in a specific learning situation. Meta-cognition is related to a student's stage of development and domain expertise, planning and monitoring skills, ability to correct and change learning strategies. Meta-cognitive awareness includes knowledge of the task, how it is to be learned, and knowledge about self-efficacy, interests and attitudes towards learning. Procedural knowledge regulates learning by monitoring the level of learning, deciding when to use a different approach to learning, and assessing the readiness for assessment. Information processing also includes comparing present learning activities against a standard and taking corrective steps. Information processing requires knowledge of learning strategies, their procedures and conditional knowledge regarding when to apply these strategies. Self-regulation strategies of meta-cognition would therefore refer to the planning, monitoring and regulation of learning (see 2.9.2).

2.7.1.3 Learning strategies

Learning strategies are cognitive plans required to achieve successful outcomes, which form part of information processing. These strategies include techniques to create and maintain a positive learning climate, for example, how to deal with stressful academic situations, enhance self-efficacy, and appreciate the value of learning. Such strategies are part of self-regulated learning and contribute to better control over information processing. Information processing of learning involves the meaningful integration of new information into the long-term memory. New knowledge is related to existing knowledge by making connections between the new and existing knowledge.

Apart from selecting and organising information and providing meaning to material, learning strategies include rehearsal, elaboration, and organisation, outlining and

mapping (Pintrich, 1999:460; Schunk & Zimmerman, 1996:62, 63). Rehearsal takes place by repeating, saying words out aloud and underlining and summarising the academic work. Elaboration entails questioning, imagery, note taking, and the use of acronyms to learn the work. Outlining and mapping are techniques that can contribute to organising the work. Outlining requires learners to establish headings for the text or sentences. Mapping involves identifying important concepts and ideas and creating interrelationships between the concepts. All these strategies have been shown to result in deeper understanding of the learning tasks.

2.7.2 Developmental theories

The developmental theories research the relationship between developmental periods with behavioural and cognitive mediators (Schunk & Zimmerman, n.d.:63). During the neurophysiologic stage (from birth to three months), control is limited to states of arousal and activation of rudimentary behaviours. From three to nine months, changes in behaviour are reactions to events and environmental stimuli. From nine to twelve months, states of voluntary control appear where infants respond to requests from adults. During the second year, infants become more adept at controlling impulses, they become aware of social demands of situations, and the initiating, maintenance and cessation of physical acts and communications. From the third year, infants become self-controlled in their reaction to adult commands, communication improves and the internalisation of adult guidance takes place. From the fourth year, self-regulated behaviour becomes more prominent in the adoption of rules to guide behaviour, internalisation of guidance, cognitive mediation of behaviour and adoption of behaviour in changing circumstances.

Discussion

The developmental theories provide a model of the development of self-regulatory competence (Schunk & Zimmerman, n.d.:64). Self-regulation develops from social influences and shifts to self-sourcing as individuals move through the different stages of development. In the first stages of development, learners acquire learning strategies via teaching, social modelling, verbal description and encouragement. Learners learn strategies by observing models, but require practice to allow the strategies to become part of their learning behaviour. Learners become self-

controlled when they use strategies independently. Students need to reach a self-regulated level of academic skill to adopt or change strategies as the personal and situational conditions change. Self-regulated learners will decide which strategy to use and are motivated to achieve goals and specific academic outcomes. Learners are capable of adopting strategies with no or very little assistance from models. The development of self-regulation originates from learning skills; advances through observation; the application of skills (emulation); internalisation of skills (self-control), and leads to the application of appropriate strategies (self-regulation).

2.7.3 Vygotsky's social cognitive theory

Vygotsky's (1978) social cognitivism (Jordan et al., 2008:59, 60; Yilmaz, 2011:207) describes how social interaction and language affect learning, with the focus on perception, logical memory, conceptual thinking and self-regulated attention. According to Vygotsky, language and self-talk becomes a tool for self-regulation.

The social cognitive theory is based on three principles, namely generic development, auxiliary stimuli and the zone of proximal development (ZPD). *Generic development* refers to every mental process in interacting with people. Self-regulated learning and the construction of knowledge take place within a social and cultural context (Reddy, Ankiewicz & De Swardt, 2005:20). Students will learn from each other, share knowledge, and construct knowledge from the interaction between student and lecturer and between student and peers within a specific cultural environment.

An *auxiliary stimulus* affects a person's behaviour to think and remember in innovative ways. The *ZPD* comprises the potential levels of development of what we can do with assistance. Students should be challenged slightly above their current level of development (Hean et al., 2009 :7). If students experience success, they will become more confident and motivated to conduct learning in a self-regulated manner.

2.7.4 Jerome Bruner's (1915–) cognitive and constructivist perspective

Bruner moved from cognitivist principles of concept formulation to a constructivist's perspective, emphasising the importance of language and culture in meaning-making (Jordan et al., 2008:58).

Cognitive development, according to Bruner, develops in three stages (Jordan et al., 2008:63). Firstly, the *enactive stage* (birth to one year), where information is stored and encoded through action. Secondly, the *iconic stage* (one to six years), where information is stored in the form of images. Thirdly, the *symbolic stage* (seven years and older), where information is stored in the form of a code or symbol such as language.

Bruner theorised that, to learn, perceive or conceptualise, is to form categories (Lefrancois, 1972:209, 210). Two categories are identified, namely identity categories and equivalence categories. Identity categories classify a stimulus as from the same group. The equivalence category is divided into affective, functional and formal categories. The affective category classifies stimuli of the individual according to emotional reaction, for example pleasure. The functional category classifies stimuli according to the common function of objects. In the formal category, stimuli are classified according to convention.

Discussion

Bruner's contribution to learning is a discussion on the way learners process information and make decisions. Bruner proposed instruction that is structured in accordance with cognitive mental processing. Knowledge should be presented in a form that is appropriate to age and the level of cognitive development.

Bruner's link to constructivism is that meaning-making occurs in the broader context of language and culture. Knowledge is thus socially constructed. Important outcomes of learning are not just concepts, categories and problem solving, but also inventing things for oneself.

2.8 A CONSTRUCTIVIST'S PERSPECTIVE ON SRL

Constructivists' learning is about making meaning and real understanding based on previous experience and background knowledge. Individuals create their own understanding and knowledge through interaction with the lecture, facilitator, peers and the environment (Ultanir, 2012:196). Individuals perceive, interpret and explain the same concept differently. By observing, individuals construct their own learning individually. The learning setting is provided by the community, other learners and teachers who provide support and challenges. Individuals actively engage in meaning-making, but depend on the observation of others. Cognitive construction is therefore related to social constructivism because individuals construct their own reality with others who are part of their social environment (Ultanir, 2012:196).

Dewey, Piaget and Montessori are regarded as the theorists who provided the impetus for perspectives on constructivism.

2.8.1 John Dewey (1859–1952)

Dewey provided a progressive approach to education. The progressive approach facilitates the natural development and potential of a child. Dewey argued that knowledge creation is the result of individual and social experiences, but forms part of development. Real education is created through experience. Dewey developed the concept and importance of self-directed learning. Dewey regarded active participation, self-direction and experience by the learner as the appropriate approach to develop self-realisation by the learner.

2.8.2 Jean Piaget's (1896–1980) cognitive construction

Piaget's main (Piaget, 1954:2) focus was the growth and development of the individual and specifically the way the individual constructs knowledge. Piaget's theory of cognitive construction proposes that the individual cannot be given information, but must construct his/her own knowledge.

2.8.2.1 Piaget's schemata concept

Piaget theorised (Hean et al, 2009:6; Huitt & Hummel, 2003:1) that the individual draws from prior knowledge to make new experiences understandable. New

experiences disturb the equilibrium of the mental schemata, whereby the individual reorganises the new information through assimilation and accommodation. *Assimilation* is the process of integrating new information, and accommodation the process of modifying the existing cognitive structure. Accommodating new experiences can either be done by disregarding the new information, maintaining both theories or forming a new schema. The concept of *schemata* (Yilmaz, 2011:206) refers to the mental structure of organising and representing events and abstract concepts stored in the mind. The existing schemata constantly reconstruct new experiences by remembering new information or rejecting new information or forming a new schema. A contradiction between a student's existing understanding and knowledge creates disequilibrium within the student, forcing the student into new ways of thinking and learning. Through assimilation, the learner brings new knowledge to his/her own schema. By accommodation, the learner has to change his/her own schemas and form new knowledge and learning.

The theory contributes to the understanding of how an individual constructs new knowledge cognitively and individually. Through cognitive constructivism, each student will construct knowledge at his/her own pace.

2.8.2.2 Piaget's theory of cognitive development

Piaget further contributed to constructivism with his theory of cognitive development. The theory of cognitive development explains the process of a child's cognitive development. Children rely on perception, which is composed of cognitive configuration and the way knowledge is developed. Piaget identified four main periods of development during the evolution of a child's mind (Ultanir, 2012:203):

1. *Sensorimotor* (from 0–2 years), in which children discover the environment through their senses and physical activity. The concepts *space, time, object presence, causality* and the relationship with others are formed.

2. *Pre-operational stage* (from 2–7 years), where images in a child's mind can be created, language develops fast and depicting different objects takes place. Through 'intuitive thought', children are able to describe and classify objects or thoughts and see relationships.

3. *Concrete operational stage* (from 7–11 years), where 'intuitive thoughts' are replaced with own logical reasoning.

4. *Formal operational stage* (from 11 to adulthood), where the individual starts to use higher levels of thinking and is able to abstract ideas and solve problems.

The theory contributes to the understanding of the interaction between a child's learning and the environment, and the ability to learn at different ages based on logical developments.

2.8.3 Maria Montessori (1870–1952)

Montessori's contribution to constructivism is the encouragement of the development of an appropriate environment (Montessori, 1914:129-136; Ultanir, 2012:204) in which learning could take place. By careful planning of a structured environment, which relates to the learner's level of development, continuous learning can be established. Montessori's contribution (Montessori, 1920:373) is that by creating an environment that is conducive to learning, the learner will be encouraged to solve problems, develop self-control, utilise self-regulated learning and cooperative learning. This will therefore encourage learner-centred teaching and *progressive skill development.*

2.8.4 Social constructivist theory

Constructivism as a theory of learning (Rovai, 2004:80) focuses on students' ability to mentally construct meaning of their environment and to create their own knowledge. Constructivists believe that all humans have the ability to construct knowledge in their own minds through the process of discovery and problem-solving (Forrenster & Jantzie, 1998:2; Jordan et al., 2008:55). There are many types of constructivism (Boghossian, 2006:714), such as cognitive, critical, radical and social. All these different types of constructivism share the same basis, namely that students construct their own knowledge. Students are active participants in constructing and finding meaning in their experiences, which results in acquiring knowledge. Each individual's construction of knowledge is unique because he/she constructs knowledge from different experiences. Constructivism emerged during the era of postmodernism, which is known for multiple perspectives, interpretations and truths

about reality and the evaluation of the validity of each perspective. Constructivists are of the opinion that there are a multiple of realities constructed by individuals.

Learning (Grant, 2012:8) is regarded as an active process with students as active participants making knowledge meaningful and relating new information to prior knowledge. The student is actively involved in the learning process, constructing knowledge through his/her interactions with people and the environment. The role of the student is therefore that of an active constructor of knowledge who self-monitors the learning process. From a cognitive perspective, the emphasis is on cognitive structures, which are acquiring and organised in memory. Social constructivists view learning as a social process derived from knowledge, where learning occurs through processes of interaction, negotiation and collaboration (Gullason, 2009:365).

Discussion

The theories of Dewey, Piaget and Montessori contribute to the understanding that learners are not passive receptors of knowledge, but that they construct their own meaning of a concept. Learners behave autonomously and independent by designing and constructing their own learning. Learning is therefore the result of meta-cognition where the learner reflects on learning by thinking of how his/her learning takes place.

Learning also takes place by the interaction with one's own environment and within a social context. A constructivist learning environment should support individual and collaborate learning, be learner-centred, facilitate learning, and encourage the learner to actively construct knowledge.

2.9 HUMANISTIC PERSPECTIVE ON SRL

Humanism (Combs, 1978:302, 303; Dad, 2010:235, 236; Wu et al., 2012:267) originated during the 1960s and relates to the ideas of freedom, value, dignity and potential. The central theme of humanism is that individuals act with intentionality and values. Learning, according to the humanists (Freud, Maslow and Rogers), should be student-centred and personalised. Affective and cognitive needs are essential in learning, and individuals are to be developed as self-actualised individuals. Learning will take place if the student is exposed to new information or experiences and if such experiences have personal meaning to the student. Humanism and SRL emphasise

the importance of self-concept; therefore, the goal is to develop self-actualised individuals in a cooperative and supportive environment, through personal and environmental experiences.

Self-concept is important in becoming self-regulated. The key processes that students use to achieve academic goals are self-efficacy, self-motivation, self-instruction, self-reflection and self-reinforcement (Zimmerman & Schunk, 2001). To strengthen students' self-concept, the relevance of learning activities, realistic academic goals, planning and organising learning activities can be emphasised by lecturers. Students with a positive self-concept will display intrinsic motivation and confidence during learning.

2.10 A PHENOMENOLOGICAL PERSPECTIVE ON SRL

Phenomenology studies the science of the person, our sense of self, our spirit of being, what a person experiences and his/her understanding of the experience (McGill, 1966:578). The emphasis is on self as a generative structure that is goal-directed, purposeful and motivated and which links the self-concept with cognitive systems. The learner takes responsibility for his/her own learning. A student with a strong self-concept will display intrinsic motivation and confidence during learning (McCombs & Marzaro, 1990:62).

Self-concept is the generator of will and motivation to engage in SRL processes and activities (Zimmerman & Schunk, 2001:11). Metacognition plays a key role in understanding the self as agent in SRL.

Discussion

Self-regulated learning concepts can be related to a diverse number of different theories and perspectives of learning. The theoretical basis of self-regulation is not restricted to a specific theory or group of theories. The theoretical roots of self-regulated learning reflect its adaptability to accommodate each learner's unique learning process and learning strategy, which personally suit him/her to achieve the predetermined academic goals or outcomes.

2.11 MEASURING SELF-REGULATED LEARNING

Self-regulated learning (SRL) is concerned with how students generate and regulate their own learning. The theory of self-regulated learning (Zimmerman & Martinez-Pons, 1986:284; Zimmerman & Martinez-Pons, 1990:51) describes students who use self-regulated learning motivationally, cognitively, meta-cognitively and actively in regulating their own learning to reach their academic goals. SRL theories seek to explain students' differences in motivation and application of learning strategies. SRL is determined by personal processes, the environment and behaviour. Self-regulated learning encompasses the following processes (Pintrich, 2004:386): planning and goal-setting, monitoring, control and regulation, and reactive behaviour and reflection.

Most SRL models share four general assumptions (Pintrich, 2004:387, 388). Firstly, the active, constructive assumption assumes that learners are actively involved in their own learning process and are able to construct their own meanings, goals and strategies from internal (their own minds) and external environments. Secondly, the potential for control assumes that students can potentially monitor, control and regulate their own cognition, motivation and environment within their learning context. Thirdly, the SRL perspective assumes that there is a set goal, or standard, which is used to assess the learning process against the benchmark set by the student. Fourthly, self-regulatory activities are seen as mediators between personal and contextual characteristics and the actual academic performance. The individual's learning and academic achievements are not only influenced by cultural, demographic or personality characteristics or the academic environment, but also by the individual's self-regulation of his/her cognitive functions, motivation and behaviour.

The Learning and Study Strategies Inventory (LASSI), the Self-Regulated Learning Interview Scale (SRLIS) and the Motivated Strategies for Learning Questionnaire (MSLQ) are all aptitude measures of self-regulation (Zimmerman, 2008:169). Aptitude scales are designed to aggregate responses of different dimensions of self-regulated learning within a specific academic context. Researchers use different dimensions of self-regulated learning to suit their specific purposes. The current study used the MSQL as measurement of self-regulatory learning for Economics at

the second-year level. Numerous studies (Huang, 2008:529; Jaragam, Suresh & Nagarathiram, n.d.:309; Jones et al., 2008:5; Karaberick & Knapp, 1991:225; Paulsen & Feldman, 2007:358; Pintrich, 1999:462; Pintrich, 2002:549; VanderStoep & Pintrich, 1996:350) have used the MSLQ to assess self-regulated learning in different, countries, academic institutions and courses and amongst a diverse number of student groups.

The MSLQ was developed by using a social-cognitive view of motivation and learning strategies (Duncan & McKeachie, 2005:119; Mills & Blankstein, 2000:1194), for use with university students and assessing the manifestation of SRL in a specific university course. The MSQL is based on a general cognitive view of motivation and learning strategies. Motivation and learning strategies are considered dynamic and under the control of the student, and varies for different courses.

The questionnaire consists of two sections, namely a motivational section and a learning strategies section (Jacobson & Harris, n.d.:413; Pintrich et al., n.d.:2, 3). The motivation section assesses the student's goals, value beliefs, skills to succeed the course, and anxiety about writing tests and exams. The motivational scales are based on three motivational constructs, namely expectancy, value and affect. Questions relating to the student's goal orientation are assessed by intrinsic and extrinsic constructs. *Intrinsic motivation* refers to the way the student perceives the reasons for doing the course – whether it is out of curiosity or whether it is regarded as a challenge or whether the student wants to master the course. Extrinsic motivation measures whether students are doing the course to achieve grades, obtain rewards or whether they are in competition with other students. The value component measures the importance or usefulness of the course, or the reasons why the student is doing the course. The expectancy component covers two aspects, namely expectancy of success and self-efficacy. Expectancy of success refers to the performance expectations, and self-efficacy refers to the way the student perceives his/her ability to succeed in the course.

The learning strategy section assesses cognitive and metacognitive strategies used in the course and the management of different resources (Jacobson & Harris, 2008:413; Pintrich et al., n.d.:2, 3). Cognitive strategies that are assessed include rehearsal, elaboration, organisation and critical thinking. Rehearsal involves

repeating and reciting information to activate the working memory. Elaboration helps to store information in the long-term memory, building internal connections, and involves paraphrasing, summarising and making notes. Organisation involves strategies to select appropriate information and to also construct connections. Critical thinking refers to the way students apply previous knowledge, solve problems, make decisions, evaluate and review knowledge. Metacognitive self-regulation refers to the awareness, knowledge and control of cognition. Which include planning and the setting of goals, monitoring through self-testing and questioning, and regulating cognitive activities, by adjusting or changing current cognitive strategies.

Resource management strategies (Pintrich et al., n.d.:2, 3), which are assessed, include managing time and the study environment, effort regulation and help seeking. *Time management* refers to the way the student regulates his/her study time through scheduling, planning and managing study time. *Managing the study environment* refers to the way the student creates an environment that is appropriate and which suits his/her personal learning style. *Effort regulation* considers the control of effort and attention, and reflects a commitment to the set tasks and goals. Help seeking is assessed by the way a student regulates support from peers and instructors.

The following section provides a discussion of the specific components of SRL which are assessed by the Motivated Strategies of Learning Questionnaire (MSLQ), which was used by this study.

2.12 THE CONCEPT OF SELF-MOTIVATION IN SELF-REGULATED LEARNING

Students must be motivated to use strategies and regulate their cognition and effort. Motivated students are characterised by being willing, having a desire to learn and being committed to complete the task. Motivation can be triggered by either intrinsic or external factors. The external and intrinsic factors are numerous and diverse and include factors such as the situation in the lecture room, the campus environment, teaching methods, assessment methods, personality traits, goals, time perspective and demographic factors to name but a few (Senecal, Koestner & Vallerand, 1995:609, 610).

The individual student's orientation to motivation and beliefs about learning is linked to three components (Pintrich & DeGroot, 1990:34), namely:

- *value* – which includes the student's goals, beliefs about the importance of the academic tasks and interest of the student in the task;
- *expectancy* – which refers to the student's belief about his/her ability to do the task; and
- *an affective component* – which deals with the student's emotional reactions to the task.

2.12.1 Motivational beliefs: the value component

The value component addresses the question "Why am I doing the task?" Literature (Ames & Archer, 1988:260–262; Wolters, 1998:224–226) identifies two different types of goal orientation for achievement motivation, namely task/learning/intrinsic versus ego/performance/extrinsic-orientated motivation. In performance goal orientation, the concern is about grades, pleasing others, outperforming others and being successful with the minimum effort. The performance goal values ability and high outcomes.

For the intrinsic goal, value is derived from the development of new skills, the processing of learning and the attainment of mastering the task. Sources of motivation for the intrinsic goal include the value of the course material, personal interest, and feelings of mastery, which contribute to self-regulated learning. External motivation comes from teacher praise, grades or external rewards. Students with an orientation to mastery and learning for the sake of learning, engage in more cognitive and meta-cognitive strategies, more effort and resource management exercises.

2.12.2 Motivational beliefs: the expectancy component

The expectancy component answers the question "Can I do the task?" The expectancy component contains a student's judgement of his/her capability to succeed or to accomplish the given academic tasks. Self-efficacy is the motivational construct, which aids in understanding how expectancy influences student academic performance.

Self-efficacy is defined by Bandura (1982:122) as "how individuals judge their capabilities and how, through self-precepts of efficacy, they affect their motivation and behaviour". Self-efficacy, when dealing with a person's environment, involves cognitive, social and behaviour skills to guide actions to achieve specific goals. Someone's perception of his/her efficacy influences the choice of activities that person makes and determines how much effort is put into the task, and how long he/she will persist despite obstacles and unpleasant experiences of the past. A person's view of his/her self-efficacy may also influence that person's way of thinking and emotional reaction before and during learning experiences.

Choi (2005:198) distinguishes between self-concept and self-efficacy. Self-concept is a general concept and includes many forms of self-knowledge, self-evaluative feelings and self-esteem reactions. Self-efficacy is domain-specific and relies on a cognitive appraisal of a person's ability to be successful in doing a specific task based on past experiences.

Self-efficacy is the belief or judgement a student has about his/her ability of performing a specific task, which affects his/her motivation and behaviour (Bandura, 1982:122; Bandura, 1991:248, Schunk, 1990:71, 73) and the perception of his/her capability to organise and implement actions to attain the desired outcomes for a specific task (Zimmerman, 1989:329). Students who possess a high level of self-efficacy believe they have the ability to perform the task successfully. A higher level of self-efficacy in learning will result in a student being motivated to apply cognitive strategies to achieve the set outcomes.

The self-efficacy mechanism has wide explanatory power in different spheres of life. The effect of self-efficacy has been accounted for in coping behaviour, stress reactions, self-regulatory behaviour, achievements, learning and several other aspects of life. This study was concerned with how students of EKN 214 perceive their capabilities through their self-perception of efficacy, and how their motivation and behaviour were affected regarding their academic performance in Economics.

Efficacy involves the capability to organise cognitive, social and behaviour skills into action to cope with an individual's environment. The perception of a person's capability can therefore only be judged by how well he/she has dealt with specific

situations through specific actions. Deciding on how to react and how long to continue are decisions a person has to make continuously. Someone's perception of his/her capability will influence his/her choice of activities and environmental settings. A person who believes his/her capabilities are adequate to undertake certain tasks or problems will undertake such activities. However, if the required capabilities are not sufficient to deal with the tasks or problems, the situations will be avoided or disregarded. Someone's perception of his/her capabilities will also determine how long that person will continue with an activity if confronted by obstacles or negative experiences (Bandura, 1982:123). Perceiving a high level of self-efficacy will influence the preparation and performance effort of the individual. Doubting one's capability will result in a negative influence on the preparation and execution of the task. In applying a high level of perceived efficacy to learning, it is assumed that an intense cognitive effort will be applied to achieve high academic outcomes. Vancouver and Kendall (2006:1146–1147) found that, although self-efficacy theories conclude that a person's belief in his or her capability is positively related to performance, their research findings showed that self-efficacy can negatively influence the performance in a learning environment. In learning, a false perception of a very high level of efficacy could lead to very little effort being made in preparing for academic tasks.

Self-efficacy judgements also influence a person's thought patterns and emotional reactions during the preparation and execution phases. A low perception of one's capability could result in stress and less efficient outcomes, than a person with a high perception, if a person is more concerned about failure than about giving attention to the learning situation (Bandura, 1982:123).

Self-regulation theories conceptualise how human behaviour is directed to achieve goals. Bandura's social-cognitive theory (1989:1175–1179) focuses on how self-efficacy influences goal processes. According to the social-cognitive theory, a high level of perceived efficacy leads to a high level of motivation and performance. During the planning and preparation process, a high level of self-efficacy can also undermine motivation and the setting of goals in that individuals can become reluctant to prepare for the specific task. A student with high self-efficacy preparing for an exam or test might spend less time, than a student with low self-efficacy,

preparing for the assessment because of the high level of self-efficacy and might not see the importance of spending much time and effort in preparing for the assessment.

The perception (Bandura, 1989:1175–1179) or belief a person has with regard to his/her self-efficacy influences thought patterns either in a positive or negative manner. Eventual behaviour is directed by the initial thought patterns, which direct cognitive goals. High levels of self-efficacy result in high goals set by individuals and a high commitment to achieve those goals. The perceived level of self-efficacy a person has influences his/her motivational processes, affective processes and selection processes. The level of motivation is determined by a person's feeling of self-efficacy and his/her perception of how much effort should be allocated to a task and how long he/she will persevere if confronted by problems. Someone's level of self-efficacy will also influence the stress and depression levels he/she experiences in difficult situations, which will also have an effect on that person's way of thinking and level of motivation. A person's judgement of his/her self-efficacy affects the selection of environments, by avoiding situations that exceeds that person's coping capability and by undertaking activities and choosing social environments he/she is capable of handling. Self-efficacy focuses on the capability to perform rather than on physical and psychological personal characteristics.

Powers' control theory (Carver & Scheier, 1982:111) provides another perspective on the role of self-efficacy in goal setting. Goals are regarded as a key to motivation, but a distinction is made between desired goals and the current state of a person's state of readiness such as preparedness and performance levels. The theory postulates that a student will be motivated to reduce the level of perceived preparedness for an exam and the level of desired preparedness. If the student does not feel adequately prepared for the examination, more time and effort will be allocated to reach the desired level of preparedness, than being well prepared. A high level of self-efficacy could result in the student putting in less effort, than having a low level of self-efficacy, to prepare for the examination. This theory supports the negative relationship between self-efficacy and effort to achieve a specific outcome.

2.12.2.1 Self-efficacy, individual differences and performance

Self-efficacy as a variable influencing motivation, actions and performance and is regarded as very important in determining performance, but its apparent universalness requires critical examination. It is unrealistic to assume that self-efficacy and its strong relationship with performance can be generally applied to all studies of performance. Individual differences and characteristics such as mental ability, conscientiousness, agreeableness, extraversion, openness, emotional stability and experience are all related to self-efficacy. It was found (Judge et al., 2007:107–108) that, by taking into account the importance of individual differences, the predictive validity of self-efficacy decreased dramatically. Personality differences and traits (Furnham, Chamorro-Premuzic & McDougall, 2003; O'Connor & Paunonen, 2007; Trapmann et al., 2007) such as the 'big five' (neuroticism, extraversion, openness to experience, agreeableness, conscientiousness) and their association with academic performance have been studied.

2.12.2.2 Self-efficacy and academic performance

Zimmerman (2000:86–88) found that self-efficacy shows strong validity in influencing students' academic motivation in terms of choice of activities, effort applied and emotional reactions. Difficult tasks are undertaken if students are self-efficacious. Self-efficacious students will increase their effort and method of learning in executing academic tasks. Students' perceptions of their ability to perform academic tasks will also influence them emotionally, by decreasing their stress, depression and anxiety levels. Chemers, Hu and Garcia (2001:55, 56) state that students with high efficacy levels make use of effective cognitive strategies in learning and managing their time and environments more effective and they are also more efficient in assessing and regulating their academic effort. Academic self-efficacy is furthermore positively related to the levels of confidence students' exhibit in dealing with their subjects.

Schunk (1991:208) explains that during academic learning, self-efficacy is influenced by students' beliefs in their capabilities to obtain knowledge, perform skills and master material at the start of an activity. Factors such as abilities, attitudes and prior experience determine self-efficacy at the beginning of an activity. During the academic activity, personal goal setting, feedback from teachers and other situational

factors influence students' self-efficacy while they are busy with the academic activities. Students become more motivated if they realise that they are making progress in the academic activity. This would in turn result in students becoming more skilful and maintaining a high level of self-efficacy.

2.12.2.3 Constructs related to self-efficacy

There are several constructs that are very similar to self-efficacy. Distinguishing between constructs such as perceived control, expectations and values, and self-concept would assist to understand the uniqueness of self-efficacy.

Perceived control or *locus of control* refers to people's perceptions about how outcomes occur. It refers to whether outcomes are independent of the effort or actions of the individual or whether the outcomes depend on luck, chance or fate. This is called *external locus of control.* The alternative is the belief that outcomes are a function of personal decisions and action, and then they are called *internal locus of control*. In learning, the student's belief that he/she can study hard, as part of self-efficacy, overlaps with the student's perceived locus of control (Schunk, 1991:208).

Expectancy theories assume that people make judgements whether goals are obtainable or not. Self-efficacy differs from expectations theories in its emphasis on students' beliefs regarding their perceived capabilities to obtain certain outcomes.

2.12.2.4 Measurement of self-efficacy

A diverse number of methodologies exist for measuring or determining the level of self-efficacy at an individual level. Bandura (1982:123–124) uses a rating scale representing different tasks varying in difficulty, complexity, and stressfulness that the task requires. Respondents are required to rate their ability in coping with the activity. Self-efficacy questionnaires can be adapted to specific tasks and the scope of these tasks can be varied on the basis of the user's intended purpose. The questionnaire can also be specific in specifying and corresponding with performance tasks and contexts.

In an academic setting (Lane, Lane & Kyrpianou, 2004:248, 249; Pajares, 1996:546), self-efficacy is based on students' perception of their ability to learn and other skills to perform in a new subject. The sources of information that construct self-efficacy are

mastery experience, vicarious experiences, verbal persuasion and physiological states. Previous successful achievements tend to increase the perception of self-efficacy, and failures tend to lower the perception of self-efficacy. Information about these sources does not directly influence the levels of self-efficacy, but cognitive appraisal of the information relates to the level of self-efficacy.

Evidence (Chemers et al., 2001:56; Schunk, 1991:2, 3; Zimmerman, 2000:86) suggests that a student's confidence in his/her self-efficacy leads to the use of more effective meta-cognitive strategies, cognitive strategies, and management of time and resources. The choice of undertaking difficult tasks, methods of learning and the mental effort as well as the setting of academic goals increase.

2.12.3 Motivational beliefs: the affective component

"How do I feel about the task" is the question addressed by the affective component of motivational beliefs. Anger, pride, guilt and various other emotional reactions are some of the reactions the student may experience in doing or thinking about the task. In the academic setting, test anxiety is regarded as a major indicator affecting the student. The student may either experience this emotional component in a positive or negative manner. Negative thoughts and self-talk might lead to negative emotions and physiological arousal. Positive thoughts or self-talk will probably result in positive emotions during assessments.

Test anxiety relates in different ways to the components of self-regulated learning. Anxiety about the task or test to be performed can either have a positive or negative influence on the student's approach or outcome of the task or test.

2.13 SELF-REGULATED LEARNING STRATEGIES

Strategies for self-regulated learning (Pintrich, Roeser & De Groot, 1994:140, 141) include cognitive, meta-cognitive and resource management to regulate learning. The use of these self-regulating learning strategies may have an important influence on a student's academic performance.

2.13.1 Cognitive strategies

Cognitive strategies (Pintrich, 1999:460) are used to learn, remember and understand academic content and tasks. Basic cognitive strategies embrace activities such as rehearsal, elaboration (which includes the making of summaries and paraphrases) and organisation (which includes the making of outlines and the drawing of charts and tables). These strategies can be applied to either simple memory tasks such as recalling information, or more complex tasks that require comprehension such as understanding. Rehearsal involves the passive recitation and the selection of important information. Strategies applied to rehearsal activities may include the underlining or highlighting of important information. Elaboration comprises the summarising or paraphrasing of the work to be learned, by connecting ideas within the information. The organisation strategy entails the selection of the main idea, using variety of techniques, such as mapping or sketching of the main ideas.

2.13.2 Meta-cognitive strategies

Meta-cognitive strategies (Pintrich, 1999:461; Winne, 1996:330) consist of planning or the setting of goals, monitoring or self-teaching and regulation or rereading, modifying of cognition and giving feedback on the progress made in learning and the reaching of academic outcomes. These strategies are used to manage and regulate the student's own effort to persist in the tasks and to maintain interest in uninteresting tasks.

Planning activity refers to the setting of goals for learning, speed reading of the text, generating questions about the work and analysing the problem. The planning of activities contributes to the application of cognitive strategies and making the organising and understanding of the work easier.

Self-regulation of learning requires the monitoring of academic behaviour, by making a comparison against a set goal, bench mark or standard. Monitoring of academic behaviour may include self-testing, monitoring of comprehension and tracking attention while listening to a lecture or reading a text. Monitoring academic behaviour will result in addressing or regulation of sub-standard academic achievements.

2.14 RESOURCE MANAGEMENT

Self-regulated learning is a combination of reflective-actions, social interactions, and the formal environment (Dowell & Small, 2011:141). The learning process is thus affected by other people and the unique situation. The student can use other people and the learning environment as resources to contribute to his/her learning process.

Resource management strategies include strategies that students use to manage and control their environment. Examples include managing and controlling their time, their effort, their study environment, and other people, including teachers and peers, through the use of help-seeking strategies. Self-regulating learners would use these resource management strategies to help them adapt to their environment as well as taking charge of the environment to achieve their academic goals.

Karabenick and Knapp (1991:221) distinguish between executive and instrumental help seeking. Executive help seeking is described as seeking help to decrease the cost of completing the task. Instrumental help seeking is seen as seeking the minimum assistance to succeed independently in comprehending the academic task. The focus of instrumental help seeking is in learning the process rather than just completing the academic task.

Previous studies (Jones et al., 2008:12; Jones, 2010:381) revealed that students who believe their ability to learn can be improved by utilising the environment are more likely to use behavioural components such as effort regulation, management of time and study environment, peer learning and help seeking. The existence of multiple resources, task-based learning and socialisation with peers all contribute to students' motivation and academic behaviour. Peer interactions relate to student SRL behaviours, while the frequency and substance of peer discussions contribute to learning and sharing of learning strategies.

Zimmerman (1989:337) found that students using self-regulated learning strategies, as shown in figure 2.4, could improve their academic achievement. These strategies include cognitive, metacognitive and resource management strategies.

Self-regulated learning strategies	
1. Self-evaluating	Students evaluate the quality or progress of their work
2. Organising and transforming	Students rearrange instructural materials to improve learning
3. Goal-setting and planning	Students set goals, time and plan to complete activities
4. Seeking information	Students initiate efforts to seek further information before doing assignments
5. Keeping records and monitoring	Keeping records of events and results
6. Environmental structuring	Students arrange and organise the physical environment to contribute to learning
7. Self-consequating (choosing own rewards and punishments based on performance)	Students imagine or foresee rewards or punishment for success or failure
8. Rehearsing and memorising	Students make efforts to memorise material
9. Seeking social assistance	Students seek help from peers and facilitators
10. Reviewing records	Students reread materials to prepare for class or assessment
11. Other	Students learn behaviour from other persons

Figure 2.4 Self-regulated learning strategies

Discussion

The theoretical framework of SRL reveals that SRL embraces a wide range of theories and concepts. As indicated, in this chapter, the MSLQ was used to assess how SRL strategies were employed in learning Economics. The figure 2.5 provides a conceptual framework of the concepts as measured by the MSLQ, as predictors of academic achievement in Economics.

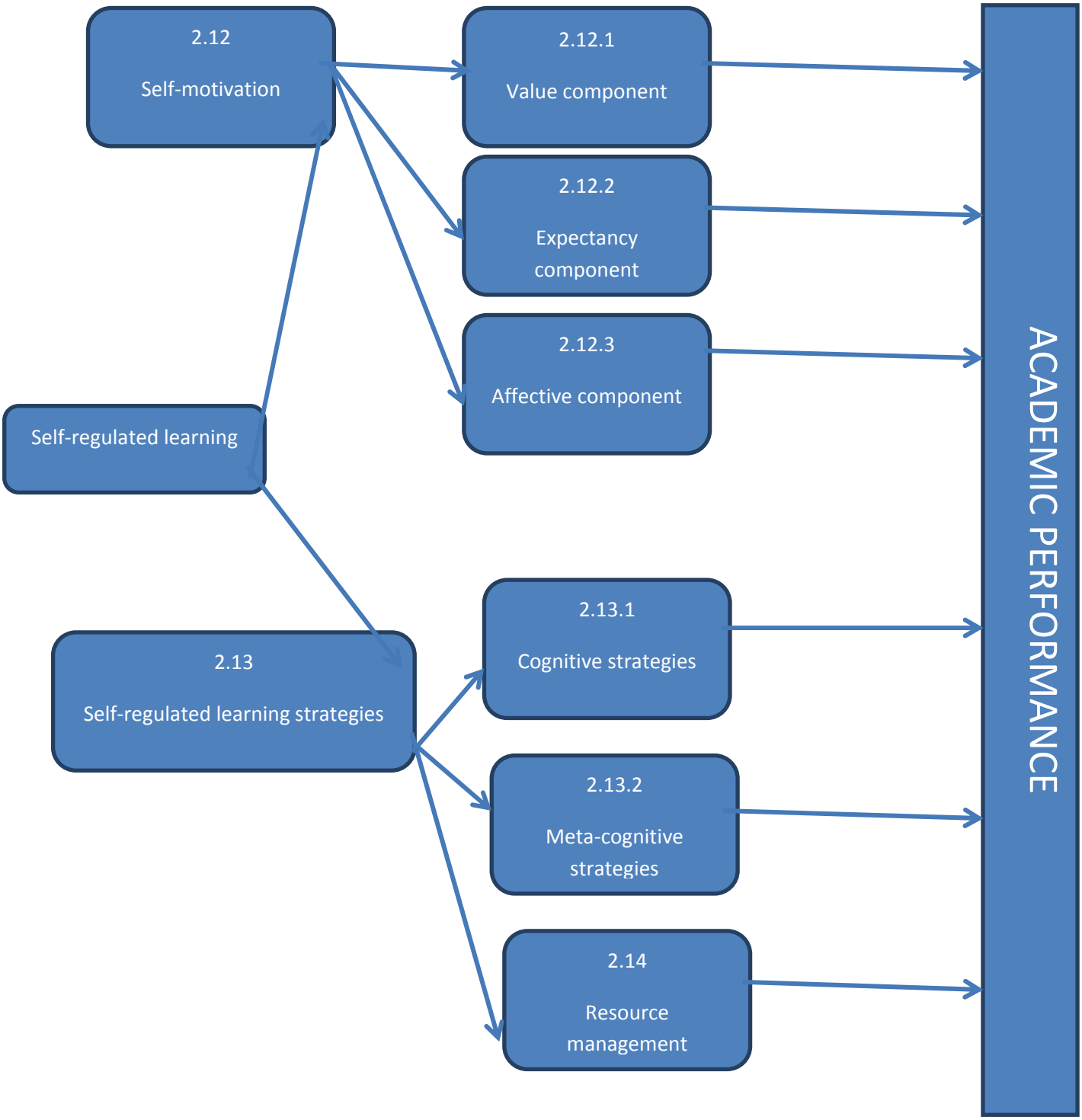


Figure 2.5: Conceptual framework of SRL concepts as predictors of academic performance

2.15 CONCLUSION

This chapter provided a theoretical and conceptual framework for SRL. The chapter defined and explained SRL. A literature review of the different learning theories, behaviourism, cognitivism, constructivism and connectivism, associated with SRL was discussed. The discussion revealed that SRL can be related to a diverse number of learning theories depending on the student's preference of specific learning strategies.

An overview of SRL concepts, which are used in the questionnaires measuring SRL, was provided.

Chapter 3 provides a discussion of the future time perspective as predictor of academic achievement.

CHAPTER 3

TIME PERSPECTIVE AS PREDICTOR OF ACADEMIC PERFORMANCE

3.1 INTRODUCTION

Time consists of three dimensions: past, present and future. Attitude, perspective and orientation or perception towards time are unique to humankind. Time is therefore not a physical phenomenon but can be perceived objectively and subjectively (Boniwell et al., 2010:24): objectively as something measureable and subjectively as it is processed by the human mind.

Human beings are continuously in the process of dealing with time. The way we perceive time dimensions influences and shapes our current behaviour. We are cognitively influenced by identifying, making judgements or decisions and in our actions by our perspective of time. How humans perceive the concept of time is fundamental in understanding their actions, hopes, goals and motivations (Drake et al., 2008: 47, 48; Jackson: 2006:1; Roberts, 2002).

An individual's ability to move into the past, present and future through the use of memory is referred to as that person's time perspective. Previous studies (De Volder & Lens, 1982; Leondari, 2007) have indicated that humans' time perspective influences their behaviour and can be associated with different psychological variables and processes such as happiness, health, risk taking, ways of spending leisure time and academic achievement.

Time perspective measures a person's orientation towards time, and the way such person perceives and acts on his/her perception of the past, present and future. A person's time perspective plays a role in the selection and pursuit of goals and is influenced by the individual's ability to move through time by using memory or by imaging the future. The dominant influence (d'Ydeville & Lens, 1981:268) of either the past, present or future is evident within the unique historical, religious, cultural, socio-economic, health, personality, age, and race context of each individual. The

complexity of society, society's values, perceived opportunities and other features of society may influence the role time perspective plays in the life of an individual. Time perception may also relate to gender, the locus of control, delay in gratification or study persistence (Wolf & Savickas, 1985:473). The relevance of a specific perspective on time is dependent on each person's unique situation or circumstances. The preference for a specific time dimension – past, present or future – may influence the balance among these dimensions, resulting in the application of different strategies to achieve new outcomes depending on the specific situation. Someone's orientation, attitude and perspective towards time direct that person's behaviour. The dynamic aspect of a time perception is that it directs expectations, desires, fears and behaviour. A person's time perspective is an influential predictor of both positive and negative behaviour (Horstmanshof & Zimitat, 2007:706; Leondari, 2007:17, 18; McInerney, 2004:141–143; Nurmi, 1993; Vazques & Rapetti, 2006:512).

Time perspectives have been used (Husman & Shell, 2008; Kashio, 2012; Miller & Brickman, 2004; Peetsma & Van der Veen, 2011; Zimbardo & Boyd, 1999) to encode, store and reproduce experiences to form expectations, goals, intentions and actions. The correlation between a time perspective and different phenomena has been researched. Four trends (Kairys, 2010:159) have been identified. Firstly, time perspective as a characteristic of how one carries out a task refers to certain tasks having a future value. Secondly, time perspective is a motivational cognitive process. Thirdly, time perspective as an attitude refers to the total personal view of giving order, coherence and meaning to life. And fourthly, time perspective as a construct similar to a personal trait, refers to showing a consistent tendency in patterns of thought, feelings and actions. This chapter will provide a theoretical overview of time perspectives and the way they relate to self-regulated learning and academic achievement.

3.2 MEASURES OF TIME PERSPECTIVE

Shell and Husman (2001:482), and Husman and Shell (2008:167, 168) measure future time perspective (FTP) in terms of valence and connectedness, extension and speed. *Valence* refers to the importance or value given to future goals, emphasising the rewards in the long run and the benefits that would be received later in

comparison with smaller benefits received immediately. *Connectedness* reflects on what the consequences will be of current actions and on the connections between present activities and future goals. The ways planned actions compare with future outcomes is continuously assessed. *Extension* refers to goals that exist within an individual's time horizon and to the fact that goals within the time horizon are considered of greater importance than goals outside the time horizon. Individuals with extended time horizons are more likely to include long-term goals as priorities. Extension thus indicates the perception of remoteness of goals, in the academic setting the time after tertiary education and time for a career are meaningful terms in time. *Speed* refers to the ability to anticipate and plan for the future. This ability includes how upcoming events are managed, how approaching deadlines are dealt with, and the speed at which individuals feel time is passing.

Prenda and Lackman's (2001) research supports the influence of both perceived control and future orientation. Their findings indicate that an individual's perception of the future relates to how that person sees future outcomes as a result of current actions taken. Individuals therefore have some control in influencing future goals and outcomes.

This study will focus on how Zimbardo and Boyd (1999) and Stolarski, Bitner and Zimbardo, (2011:348) sub-divide time perspective into five subscales, namely past-negative, past-positive, present-hedonistic, present-fatalistic and future time frames (see figure 3.1).

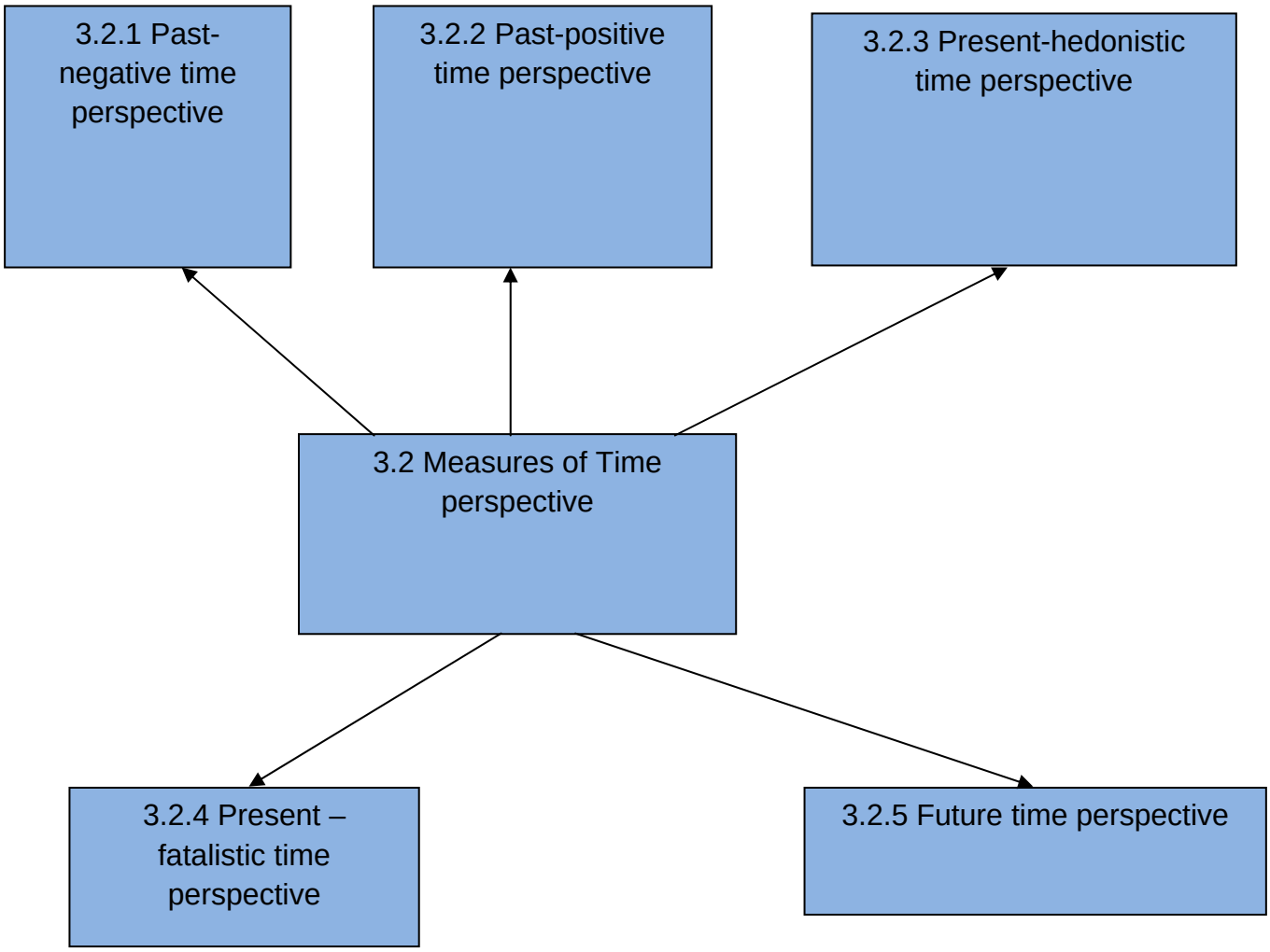

3.2.1 Past-negative time perspective
3.2.2 Past-positive time perspective
3.2.3 Present-hedonistic time perspective
3.2 Measures of Time perspective
3.2.4 Present – fatalistic time perspective
3.2.5 Future time perspective

Figure 3.1: Zimbardo's time perspectives

3.2.1 Past-negative time perspective

People who give preference to past-negative is characterised by a pessimistic, negative or aversive attitude towards the past. The past is perceived as bad, and reflecting on the past provokes unpleasant images and regrets. The individual often feels guilty about decisions and actions made in the past and would like to have done things differently. An individual with a past-negative perspective has a generally negative and pessimistic view of the past and are inclined to be depressed, have anxiety, unhappiness, low self-esteem and aggression (Liniauskaite & Kairys, 2009:68).

3.2.2 Past-positive time perspective

A past-positive time perspective is the opposite of having a past-negative time perception. People with a past-positive perspective is characterised by an optimistic, positive and nostalgic attitude towards the past. Individuals reflect on the past in a favourable, sentimental and pleasurable way. Memories are of good and happy times and relate to low depression, low anxiety and happy individuals (Liniauskaite & Kairys, 2009:68).

3.2.3 Present-hedonistic time perspective

The present-hedonistic time frame (Luyckx et al., 2010:239) is characterised by an orientation towards present enjoyment, pleasure and excitement. A present-hedonistic attitude towards time and life focuses on the pleasures of now, living for today and seeking excitement, without considering the consequences for the future. Individuals A with a present-hedonistic perspective are focused on the pleasure or excitement of the moment and will not sacrifice present comfort for future goals.

3.2.4 Present-fatalistic time perspective

A present-fatalistic perspective (Pluck et al., 2008:160) is dominated by a belief that humans are at the mercy of fate or an external power or being. The present and future are therefore predetermined and uninfluenced by human behaviour. This

individual's attitude towards life and time is characterised by hopelessness and fatalism and the belief that life is influenced by luck rather than by personal actions. The future is believed to be controlled and influenced by outside forces. The individual's attitude towards the future is that there is no sense in worrying about the future, since there is nothing one can do about it.

3.2.5 Future time perspective

A future time perspective (Hilpert et al., 2012:230) is characterised by planning for and the achievement of future goals, and having a sense of purpose. The behaviour of the individual is therefore influenced, motivated and directed by a future time perspective. The focus is on future goals and rewards, and individuals are willing to give up current pleasures to achieve their ultimate goal or reward. Present tasks are valued in terms of the anticipated future value. This person's view of the future influences context-specific perceptions and actions.

3.3 FUTURE TIME PERSPECTIVE

The following section discusses the relation between goal setting, motivation, self-regulated learning and future time perspective.

3.3.1 Goal setting, motivation and future time perspective (FTP)

Students have numerous long- and short-term goals ranging from achieving good grades or obtaining a qualification to getting a good job, building a career, starting a family and making a contribution to society. In the setting of goals, students may look beyond the present situation and see the value of the academic tasks they perform as meaningful and contributing to achieve their goals. Individuals select goals according to their perceptions of the future (Lang & Carstensen, 2002:125; McInerney & Liem, 2008:2).

Goal theorists (Simons et al., 2004a:334) suggest two contrasting goals, which an individual may have, in the academic setting, namely a task mastering or learning goal and a performance or ego goal. The learning goal, also referred to as an intrinsic goal, correlates with behaviour outcomes that facilitate learning, a higher level of efficacy, effort, interest and the use of better cognitive and meta-cognitive strategies. The performance or extrinsic goal is concerned with getting good grades,

pleasing others and being rewarded for the work done. It is not clear whether striving for performance would also lead to the use of better cognitive and meta-cognitive learning strategies.

The theories on motivation (McInerney & Liem, 2008:2; Phan, 2009:156–158; Simons et al., 2004a:344) do not distinguish how students' perceive the present or the future, but focus on the students' achievement goals and personal satisfaction. The goal theory (McInerney & Liem, 2008:2; Simons et al., 2004a:344) suggest that learning goals versus performance goals predominate different motivational patterns and learning styles. The goal theory is a mechanism of how future goals are prioritized and valued. The emphasis of the goal theory is on the immediate value of learning. The goal theory and future time perspective (FTP) theories differ on two points. Firstly, the goal theory emphasises the immediate effect of learning, while the FTP theory values learning for the future. Secondly, the goal theory concludes that having a future time perspective may have negative consequences, resulting in fewer motivational and behaviour patterns. But, given the nature of future goals, students must be able to assess their actions in terms of a long-term perspective. The relationship between future goals, motivation and various motivational cognitive and performance measures can be derived as being positive; indicating that the interrelatedness of these constructs can directly or indirectly affect academic performance.

Individuals with an FTP (Bembenutty, 2010:3) set certain goals that they strive for within a certain time range. The goals will determine the plans, strategies and actions of the individuals to achieve the goals.

Research by McInerney (2004) and Simons et al. (2004a:344, 345) examined the relationship between the effects of a short- and long-term perspective on motivation. Thinking about the future includes the setting of future motivational goals, plans and projects and the initiation of current actions to achieve these future goals. Having a future perspective entails a cognitive exercise in valuing the current actions in terms of the contribution actions will have on obtaining the future goals and the influence a future perspective will have on motivation and achievement. In this case, current behaviour is seen as instrumental in achieving both immediate and future goals, in

comparison with individuals with a short-term perspective who value current activities less in terms of achieving future goals.

Simons et al. (2004b) also examined the role a future perspective has on motivation, goal setting and academic performance. Their evidence indicates that a future time perspective correlates positively with learning performance and with the continuation of activities in achieving future goals. The correlation is also applicable to the relationship between intrinsic future goal framing, deep learning, motivation and performance. The study by Simons et al. (2004b) concludes that goal setting can be manipulated by lecturers and facilitators to encourage student learning and motivation.

Future time-orientated individuals tend to have a sense of purpose (Bembenutty & Karabenick, 2004:36) and the rewards or gratification of present activities can be delayed for the future. These authors are of the opinion that delayed gratification depends on the perceived value of the delay and the individual's perception of his/her ability to achieve the future goal. Once individuals have made the decision to delay gratification, a set of cognitive and resource management strategies are employed to obtain the future goal. The holding of a future goal contributes in giving meaning to required academic tasks. Academic activities or tasks are viewed within the context of future goals such as a future career or value to the community. Valuing future goals contributes to the individual's self-regulatory behaviour to achieve future goals. The setting of future goals therefore gives a sense of purpose and direction to activities and to individuals.

Several studies (Bembenutty, 2010:4; Kauffman & Husman, 2004:3, 4; Mello et al., 2009:540; Phalet, Andriessen & Lens, 2004:82–85) support the notion of motivational value of future goals in an academic setting. Their assumption is that students' motivation is influenced by their concept of the future. Students' concept of the future has a positive effect on their motivation to learn and their academic performance. The FTP influences the students' attitude towards their current academic tasks. Learning and achieving are therefore not only intrinsically motivated, but also future-orientated. An FTP emphasises the importance of future goals for present learning. Being future-orientated enhances students' motivation, persistence and academic performance. When doing activities or developing behavioural projects, individuals

are motivated by future goals. FTP is regarded as a cognitive-motivational concept (Simons et al., 2004b:123), the cognitive aspect referring to the anticipation and direction of actions towards a more distant future. The dynamic aspect (Simons et al., 2004b:123) refers to ascribing higher valence to goals for the future. Individuals with an FTP are expected to be more motivated, than individuals dominated by other time perspectives, when doing their present activities based on the value that will be derived from achieving the future goals. Being future-orientated implies that an individual is intrinsically motivated and perceives current activities as instrumental in obtaining the future goals.

3.3.2 Future time perspective and self-regulation learning

Definitions of self-regulation are diverse, but can be summarised as "the process of exerting control over oneself in order to align with a desired standard" (Barber et al., 2009:250). Self-regulated learning (Bembenutty & Karabenick, 2004:36; Shell & Husman, 2001:481, 482) within an academic context entails self-generated thoughts, feelings and actions towards attaining academic goals. Self-regulated learning is being related to an FTP or the ability to delay gratification (Bembenutty & Karabenick, 2004:36). It is therefore assumed that students with an FTP in terms of future academic goals will also engage in self-regulated strategies of learning. The motivated strategies of learning (MSL), such as organisation, rehearsal, elaboration, use of resources, regulation of the study environment, planning, scheduling effort and help seeking are frequently used by students with an FTP. Students who engage in self-regulation of their motivation, cognition, environment and behaviour are also successful in reaching their academic goals. Therefore, the belief is that the orientation FTP students bring to the academic environment is presumed to influence their motivation, self-regulation and academic achievement.

The relationship between future goals and self-regulated learning is not that clear. Students may value their future goals, but can still be unmotivated in terms of achieving academically. McInerney and Liem (2008) identify three psychological, motivational components, namely perceived value of schooling, perceived academic competence and academic motivation that could explain why students' future goals may or may not lead to the application of self-regulated learning.

3.3.3 Future time perspective and self-efficacy

A distinction is made between outcome expectancy and efficacy expectations (Bembenutty, 2010:6, 7), meaning that, although individuals may anticipate that certain actions will lead to certain outcomes, doubt in their capabilities may lead to them not performing the task. The perceived self-efficacy will determine the choices the individual makes, the effort and persistence allocated to the task. Self-efficacy is therefore important in the pursuit of future goals, where students with high self-efficacy will continue despite experiencing difficulties in academic tasks and they will stay focused on their future goals.

3.2.4 Future time perspective and academic achievement

According to Horstman and Zimitat (2007:706, 707), having a future time perception is associated with deep conceptual thinking, employing deep approaches to studies, more intensive persistence and better performance in an academic environment. Students will achieve better results by identifying future goals, being motivated, being aware of their abilities and believing that their effort will lead to improved academic results.

Peetsma and Van der Veen (2011:482) report that the time dimension is important for learning motivation, because motivation positively influences learning behaviour and academic achievement. A future time perspective is therefore seen as an important component in motivation for students to learn, complete tasks and strive for better academic achievements. Figure 3.2 provides a conceptual framework of the relationship between future time perspective and academic achievement.

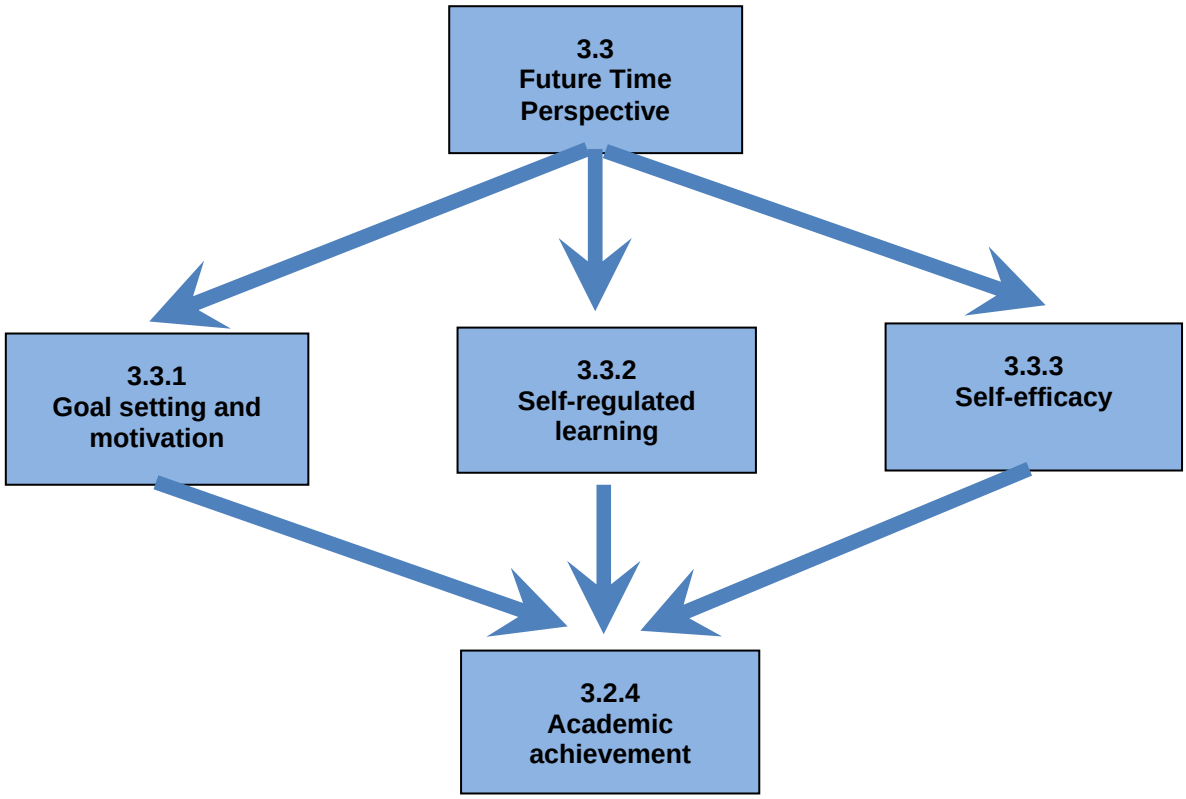


Figure 3.2: Relationship between future time perspective and academic performance

3.4 CONCLUSION

This chapter reflected on the theory of time perspective and its influence on the different constructs of self-regulated learning. The theory suggests that individuals with a future time perspective intend to set future goals, are motivated and regulate their present actions and strategies to achieve their set goals. This study anticipates that students with a future time perspective would perform academically better than students with other dominant time perspectives.

Chapter 4 deals with how students learn in Economics.

CHAPTER 4

LEARNING ECONOMICS

4.1 INTRODUCTION

Chapters 2 and 3 provided the theoretical basis for SRL and time perspective. The purpose of Chapter 4 is to provide a discussion on how Economics is learnt with relation to these concepts. As introduction, this chapter presents a discussion on Economics as discipline, its relationship with other subjects, and teaching as tool to learn Economics. Chapter 4 also discusses the application of behavioural, cognitive, constructivist and connectivist perspectives on learning Economics.

4.2 ECONOMICS AS DISCIPLINE

Economics studies the problem of scarcity (Baumol & Blinder, 1979:40; Rider, 1995:2, 3) in terms of limited resources and unlimited wants. In dealing with the problem of scarcity, people are required to direct their behaviour towards meeting their needs. The economic problem of scarcity and economic behaviour functions within an economic system of rules and institutions, which influence the economic behaviour of people. Adam Smith (2003:1) theorised that economic behaviour is primarily guided by self-interest and that without interference from authorities, the interacting of markets (like an invisible hand) will allocate scarce resources most effectively. Economics students are therefore required to understand how scarce resources are allocated, distributed and utilised, and also the consequences for economic and social well-being.

Economics, as social science, studies human behaviour from a positive and normative perspective (Lipsey, Courant, Purvis & Steiner, 1993:24, 25; McConnell, 2005:10). The positive perspective provides an objective or scientific explanation by using empirical evidence of how the economy works. The normative perspective offers recommendations based on value judgements of what the economy ought to be. Judgements are influenced by philosophical, cultural and religious factors. The emergence of economics as discipline deals with understanding and predicting

human economic behaviour (Begg, Fischer & Dornbusch, 2005:11). Economics is a key discipline in the social sciences. Its subject matter engages with other subject areas such as psychology, politics, sociology, anthropology, geography, history and law. Economics also uses mathematics and statistics, and is engaging increasingly with sciences such as biology, environmental science and medicine.

4.3 LEARNING ECONOMICS

Learning is a complex interaction of different variables or inputs with a student. The way each individual learns is unique to that person in terms of his/her ability, study habits and motivational factors. Students adopt different approaches to learning in different subjects and tasks. Various studies (Durden & Ellis, 1995:343; Karstensson & Vedder, 1974:109; Maier & Keenan, 1994:358) have been done to determine the factors that contribute to improved academic performance in Economics. The focus of this study was to determine how self-regulated learning and time perspective influence the academic performance of students studying EKN 214.

Learning Economics has been described as "a method, an apparatus of the mind, a technique of thinking, to draw conclusions" (Crowe & Youga, 1986:218). Economics has a unique character, and consists of diverse subjects and sub-disciplines, such as Microeconomics, Macroeconomics, Labour Economics, International Economics, Econometrics, Political Economics and so forth. These allow the student to specialise in different fields. Economics as a subject in higher education is sometimes referred to as too theoretical, mathematical and abstract.

Students studying Economics require general intellectual skills (QAA, 2007:1), such as literacy, information processing and communication skills. According to the Quality Assurance Agency for Higher Education (QAA, 2000:4; QAA, 2007:4), Economics students also need to develop subject-specific skills, which can be summarised as follows:

- Abstraction: Students should be able to abstract the essential features of complex systems and provide a useable framework for evaluation and assessment of the effects of different policies and other events.

- Analyses and reason, deductively and inductively: Economics reasoning is highly deductive, and logical analysis is applied to assumption-based models. Students should be able to collect data or evidence and to analyse and evaluate both qualitative and quantitative data. Students should be exposed to deductive and inductive analysis to enhance their problem-solving and decision-making abilities.
- Quantification and design: Students have to be familiar with data and their effective organisation, presentation and analysis.
- Framing: The skill to make decisions and solve a given problem. Learning to think about how and why these parameters might change encourages the student to place the economic problem in its broader social and political context.

Karstensson and Vedder (1974:109) found that the learning of economic ideas depends on the students' attitude and their interest in Economics, previous course work in economics, competence in verbal and quantitative skills, having Economics as a major and other pedagogical factors. Research by Durden and Ellis (1995:345) concluded that attendance of lectures, after controlling for motivation, does affect academic performance. Making students active participants in the learning process by using writing (Crowe & Youga, 1986:222), as a tool to learn Economics, will complement other teaching and learning methods, and will provide a record of students' own understanding, and is, additionally, a way to monitor their progress. Writing could enhance the understanding of concepts, contribute to students' thinking independently and to monitor analytical and critical thinking skills. Encouraging students to use concept or mind maps (Katiliute & Daunoriene, 2011:765) will allow the student to organise concepts, determine the relationships between concepts and create their own phrases and map structures. Concept mapping will stimulate meaningful learning and promote the development of student learning strategies to construct the student's own knowledge.

A previous study (Cassidy, 2011:989), regarding SRL in higher education (HE), emphasised the importance of developing SRL skills as a priority to improve academic performance. SRL is regarded as vital in acquiring knowledge and influencing the student's learning style and motivational processes. Although SRL

includes various aspects such as goal setting, self-observation, self-assessment, and self-reinforcement, all students engage in some form of SRL. Effective SRL requires the setting goals and having motivation to attain those goals (Loyens & Gijbels, 2008:352).

4.4 TEACHING METHODS TO COMPLEMENT LEARNING IN ECONOMICS

The way Economics is taught plays an important role in how students learn the subject. The lecture format is therefore of utmost importance to develop students' cognitive learning skills and to motivate them to learn and continue doing course work. The need exists to make greater use of a mix of teaching methods (Simkins, 1999:278) and to use active and collaborative learning exercises that encourage students to take greater responsibility of their own learning. Individuals learn in different ways. "Chalk and talk" is believed to be optimal, and the lecturer needs to apply a variety of teaching strategies that promote student learning. Students learn Economics in different ways, but by matching teaching styles with learning styles, learning will be enhanced.

It is recommended (Bates, Baume & Assinder, 2010:358) that the planning of Economics courses should be done from a learning perspective and not from a teaching perspective. In the planning phase, attention should be given to clear goals, encouraging students to be active, talking and working together, and ensuring that students reflect on the course.

Results from research by De Berry (2003:68) showed a favourable attitude of students towards the use of the lecture method in teaching Economics in preference to several other teaching techniques. The lecture method offers a variety of options (Becker, 1997) to apply during the contact session. Using games and simulations provides pedagogical advantages to teach a certain Economics concept or idea. The abundance of economic media, internet reports and articles allows the lecturer to use these aids to motivate students and to teach Economics. Specific questions and assignments can be drafted to apply the articles to economics theory and practice. The lecture format also provides the opportunity to use economics case studies and

utilise co-operative learning through small group activities, and for teaching students to deal with Economics concepts.

Discussion

Using a variety of pedagogical techniques could contribute to matching the different teaching styles and students' learning styles. Teaching Economics in small classes where students can actively engage, discuss, participate in small group activities is conducive to learning Economics (Becker, 1997:1370).

Although there is not a single theoretical explanation of how students learn a specific subject, the following section provides an indication, solutions and practical ways of learning Economics based on the behavioural, cognitive, constructivist and connectivist perspectives.

4.5 BEHAVIOURAL PERSPECTIVE ON LEARNING ECONOMICS

Behavioural approach is concerned with the changing of behaviour and the shaping of observable learning outcomes or behaviour (see 2.5.1 and 2.6). The following section provides a discussion on contiguity, classical conditioning, operant conditioning and social learning as principles and approaches to learn Economics.

4.5.1 Contiguity

Contiguity (Armento, 2001:177) refers to two stimuli becoming associated when they occur together. Applying contiguity in class means that students have to practice the desired responses with the appropriate stimuli. For example, students learning Economics concepts and definitions, such as gross domestic product, unemployment, inflation rate and exchange rate will have to practice matching the definitions with the concepts. Discouraging the recurrence of inappropriate responses and behaviours, lecturers will have to, for example, monitor how students draw their graphs, and label their graphs correctly.

4.5.2 Classic conditioning

The positive or negative association of a stimulus occurs during the process of conditioning. Strong negative and positive emotions are experienced by students

studying Economics. Fear, anxiety and depression are experienced by some students, while confidence, pride and comfort are experienced by others. To create positive emotions associated with Economics, contact sessions should be designed for students in order for them to experience positive reactions. Learning tasks should be appropriate to the level of cognitive development of the students. The design and instruction should be relevant and related to students' everyday lives for students to associate themselves with the different Economics concepts when learning Economics (Armento, 2001:177).

4.5.3 Operant conditioning

Operant conditioning refers to the continuous occurrence of behaviour (see 2.6.1) and depends on the consequences of behaviour. Reinforcing of desires behaviour promotes the recurrence of desired behaviour and punishment would discourage undesirable behaviour (Schunk & Zimmerman, 2012:59).

In learning Economics, students using prior knowledge should be given encouragement and be rewarded if they apply the knowledge to current economic issues. By using reinforcing schedules, such as quizzes and praising students, students are encouraged to apply better learning strategies (Armento, 2001:177).

4.5.4 Social constructivism

According to Bandura (1971:2, 3), (see 2.6.2.3), behaviour is learnt by observing or modelling the behaviour of others. Observing includes aspects such as paying attention, retention, reproduction and motivation. By using a variety of teaching aids (Armento, 2001:178) such as props, newspaper clippings or stories, about economic issues, at the beginning of the lecture, students' attention can be captured. Once the students' attention is focused, the lecturer can proceed to the analysis of economic data, interpreting economic graphs and tables.

Students learn by observation and interpretation of exemplary behaviours (Almeida, 2011:852). Students behave and reinforce behaviour when they succeed. Learning takes place through interactions with people by understanding the behaviour of others and seeing their results. Social constructivism therefore complements both the behavioural and cognitive approach to learning.

Using small-group learning in Economics would assist students to use SRL strategies such as recalling, organisation, integration and elaboration (Sharp, Knowlton & Weiss, 2005:348). *Recalling* refers to the memorisation of information and other strategies to promote cognitive and constructivist learning. *Organisation* prove that order and mind maps, concept maps, slides and paraphrases could assist students to organise the Economics literature. *Integration of knowledge* refers to the integration of new information with existing information. *Elaboration* refers to the integration of new information with extended information coming from real-world events.

4.6 COGNITIVE PERSPECTIVE ON LEARNING ECONOMICS

The cognitive processes (Jordan et al., 2008:36; Lefrancois, 1972:186, 187) are the mental processes such as sensation, perception, attention, encoding and memory. Cognitivists are of the opinion that learning results from organising and processing information effectively (see 2.7).

4.6.1 Processing of information in Economics

In 2.7.1.1, the different types of memory systems were explained comprehensively. The sensory register uses our past experiences, which are stored by our long-term memory, to filter out the most important signals. New economic information (Fogarty Di Liberto, n.d:661) is passed through the sensory memory to the short-term memory, which consists of the immediate memory and the working memory. The immediate memory holds new information for 30 seconds and decides whether to pass the information on to the working memory. Past experiences from the long-term memory determine whether information is kept. Data concerning survival and data generating emotional reactions receive the highest priority. For students to store economic information in their long-term memory, Fogarty Di Liberto recommends that real-life examples be used with which the student can associate based on past experiences. Storage of information depends on whether the information is understandable and makes sense, and whether it is of personal value to the student. Lecturers should make Economics understandable and explain why information is useful for students.

The way information is presented influences the retention of such information by students (Fogarty Di Liberto, n.d:662). Economics information is best retained when students are actively involved and participate during the learning process. The immediate use of information leads to a retention of 90%.

Bruinsma (2004:563) is of the opinion that the processing of information by students is related to students' intrinsic motivation for Economics. Students who value Economics and are interested in the subject process information better. Cohn, Cohn and Bradley (1995:303) warn that the quantity of economic facts and ideas that are presented to the students should be related to their working memory capacity.

4.7 CONSTRUCTIVIST PERSPECTIVE ON LEARNING ECONOMICS

Cognitive or construction of knowledge is constructed by the learner as responsible agent. The student builds on knowledge already acquired and new learning experiences are used to construct new knowledge (see 2.8). Learning that is built on what students already know, leads to an increase in retention and an increase in interest and motivation (Loyens & Gijbels, 2008:351).

For the student to construct new knowledge in Economics, the lecturer should be aware of students' preconceptions. The lecturer should create a non-threatening atmosphere in class and encourage students to challenge their views and be aware of alternative views. Cultural experiences and interactions with others, which include communication with other students, the lecturer, and computer-supported interaction, will contribute to the social construction of knowledge (Fok & Watkins, 2002:2).

Miners and Nantz (2009:28) found that, if lecturers are transparent about the learning outcomes and make connections between the goals and activities and assignments, it increases students' "buy-in" in constructing new knowledge. Miners and Nantz therefore make the following recommendations to enhance the construction of knowledge in Economics:

- building a repertoire of Economics terms and concepts;
- initially using basic algebra and calculus;
- identifying the interaction between the real world and theoretical models;

- encouraging the formation of own opinions;
- building confidence in technical skills, such as the drawing of graphs;
- interpreting current economic events;
- reflecting on own progress; and
- creating a learning plan.

4.7.1 Task-based learning

The lecture method often results in the provision of information and the students being passive. Task-based learning in Economics (Janagam, Suresh & Nagarathiram, 2011:1) places the responsibility on the student to access information, achieve goals, monitor understanding of Economics concepts and can be used to support the development of SRL. Students are required to develop hypotheses, access and analyse data and develop solutions, and they are encouraged to think critically and creatively. Students who participate (Kramer, 2007:322) by using their own abilities in developing new ideas retain what they learn best.

4.7.2 Problem-based learning in Economics

Problem-based learning (Maxwell, Mergendoller & Bellisimo, 2004:489) requires of students to construct the knowledge they need to solve the problem and consider different solutions. Problem-based learning is therefore an active learning strategy that could be applied to motivate learning and enhance problem-solving skills. Goodman (2010:478) explains problem-based learning as the posing of a problem to motivate and teach students to solve problems, either autonomous or using small groups. Students develop critical thinking skills, information literacy, effective communication, and meta-cognitive skills when applying problem-based learning as learning strategy.

4.7.3 Cognitive mapping

Chiou (2009:56) found that students using concept mapping improve their academic performance in Economics. Concept mapping is constructed on what the student already knows. New knowledge is integrated into the existing network of concepts in

the cognitive structure of the student. Cognitive mapping is a tool which fosters constructivist learning and the creation of knowledge.

The use of cognitive maps relates to Piaget's assimilation-accommodation model (Tang, 2011:36, 37). Cognitive mapping is a step-by-step method of self-construction, starting from a specific concept and making connections with other concepts to conceptualise and comprehend academic tasks. Cognitive maps involve the visual representation and communication of an individual knowledge structure of single or multiple concepts constructed by the individual student. The cognitive map contributes to students' ability to assimilate new concepts and to recognise and accommodate new concepts in their existing frame of knowledge. Cognitive maps in Economics can be used for problem solving, creative thinking, and assessing, identifying, understanding and linking key concepts. By using concept maps students are engaged in the creation of knowledge and reflect their comprehension and conception of the topic.

4.7.4 Cooperative learning

Cooperative learning refers to learning through the social interaction with students and facilitators. By introducing cooperative learning (Maier & Keenan, 1994:358; Zain, Subramaniam, Rashid & Ghani, 2009:93) in Economics, students work in small groups with a common goal. This could lead to constructive learning. Students work together to achieve their goals, they actively participate and are motivated to achieve a common goal. Maier and Keenan (1994) are of the opinion that, in smaller groups, students learn, use higher-level reasoning, and are satisfied with classes and tolerant of ethnic, racial and cultural differences.

4.8 CONNECTIVIST PERSPECTIVE ON LEARNING ECONOMICS

Technological advances have introduced a number of resources that can be utilised in Economics. Using the internet or World Wide Web (Ball & Eckel, 2004:477; Simkins, 1999:279) as an additional teaching tool and as a source of data as well as video applications, information on Economic issues and simulations, encourage interactive learning and interaction between students to discuss economic issues and provide an opportunity for collaborative learning. The use of social networks (Skuflic,

Galetic & Herceq, 2011:212) provides an opportunity for students to discuss and reflect on Economic topics and share their thoughts.

With the creation of a webpage, which is accessible to a specific group, students can use weblogs (Baggentun & Wasson, 2006:457; Rozendaal, Minnaert & Boekaerts, 2005:144) to support learning activities. Weblogs contribute to the application of SRL processes as students can reflect, collaborate, claim ownership of the page, become motivated, and organise and test new knowledge. This form of interactive learning allows students to experiment and reflect on the subject matter in a collaborative setting. Weblogs also allow the student to activate relevant prior knowledge, which supports the construction of new learning. Students get the opportunity to work in interactive learning groups, which helps with group assignments and develops communication skills, and helps students to take mutual responsibility for projects.

According to Greenlaw (1999:34), there are numerous benefits in computer-assisted instruction and learning. Students are allowed to learn at their own pace, their learning is student-centred, it allows for group work and a multiple perspectives. A high level of engagement is required during computer assignments, and the quality of students' papers and in-class discussions are of a better quality than without computer-assisted learning.

4.9 COMPLEMENTARY STRATEGIES TO LEARN ECONOMICS

Economics students who actively write, complements other teaching and learning strategies. By writing down information, Economics students have a record of the own understanding, are able to make connections between concepts, have a record of thought, and can monitor their progress in Economics (Crowe & Youga, 1986:218).

Providing students with homework in Economics (Kim, Cho & Leonard, 2012:191), students are required to take responsibility of their own learning. Students are encouraged to use active learning strategies and to seek help, review class notes and reread the handbook.

Hervani and Helms (2004:267, 268) are of the opinion that by introducing service learning projects learning outcomes would be improved. Service learning requires

students to access existing knowledge, interpret existing knowledge, apply and create new knowledge, and reflect on the practical application of theory.

Lopez (2009:137) regards service learning and student-based Economics instruction in communities as part of an active learning technique. Students apply and relate Economics concepts to real-world experiences. Students are required to think critically and relate the material to their own lives. Economics service-learning models include community service, action research and problem-solving exercises.

Discussion

Self-regulated learning (SRL) is unique to each student and is determined and practised by the student him/herself. To encourage self-regulated learning in Economics and the application of different learning theories, lecturers can use different initiatives in class. Behavioural approaches (Armento, 2001:177) can be strengthened by repetition, providing enjoyable case studies and rewarding positive behaviour, thus encouraging contiguity, classical conditioning and operant conditioning. Cognitive approaches can be strengthened by pointing out the important ideas, the purpose of the lesson, reviewing main ideas, identifying important information, associating information with prior knowledge and combining definitions with examples or pictures. The student's cognitive abilities of perception, attention and memory are thus enhanced.

By introducing new concepts or learning experiences to undergraduate students in micro- and macroeconomics, lecturers could start with familiar concepts, such as supply and demand curves, which are known to the students. Providing concept maps that elaborate on the new concepts and relating the concepts to real-world situations which are applicable to students' personal lives, would contribute to storing the information in the long-term memory. Students can construct new knowledge and connect the new knowledge with their existing schemata. Gullason (2009:84) stresses that real-world case studies will result in an understanding of Economics, as students realise the usefulness of Economics, see link between the real world and the material presented in class, and know how to apply Economics in their private lives. By using concept maps to link the Economic concepts and the real world,

Chiou (2009:56) explains that students hierarchically arrange new concepts and obtain a graphic representation of the relationships among concepts.

The availability of the internet, online newspapers and other technologies allow for combining the lecture format and the technology-mediated environment for blended learning in Economics (Van der Merwe, 2007:127). The internet is a convenient and cost-effective portal to the real world. The internet provides access to real-world markets and to current economics news and events. Students become active respondents and through the social interaction, they are motivated and encouraged to learn.

4.10 ASSESSMENT OF LEARNING TO COMPLEMENT LEARNING OF ECONOMICS

There are two important ways and reasons why we assess: formative (to provide feedback during learning) and summative (to provide an indication of how well the student has learned) (Biggs, 2003:164). Students expect to be assessed and should be motivated by assessment to improve on their performance. Assessment gives structure, direction and guidance to student learning, and makes correction of learning possible by means of the feedback provided.

Clark (2012:241) found that applying formative assessment equips students with SRL strategies which sustain motivation and improve attainment. Involving students in feedback, through cooperative practices, dialogue and peer groups, results in students engaging in meta-cognitive activities of planning, monitoring and reflection.

The social constructivists' view on assessment is conceptualised as dynamic assessment, measuring the individual's abilities that are developing and that are predictive of how the individual will perform independently. Dynamic assessment assesses the potential level of development.

Benjamin Bloom has developed a cognitive taxonomy with arranged classes of outcomes in order from simple to complex. The taxonomy has six main classes:

- knowledge: the ability to remember facts, terms, definitions, rules and principles;

- comprehension: the ability to translate ideas from one form into another, to interpret and to extrapolate trends;
- application: the ability to use rules and principles in particular situations;
- analysis: the ability to break down an artefact and make clear the components and the relationships between them;
- synthesis: the ability to arrange elements and make a new statement or conclusion; and
- evaluation: the ability to judge the value of methods by comparing them with external criteria (Rowntree, 1997:103).

Anderson (Clark, 2002:81) has led a team of cognitive psychologists in revising Bloom's taxonomy. The revised taxonomy includes the following levels of cognitive performance:

- remember: the ability to recall information;
- understand: the ability to explain ideas and concepts;
- apply: the ability to use the knowledge in another familiar situation;
- analyse: the ability to differentiate between constituent parts;
- evaluate: the ability to justify a decision or course of action; and
- create: the ability to generate new ideas or ways of viewing things.

In this adapted version of the taxonomy, the names of the categories where changed from nouns to verbs. The knowledge category was changed to *remember,* a form of thinking. *Comprehension* and *synthesis* were retitled *understand* and *create* in order to reflect the nature of thinking in each category. The taxonomy has prompted lecturers to consider the variety of mental activities they might be assessing in their students. Knowledge of different types of cognitive demand is important in designing and marking assessment tasks. According to Brown (2001:9), the first three levels in Bloom's taxonomy are alleged to be related to surface learning, and the higher levels to deep learning.

Discussion

To encourage students to apply different SRL strategies, both formative and summative assessment as well as feedback on assessment are important. Continuous assessment and applying different assessment methods could also motivate students to use SRL strategies. By introducing an internet-based assignment and assessment system that is related to real-world issues, students' learning experiences are enriched. Johnston and Olekalns (2002:103) support this view by indicating that such system would equip students to link theory and real-world issues, develop positive attitudes to Economics, apply different learning strategies, improve their capacity for critical analysis and problem solving, and develop effective study habits.

4.11 SRL IN ECONOMICS

The whole process of initiating SRL in Economics, applying cognitive and metacognitive strategies and setting goals, is determined by the student who is studying Economics. The student as agent will set his/her personal goals, and use appropriate learning strategies that are most preferable or which suits him/her best. Rieskamp and Otto (2006:232) found that students possess a repertoire of cognitive strategies and select the most appropriate strategy to solve specific learning situations. Past performances of specific learning strategies also determine the selection of applying a specific learning strategy.

4.12 CONCLUSION

This chapter reflected on the various SRL strategies which can and are applied when learning Economics. An overview of the unique character of Economics and the general and special skills required to comprehend Economics was provided. The chapter also reiterated the importance of appropriate teaching and assessment methods to encourage the use of different SRL strategies. The practical application of behavioural, cognitive, constructivist and connectivist approaches was discussed and ways in which these should be implemented in practise.

Chapter 5 explains the research design and methodology of the study.

CHAPTER 5

RESEARCH DESIGN AND METHODOLOGY

5.1 INTRODUCTION

In the preceding chapters, this thesis reflected on the literature available regarding the stated factors predicting academic performance. Numerous cognitive and non-cognitive factors influence students' academic performance. The importance of both cognitive and non-cognitive predictors are evident from previous studies (Diseth, 2003; Diseth et al., 2010; Ferla, Valcke & Cai, 2009; Mayes et al., 2009; Ning & Downing, 2010; Smrtnik & Maya, 2011; Van der Westhuizen et al., 2011). Research (Furnham, Monsen & Ahmetoglu, 2009:771) also indicated that non-cognitive factors seem to become important at higher levels of formal education. At tertiary level, students are expected to take responsibility of their own learning and study independently. The focus on the self as agent, how to stay motivated, applying different learning strategies and independent learning led to the research question of how SRL and the future time perspective dependently and independently predict academic achievement of Economics students.

This chapter provides a description of the research question, the hypothesis, research design and methodology, ethics, validity and reliability, and the analysis of results, which was applied during this study.

5.2 STATEMENT OF THE RESEARCH QUESTION

The research questions this study investigated were:

- Does self-regulated learning predict academic performance in second year Economics studies?
- Does the future time perspective predict academic performance in second-year Economics studies?

- Is there a relationship between self-regulated learning and the future time perspective?

5.3 HYPOTHESES

Hypotheses are assumptions about the population, which the study will test. The stated hypotheses may or may not be true, and are reflected in the null and alternative hypotheses (Hoare & Hoz, 2012:50).

The following specific null hypotheses and corresponding alternative hypotheses were tested:

H_0a: Self-regulated learning does not predict academic performance in second-year Economics.

H_1a: Self-regulated learning does predict academic performance in second-year Economics.

H_0b: A future time perspective does not predict academic performance in second-year Economics.

H_1b: A future time perspective academic does predict performance in second-year Economics.

H_0c: No relationship exists between self-regulated learning and a future time perspective.

H_1c: A positive relationship exists between self-regulated learning and a future time perspective.

5.4 IDENTIFYING THE VARIABLES

In this section, the different variables, namely the independent variables, the dependent variable and the confounding variables are identified and described.

5.4.1 The independent variables

Independent variables are those variables that are used to explain, predict or determine the variation in the dependent variable (Anderson, Sweeney, Williams, Freeman & Shoesmith, 2009:490).

The current study had two independent variables, namely self-regulated learning and the future time perspective. SRL was measured by the Motivated Strategies for Learning Questionnaire (MSLQ) and the future time perspective was measured by the Zimbardo Time Perspective Inventory (ZTPI). SRL was operationally defined as a score on the Likert-type scale for the Motivated Strategies of Learning Questionnaire. The future time perspective was operationally defined as a score on the Likert-type scale for the Zimbardo Time Perspective Inventory.

5.4.2 The dependent variable

The dependent variable is the factor which is observed and measured to determine the effect or change that the independent variable has on the dependent variable. (Anderson et al., 2009:490).

The dependent variable for this study was the academic performance of students registered for EKN 214, and it was operationally defined as the final mark for the EKN 214 semester course during 2013. The semester mark includes all assessments and examination results for the six-month course. EKN 214 is offered from January to June of each year.

5.4.3 The confounding variables

A confounding variable (or confounder) is an extraneous variable that correlates positively or negatively with both the dependent variable and independent variable. Confounding variables can therefore influence both the dependent and the independent variables (Kamangar, 2012:509; Pourhossingholi, Baghestani & Vahedi, 2012:81).

Multivariate methods can be used to deal with confounders by measuring the confounders and building them into the design. Multiple regressions will be used to

understand the effect of an independent variable or set of independent variables on a dependent variable thus accounting for the effect of the confounding variable.

The confounding variables for this study were age, gender, ethnicity and the psychosocial background of the students. These variables were measured by means of a biographic questionnaire and the Psycho-Social Wellbeing Scale. The confounding variables were controlled for by building them into the design as independent variables and measuring their effect on the dependent variable (McMillian & Schumacher, 2001:118).

5.5 RESEARCH DESIGN

The design used was a quantitative, non-experimental survey-type design based on a post-positivistic paradigm. Post-positivism research (Clark, 1998:1245; Ryan, 2006:12) acknowledges the influence of the researcher's background, worldview, theories and knowledge in observing reality. Post-positivists argue that the world cannot be observed entirely objectively and accept that the natural sciences do not provide the model for all social research. Post-positivism believes in an objective reality and that reality cannot be fully uncovered through research (Muijs, 2011:5), but tries to approximate or represent reality as best they can.

Research can therefore never be certain (May & Sellers, 1988:400), but the focus should rather be on with how much confidence we can rely on our findings. Post-positivism is also concerned with whether the findings predict certain outcomes. Post-positivism is not so much concerned with a universal method, but rather with growth of knowledge and the dynamics of change within an individual discipline. Instead of accepting the objective scientific approach of evaluating data, the emphasis is on the interaction of the researcher through reason, problem solving and practice. The researcher therefore reflects subjective judgements through the selection, presentation and interpretation of the data. Post-positivism therefore allows for the voice and role of the researcher and participants in the study (McGregor & Murnane, 2010:424). Quantitative research has post-positive features (Ryan, 1999:485) when it tries to link variables, test theories or hypotheses, and tries to predict and to determine relationships between variables.

5.6 SAMPLING

A population is defined as the group to be studied, while a sample is the subset of a population (Dielman, 2005:24).

The population for this study comprised all the undergraduate students registered for Economics at the University of the Free State. The sample for this study consisted of a convenience sample of all second-year students registered for Economics 214 at the University of the Free State. In 2013, four hundred and ninety-two (492) students were registered for EKN 214. The number of students who agreed to participate in the research were 200, which provided a response rate of 41%. The questionnaire was administered during lecture time and the response rate of 41% can be attributed to the fact that students were not informed of the date of data collection in advance.

5.7 DATA COLLECTION

Permission to conduct the research was requested from the appropriate authorities of the University of the Free State prior to the collection of data. The collection of data took place on 23 and 24 April 2013. EKN 214 is offered in Afrikaans and English on different days and during time slots; two days were therefore required to collect the data. Afrikaans students completed English questionnaires. The researcher conducted and supervised the collection of the data. Data was collected at different venues on the campus of the University of the Free State. Students were informed of the purpose and goals of the research, anonymity of participation, and were asked to sign a letter of consent.

The following questionnaire, with different divisions, was used as measuring instruments (see section 5.9):

- Biographical questionnaire
- The Psycho-Social Wellbeing Scale (PSQ)
- The Motivated Strategies for Learning Questionnaire (MSLQ)
- The Zimbardo Time Perspective Inventory (ZTPI)

The whole questionnaire consisted of 156 questions and an hour was allocated for completion of the questionnaire.

5.8 ANALYSIS OF RESULTS

Results were analysed by using the univariate and multivariate statistics of the SPSS software package. Univariate statistics are data with one dependent variable and more than one independent variable. Multivariate statistics are techniques used for analysing data where there are many independent variables and many dependent variables (Tabachnick & Fidell, 2007:1).

During the analysis of the data, the researcher attempted to understand how the independent variables, SRL and the future time perspective, predict academic performance. By using the questionnaire to collect data and scores on the various variables that reflect different aspects of SRL and the future time perspective, the data could be analysed statistically.

Using multiple regression (Tabachnick & Fidell, 2007:18) allowed the researcher to predict the dependent variable based on multiple independent variables. Regression measures the prediction, whereas correlation measures the degree to which variables are related. Correlation also measures the size and direction of the linear relationship (Newbold, Carlson & Thorne, 2010:197). The attractiveness of multiple regression lies in its diverse uses. Multiple regression can be used to test hypotheses amongst variables to examine associations between pairs of variables while controlling for confounders, and to test complex associations among multiple variables.

Multiple regression were used when analysing the data set of this research. Multiple regression assess the contributions made by independent variables in predicting the dependent variable (Tabachnick & Fidell, 2007:24, 138). In standard multiple regression, all the independent variables are entered into the regression equation at the same time. Multiple regression allows the researcher to enter the independent variables into the regression equation in the order of his/her choice. The degree of relationship between the dependent variable and the independent variables is

assessed at each step of the sequence. Multiple regression therefore explain the additional variation in the dependent variable by adding additional variables.

Multiple regression is useful in evaluating sets of predictors (Tabachnick & Fidell, 2007:138). The effect an independent variable has on the dependent variable can be understood when potential cofounding variables have been accounted for. For this study, the demographic variables gender, race and age were accounted for first. The psychosocial wellness during childhood and the present situation, and the future time perspective and SRL were added in sequence to understand the unique contribution of each variable in predicting the dependent variable.

5.9 MEASURING INSTRUMENTS

5.9.1 Biographical questionnaire

The biographical questionnaire provides information on factors such as gender, age and ethnicity.

5.9.2 Psycho-Social Wellbeing scale (PSQ)

The Psycho-Social Wellbeing Scale was constructed and developed by Viljoen (2012). The scale consists of 19 questions and respondents assess their psychosocial factors during childhood years and in their present life dimension. With the first 14 questions, respondents' rate:

- emotional support during childhood;
- socio-economic environment during childhood;
- environment conducive to learning during childhood; and
- depression during childhood.

The respondents' current life situation is measured with the last five questions, namely:

- financial situation;
- relationships (dating and love life);

- relationships with family members;
- depression; and
- concern about having contracted HIV and AIDS.

The Psycho-Social Wellbeing Scale was included as confounding variable to account for the effects of psychosocial factors on students' academic performance.

The initial pilot study of the scale (Viljoen, 2012) amongst 476 university students recorded a Cronbach alpha of 0.89, indicating internal consistency and reliability. Validity of the PSQ can be claimed as the questions of the scale were grounded in the theory of psychosocial background of learners and students. Research by Joubert (2012) demonstrated that the scale might be utilised to isolate psychosocial wellbeing as determinant of academic performance.

Many variables in the family background have strong direct and indirect associations with student success and academic performance. Factors including family support, family income, parental involvement and interest, and childhood depression may affect a student's academic performance at university level (Jacobs & Harvey, 2005:432). Jacobs and Harvey are of the opinion that parental interest and expectations mediate the negative effect of other variables such as socio-economic status and income. Sirin (2005:444) indicates that socio-economic factors show inconsistent results, ranging from a strong relationship to no significant relationship to students' academic performance.

5.9.3 Motivated Strategies for Learning Questionnaire (MSLQ)

The development of the MSLQ (Pintrich, 2004:385) was a process which was started in 1980 by Bill Mckeachie and Paul Pintrich. The MSLQ was developed to assess and validate students' use of self-regulated learning strategies. SRL strategies were identified from existing literature, different learning theories and research (Zimmerman & Martinez-Pons, 1986:613). SRL strategies describe how students become regulators of their own learning. Students become metacognitively, motivationally and behaviourally active in promoting their academic achievement. There are a number of different potential strategies students can use and control. According to the researcher the MSLQ measures a small portion of the potential

learning strategies students can use. The questionnaire provides a broad outline of different strategies that students might use to control their own cognition, motivation and behaviour. The MSLQ assumes that motivation and learning strategies are not traits of the learners, but that motivation is dynamic and contextually bound, and that learning strategies can be brought under the control of the student. Standard tests indicate a high correlation between SRL strategies and academic achievement.

The MSLQ is an instrument that is intended to measure constructs that are context-dependent (Duncan & McKeachie, 2005:124). Students report on motivation and strategies with regard to a specific context and situation. Students might change their beliefs and strategies for different tasks, contexts and subjects. Traditional measures of reliability and internal consistency are therefore difficult to use with self-report measures. The MSLQ is, however, an efficient, practical and valid measure of students' motivation and learning strategies.

The Motivated Strategies for Learning Questionnaire (MSLQ) is a measure of self-regulation (Zimmerman, 2008:169). Researchers use different dimensions of self-regulated learning to suit their specific purposes as evident by different existing questionnaires and in literature. The current study used the MSLQ as measurement of self-regulatory learning of Economics at second-year level.

The Motivated Strategies for Learning Questionnaire (MSLQ) (Duncan & McKeachie, 2005:119; Mills & Blankstein, 2000:1195, 1196; Pintrich & DeGroot, 1990:33, 34) assesses a student's motivation, study habits and learning skills for the course. The motivation section is based on three general motivational dimensions: expectancy, value and affect. Expectancy indicates the student's self-efficacy in terms of his/her belief in his/her ability, expectancy of success, judgment of ability to do the task and confidence in his/her ability to do the task. The value component focuses on why students engage in the specific academic tasks, while the affect component determines the student's level of test anxiety. The learning strategy section is based on three dimensions, namely cognitive strategies, metacognitive strategies and resource management. *Cognitive strategies* refer to the student's use of strategies in the processing of information. *Metacognitive control strategies* refer to strategies used by students in controlling and regulating their own cognition. The strategies include planning, monitoring and regulating of learning activities. *Resource*

management includes the strategies used in controlling resources such as time, an appropriate place to study, regulation of effort, peer learning and seeking help.

The motivation section of the MSLQ consists of 31 items, which provides six sub-dimensions. The six sub-dimensions are as follows:

1. *Intrinsic goal orientation*, which indicates the degree to which the student perceives her/him participating in the course for reasons such as seeing the tasks as a challenge, out of curiosity or to mastering of the tasks.
2. *Extrinsic goal orientation,* which measures the student's reasons for learning such as rewards, grades, performance and competition when doing the course.
3. *Task value* measures whether the student finds the course useful, interesting or important.
4. The *expectancy component* comprises control over learning beliefs measuring whether the outcomes are determined by one's own effort.
5. *Self-efficacy* indicates the confidence a student has in his or her ability in doing the course.
6. The *affect component* is measured by test anxiety, and provides a cognitive and emotional component.

The 50-item learning strategies section provides nine sub-dimensions measuring the study skills and strategies. The items measured include the following as indicators of learning strategies:

1. rehearsal;
2. elaboration;
3. organisation;
4. critical thinking;
5. metacognitive strategies (planning, monitoring and regulating);
6. time and study environment;
7. effort management;

8. peer learning; and
9. help-seeking.

5.9.4 Zimbardo Time Perspective Questionnaire (ZTPI)

The Zimbardo Time Perspective Questionnaire (ZTPI), which is used to determine students' time perspective, was developed by Philip G. Zimbardo and J.N. Boyd (Zimbardo & Boyd, 1999:1273, 1276). The questionnaire provides a measure of multiple time perspectives and is built on social, cognitive and motivation-emotional processes. The questionnaire is based on theoretical analysis, interviews and repeated analysis, which reveal a number of distinct temporal factors within the different time domains (Liniaukaite & Kairys, 2009:67, 68). Zimbardo and Boyd (1999) found that present-orientated individuals have a practical attitude and focus on reality rather than expectation. Hedonistic-orientated individuals are pleasure seekers and present fatalistic persons feel that their lives are dominated by external forces rather that by their own actions. Past-orientated individuals act and respond to recurring events in their past experiences in either a positive or a negative way. Future-orientated individuals are concerned about the consequences of their current actions and implications for the future and tend to seek long-term gratification.

The ZTPI (D'Allessio, Guarino, De Pascalis & Zimbardo, 2003; Volder & Lens, 1982) measures multiple individual time perspectives. The 56-item questionnaire has three sub-dimensions indicating past, present and future time perspectives. The ZTPI asks respondents to indicate on a 5-point Likert-type scale (ranging from very characteristic to very uncharacteristic) how characteristic a statement is for them. The following time perspectives are assessed. The number of items used to assess the dimension is recorded in brackets.

- a past negative time perspective (10 items);
- present hedonistic time perspective (15 items);
- future time perspective (13 items);
- past positive time perspective (9 items); and
- a present fatalistic time perspective (9 items).

The ZTPI was developed to provide a standard measure of time perspectives, which demonstrate psychometrical properties and which have been used to predict individuals' perceptions and behaviour. Research using the ZTPI revealed that the Cronbach alpha indicated a high internal reliability (Worrel & Mello, 2007:499).

The rationale for using the ZTPI as independent variable in this study was the relationship that the future time perspective (see Chapter 3) has with goal setting, motivation, self-regulation, self-efficacy, which are closely associated with SRL, and as predictor of academic achievement in previous studies (Bembenutty & Karabenick, 2004:36; Horstman & Zimitat, 2007:706; Lang & Carstensen, 2002:125; McInerney & Liem, 2008:2; Peetsma & Van der Veen, 2011:482).

5.10 VALIDITY AND RELIABILITY OF THE RESEARCH

This section reflects on the validity and reliability of the research.

5.10.1 Reliability of the research

In order to establish the trustworthiness of the research, several characteristics of quantitative data needed to be explored. Reliability and validity of research requires the offering of valid, reliable and objective interpretations of the findings (Lewis, 2009:8; Miyata, 2009; Roberts, Priest & Traynor, 2006). Reliability focuses on the concept of consistency in the measuring instruments capturing the variables. Reliability is dependant on the reliability of the measuring instruments and the following of the correct data analysis procedure. For the current study, a professional statistician at the University of the Free State provided assistance with the statistical procedure. The reliability of the measuring instruments was discussed in sections 5.9.2, 5.9.3 and 5.9.4.

5.10.2 Internal validity of the research

Internal validity refers to the question whether the variation of the dependent variable can be attributed to the changes and effects of the independent variables (Kerlinger, 1986:300; Maas, 1998:24). To ensure internal validity, the principle of MAXIMINCON was applied by building the confounding variables into the design as independent

variables and accounting for the effect on the dependent variable. The results report on the influence of the confounding variables on the dependent variable.

5.10.3 External validity of the research

External validity refers to the question whether the sample was adequate to conclude that findings can be generalised (Kerlinger, 1986:300; Maas, 1998:24). The sample was not randomly selected and other generalisations of the results can therefore not be made.

External validity also indicates whether general conclusions can be drawn, on the basis of the model used, to other samples, time periods and settings (Cohen, Manion & Morrison, 2011:184; Ilhantola & Kihn, 2011:7) In the current investigation, transferability or external validity of the data (which refers to findings being applied in other contexts or with other respondents) was mainly limited to the specific context of the particular university being investigated. Assessing external validity, by using the same questionnaires in different locations, times and groups would not necessary obtain the same relationships observed. The research was done at the University of the Free State, which limits the generalisation of the findings.

5.11 ETHICAL CONSIDERATIONS

To ensure that the study complied with ethical standards of research the following were done:

- The study accepted the guidelines as prescribed by the Ethics Committee of the Faculty of Education.
- Participants signed an informed consent form to ensure that their privacy would be honoured and that their identity would be protected.
- Participants were informed of what was expected of them, what the process would be and what they might expect from the researcher.
- The researcher sought the participants' cooperation and respect.
- Permission to conduct the study was requested from the authorities at the University of the Free State.

- It was the researcher's intention to tell the truth and to be as objective as possible in writing up the findings of the research.

5.12 CONCLUSION

This chapter provided an overview of the research question, hypotheses tested and the research design and method of the study. The different independent variables, confounding variables and dependent variable were identified and explained. The design was described as a quantitative design and it was based on a post-positivistic paradigm. This chapter described how the data was collected. The development, structure and reliability and validity of the different measuring instruments used in this study were reflected upon. The ethical considerations to which the study complied, were identified, and the reliability, internal and external validity of the study were explained.

Chapter 6 will provide the statistical analysis of the data.

CHAPTER 6

RESULTS AND DISCUSSION OF RESULTS

6.1 INTRODUCTION

Chapter 1 of this study provided the orientation to the study and stated the research questions and hypotheses. Chapters 2 and 3 provided a literature study of research on SRL and future time perspective as predictors of academic performance. Chapter 4 discussed how students apply SRL in learning Economics, and Chapter 5 explained the research design and methodology of the study.

The objective of this chapter is to provide statistical analysis of collected data in order to answer the research questions and to test the hypotheses of this research. This study hypothesised that SRL, future time perspective and the two variables together predict academic performance. The study also hypothesised that future time perspective and self-regulated learning are related. This chapter reports on the reliability of the measuring instruments used, describes the characteristics of the sample used, and uses univariate, multivariate and regression analysis to investigate the relationship between the independent variables (SRL and future time perspective) and the dependent variable (academic performance). Firstly, the reliabilities of the different instruments are discussed. Secondly, descriptive statistics of the sample, confounding variables, time perspectives and self-regulated learning are provided. Thirdly, inferential statistics, namely correlation and regression analysis, are used to reflect on the relationships between variables.

6.2 RELIABILITY OF THE MEASURING INSTRUMENTS

This section describes the statistical reliability of the measuring instruments, which is presented as the Cronbach's alpha. Table 6.1 provides a statistical analysis of the internal reliability of the measuring instruments used for this research. Internal reliability refers to the consistency with which respondents rated items on the scale. Cronbach's alpha (Cohan, Marion & Morrison, 2010:506; Cortina, 1993:101; Tavakol

& Dennick, 2011:53) was used to measure the internal consistency of the scale. Cronbach's alpha provides a value between 0 and 1. Ideally, the reliability of a scale should be higher than 0.7 (Cohan et al., 2010:506). The Cronbach's alpha value is sensitive to the number of items in the scale. A small number of items show low reliabilities, which were caused by a small number of items as can be seen in Table 6.1.

Table 6.1: Reliability of the measuring instruments

Measuring instrument	Cronbach's alpha	Cronbach's alpha based on standardised items	N of Items
Psychosocial background of students	.93	.93	14
Present psychosocial situation total subscale	.70	.70	5
Total psychosocial background of students' questionnaire	.920	.924	19
Past negative subscale	.821	.821	10
Present hedonistic subscale	.797	.802	15
Future subscale	.690	.703	13
Past positive subscale	.717	.721	9
Present fatalistic subscale	.720	.726	9
Motivation total subscale	.889	.900	31
Motivation intrinsic goal orientation subscale	.622	.627	4
Motivation extrinsic goal orientation subscale	.640	.646	4
Motivation task value subscale	.813	.815	6
Motivation control of learning beliefs subscale	.689	.708	4
Motivation self-efficacy for learning and performance subscale	.892	.894	8
Motivation test anxiety subscale	.734	.735	5
Learning strategies total subscale	.917	.922	50
Learning strategies rehearsal subscale	.577	.582	4
Learning strategies elaboration	.731	.737	6

Measuring instrument	Cronbach's alpha	Cronbach's alpha based on standardised items	N of Items
subscale			
Learning strategies organisation subscale	.663	.680	4
Learning strategies critical thinking subscale	.744	.744	5
Learning strategies metacognitive self-regulation subscale	.743	.754	12
Learning strategies time and study environment management subscale	.645	.655	8
Learning strategies effort regulation subscale	.590	.600	4
Learning strategies peer learning subscale	.789	.787	3
Learning strategies help-seeking subscale	.559	.548	4

The Cronbach's alpha based on standardised items for the majority of scales in Table 6.1 is above 0.7, indicating the reliability of the measuring instruments. Reliability values for intrinsic and extrinsic motivation, rehearsal, organisation, time and study environment, effort and help seeking are close to 0.7, indicating an acceptable, but not ideal reliability. The lower alpha value can be attributed to the smaller number of items used in the scale.

6.3 DESCRIPTIVE STATISTICS: CHARACTERISTICS OF THE SAMPLE

Central tendencies

Descriptive statistics allows the researcher to describe each variable from various perspectives. The descriptive statistics in this section include measures of central tendency and measures of dispersion. The mean will be used as measurement of central tendency, and is the arithmetic average of the data. Measures of dispersion include the minimum, maximum and standard deviation. The minimum is the lowest value observed for a particular variable and the maximum is the highest value

observed for a particular variable. The standard deviation is the square root of the variance, and is used to indicate the clustering of the variables around the mean (Hinkle, Wiersma & Jurs, 1988:51, 56, 60).

Distribution of scores

Normality was assessed by determining the skewness. Skewness gives an indication of the shape the distribution or shows how symmetrical the distribution of the scores of the variable is. Positive skewness indicates that scores are clustered to the left. Negative skewness indicates that the scores are clustered to the right of the distribution, usually indicating a low score on the scale. If the skewness is less than -1 or greater than 1 the distribution is highly skewed. If the skewness is between -1 and -0.5 or between 1 and 0.5 the distribution is moderately skewed. A score between -0.5 and 0.5 indicates an approximately symmetrical distribution (Hinkle et al., 1988:88, 89).

6.3.1 Descriptive statistics: categorical confounding variables

The following section provides a statistical description of the variables used in this research.

6.3.1.1 Gender

This section provides a statistical description of gender as confounding variable.

Table 6.2: Gender distribution of the respondents in the sample (N = 200)

Gender		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Male	82	41.0	41.2	41.2
	Female	117	58.5	58.8	100.0
	Total	199	99.5	100.0	
Missing	system	1	.5		
Total		200	100.0		

The number of participants was N = 200. The sample represented 82 (41.2%) male students and 117 (58.8%) female students. One participant did not indicate his or her

gender. The missing data was excluded from the analysis of determining the gender of the sample, but was included in the rest of the analyses.

6.3.1.2 Ethnicity

This section provides a statistical description of ethnicity as confounding variable.

Table 6.3: Ethnicity distribution of the respondents in the sample (N = 190)

Ethnicity		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Black	116	61.1	61.1	61.1
	White	74	38.9	38.9	100.0
	Total	190	100.0	100.0	

The size of the sample was N = 190. The sample represented 116 (61.1%) black students and 74 (38.9%) white students.

6.3.2 Descriptive statistics: continuous confounding variables

6.3.2.1 Age

This section provides a statistical description of age as confounding variable.

Table 6.4: Age distribution of the respondents in the sample (N = 193)

Age	N	Minimum	Maximum	Mean	Std. deviation
Valid N (listwise)	193	19	42	21.59	2.515

The sample size for this research was N = 193. The minimum age of the respondents was 19 and the maximum age was 42. The average age for the sample was 21.59 years, indicating that the sample represented a fairly young group, which is characteristic of students who continue their studies after school.

6.3.2.2 Psychosocial wellness of students

Table 6.5: Psychosocial wellness of students

Variable	Mean	Min	Max	Std. error	Skewness
Psychosocial wellness: all items	2.13	1.00	4.79	.07	1.06

The mean for the psychosocial wellness of students was 2.13, the minimum score was 1.00 and the maximum score was 4.79. The skewness statistic of 1.06 for the distribution of all items regarding the psychosocial wellness of students indicates a highly skewed and favourable psychological wellness. The majority of participants indicated that they related to their psychosocial wellness in a favourable way.

6.3.2.3 Psychosocial wellness of students: childhood years

Table 6.6: Psychosocial wellness of students: childhood years

Variable	Mean	Min	Max	Std. error	Skewness
Childhood years	2.02	1.00	5.50	.07	1.42

The mean for psychosocial wellness during childhood was 2.02, the minimum score was 1.00 and the maximum score was 5.50. The skewness statistic of 1.42 indicates a high and positive skewness and most scores are clustered to the left. A low score on the psychosocial wellness during childhood years represents a favourable childhood wellness. The majority of participants' indicated that they rate their childhood in a favourable way.

6.3.3 Psychosocial wellness of students: present situation

Table 6.7: Psychosocial wellness of students: present situation

Variable	Mean	Min	Max	Std. error	Skewness
Present situation	2.44	1.00	5.20	.08	.57

The mean for the psychosocial present situation is 2.44, the minimum score is 1.00 and the maximum score is 5.20. The skewness statistic of 0.57 indicates a normal distribution of scores on present psychosocial wellness. A skewness value not succeeding -1 or 1 indicates a normal spread of the distribution.

6.4 DESCRIPTION OF INDEPENDENT VARIABLES

This study concerned itself only with the future time perspective, but for the reader's clarity all time perspectives are presented.

6.4.1 Descriptive statistics: Zimbardo Time Perspective Inventory

A high score indicates more dominance in the respondents' mindset towards

the specific time perspective.

Table 6.8: Past negative subscale

Variable	Mean	Min	Max	Std. error	Skewness
Past negative	2.9474	1.30	5.00	.05579	.071

Table 6.9: Present hedonistic subscale

Variable	Mean	Min	Max	Std. error	Skewness
Present hedonistic	3.3705	1.93	4.93	.04195	.173

Table 6.10: Future subscale

Variable	Mean	Min	Max	Std. error	Skewness
Future	3.7767	2.08	5.00	.03752	-.090

Table 6.11: Past positive subscale

Variable	Mean	Min	Max	Std. error	Skewness
Past positive	3.5909	1.25	5.00	.04599	-.379

Table 6.12: Present fatalistic subscale

Variable	Mean	Min	Max	Std. error	Skewness
Present fatalistic	2.3846	1.11	4.44	.04691	.316

Tables 6.8 to 6.12 provided descriptive statistical information on the different time perspectives. The skewness of all time perspectives was smaller than 0.5; therefore, the distribution of scores are all normally distributed.

The following section describes the most dominant time perspective amongst the students.

Table 6.13: Dominant time perspective

Dominant perspective		Frequency	Percent	Valid percentage	Cumulative percentage
Valid	Past negative	25	12.6	12.6	12.6
	Present hedonistic	27	13.6	13.6	26.1
	Future	84	42.2	42.2	68.3
	Past positive	61	30.7	30.7	99.0
	Present fatalistic	2	1.0	1.0	100.0
	Total	199	100.0	100.0	

Table 6.13 reveals that the most dominant time perspective amongst the respondents was the future time perspective (42.2%). This was followed by the past

positive time perspective (30.7%), the present hedonistic perspective (13.6%), the past negative perspective (12.6%), and the present fatalistic perspective (1.0%). The result implies that the majority of students' behaviour and thoughts were influenced, motivated and directed by a future time perspective (Hilpert et al., 2012:230). The focus of the students (see section 3.3) was therefore on future goals and rewards, and their motivation and current behaviour were determined by their future perspective (Hilpert et al., 2012:230).

6.4.2 Descriptive statistics: Motivated Strategies for Learning Questionnaire

The following dimensions of the Motivated Strategies for Learning Questionnaire (MSLQ) were assessed to establish the nature of SRL: intrinsic motivation, extrinsic motivation, task value, learning beliefs, self-efficacy, test anxiety, rehearsal, elaboration, organisation, critical thinking, metacognitive strategies, time and environment management, effort regulation, peer learning and seeking help. A low score indicates that the specific motivational aspects, learning strategies or study habits are not characteristic of the respondents.

Table 6.14: Motivation total subscale

Variable	Mean	Min	Max	Std. error	Skewness
Motivation total	5.2604	1.61	6.74	.05389	-.980

Table 6.15: Motivation intrinsic goal orientation subscale

Variable	Mean	Min	Max	Std. error	Skewness
Intrinsic goal orientation	5.1588	1.25	7.00	.07538	-.565

Table 6.16: Motivation extrinsic goal orientation subscale

Variable	Mean	Min	Max	Std. error	Skewness
Extrinsic goal orientation	5.9388	1.50	7.00	.06940	-1.347

Table 6.17: Motivation task value subscale

Variable	Mean	Min	Max	Std. error	Skewness
Task value	5.5820	1.67	7.00	.07414	-.714

Table 6.18: Motivation control of learning beliefs subscale

Variable	Mean	Min	Max	Std. error	Skewness
Learning beliefs	5.4213	1.25	7.00	.08537	-.752

Table 6.19: Motivation self-efficacy for learning and performance subscale

Variable	Mean	Min	Max	Std. error	Skewness
Self-efficacy	5.1294	1.50	7.00	.08082	-.642

Table 6.20: Motivation test anxiety subscale

Variable	Mean	Min	Max	Std. error	Skewness
Test anxiety	4.4939	1.20	7.00	.09347	-.192

Table 6.21: Learning strategies total subscale

Variable	Mean	Min	Max	Std. error	Skewness
Learning strategies	4.8235	2.54	6.46	.05328	-.411

Table 6.22: Learning strategies rehearsal subscale

Variable	Mean	Min	Max	Std. error	Skewness
Rehearsal	5.1013	2.25	7.00	.07745	-.506

Table 6.23: Learning strategies elaboration subscale

Variable	Mean	Min	Max	Std. error	Skewness

Elaboration	5.1948	2.33	7.00	.07204	-.338

Table 6.24: Learning strategies organisation subscale

Variable	Mean	Min	Max	Std. error	Skewness
Organisation	5.4345	2.00	7.00	.07388	-.538

Table 6.25: Learning strategies critical thinking subscale

Variable	Mean	Min	Max	Std. error	Skewness
Critical thinking	4.3363	1.00	7.00	.08105	-.381

Table 6.26: Learning strategies metacognitive self-regulation subscale

Variable	Mean	Min	Max	Std. error	Skewness
Metacognitive self-regulation	4.8502	2.25	7.00	.06070	-.372

Table 6.27: Learning strategies time and study environment management subscale

Variable	Mean	Min	Max	Std. error	Skewness
Time and study environment	4.9813	2.50	7.00	.06336	-.248

Table 6.28: Learning strategies effort regulation subscale

Variable	Mean	Min	Max	Std. error	Skewness
Effort regulation	5.2520	1.75	7.00	.00718	-.495

Table 6.29: Learning strategies peer-learning subscale

Variable	Mean	Min	Max	Std. error	Skewness
Peer learning	3.9100	1.00	7.00	.12420	-.045

Table 6.30: Learning strategies help-seeking subscale

Variable	Mean	Min	Max	Std. error	Skewness
Help seeking	3.8494	1.00	7.00	.09569	-.219

Table 6.31: Total motivated strategies for learning scale

Variable	Mean	Min	Max	Std. error	Skewness
Total motivated strategies	4.9908	3.05	6.47	.04504	-.349

The data obtained from Table 6.14 to 6.31 refers to motivated strategies of learning which include intrinsic motivation, extrinsic motivation, task value, self-efficacy, learning beliefs, test anxiety, rehearsal, elaboration, organisation, critical thinking, metacognitive strategies, time and environment management, effort regulation, peer learning and seeking help. The group as a whole was inclined to score high on characteristics and strategies of self-regulated learning, which corresponds with students applying SRL.

The distributions of the responses by respondents are as follows:

- extrinsic motivation was highly skewed;
- task value, learning beliefs, self-efficacy, rehearsal and organisation were moderately skewed; and
- test anxiety, learning strategies, elaboration, critical thinking, metacognitive regulation, environment regulation, peer learning and help seeking were approximately symmetrically distributed.

6.4.3 Descriptive statistics: dependent variable

Table 6.32: Dependent variable: academic performance of students in EKN 214

Variable	N	Mean	Min.	Max
Academic performance of EKN 214 students	190	57.31	19	88

Table 6.32 indicates the academic performance of the EKN 214 students. The lowest mark obtained was 19% and the highest mark obtained was 88%. The mean for the group was 57.31%. The average for this group was above the average of previous years. The average marks for 2011, 2010, 2009 and 2008 were 51.03%; 51.53%; 53.6% and 50.8% respectively, which prompted the current study (Department of Economics, UFS, 2012).

6.5 INFERENTIAL STATISTICS

Inferential statistics deal with drawing inferences or characteristics of populations from characteristics of samples (Howell, 2008:8). This section reports on inferential statistics that have been conducted to answer the research questions of this study. The main techniques that were used were those that investigated the relationship between variables (correlations, Pearson's correlation) and prediction of variables (regressions), and to investigate differences between groups (ANOVA).

6.5.1 Statistical correlations

This section provides a full correlation matrix indicating Pearson values as well as significance values.

Correlation coefficients are used to indicate the linear relationship between two variables and the direction of the relationship being either positive or negative. The Pearson's correlation coefficient used in this study measures the linear relationship between two variables (Hinkle et al, 1988:108). This correlation coefficient indicates

the strength (between -1 and +1) and direction (positive or negative) of the relationship. Correlation coefficients with values higher than 0.7 indicate a strong correlation.

The statistical significance of the correlation coefficients is indicated by *sig* or *p*. A value of $p < 0,05$ reflects statistical significance.

Abbreviations for the different variables used in the tables to follow are as follows:

AP – academic performance

A – age

G – gender

E – ethnicity

PSY C – psychosocial wellness during childhood years

PSY P – psychosocial wellness of the present situation

FTP – future time perspective

TP: PN – Time perspective – past negative

TP: PH – Time perspective – present hedonistic

TP: PP – Time perspective – past positive

TP: PF – Time perspective – present fatalistic

MSL TOT – Motivated strategies for learning: total scale

MSL MT – Motivated strategies for learning: motivation total

MSL IM – Motivated strategies for learning: intrinsic goal orientation

MSL EM – Motivated strategies for learning: external goal orientation

MSL Task – Motivated strategies for learning: task value

MSL LB – Motivated strategies for learning: learning beliefs

MSL SE – Motivated strategies for learning: self-efficacy

MSL TA – Motivated strategies for learning: test anxiety

MSL LS – Motivated strategies for learning: learning strategies

MSL R – Motivated strategies for learning: rehearsal

MSL E – Motivated strategies for learning: elaboration

MSL O – Motivated strategies for learning: organisation

MSL CT – Motivated strategies for learning: critical thinking

MSL Meta – Motivated strategies for learning: metacognitive self-regulation

MSL Eny – Motivated strategies for learning: environment management

MSL ER – Motivated strategies for learning: effort regulation

MSL PR – Motivated strategies for learning: peer learning

MSL HS – Motivated strategies for learning: help seeking

Tables 6.33 and 6.34 represent the significant correlations between confounding variables (age, gender, ethnicity, psychosocial childhood wellness and psychosocial present situation) and the dependent variable (academic performance).

Table 6.33: Pearson correlation values

		AP	A	G	E	PSY C	PSY P	FTP	MSL IM	MSL EM	MSL Task	MSL LB	MSL SE	MSL TA	MSL R	MSL E	MSL O	MSL CT	MSL Meta	MSL Env	MSL ER	MSL PR	MSL HS
Pearson's correlation	AP	1.000	.017	-.013	.236	-.059	-.100	.113	.033	-.045	.065	.176	.274	-.220	-.017	.099	.109	.035	.120	.156	.327	-.014	.004
	A	.017	1.000	-.109	-.163	.112	.004	.088	-.044	-.034	-.001	-.090	.000	.007	-.054	-.087	-.007	-.078	.034	-.107	-.024	-.107	-.085
	G	-.013	-.109	1.000	-.152	-.030	-.060	.090	-.018	.083	-.108	-.129	-.156	.159	.096	.108	.124	-.099	.067	.022	.062	.114	.210
	E	.236	-.163	-.152	1.000	-.264	-.223	.143	.093	-.207	-.127	.180	.069	-.061	.020	-.020	.047	-.014	.012	.143	.072	-.145	.038
	PSY C	-.059	.112	-.030	-.264	1.000	.517	-.111	-.049	.014	-.049	.010	-.089	.121	-.016	-.050	-.119	.018	-.127	-.125	-.156	-.094	-.096
	PSY P	-.100	.004	-.060	-.223	.517	1.000	-.175	-.048	.056	-.009	.032	-.135	.229	-.012	.003	-.143	.062	-.081	-.149	-.161	-.086	-.070
	FTP	.113	.088	.090	.143	-.111	-.175	1.000	.235	.112	.236	.108	.129	-.006	.274	.369	.452	.281	.520	.524	.486	.117	.136
	MSL IM	.033	-.044	-.018	.093	-.049	-.048	.235	1.000	.399	.643	.560	.519	.111	.259	.407	.365	.433	.477	.149	.263	.281	.120
	MSL EM	-.045	-.034	.083	-.207	.014	.056	.112	.399	1.000	.507	.251	.356	.349	.280	.373	.326	.307	.366	.043	.148	.266	.136
	MSL Task	.065	-.001	-.108	-.127	-.049	-.009	.236	.643	.507	1.000	.573	.614	.081	.216	.449	.356	.324	.449	.229	.327	.277	.116
	MSL LB	.176	-.090	-.129	.180	.010	.032	.108	.560	.251	.573	1.000	.665	.036	.114	.180	.140	.202	.210	.041	.095	.080	.027
	MSL SE	.274	.000	-.156	.069	-.089	-.135	.129	.519	.356	.614	.665	1.000	-.133	.193	.305	.257	.306	.338	.110	.245	.193	.035
	MSL TA	-.220	.007	.159	-.061	.121	.229	-.006	.111	.349	.081	.036	-.133	1.000	.173	.011	.031	.057	-.019	-.085	-.192	.061	.017
	MSL R	-.017	-.054	.096	.020	-.016	-.012	.274	.259	.280	.216	.114	.193	.173	1.000	.526	.585	.388	.557	.350	.338	.366	.359
	MSL E	.099	-.087	.108	-.020	-.050	.003	.369	.407	.373	.449	.180	.305	.011	.526	1.000	.657	.588	.713	.352	.461	.411	.337
	MSL O	.109	-.007	.124	.047	-.119	-.143	.452	.365	.326	.356	.140	.257	.031	.585	.657	1.000	.491	.724	.499	.482	.385	.322
	MSL CT	.035	-.078	-.099	-.014	.018	.062	.281	.433	.307	.324	.202	.306	.057	.388	.588	.491	1.000	.520	.232	.187	.389	.214
	MSL Meta	.120	.034	.067	.012	-.127	-.081	.520	.477	.366	.449	.210	.338	-.019	.557	.713	.724	.520	1.000	.522	.527	.460	.397
	MSL Env	.156	-.107	.022	.143	-.125	-.149	.524	.149	.043	.229	.041	.110	-.085	.350	.352	.499	.232	.522	1.000	.539	.220	.329
	MSL ER	.327	-.024	.062	.072	-.156	-.161	.486	.263	.148	.327	.095	.245	-.192	.338	.461	.482	.187	.527	.539	1.000	.191	.227
	MSL PR	-.014	-.107	.114	-.145	-.094	-.086	.117	.281	.266	.277	.080	.193	.061	.366	.411	.385	.389	.460	.220	.191	1.000	.617
	MSL HS	.004	-.085	.210	.038	-.096	-.070	.136	.120	.136	.116	.027	.035	.017	.359	.337	.322	.214	.397	.329	.227	.617	1.000

This table is used in section 6.5.2.6 to test for the assumption of multicollinearity.

Table 6.34: Significance of correlation coefficients between academic performance, confounding variables and independent variables

		AP	A	G	E	PSY C	PSY P	FTP	MSL IM	MSL EM	MSL Task	MSL LB	MSL SE	MSL TA	MSL R	MSL E	MSL O	MSL CT	MSL Meta	MSL Env	MSL ER	MSL PR	MSL HS
Sig. (1-tailed)	AP	.	.409	.431	.001	.212	.090	.064	.328	.273	.191	.009	.000	.001	.409	.090	.071	.321	.054	.017	.000	.427	.477
	A	.409	.	.072	.014	.066	.476	.119	.277	.324	.492	.114	.499	.463	.236	.121	.463	.146	.322	.075	.375	.074	.127
	G	.431	.072	.	.020	.343	.210	.113	.404	.133	.073	.041	.018	.016	.098	.072	.047	.092	.185	.384	.200	.062	.002
	E	.001	.014	.020	.	.000	.001	.027	.105	.002	.043	.007	.177	.208	.394	.397	.265	.425	.437	.027	.166	.025	.303
	PSY C	.212	.066	.343	.000	.	.000	.067	.256	.425	.253	.447	.116	.051	.417	.253	.054	.403	.043	.046	.017	.104	.097
	PSY P	.090	.476	.210	.001	.000	.	.009	.260	.225	.450	.332	.034	.001	.434	.482	.027	.201	.138	.022	.015	.124	.173
	FTP	.064	.119	.113	.027	.067	.009	.	.001	.066	.001	.073	.040	.468	.000	.000	.000	.000	.000	.000	.000	.058	.033
	MSL IM	.328	.277	.404	.105	.256	.260	.001	.	.000	.000	.000	.000	.068	.000	.000	.000	.000	.000	.022	.000	.000	.053
	MSL EM	.273	.324	.133	.002	.425	.225	.066	.000	.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.284	.023	.000	.033
	MSL Task	.191	.492	.073	.043	.253	.450	.001	.000	.000	.	.000	.000	.138	.002	.000	.000	.000	.000	.001	.000	.000	.059
	MSL LB	.009	.114	.041	.007	.447	.332	.073	.000	.000	.000	.	.000	.314	.062	.007	.029	.003	.002	.292	.100	.141	.358
	MSL SE	.000	.499	.018	.177	.116	.034	.040	.000	.000	.000	.000	.	.036	.005	.000	.000	.000	.000	.069	.000	.004	.318
	MSL TA	.001	.463	.016	.208	.051	.001	.468	.068	.000	.138	.314	.036	.	.010	.441	.337	.224	.399	.125	.005	.207	.410
	MSL R	.409	.236	.098	.394	.417	.434	.000	.000	.000	.002	.062	.005	.010	.	.000	.000	.000	.000	.000	.000	.000	.000
	MSL E	.090	.121	.072	.397	.253	.482	.000	.000	.000	.000	.007	.000	.441	.000	.	.000	.000	.000	.000	.000	.000	.000
	MSL O	.071	.463	.047	.265	.054	.027	.000	.000	.000	.000	.029	.000	.337	.000	.000	.	.000	.000	.000	.000	.000	.000
	MSL CT	.321	.146	.092	.425	.403	.201	.000	.000	.000	.000	.003	.000	.224	.000	.000	.000	.	.000	.001	.006	.000	.002
	MSL Meta	.054	.322	.185	.437	.043	.138	.000	.000	.000	.000	.002	.000	.399	.000	.000	.000	.000	.	.000	.000	.000	.000
	MSL Env	.017	.075	.384	.027	.046	.022	.000	.022	.284	.001	.292	.069	.125	.000	.000	.000	.001	.000	.	.000	.001	.000
	MSL ER	.000	.375	.200	.166	.017	.015	.000	.000	.023	.000	.100	.000	.005	.000	.000	.000	.006	.000	.000	.	.005	.001
	MSL PR	.427	.074	.062	.025	.104	.124	.058	.000	.000	.000	.141	.004	.207	.000	.000	.000	.000	.000	.001	.005	.	.000
	MSL HS	.477	.127	.002	.303	.097	.173	.033	.053	.033	.059	.358	.318	.410	.000	.000	.000	.002	.000	.000	.001	.000	.

This table highlights multifaceted relations between all variables. The reader should note that only relations pertaining to the hypotheses and the confounding variables are taken into consideration for this thesis. We abide by the finding of Kerlinger (1986:289) who states that confounding variables concern the effect on the dependent variable.

Table 6.35 A: Correlation matrix containing (Pearson values, significance and sample size) **all correlations with academic performance, motivated strategies of learning and time perspectives**

		AP	PSY:C	PSY: P	MSL: M T	MSL:IM	MSL:EM	MSL:Task	MSL:LB	MSL:SE	MSL:TA	MSL:LS	MSL:R	MSL:E	MSL:O
AP	r	1	-.037	-.118	.067	.003	-.069	.043	.140	.260	-.223	.151	-.013	.133	.146
	sig		.604	.097	.344	.969	.331	.549	.049	.000	.001	.032	.858	.061	.039
	N	200	200	200	200	200	200	200	200	200	200	200	200	200	200
PSY:C	r		1	.514	-.009	-.059	.012	-.030	-.002	-.070	.126	-.130	-.025	-.060	-.108
	sig			.000	.900	.405	.861	.670	.979	.326	.076	.066	.728	.403	.129
	N		200	200	200	200	200	200	200	200	200	200	200	200	200
PSY: P	r			1	.031	-.038	.059	-.007	.025	-.128	.265	-.134	-.038	-.033	-.162
	sig				.665	.596	.405	.924	.721	.070	.000	.058	.595	.645	.022
	N			200	200	200	200	200	200	200	200	200	200	200	200
MSL:M T	r				1	.743	.636	.823	.747	.777	.313	.384	.272	.384	.315
	sig					.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N				200	200	200	200	200	200	200	200	200	200	200
MSL:IM	r					1	.390	.617	.559	.486	.110	.418	.248	.378	.313
	sig						.000	.000	.000	.000	.121	.000	.000	.000	.000
	N					200	200	200	200	200	200	200	200	200	200
MSL:EM	r						1	.482	.226	.334	.340	.332	.292	.352	.293
	sig							.000	.001	.000	.000	.000	.000	.000	.000
	N						200	200	200	200	200	200	200	200	200
MSL:Task	r							1	.564	.610	.050	.418	.190	.425	.323
	sig								.000	.000	.479	.000	.007	.000	.000
	N							200	200	200	200	200	200	200	200
MSL:LB	r								1	.635	.030	.177	.100	.177	.129
	sig									.000	.669	.012	.159	.012	.068
	N								200	200	200	200	200	200	200
MSL:SE	r									1	-.161	.303	.165	.289	.243
	sig										.022	.000	.019	.000	.001

	N									200	200	200	200	200	200
MSL:TA	r sig N										1 200	-.040 .577 200	.156 .027 200	-.014 .840 200	.013 .854 200
MSL:LS	r sig N											1 200	.679 .000 200	.804 .000 200	.792 .000 200

		AP	PSY:C	PSY:P	MSL:M T	MSL:IM	MSL:EM	MSL:Task	MSL:LB	MSL:SE	MSL:TA	MSL:LS	MSL:R	MSL:E	MSL:O
MSL:R	r sig N												1 200	.522 .000 200	.562 .000 200
MSL:E	r sig N													1 200	.649 .000 200
MSL: O	r sig N														1 200
MSL:CT	r sig N														
MSL: Meta	r sig N														
MSL: Env	r sig N														
MSL: ER	r sig N														
MSL:PR	R Sig N														
MSL:HS	R Sig N														

The correlation matrix include interrelationships between the dependent variable and confounding variables which are not intercepted by the hypotheses of the research, therefore the following table will report on variables correlated to the dependant variable.

Table 6.35 B: Correlation matrix containing correlations between academic performance, confounding variables, psycho-social wellbeing, motivated strategies of learning and time perspectives.

		MSL:CT	MSL:Meta	MSL:Env	MSL:ER	MSL:PR	MSL:HS	MSL:TOT	TP:PN	TP:PH	FTP	TP:PP	TP:PF
AP	r	.025	.143	.159	.331	-.008	.031	.141	-.038	-.059	.120	.052	-.127
	sig	.721	.043	.024	.000	.911	.661	.046	.594	.404	.090	.463	.072
	N	200	200	200	200	200	200	200	200	200	200	200	200
PSY:C	r	.016	-.128	-.143	-.174	-.085	-.097	-.099	.234	.002	-.129	-.478	.157
	sig	.825	.071	.044	.014	.234	.173	.162	.001	.976	.069	.000	.026
	N	200	200	200	200	200	200	200	200	200	200	200	200
PSY: P	r	.051	-.117	-.163	-.195	-.097	-.102	-.084	.426	.063	-.199	-.398	.261
	sig	.476	.098	.021	.006	.172	.149	.239	.000	.374	.005	.000	.000
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:M T	r	.375	.400	.108	.198	.252	.072	.739	.171	.025	.177	-.021	-.088
	sig	.000	.000	.129	.005	.000	.310	.000	.015	.726	.012	.770	.214
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:IM	r	.430	.441	.144	.246	.267	.093	.645	.070	.102	.235	.089	-.017
	sig	.000	.000	.042	.000	.000	.189	.000	.326	.149	.001	.209	.814
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:EM	r	.270	.339	.044	.137	.234	.121	.533	.184	.108	.115	.075	-.055
	sig	.000	.000	.532	.054	.001	.087	.000	.009	.127	.105	.291	.443
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:Task	r	.319	.424	.219	.303	.252	.101	.682	.013	-.066	.219	.014	-.171
	sig	.000	.000	.002	.000	.000	.155	.000	.851	.351	.002	.840	.015
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:LB	r	.230	.201	.040	.090	.086	.019	.472	.095	.023	.108	.039	-.112
	sig	.001	.004	.571	.207	.229	.786	.000	.182	.751	.128	.588	.115
	N	200	200	200	200	200	200	200	200	200	200	200	200

MSL:SE	r	.289	.324	.118	.241	.176	.018	.577	.041	-.043	.102	-.044	-.130
	sig	.000	.000	.096	.001	.013	.803	.000	.563	.548	.151	.540	.066
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:TA	r	.030	-.054	-.136	-.221	.043	-.009	.115	.318	.064	-.015	-.158	.152
	sig	.671	.446	.056	.002	.548	.897	.106	.000	.365	.836	.026	.031
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:LS	r	.625	.889	.641	.613	.620	.591	.906	-.038	.113	.513	.196	-.112
	sig	.000	.000	.000	.000	.000	.000	.000	.591	.111	.000	.005	.113
	N	200	200	200	200	200	200	200	200	200	200	200	200

		MSL:CT	MSL:Meta	MSL:Env	MSL:ER	MSL:PR	MSL:HS	MSL:TOT	TP:PN	TP:PH	FTP	TP:PP	TP:PF
MSL:R	r	.373	.555	.328	.332	.371	.374	.620	.161	.161	.284	.130	.000
	sig	.000	.000	.000	.000	.000	.000	.000	.023	.023	.000	.066	.996
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:E	r	.571	.717	.352	.468	.400	.340	.763	.055	.176	.380	.218	-.112
	sig	.000	.000	.000	.000	.000	.000	.000	.435	.013	.000	.002	.116
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL: O	r	.462	.716	.469	.463	.383	.331	.722	-.023	.115	.423	.141	-.115
	sig	.000	.000	.000	.000	.000	.000	.000	.748	.104	.000	.046	.104
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL:CT	r	1	.503	.216	.181	.396	.217	.628	.136	.225	.267	.139	.188
	sig		.000	.002	.010	.000	.002	.000	.055	.001	.000	.050	.008
	N	200	200	200	200	200	200	200	200	200	200	200	200
MSL: Meta	r		1	.508	.528	.458	.399	.833	-.045	.069	.517	.130	-.146
	sig			.000	.000	.000	.000	.000	.526	.328	.000	.066	.040
	N		200	200	200	200	200	200	200	200	200	200	200
MSL: Env	r			1	.540	.183	.304	.518	-.229	-.112	.517	.151	-.174
	sig				.000	.010	.000	.000	.001	.113	.000	.033	.014
	N			200	200	200	200	200	200	200	200	200	200
MSL: ER	r				1	.177	.222	.538	-.099	.027	.489	.124	-.267
	sig					.012	.002	.000	.164	.699	.000	.081	.000
	N				200	200	200	200	200	200	200	200	200
MSL:PR	r					1	.616	.568	-.015	.085	.097	.084	-.055
	sig						.000	.000	.833	.229	.174	.238	.441
	N					200	200	200	200	200	200	200	200
MSL:HS	r						1	.464	-.102	.043	.142	.125	.010
	sig							.000	.152	.549	.045	.077	.887
	N						200	200	200	200	200	200	200

MSL:TOT S	r sig N							1 200	.051 .477 200	.094 .185 200	.455 .000 200	.133 .060 200	-.123 .084 200

		MSL:CT	MSL:Meta	MSL:Env	MSL:ER	MSL:PR	MSL:HS	MSL:TOT	TP:PN	TP:PH	FTP	TP:PP	TP:PF
TP: PN	r sig N								1 200	.228 .001 200	-.106 .134 200	-.188 .008 200	.445 .000 200
TP: PH	r sig N									1 200	-.071 .320 200	.207 .003 200	.423 .000 200
FTP	r sig N										1 200	.241 .001 200	-.357 .000 200
TP: PP	r sig N											1 200	-.011 .881 200
TP: PF	r sig N												1 200

In order to make the correlation matrix more reader-friendly it has been subdivided to contain only variables which are significantly related.

Variables which are significantly related to the dependent variable (academic performance) and the Pearson value of each correlation are reported. Future time perspective (independent variable) and the dependent variable related to this factor are also reported (significance and Pearson's correlation).

Variables significantly related to the dependent variable (academic performance)

Table 6.36 A: Relationship between academic performance and self- regulated learning (scores on the MSLQ)

Variable	Variable	Significance	Pearson's correlation
Academic performance	MSL: TOT	0.046	0.141
Academic performance	MSL: SE	0.000	0.26
Academic performance	MSL: TA	0.001	-0.223
Academic performance	MSL: LS	0.032	0.151
Academic performance	MSL: O	0.039	0.146
Academic performance	MSL: Meta	0.043	0.143
Academic performance	MSL: Env	0.024	0.159
Academic performance	MSL: ER	0.000	0.331

Table 6.36 B: Relationship between academic performance and Future Time Perspective

Variable	Variable	Significance	Pearson's correlation
Academic performance	FTP	0.064	0.120

Table 6.36 C: Relationship between Future Time Perspective and SRL (Scores on the MSLQ)

Variable	Variable	Significance	Pearson's correlation
FTP	MSL: TOT	0.000	0.455
FTP	MSL: MT	0.012	0.177
FTP	MSL: IM	0.001	0.235
FTP	MSL: Task	0.002	0.219

FTP	MSL: HS	0.045	0.142
FTP	MSL: ER	0.000	0.489
FTP	MSL: Eny	0.000	0.517
FTP	MSL: Meta	0.000	0.517
FTP	MSL: CT	0.001	0.267
FTP	MSL: O	0.000	0.423
FTP	MSL: E	0.000	0.380
FTP	MSL: R	0.000	0.284
FTP	MSL: LS	0.000	0.513

Table 6.36 D: Relationship between academic performance and confounding variables

Variable	Variable	Significance	Pearson's correlation
Academic performance	Ethnicity	0.001	0.236

The following are the results obtained from Tables 6.36 A, B, C & D. (Negative correlations were handled separately)

Variables that are significantly correlated are the following:

1. Academic performance (N = 200) correlates significantly and positively with the following SLR dimensions and total scores on the MSLQ:

- Total scale MSLQ (p=0.046 < 0.05; 0.141);
- Self-efficacy (p=0.000 < 0.05; 0.26);
- Learning strategies (p=0.032 < 0,05; 0.151);
- Organisation (p=0.039 < 0.05; 0.146);
- Metacognitive self-regulation (p=0.043 < 0.05; 0.143);
- Environment management (p=0.024 < 0.05; 0.159);
- Effort regulation (p=0.000 < 0.05; 0.159).

The findings of this study (correlation analysis) revealed that SRL, as measured by the MSLQ, is significantly related to academic performance. However, a further analysis revealed that that the dimension (above) contributes to this relationship. Therefore this result would seem to indicate that students using dimensions of SRL improve their academic performance (see section 2.3.3)

Although the total of MSLQ was statistically significantly related to AP in the correlation matrix, this variable was not entered into the later done regression analysis to prevent multicollinearity. Looking at the contribution of the sub-dimensions to this result the following should be mentioned:

Self-efficacy is defined in terms of individuals' perceived capabilities to attain designated-type performances and to achieve specific results (see section 2.12.2). Self-efficacy is also very sensitive to several other contextual factors such as one's own motivation, thought processes, affective states and actions, and changing environments (Pajares, 1996:546). Self-efficacy's prediction of academic performance can be attributed to factors such as student activity choices, effort, persistence and emotional reactions which are influenced by self-efficacy. Self-efficacy can therefore be responsible for the improvement in students' methods of learning and academic performance (Zimmerman, 2000:89).

Learning strategies include cognitive, metacognitive and resource management strategies which students can use to improve their academic performance (see section 2.14).

Organisation forms part of cognitive strategies to enable the selection of the main idea and can be applied to recall, comprehend and understand information (see section 2.13.1).

Metacognitive strategies (Pintrich, 1999:461; Winne, 1996:330) (see section 2.13.2) consist of planning or the setting of goals, monitoring or self-teaching and regulation or rereading, modifying of cognition and giving feedback on the progress made in learning and the reaching of academic outcomes. Different studies (Brackney & Karabenick, 1995:463; Elliot, McGregor & Gable, 1999:559) found that

the application of metacognitive and motivational study strategies were positive predictors of academic performance.

By taking charge of the **environment** self-regulating learners can use their environment to contribute to their learning process (see section 2.14).

Effort regulation or volition (Chen, 2002:14; Zimmerman, 1990:11) refers to the ability to deal with failure, to persist in academic activities, and to build a resiliency to setbacks. Students who regulate their effort show a tendency to maintain focus and effort despite distractions. Participating students reported that they were able to concentrate and keep on studying even if the learning content is uninteresting. Effort regulation is often related to motivation and can be viewed as an action control strategy and commitment to achieve one's study goals and to control the energy to achieve them. Effort regulation can therefore indicate a strong predictor of academic performance.

All of the abovementioned strategies form part of self-regulated learning strategies (Zimmerman, 1989) which students can apply in learning.

2. Academic performance (N = 200) is significantly (0.001 < 0.05) and negatively (-.223) related to **test anxiety**. The negative correlation indicates that students with a high academic performance have low test anxiety.

According to literature (Hunsley, 1985:680), there is a general agreement – and it was confirmed by this study – that test anxiety is associated with low academic performance. Test anxiety leads to poor conceptualisation and limits the student's ability to retrieve information (Cassady & Johnson, 2002:291) during the test. Culler and Holahan (1980:18) found that poor study or learning habits could result in high levels of test anxiety.

3. Although academic performance and the total of **future time perspective** was not significantly related (was related at the 0.91 interval.), results revealed that the

FTP was the most dominant time orientation amongst respondents. This aligns with students being goal setters, high in motivation and having a sense of purpose.

4. Regarding the relation between the **MSLQ scores** and **future time perspective,** most of the dimensions of the MSLQ were statistically significantly related to future time perspective. Future time perspective (N = 200) was significantly and positively related to the following dimensions of the MSLQ:
    - motivated strategies of learning total scale (0.000 < 0.05; 0.455);
    - motivation (0.012 < 0.05; 0.177);
    - intrinsic goal orientation (0.001 < 0.05; 0.235);
    - task value (0.002 < 0.05);
    - help seeking (0.045 < 0.05; 0.142);
    - effort regulation (0.000 < 0.05; 0.489);
    - environment management (0.000 < 0.05; 0.517);
    - metacognitive self-regulation (0.000 < 0.05; 0.517);
    - critical thinking (0.001 < 0.05; 0.225);
    - organisation (0.000 < 0.05; 0.423);
    - elaboration (0.000 < 0.05; 0.380);
    - rehearsal (0.000 < 0.05; 0.284); and
    - learning strategies (0.000 < 0.05; 0.513).

Students who are future-orientated (Hilpert et al., 2012:230) are characterised by planning for and the achievement of future goals, and having a sense of purpose. The behaviour of the individual is therefore influenced, motivated and directed by a future time perspective. The results of this study revealed that EKN 214 students with a future time perspective are motivated and intrinsic goal-orientated. The correlations

also indicate that students with a future time perspective engage in self-regulated strategies such as help seeking, effort regulation, environment management, metacognitive self-regulation, critical thinking, organisation, elaboration, rehearsal and the use of learning strategies.

6.5.2 Multiple or hierarchical regression

This section reports on the analysis of the effect of confounding and independent variables on the dependent variable (academic performance) during which multiple or hierarchical regression was used.

Before applying hierarchical regression certain assumptions of the data set had to be scrutinised for validating the statistical assumptions for regression analysis.

6.5.2.1 Assumptions for hierarchical or multiple regressions

When the assumptions of the multiple regression models are violated the performance of the model will be poor. The following assumptions of multiple regressions were tested to determine any violations and to make the necessary corrections.

SPSS (a software package for statistical analysis in social sciences) provided the output to check for outliers, leverage points, influential points and assessed the following assumptions:

- a Durbin-Watson statistic to assess for independence of residuals;
- scatter plots and partial regression plots to determine linearity;
- a single scatter plot to assess homoscedasticity;
- correlation coefficients and tolerance values to assess for multicollinearity; and
- a histogram to assess for normal distribution (ERIC, 2002:1–3; Myers, 1990:82).

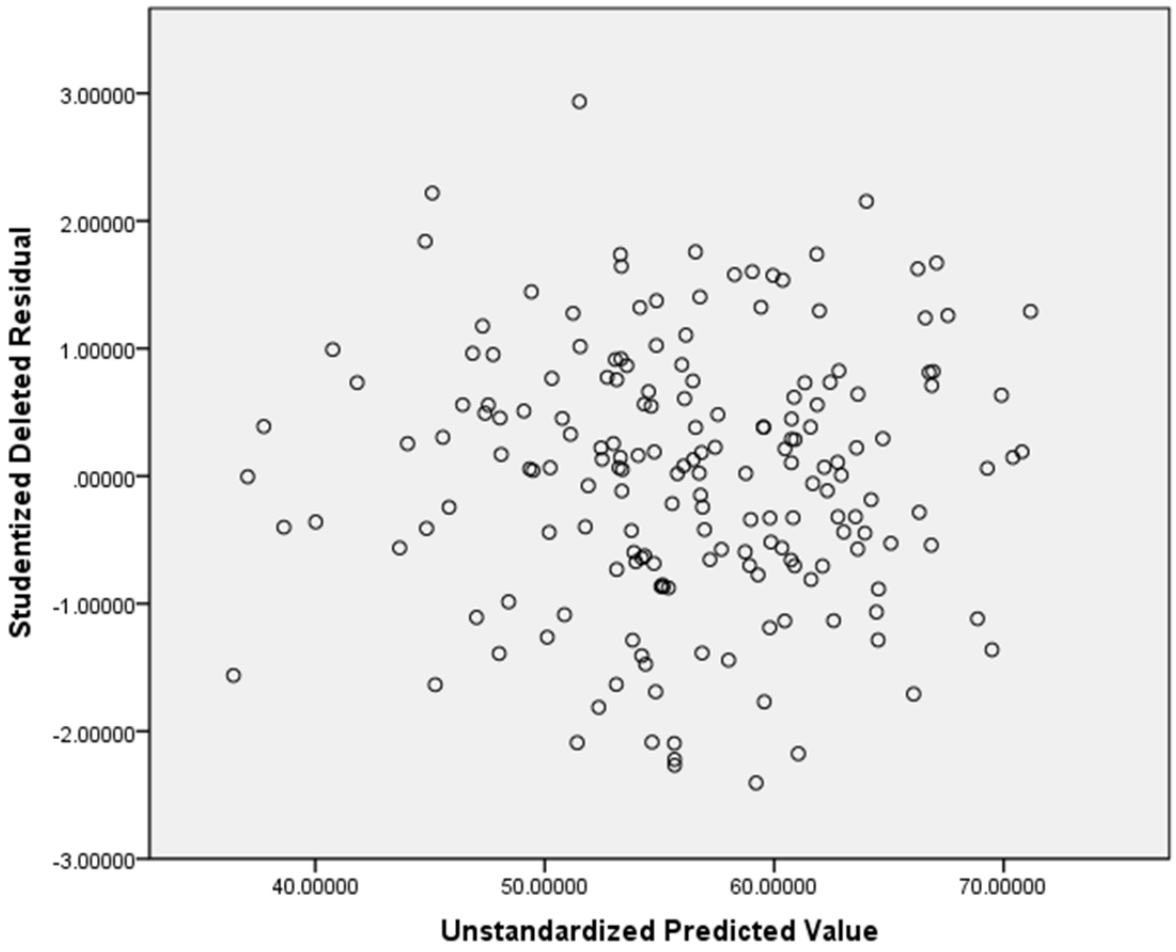
6.5.2.2 Assumption tested: independence of observations

There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.176 (see Table 6.37). A value of approximately 2 indicates no correlation between residuals. The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule, the residuals are uncorrelated if the Durbin-Watson statistic is approximately 2. A value close to 0 indicates a strong positive correlation, while a value of 4 indicates a strong negative correlation between dimensions (Montgomery, Peck & Vining, 2001; Verbeek, 2004).

6.5.2.3 Assumption tested: Checking for a linear relationship 1

Are the independent variables collectively linearly related to the dependent variable? An assumption of multiple linear regressions (Dielman, 2005:134) is that the independent variables collectively are linearly related to the dependent variable and also that each independent variable is linearly related to the dependent variable. If the relationship is non-linear, regression analysis will underestimate the true relationship between variables. Multiple regressions can accurately estimate the relationship between dependent and independent variables when the relationship is linear.

Scatter plot 6.1: Checking for a linear relationship



Due to the horizontal band formed by the residuals in the scatter plot 6.1 above, we can assume that the relationship between the dependent variable and independent variables (collectively) is linear.

6.5.2.4 Assumption tested: Checking for a linear relationship 2

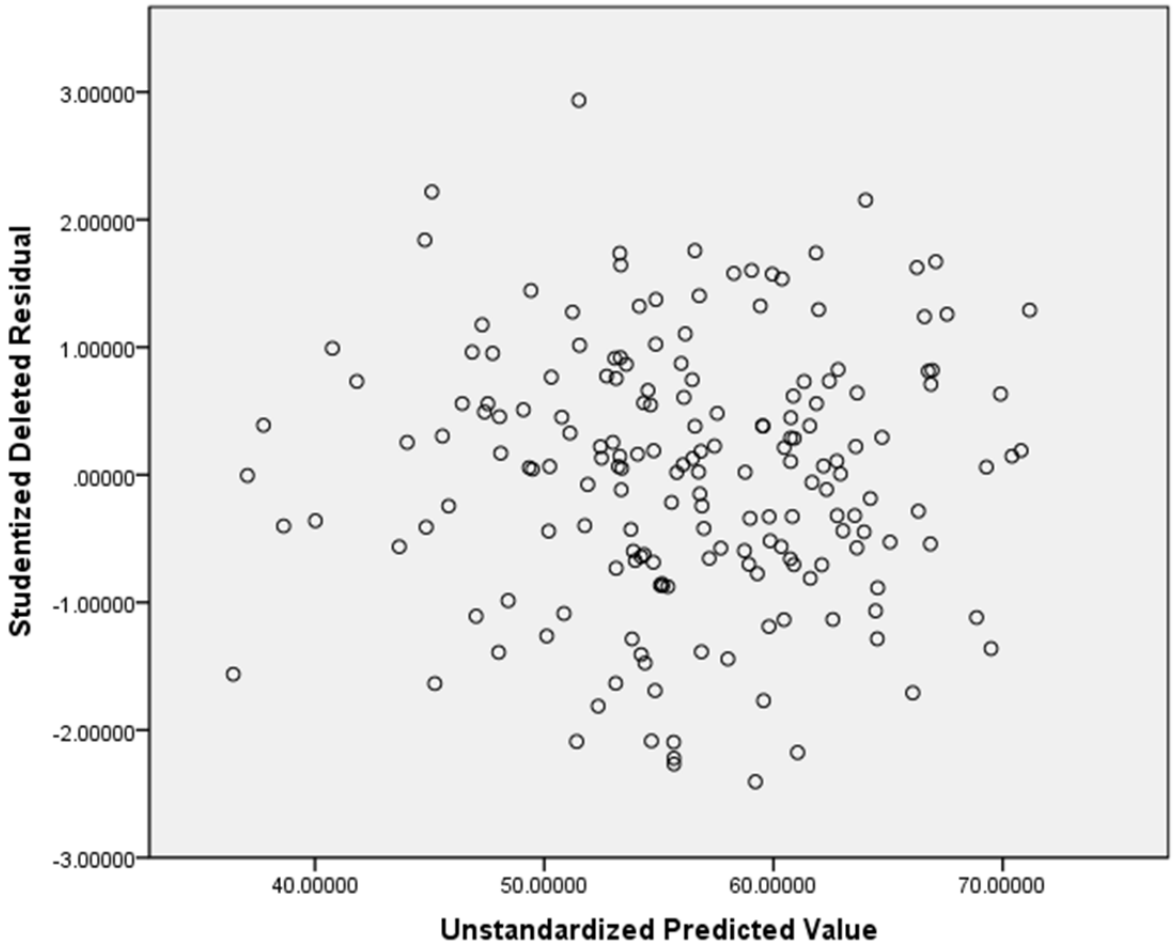
Are each of the independent variables linearly related to the dependent variable (categorical variables excluded)? There was no indication of non-linear relationships between any of the independent variables and the dependent variable.

6.5.2.5 Assumption tested: Checking for homoscedasticity

The assumption for homoscedasticity (Woolridge, 2006:56) is made where the residuals are equal for all values of the predicted dependent variable.

Homoscedasticity therefore measures the variance of errors across all levels of the independent variable. Variance in errors indicates heteroscedasticity, and will lead to the distortion of findings and weaken the analysis. A scatter plot is used to determine if there is homoscedasticity. If the spread does not increase or decrease as you move across the predicted values homoscedasticity is indicated.

Scatter plot 6.2: Checking for homoscedasticity



This assumption appears not to have been violated; there is homoscedasticity.

6.5.2.6 Assumption tested: Checking for multicollinearity

Multicollinearity (Dielman, 2005:161) occurs when two or more independent variables are highly correlated with each other with a Pearson value which is higher than 0.7 (see section 6.5.1). This creates problems with understanding which variable

contributes to the variance explained by the independent variables. High correlations among the explanatory variables may result in unstable estimates of regression coefficients. Table 6.33 indicates that the assumption of multicollinearity is not being violated. High correlations did exist between motivated strategies of learning (metacognitive regulation and elaboration) as well as organisation, but all tolerance values were greater than 0.1.

6.5.2.7 Assumption tested: Checking for outliers

There were no cases for which the standardised residuals or the studentised deleted residuals were greater than ±3 standard deviations. Thus, this dataset does not have any problems with outliers.

6.5.2.8 Assumption tested: Checking for leverage points

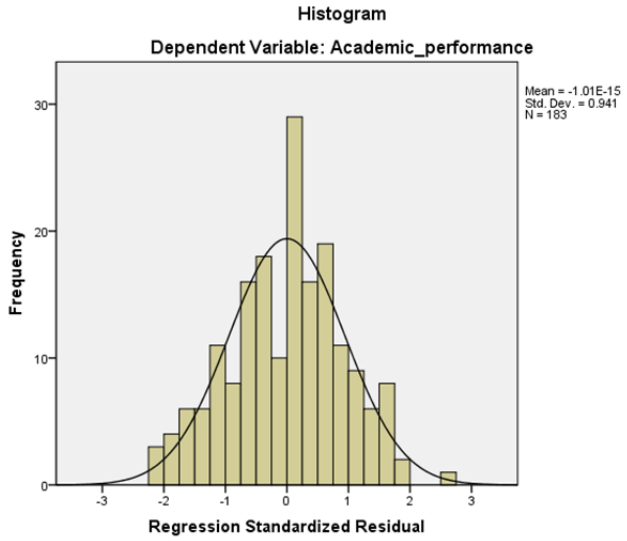
For leverage points, the LEV_1 variable created by SPSS was checked. Cases with values lower than 0.2 are considered safe, 0.2 to lower than 0.5 are risky, and above 0.5 are dangerous. In this dataset, there were a number of cases which had leverage points of higher than 0.2, but lower than 0.5. These cases are risky, but not dangerous, and are therefore not be deleted from the dataset at this point.

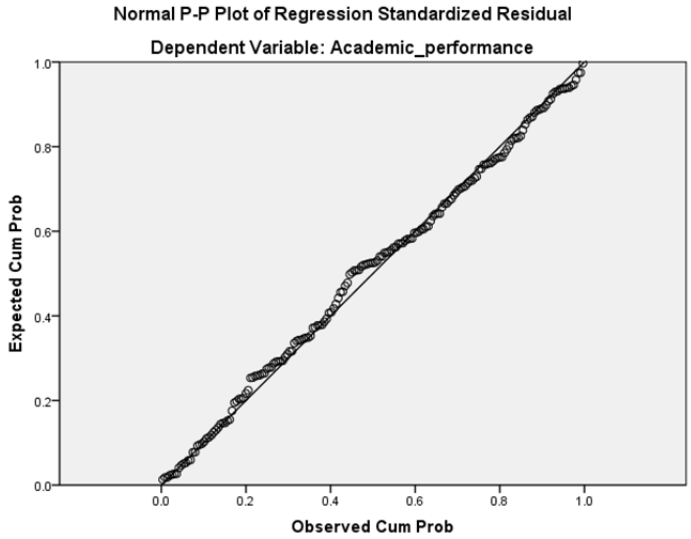
6.5.2.9 Assumption checked: Checking for influential points

For influential points, the COO_1 variable created by SPSS was checked. This variable represents Cook's distance values for each case, which is a measure of influence. A Cook's distance value above 1 should be investigated. In this dataset, there were no Cook's distance values above 1, thus influential points were not a problem.

6.5.2.10 Assumption checked: Checking for normality

Normal distribution refers to the distribution of the scores on the dependent variable. A normal distribution is symmetrical and bell-shaped.





In order to be able to run inferential statistics, the errors in prediction the residuals need to be approximately normally distributed. In the histogram and P-P Plot above, it can be seen that the standardised residuals appear to be approximately normally distributed. The assumption of normality has thus not been violated.

6.5.3 Hierarchical regression model

Hierarchical regression (see section 5.8) or multiple regression was used to understand the predicted effect of an independent variable or set of independent variables on a dependent variable when confounding variables have been accounted for. The potential confounding variables gender, ethnicity and age were entered into the model firstly. Secondly, the scores of the respondents on the psychosocial

wellbeing during childhood and, thirdly, the scores of the present psychosocial situation of the students were entered. Fourthly, the future time perspective sub-dimension scores and the SRL sub-dimension scores were entered into the final model. As indicated in section 5.8, the hierarchical model was used to assess the contributions made by each independent variable in predicting the dependent variable. Each additional independent variable has a unique role in explaining the variance of the dependent variable, in this study the academic performance of EKN 214 students.

Table 6.37 describes four regression models which are labelled –

- model 1: containing gender, ethnicity and age;
- model 2: containing the psychosocial childhood wellness of students:
- model 3: containing the present psychosocial wellness; and
- model 4: containing the future time perspective sub-dimension scores and the SRL sub-dimension scores.

The hierarchical model requires the determination of R squared and the partial coefficients of each variable at the point at which it is added to the equation (Cohen & Cohen, 1975:2).

Table 6.37: Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate	Change Statistics					Durbin-Watson
					R square change	F change	df1	df2	Sig. F change	
1	.245	.060	.044	13.202	.060	3.806	3	179	.011	
2	.245	.060	.039	13.239	.000	.000	1	178	.991	
3	.250	.062	.036	13.259	.003	.478	1	177	.490	
4	.521	.272	.177	12.253	.209	2.890	16	161	.000	2.176

Table 6.37 presents the model summary of the multiple regression indicating the R square values as well as the significant values of the model.

Table 6.38: ANOVA

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	1990.090	3	663.363	3.806	.011
	Residual	31200.238	179	174.303		
	Total	33190.328	182			
2	Regression	1990.113	4	497.528	2.838	.026
	Residual	31200.215	178	175.282		
	Total	33190.328	182			
3	Regression	2074.180	5	414.836	2.360	.042
	Residual	31116.148	177	175.797		
	Total	33190.328	182			
4	Regression	9017.101	21	429.386	2.860	.000
	Residual	24173.227	161	150.144		
	Total	33190.328	182			

Table 6.38 summarises the ANOVA which is part of the multiple regression indicating significant values.

A hierarchical multiple regression was run (see Tables 6.37 and 6.38) to determine whether the additional effect of past psychosocial wellness of students, followed by present psychosocial wellness of students, and then future time perspective and all of the learning strategies subscales of the Motivated Strategies for Learning Scale improved the prediction of academic performance, over and above the demographic variables age, gender, and ethnicity. As can be seen in the Table 6.37, model 1 (the demographic variables gender, age and ethnicity) were statistically significant predictors of academic performance, adjusted $R^2 = 0.044$, $p = 0.011$, explaining 4.4% of the variance in academic performance. The addition of past psychosocial wellness (model 2) did not lead to a statistically significant increase in R^2, with R^2 change = 0.000, $p = 0.991$. Similarly, the addition of present psychosocial wellness (model 3) also did not lead to a statistically significant increase in R^2, with R^2

change = 0.003, p = 0.490. Thus, past psychosocial wellness did not add significantly to the prediction of academic performance, after controlling for the demographic variables. Similarly, present psychosocial wellness did not add significantly to the prediction of academic performance, after controlling for demographic variables and past psychosocial wellness. The addition of the future time perspective and all dimensions of scale for motivated strategies for learning (model 4) did add significantly to the prediction of academic performance, after controlling for demographic variables, past psychosocial wellness and present psychosocial wellness, with R^2 change = 0.209, p = 0.000. In Table 6.37 it can be seen that the full model (model 4), now consisting of demographics, childhood and present psychosocial wellness, future time perspective, motivated strategies for learning (all sub-dimension scales), did statistically significantly predict academic performance (adjusted R^2 = 0.177, p = 0.000), explaining 17.7% of the variance in academic performance.

It can therefore be concluded that academic performance can be predicted by future time perspective and SRL when controlled for demographics and psychosocial factors.

It will be noted that the significant values between 6.38 and 6.37 which together represent the hierarchical regression, differ. The different significance levels between the model summary and ANOVA are due to the fact that the ANOVA measures the effect of each model on the dependant variable separately. Whereas in the model summary each model combines with its preceding model so that combination effects are measured.

Regarding the overall interpretation of the results the multiple regression is considered a stronger predictor of relations and these results will firstly be used in decision making regarding the acceptance or rejection of the null hypothesis.

6.6 SUMMARY OF RESULTS

According to the correlation analysis, academic performance and self-regulated learning are significantly (0.000 < 0.05) and positively (r = 0.26) correlated. Self-regulated learning and a future time perspective are also significantly (0.000 < 0.05) and positively (0.455) correlated. The multiple regression analysis indicates that self-regulated learning and future time perspective explain 17.7% of the variance in academic performance.

Table 6.39: Summary of hypothesis accepted and rejected

Null hypothesis rejected	**Alternative hypothesis accepted**
H_0a: Self-regulated learning does not predict academic performance in second-year Economics.	H_1a: Self-regulated learning predicts academic performance in second-year Economics.
H_0b: Future time perspective does not predict academic performance in second-year Economics.	H_1b: Future time perspective predicts academic performance in second-year Economics.
H_0c: No relationship exists between self-regulated learning and a future time perspective.	H_1c: A positive relationship exists between self-regulated learning and a future time perspective.

Table 6.39 provides a summary of the hypothesis accepted and rejected. Academic performance is predicted by SRL and the future time perspective (as indicated by multiple regression analysis). SRL and the future time perspective are related (as indicated by the correlation matrix). Regarding the effect of the confounders (age,

gender, and ethnicity, the multiple regression denoted that the three combined had an effect on the dependent variable academic performance. According to the analysis of the correlation matrix ethnicity was the confounder most significantly related to academic performance. The two facets of psycho social wellbeing were not related nor did they predict academic performance.

6.7 CONCLUSION

This chapter presented the analysis and discussion of the results of the study. The two major methods of analyses were correlations and a multiple regression. Cronbach's alpha offered information on the reliability of instruments. Descriptive statistics informed the reader about the sample and analysed the statistics of the different variables. The effect of the confounding variables was related and the acceptance or rejection of the null hypotheses was stated.

Chapter 7 provides the conclusions, limitations and implications of this study.

CHAPTER 7

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

Chapter 1 of this study provided the motivation and background for the research questions and hypothesis. The low pass rate in all Economic undergraduate courses prompted the research question regarding which cognitive and non-cognitive factors predict academic performance in Economics. Literature indicates both cognitive and non-cognitive factors as predictors of academic performance, although non-cognitive factors become more relevant in higher education (Furnham et al., 2009:771). The current study used SRL and future time perspective as non-cognitive factors in assessing their prediction of academic performance.

Chapter 2 comprised a literature review to provide the theoretical basis for SRL as predictor of academic achievement. SRL's relationship with the different traditional and more recent theories of learning was investigated. SRL and concepts of SRL can be related to and associated with a diverse number of learning theories. Behaviourism, cognitivism, constructivism and connectivism provide a strong theoretical foundation for SRL. This chapter further explained how SRL is measured and indicated that the MSLQ would be used to measure SRL in the current study. The application of SRL strategies however depends on the student's preference for specific SRL strategies.

Chapter 3 provided a theoretical basis for future time perspective as predictor of academic achievement. Five different time perspectives were distinguished, namely past negative, past positive, present hedonistic, present fatalistic and a future time perspective. SRL and the future time perspective's relationship with goal setting, motivation and behaviour resulted in the assumption that an individual with a future time orientation would apply SRL strategies, and perform better academically. The Zimbardo Time Perspective Inventory was used to determine the time orientation of the respondents.

Chapter 4 reflected on how students learn Economics and how SRL strategies are being applied in the learning of Economics. The unique character of Economics as science was discussed, indicating the diversity of the subject and its different sub-disciplines. Studying Economics requires general intellectual skills as well as subject-specific skills, such as abstraction, analysis, reasoning, problem solving, decision-making, research, and qualitative and quantitative analysis. The way Economics is taught and assessed plays an important role in determining how students learn Economics. To encourage SRL in Economics, different initiatives relating to the behavioural, cognitive, constructivists and connectivsts' perspectives are proposed for teaching Economics.

Chapter 5 explained the research design and methodology of the study. The research design and methodology provided the framework to answer the research questions and stated hypotheses of the research. This chapter further provided a comprehensive description of the independent variables, the dependent variable and the confounding variables. The measuring instruments used to measure and assess the different variables were discussed in terms of the origin and development of the instruments, previous applications, and the internal and external validity of the measuring instruments. The whole process of collecting the data (how, when and where) and the procedure during the collection of data was explained. A brief explanation of how the results were intended to be analysed in Chapter 6 was provided. The study used univariate and multivariate statistics of the SPSS software package, correlations, Pearson's correlations, and multiple regression to predict the contributions made by the independent variables in predicting the dependent variable. A statement was made to claim the reliability and the internal validity of the study. The external validity was denied because randomization had not been done.

Chapter 6 provided an analysis of the results of the research. The reliability of the measuring instruments was assessed by using Cronbach’s alpha as criterion.

Descriptive statistics were done on the different variables, and the demographical variables of the sample were described and analysed. Inferential statistical analyses were performed by means of a correlation matrix and a multiple regression analysis. Where results differed between the correlation and the regression analyses, the regression results were considered the most valid. In the analysis of the results, the SPSS provided the output to assess the assumptions for multiple regression. After ensuring that the assumptions for multiple regression had not been violated, the multiple or hierarchical regression was conducted.

The alternative hypotheses H_1a, H_1b and H_1c were accepted. The analyses of the confounding variables denoted that ethnicity had a significant effect on the dependent variable.

7.2 FINAL CONCLUSION

Answering the research questions and hypotheses of this study as declared in 1.2, the following conclusions can be made:

- The theoretical basis for self-regulated learning was provided in Chapter 2, and SRL is rooted in and can be related to different learning theories.
- Self-regulating strategies does predict academic performance in EKN 214.
- Future time perspective does predict academic performance in EKN 214.
- Self-regulating strategies and a future time perspective do have a positive relationship in EKN 214.
- Ethnicity, as confounding variable, made a significant contribution to academic performance in EKN 214.

7.3 RECOMMENDATIONS:

This section provides recommendations which resulted from the study.

- Identifying the factors that influence academic performance of students could improve the targeting of interventions and support services of at-risk students' academic problems.
- Measuring dimensions, such as SRL and FTP, makes a major contribution towards the advancement of SRL research and practice.
- Understanding the distinctive features of students' SRL contributes to understanding critical factors of student academic achievement.
- The challenge remains for the integrated learning approach of SRL to be implemented in each academic domain or subject, but especially in Economics.
- Integrating the design of the learning environment and the analysis and formulation of curricula, teaching methods and assessment should be used to encourage and teach students the application of SRL.
- Students must be empowered to become self-regulated learners whereby they proactively set goals, monitor performance processes and outcomes, evaluate their performance, and then make adjustments to improve their performance (Cleary and Zimmerman, 2004:549).
- Lecturers should be aware of the different types of prior knowledge on which students can draw and they should invite students to make use of such knowledge in the specific subject or domain.
- Instructural support should be provided where students are not able to regulate their own learning.

- By creating a powerful learning environment, students should be taught cognitive strategies within a social context.
- Lecturers should communicate goals and expectations and allow students to redefine and formulate their own goals in relation to the set goals.
- Students should also be allowed to have a choice in the application of strategies and time management (Boekaerts, 1997:167, 170, 181).
- Educators of economics are also challenged to expose students to the various SRL strategies and their possibilities in learning economics.
- Complementary to the perspectives offered by the learning theories, assessment and teaching should also be directed to encourage and teach the use of SRL strategies.
- Different interventions need to be designed to bridge the gap between the specific contents of a course and students applying appropriate self-regulated strategies.
- By putting students in a simulated examination or test situation would desensitise them to the anxiety of the examination or test situation.
- Developing SRL strategies and making students more aware of the different SRL strategies that could be applied in learning Economics might enhance their academic performance.

7.4 LIMITATIONS

Learning deals with the behaviour of people and is therefore not regulated by exact laws, but is influenced by a diverse number of variables. The findings of this study can therefore not be applied to different learning environments. Expanding the study by including more students in a variety of year groups and institutions would be more

desirable. The length of the measuring instruments and the time limitation resulted in some of the students not completing the questionnaire.

This study was done only at one institution of higher education and limits the generalisation of the research findings. Comparing results of other related studies could contribute to the verification of the findings of this study.

This study was limited in focusing on the role of different SRL strategies and their effect on academic performance at a specific point in time. The relationship between SRL and academic performance may vary and develop across time.

The focus of this study also limits the generalisation of the findings, as academic achievement can be influenced by numerous cognitive and non-cognitive factors.

7.5 FURTHER RESEARCH

Research on self-regulated learning has advanced significantly in the past few years, and further research is expected to continue. Research on SRL could be expanded in future by combining other dimensions of confounding variables and other learning-related variables of SRL. The study may be used as a framework for further research at other tertiary institutions, with smaller sample groups and comparing different year groups. Further research on the integration of SRL into educational curricula will also contribute broadening of the application of SRL.

Very little previous research on individual differences and self-regulated learning has been done. The influence of different personality traits on self-regulated learning is a field which could still be explored. The big five personality traits (Bidjerano & Dai, 2007:70; Furnham et al., 2009:770; Poropat, 2009:322) namely neuroticism, extraversion, openness to experiences (intellect), agreeableness and conscientiousness, and their relationship with SRL and academic performance provide ample opportunity for further research. The role of cultural and gender differences in SRL is also an unexplored field.

SRL does not develop fully as a natural process, but is mostly developed and learnt from systematic interventions and the teaching of self-regulating skills. Further research on the enhancement of interventions to encourage SRL would teach students how to determine self-regulatory strategies to guide their learning and to adopt new strategies of learning.

7.6 CONCLUSION

In this chapter a comprehensive introduction offered an overview of all chapters. The findings of the study were concluded and recommendations offered to the reader. The limitations were discussed and possible further research was proposed.

It is vital that we encourage and establish a culture of self- regulated learning amongst students at institutions of higher learning.

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APPENDIX A:

CONSENT FORM

Self-regulated learning and time perspective as predictors of academic performance in undergraduate Economics studies.

Declaration by the Participant:

Respondent number										

A I, the undersigned confirm that:

1. I have been asked to participate in the above-mentioned research survey carried out by the University of the Free State (UFS)

2. It has been explained to me that:

2.1 The purpose of the research survey is to collect information on the significant determinants of academic achievement of under-graduate Economics students. The information collected will be used to determine the factors that have significant influence on the performance of students in under-graduate Economics. This will ensure that appropriate support can be developed in order to help students and to improve the pass rate in under-graduate Economics.

2.2 In order to collect this information I have been told that I will be asked a number of questions regarding:

- Biographical details,
- My psycho–social background
- Motivated Strategies of Learning (MSLQ), and
- Time perspective (Zimbardo questionnaire).

2.3 I have been told that this information will be collected from all under-graduate Economic 214 students and I will be asked these questions only once.

2.4 I have been told that it will not take more than 60 minutes to collect the information.

3. It was also explained to me that by participating in this research survey I will help students in under-graduate Economics.

4. It was also explained to me that the information will be kept confidential but that it will be used anonymously for making known the findings to other educationists.

5. I understand that I will have no direct access to the results of the survey but I can contact the researcher who will inform me of the findings.

6. It was also clearly explained to me that I can refuse to participate in this research survey. If I refuse, it will not be held against me in any way.

7. The information in this consent form was explained to me by Mr Keyser in English or Afrikaans and I confirm that I have a good command of this language and understood the explanations. I was also given the opportunity to ask questions on things I did not understand clearly.

8. No pressure was applied for me to take part in this research survey.

B I hereby agree voluntarily to take part in this research survey.

Signed/confirmed at Bloemfontein on .....

....

Signature of Participant Signature of Witness

APPENDIX B:

BIOGRAPHIC INFORMATION OF STUDENTS

		Office use	
STUDENT NUMBER		1-10	

Mark applicable block with **X**

			Office use	
GENDER	1 Male	2 Female	11	
AGE IN YEARS	Years		12	
ETHNIC GROUP	1 Black	2 Coloured	3 Indian Asian	4 White	13	

This instrument was designed to determine in what kind of environment you were raised. And what your situation is regarding your present situation. Please read the questions carefully and answer as truthfully as you can. Rate the given aspects of your life by marking the block that is closest to the description of that aspect.

APPENDIX C:

PSYCHO-SOCIAL BACKGROUND OF STUDENTS: CHILDHOOD YEARS

EMOTIONAL SUPPORT

1. While growing up I experienced

Love and support	1	2	3	4	5	6	Abuse and neglect	14	

2. I grew up being

Part of a family	1	2	3	4	5	6	Missing family love	15	

3. The people in my family were

Caring towards each other	1	2	3	4	5	6	Often fighting and arguing	16	

SOCIO ECONOMIC SITUATION

4. Regarding money we were

Comfortable	1	2	3	4	5	6	In distress	17	

5. The house we lived in was

Big enough	1	2	3	4	5	6	Crowded	18	

6. The neighbourhood we lived in was

Respectable	1	2	3	4	5	6	Not well regarded	19	

ENVIRONMENT CONDUCIVE TO LEARNING

7. The occupation of one or both of my parents or guardian filled me with

Admiration	1	2	3	4	5	6	Disapproval	20	

8. In my family the opportunity to learn something new was regarded as

Important	1	2	3	4	5	6	Not important	21	

9. My parents/ guardian made sure that I had the opportunity to experience books, magazines, dictionaries, TV and videos

Often	1	2	3	4	5	6	Never	22	

10. Regarding my further education my parents guardian

Had high expectations	1	2	3	4	5	6	Were not concerned about my future	23	

DEPRESSION

11. When I was growing up I felt depressed and down

Seldom	1	2	3	4	5	6	Often	24	

12. As a teenager I felt that life was not worth living

Seldom	1	2	3	4	5	6	Often	25	

13. Depression, Anger or drinking was experienced by one of my blood relatives

Seldom	1	2	3	4	5	6	Often	26	

14. I would rate my childhood as

Happy	1	2	3	4	5	6	Unhappy	27	

CHILDHOOD TOTAL

PRESENT SITUATION

15. My financial situation worries me

Disagree	1	2	3	4	5	6	Agree	28	

16. My love life is disappointing or non-existent

Disagree	1	2	3	4	5	6	Agree	29	

17. My family members cause me to worry

Disagree	1	2	3	4	5	6	Agree	30	

18. I often feel depressed

Disagree	1	2	3	4	5	6	Agree	31	

19. I worry that I might contract HIV or AIDS

Disagree	1	2	3	4	5	6	Agree	32	

PRESENT SITUATION TOTAL

QUESTIONNAIRE TOTAL

APPENDIX D:

MOTIVATED STRATEGIES FOR LEARNING

This instrument was designed to assess your motivation, study habits, and learning skills for the course. Read each item and, as honestly as you can, answer the question:
"How characteristic or true is this of you?"

MOTIVATION **Office use**

20. In a class like this, I prefer course material that really challenges me so I can learn new things.

Very Untrue	1	2	3	4	5	6	7	Very true	33	

21. If I study in appropriate ways, then I will be able to learn the material in this course.

Very Untrue	1	2	3	4	5	6	7	Very true	34	

22. When I take a test I think about how poorly I am doing compared with other students.

Very Untrue	1	2	3	4	5	6	7	Very true	35	

23. I think I will be able to use what I learn in this course in other courses.

Very Untrue	1	2	3	4	5	6	7	Very true	36	

24. I believe I will receive an excellent grade in this class.

Very Untrue	1	2	3	4	5	6	7	Very true	37	

25. I'm certain I can understand the most difficult material presented in the readings for this course.

Very Untrue	1	2	3	4	5	6	7	Very true	38	

26. Getting a good grade in this class is the most satisfying thing for me right now.

Very Untrue	1	2	3	4	5	6	7	Very true	39	

27. When I take a test I think about items on other parts of the test I can't answer.

Very Untrue	1	2	3	4	5	6	7	Very true	40	

28. It is my own fault if I don't learn the material in this course.

Very Untrue	1	2	3	4	5	6	7	Very true	41	

29. It is important for me to learn the course material in this class.

Very Untrue	1	2	3	4	5	6	7	Very true	42	

30. The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.

Very Untrue	1	2	3	4	5	6	7	Very true	43	

31. I'm confident I can learn the basic concepts taught in this course.

Very Untrue	1	2	3	4	5	6	7	Very true	44	

32. If I can, I want to get better grades in this class than most of the other students.

Very Untrue	1	2	3	4	5	6	7	Very true	45	

33. When I take tests I think of the consequences of failing.

Very Untrue	1	2	3	4	5	6	7	Very true	46	

34. I'm confident I can understand the most complex material presented by the instructor in this course.

Very Untrue	1	2	3	4	5	6	7	Very true	47	

35. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.

Very Untrue	1	2	3	4	5	6	7	Very true	48	

36. I am very interested in the content area of this course.

Very Untrue	1	2	3	4	5	6	7	Very true	49	

37. If I try hard enough, then I will understand the course material.

Very Untrue	1	2	3	4	5	6	7	Very true	50	

38. I have an uneasy, upset feeling when I take an exam.

Very Untrue	1	2	3	4	5	6	7	Very true	51	

39. I'm confident I can do an excellent job on the assignments and tests in this course.

Very Untrue	1	2	3	4	5	6	7	Very true	52	

40. I expect to do well in this class

Very Untrue	1	2	3	4	5	6	7	Very true	53	

41. The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.

Very Untrue	1	2	3	4	5	6	7	Very true	54	

42. I think the course material in this class is useful for me to learn.

Very Untrue	1	2	3	4	5	6	7	Very true	55	

43. When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.

Very Untrue	1	2	3	4	5	6	7	Very true	56	

44. If I don't understand the course material, it is because I didn't try hard enough.

Very Untrue	1	2	3	4	5	6	7	Very true	57	

45. I like the subject matter of this course.

Very Untrue	1	2	3	4	5	6	7	Very true	58	

46. Understanding the subject matter of this course is very important to me.

Very Untrue	1	2	3	4	5	6	7	Very true	59	

47. I feel my heart beating fast when I take an exam.

Very Untrue	1	2	3	4	5	6	7	Very true	60	

48. I'm certain I can master the skills being taught in this class.

Very Untrue	1	2	3	4	5	6	7	Very true	61	

49. I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.

Very Untrue	1	2	3	4	5	6	7	Very true	62	

50. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.

Very Untrue	1	2	3	4	5	6	7	Very true	63	

Learning Strategies

51. When I study the readings for this course, I outline the material to help me organize my thoughts.

Very Untrue	1	2	3	4	5	6	7	Very true	64	

52. During class time I often miss important points because I'm thinking of other things.

Very Untrue	1	2	3	4	5	6	7	Very true	65	

53. When studying for this course, I often try to explain the material to a classmate or friend.

Very Untrue	1	2	3	4	5	6	7	Very true	66	

54. I usually study in a place where I can concentrate on my course work

Very Untrue	1	2	3	4	5	6	7	Very true	67	

55. When reading for this course, I make up questions to help focus my reading.

Very Untrue	1	2	3	4	5	6	7	Very true	68	

56. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.

Very Untrue	1	2	3	4	5	6	7	Very true	69	

57. I often find myself questioning things I hear or read in this course to decide if I find them convincing.

Very Untrue	1	2	3	4	5	6	7	Very true	70	

58. When I study for this class, I practice saying the material to myself over and over.

Very Untrue	1	2	3	4	5	6	7	Very true	71	

59. Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone.

Very Untrue	1	2	3	4	5	6	7	Very true	72	

60. When I become confused about something I'm reading for this class, I go back and try to figure it out.

Very Untrue	1	2	3	4	5	6	7	Very true	73	

61. When I study for this course, I go through the readings and my class notes and try to find the most important ideas.

Very Untrue	1	2	3	4	5	6	7	Very true	74	

62. I make good use of my study time for this course.

Very Untrue	1	2	3	4	5	6	7	Very true	75	

63. If course readings are difficult to understand, I change the way I read the material.

Very Untrue	1	2	3	4	5	6	7	Very true	76	

64. I try to work with other students from this class to complete the course assignments.

Very Untrue	1	2	3	4	5	6	7	Very true	77	

65. When studying for this course, I read my class notes and the course readings over and over again.

Very Untrue	1	2	3	4	5	6	7	Very true	78	

66. When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.

Very Untrue	1	2	3	4	5	6	7	Very true	79	

67. I work hard to do well in this class even if I don't like what we are doing.

Very Untrue	1	2	3	4	5	6	7	Very true	80	

68. I make simple charts, diagrams, or tables to help me organize course material.

Very Untrue	1	2	3	4	5	6	7	Very true	81	

69. When studying for this course, I often set aside time to discuss course material with a group of students from the class.

Very Untrue	1	2	3	4	5	6	7	Very true	82	

70. I treat the course material as a starting point and try to develop my own ideas about it.

Very Untrue	1	2	3	4	5	6	7	Very true	83	

71. I find it hard to stick to a study schedule.

Very Untrue	1	2	3	4	5	6	7	Very true	84	

72. When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.

Very Untrue	1	2	3	4	5	6	7	Very true	85	

73. Before I study new course material thoroughly, I often skim it to see how it is organized.

Very Untrue	1	2	3	4	5	6	7	Very true	86	

74. I ask myself questions to make sure I understand the material I have been studying in this class.

Very Untrue	1	2	3	4	5	6	7	Very true	87	

75. I try to change the way I study in order to fit the course requirements and the instructor's teaching style.

Very Untrue	1	2	3	4	5	6	7	Very true	88	

76. I often find that I have been reading for this class but don't know what it was all about.

Very Untrue	1	2	3	4	5	6	7	Very true	89	

77. I ask the instructor to clarify concepts I don't understand well.

Very Untrue	1	2	3	4	5	6	7	Very true	90	

78. I memorize key words to remind me of important concepts in this class.

Very Untrue	1	2	3	4	5	6	7	Very true	91	

79. When course work is difficult, I either give up or only study the easy parts.

Very Untrue	1	2	3	4	5	6	7	Very true	92	

80. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying for this course.

Very Untrue	1	2	3	4	5	6	7	Very true	93	

81. I try to relate ideas in this subject to those in other courses whenever possible.

Very Untrue	1	2	3	4	5	6	7	Very true	94	

82. When I study for this course, I go over my class notes and make an outline of important concepts.

Very Untrue	1	2	3	4	5	6	7	Very true	95	

83. When reading for this class, I try to relate the material to what I already know.

Very Untrue	1	2	3	4	5	6	7	Very true	96	

84. I have a regular place set aside for studying.

Very Untrue	1	2	3	4	5	6	7	Very true	97	

85. I try to play around with ideas of my own related to what I am learning in this course.

Very Untrue	1	2	3	4	5	6	7	Very true	98	

86. When I study for this course, I write brief summaries of the main ideas from the readings and my class notes.

Very Untrue	1	2	3	4	5	6	7	Very true	99	

87. When I can't understand the material in this course, I ask another student in this class for help.

Very Untrue	1	2	3	4	5	6	7	Very true	100	

88. I try to understand the material in this class by making connections between the readings and the concepts from the lectures.

Very Untrue	1	2	3	4	5	6	7	Very true	101	

89. I make sure that I keep up with the weekly readings and assignments for this course.

Very Untrue	1	2	3	4	5	6	7	Very true	102	

90. Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.

Very Untrue	1	2	3	4	5	6	7	Very true	103	

91. I make lists of important items for this course and memorize the lists.

Very Untrue	1	2	3	4	5	6	7	Very true	104	

92. I attend this class regularly.

Very Untrue	1	2	3	4	5	6	7	Very true	105	

93. Even when course materials are dull and uninteresting, I manage to keep working until I finish.

Very Untrue	1	2	3	4	5	6	7	Very true	106	

94. I try to identify students in this class whom I can ask for help if necessary.

Very Untrue	1	2	3	4	5	6	7	Very true	107	

95. When studying for this course I try to determine which concepts I don't understand well.

Very Untrue	1	2	3	4	5	6	7	Very true	108	

96. I often find that I don't spend very much time on this course because of other activities.

Very Untrue	1	2	3	4	5	6	7	Very true	109	

97. When I study for this class, I set goals for myself in order to direct my activities in each study period.

Very Untrue	1	2	3	4	5	6	7	Very true	110	

98. If I get confused taking notes in class, I make sure I sort it out afterwards.

Very Untrue	1	2	3	4	5	6	7	Very true	111	

99. I rarely find time to review my notes or readings before an exam.

Very Untrue	1	2	3	4	5	6	7	Very true	112	

100. I try to apply ideas from course readings in other class activities such as lecture and discussion.

Very Untrue	1	2	3	4	5	6	7	Very true	113	

Motivation total:

APPENDIX E:

TIME PERSPECTIVE

Read each item and, as honestly as you can, answer the question:
"How characteristic or true is this of you?"

101. I believe that getting together with one's friends to party is one of life's important pleasures.

Very Untrue	1	2	3	4	5	Very true	114	

102. Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories.

Very Untrue	1	2	3	4	5	Very true	115	

103. Fate determines much in my life.

Very Untrue	1	2	3	4	5	Very true	116	

104. I often think of what I should have done differently in my life.

Very Untrue	1	2	3	4	5	Very true	117	

105. My decisions are mostly influenced by people and things around me.

Very Untrue	1	2	3	4	5	Very true	118	

106. I believe that a person's day should be planned ahead each morning.

Very Untrue	1	2	3	4	5	Very true	119	

107. It gives me pleasure to think about my past.

Very Untrue	1	2	3	4	5	Very true	120	

108. I do things impulsively

Very Untrue	1	2	3	4	5	Very true	121	

109. If things don't get done on time, I don't worry about it.

Very Untrue	1	2	3	4	5	Very true	122	

110. When I want to achieve something, I set goals and consider specific means for reaching those goals.

Very Untrue	1	2	3	4	5	Very true	123	

111. On balance, there is much more good to recall than bad in my past.

Very Untrue	1	2	3	4	5	Very true	124	

112. When listening to my favourite music, I often lose all track of time.

Very Untrue	1	2	3	4	5	Very true	125	

113. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play.

Very Untrue	1	2	3	4	5	Very true	126	

114. Since whatever will be will be, it doesn't really matter what I do.

Very Untrue	1	2	3	4	5	Very true	127	

115. I enjoy stories about how things used to be in "the good old times."

Very Untrue	1	2	3	4	5	Very true	128	

116. Painful past experiences keep being replayed in my mind.

Very Untrue	1	2	3	4	5	Very true	129	

117. I try to live my life as fully as possible, one day at a time.

Very Untrue	1	2	3	4	5	Very true	130	

118. It upsets me to be late for appointments.

Very Untrue	1	2	3	4	5	Very true	131	

119. Ideally, I would live each day as if it were my last.

Very Untrue	1	2	3	4	5	Very true	132	

120. Happy memories of good times spring readily to mind.

Very Untrue	1	2	3	4	5	Very true	133	

121. I meet my obligations to friends and authorities on time.

Very Untrue	1	2	3	4	5	Very true	134	

122. I've taken my share of abuse and rejection in the past.

Very Untrue	1	2	3	4	5	Very true	135	

123. I make decisions on the spur of the moment.

Very Untrue	1	2	3	4	5	Very true	136	

124. I take each day as it is, rather than try to plan it.

Very Untrue	1	2	3	4	5	Very true	137	

125. The past has too many unpleasant memories that I prefer not to think about.

Very Untrue	1	2	3	4	5	Very true	138	

126. It is important to put excitement in my life.

Very Untrue	1	2	3	4	5	Very true	129	

127. I've made mistakes in the past that I wish I could undo.

Very Untrue	1	2	3	4	5	Very true	140	

128. I feel that it's more important to enjoy what you're doing than to get work done on time.

Very Untrue	1	2	3	4	5	Very true	141	

129. I get nostalgic about my childhood.

Very Untrue	1	2	3	4	5	Very true	142	

130. Before making a decision, I weigh the costs against the benefits.

Very Untrue	1	2	3	4	5	Very true	143	

131. Taking risks keep my life from becoming boring.

Very Untrue	1	2	3	4	5	Very true	144	

132. It is more important for me to enjoy life's journey than to focus only on the destination.

Very Untrue	1	2	3	4	5	Very true	145	

133. Things rarely work out as I expected.

Very Untrue	1	2	3	4	5	Very true	146	

134. It's hard for me to forget unpleasant images of my youth.

Very Untrue	1	2	3	4	5	Very true	147	

135. It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes and products.

Very Untrue	1	2	3	4	5	Very true	148	

136. Even when I am enjoying the present, I am drawn back to comparisons with similar past experiences.

Very Untrue	1	2	3	4	5	Very true	149	

137. You can't really plan for the future because things change so much.

Very Untrue	1	2	3	4	5	Very true	150	

138. My life path is controlled by forces I cannot influence.

Very Untrue	1	2	3	4	5	Very true	151	

139. It doesn't make sense to worry about the future, since there is nothing that I can do about it anyway.

Very Untrue	1	2	3	4	5	Very true	152	

140. I complete projects on time by making steady progress.

Very Untrue	1	2	3	4	5	Very true	153	

141. I find myself tuning out when family members talk about the way things used to be.

Very Untrue	1	2	3	4	5	Very true	154	

142. I take risks to put excitement in my life.

Very Untrue	1	2	3	4	5	Very true	155	

143. I make lists of things to do.

Very Untrue	1	2	3	4	5	Very true	156	

144. I often follow my heart more than my head.

Very Untrue	1	2	3	4	5	Very true	157	

145. I am able to resist temptations when I know that there is work to be done.

Very Untrue	1	2	3	4	5	Very true	158	

146. I find myself getting swept up in the excitement of the moment.

Very Untrue	1	2	3	4	5	Very true	159	

147. Life today is too complicated; I would prefer the simpler life of the past.

Very Untrue	1	2	3	4	5	Very true	160	

148. I prefer friends who are spontaneous rather than predictable.

Very Untrue	1	2	3	4	5	Very true	161	

149. I like family rituals and traditions that are regularly repeated.

Very Untrue	1	2	3	4	5	Very true	162	

150. I think about the bad things that have happened to me in the past.

Very Untrue	1	2	3	4	5	Very true	163	

151. I keep working at difficult, uninteresting tasks if they will help me get ahead.

Very Untrue	1	2	3	4	5	Very true	164	

152. Spending what I earn on pleasures today is better than saving for tomorrow's security.

Very Untrue	1	2	3	4	5	Very true	165	

153. Often luck pays off better than hard work.

Very Untrue	1	2	3	4	5	Very true	166	

154. I think about the good things that I have missed out on in my life.

Very Untrue	1	2	3	4	5	Very true	167	

155. I like my close relationships to be passionate.

Very Untrue	1	2	3	4	5	Very true	168	

156. There will always be time to catch up on my work.

Very Untrue	1	2	3	4	5	Very true	169	

Questionnaire total:

ABSTRACT

The goal of this study was to research the hypotheses that self-regulated learning and a future time perspective separately and simultaneously predict academic performance in second year Economics studies. The study also investigated whether self-regulated learning and future time perspective are related. In the theoretical underpinning self-regulated learning as related to learning theories, future time perspective and the learning of Economics were explored. The effect of the confounding variables(age, gender, ethnicity and the psycho-social wellbeing of students), on the dependent variable (academic performance in second year Economics studies), were built into the design and analysed. Data was analysed using descriptive, correlation and regression analysis. The multiple regression analysis indicated that self-regulated learning and a future time perspective predict academic performance in second year Economics studies. A correlation matrix revealed that a relationship exists between self-regulated learning and a future time perspective. Regarding the confounding variables, the one with the most significant influence on the dependant variable was ethnicity. In conclusion the study recommended that teaching and assessment methods should be used to empower students to apply self-regulated learning strategies. This could greatly enhance their academic performance.

Key concepts: Academic performance; self-regulated learning; future time perspective; psycho-social wellbeing; multiple regression.

OPSOMMING

Die doel van hierdie studie was om 'n ondersoek in te stel na die hipotese dat selfregulerende leer en 'n toekomsgerigte tydsperspektief apart en gesamentlik akademiese prestasie in tweede jaar Ekonomie studies kan voorspel. Die studie het ook ondersoek ingestel om te bepaal of selfgereguleerde leer en toekomsgerigte tydsperspektief korreleer. In die teoretiese begronding is die verwantskap van selfregulerende leer aan leer teorieë, toekomsgerigte tydsperspektiewe en die leer van Ekonomie ondersoek. Die effek van die steuringsveranderlikes (ouderdom, geslag, etnisiteit en die psigososiale welstand van student) op die afhanklike veranderlike (akademiese prestasie in die tweedejaar Ekonomie studies) is in die ontwerp ingebou en geanaliseer. Data is geanaliseer met behulp van beskrywende, korrelasie en regressieanalise. Die meervoudige regressie-analise het uitgewys dat self gereguleerde leer en 'n toekomsgerigte tydsperspektief voorspellers van akademiese prestasie in die tweedejaar Ekonomie studies is. 'n Korrelasie matriks het getoon dat daar 'n verwantskap bestaan tussen selfregulerende leer en 'n toekomsgerigte tydsperspektief. Rakende die steuringsveranderlikes was die een met die grootste invloed op die afhanklike verandering, etnisiteit. Ten slotte beveel die studie aan dat onderrig en assesserings metodes behoort gebruik word om studente te bemagtig om selfregulerende leer strategieë toe te pas. Dit kan hulle akademiese prestasie grootliks verbeter.

Sleutel konsepte: Akademiese prestasie, selfregulerende leer, toekomsgerigte tydsperspektief, psigososiale welstand, meervoudige regressie-analise.