KARI KIVINEN

Assessing Motivation and the Use of Learning Strategies by Secondary School Students in Three International Schools

■

ACADEMIC DISSERTATION

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Luxembourg, 14 December 2002

Kari Kivinen

ABSTRACT

‘Assessing motivation and the use of learning strategies by secondary students in three international schools’ is a study to assess the motivational orientations and volitional strategy-use of secondary school students at international schools in Europe. The data for this study were gathered from a sample of 198 secondary students from Finland and Luxembourg in 1998–99. Students answered the MSQL questionnaire, which was modified and translated into French, German and Finnish for this study. The cultural differences between the schools and language sections in this sample were not significant.

In the theoretical part of the study there is a synthesis of recent research into motivation and self-regulated learning, focusing especially on the volitional aspects of learning.

The cultural differences presented in this study seem to be mainly divergences of cultures of the different school/language sections, not divergences of nationalities or ethnic groups. The sample groups in the present study belong to individualistic cultures; they have rather low power distance, are in the middle of the spectrum of the uncertainty avoidance scale, and are closer to a feminine than a masculine learning environment.

The MSLQ results of the European students presented here seem to confirm the results obtained at the University of Michigan. The MSLQ appears to be a reliable and valid instrument for the assessment of the student’s motivational beliefs and strategy use in different cultural environments. The MSLQ scales correlate significantly with the last grade (mark) obtained. They show clear predictive validity. The self-efficacy for learning and performance scale seems to be the most predictive scale (r with the grade = .45). High self-efficacy level, task orientation, intrinsic motivation and the use of cognitive and metacognitive learning strategies

seem to be characteristic of skilful learners. Weaker students clearly suffer from test-anxiety

The results of the additional volitional questionnaire made for this study suggest that at least three volitional factors are to be found in this material: attention control strategies, self-instruction strategies and self-help strategies. These three factors seem to be a logical part of the student's personal action-control practice. These findings seem to support a model of self-regulated learning in which the students use attention control and self-help strategies to monitor and regulate the use of other strategies (e.g. motivation, cognitive learning and resource management) to complete an academic task.

In the non-linear Bayesian path analyses of this data four major interdependent relationship models were found. These models represent the underlying structures of the scales and factors found in this data. Students seem to have very different strategy when learning mathematics and mother tongue.

The content analysis revealed important differences in the strategy-use of successful and non-successful students. Students with high grades regulated their motivation much more than the less successful students. They also used more attention control strategies, encoding control strategies and cognitive learning strategies. The less successful students used more social control strategies, non-constructive strategies and self-instruction strategies.

The secondary school students, aged 15 to 20, did not have a clear picture of themselves, yet, as students or learners. There is a clear need to develop a standardised measuring instrument for self-regulated learning processes and goals for educational learning environment. Schools should offer possibilities for students to learn and practice diverse cross-curriculum competences, such as self-regulatory skills.

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1. INTRODUCTION

1.0 WILL TO LEARN

I contacted Professor Pekka Ruohotie in the Research Centre for Vocational Education at the University of Tampere in 1996 to propose a study on motivation. My interest changed slightly while updating my knowledge of recent results and discussions within educational research. The post-motivational processes of learning started to fascinate me. I decided to study volition - the use of will-power and self-regulation.

My first ideas of volition were based on my own experiences. I was interested in to know what happens when motivation starts to fade out and student is left alone with a monotonous and difficult task? I had plenty of questions crossing in my mind: What kinds of strategies students use in order to keep them going? How can a student force him/herself to work? How can student regulate his/her efforts in an optimal way to obtain maximal results? Are students able to adapt the available time and the resources to meet the challenge of the task? Can you teach strategy use for the students with special needs?

I felt that I had found an excellent problem to study, which could have plenty of useful results to put into practice. Nearly six years ago, I did not have a clear picture of the complexity and difficulty of the chosen field. I did not know either, that self-regulation would be one of the key areas of the educational research in the forthcoming years.

1.1. CRITICAL CHOICES MADE IN 1996

In 1996 I chose MSLQ-instrument to measure the motivational orientations and the use of learning strategies. It was the best instrument at the market those days for the needs of my thesis – standardised, valid and solid - and it measured core areas of my research interest. I realised that there were some important volitional areas,

which were not covered by MSLQ instrument. I created my own instrument based tightly on the literature to cover the pre-assumed missing parts. I felt also that it would be necessary to have an open-ended question to get more information about the individual learning strategy use.

I decided to collect the data in three international schools. I was at the time curious to find out if there are important differences in motivational orientations and use of learning strategies in different schools and language sections.

When I was collecting material for the theoretical part of this study I found many relatively similar approaches (Kuhl, Corno, Bandura, Snow, Zimmerman, Pintrich, Ruohotie) with some conceptual differences. I decided to present all the main theories and concepts in spite of the fact that it might be rather difficult for the readers to follow.

1.2. STUDY QUESTIONS

This study is intended to assess motivation and use of learning strategies by secondary students from three different international schools in Finland and in Luxembourg. It addresses the following theoretical questions.

- What kind of motivational and volitional strategies are used among secondary students?
- Do students use different kind of strategies in learning mathematics and mother tongue?
- Which strategies do students use to achieve goals?
- What kind of relationships are to be found between the theories of motivational and volitional processes?

- Are there significant differences between the motivational and volitional strategy use between different schools and language sections?

The last chapter of this study summarises the found answers to the study questions.

1.3. BASIC ASSUMPTIONS

This study is based on a structuralist view of learning. According to structuralist theories (e.g. Steffe and Gale, 1995; Rauste-von Wright and von Wright, 1994), learning is an outcome of the learner's own activity. Learning is an active process in which earlier knowledge acquisition and experience guides learners to select and interpret the new information and to incorporate it within their existing cognitive knowledge structures. Conceptions of learning are based on the idea that learning is not only a process of knowledge but also a social interaction (see Steffe and Gale, 1995; Järvelä and Niemivirta, 1999. Learning is also considered to be a self-regulated process. Learners can improve their ability to learn through selective use of various strategies. Learners can potentially monitor, control and regulate certain aspects their own cognition, motivation and behaviour as well as some features of their environments (Pintrich, 2000b). Learners adapt or modify their strategy-use to fit situational demands (Wolters, 1998). Effective learning is often goal-orientated: to achieve their goals learners can choose the appropriate means and strategies or they can proactively select, structure and create advantageous learning environments (see Wolters and Yu, 1996). Learning is a situational phenomenon depending on the learning environment and social interaction.

The theory of self-regulation is based on Bandura's (1986) social cognitive theory. Students have goals and during their learning activities they observe, judge and react to their perceptions of goal processes (see Schunk and Zimmerman, 1994). According to Zimmerman (1998), self-regulation is the self-directive process through which students transform their mental abilities into academic skills. In

Bandura's theory self-efficacy plays an important role. It is hypothesised to influence choice of activities, effort expended and persistence (Bandura, 1986).

The Motivated Strategies for Learning Questionnaire (MSLQ) used in this study is based on a general cognitive view of motivation and learning strategies (see McKeachie et al., 1985; Pintrich et al., 1991).

1.4. CHOICE OF MEASURES

In order to find answers to the study questions I decided to use MSQL instrument, volitional questionnaire made for this study and qualitative, open- ended question.

Table 1.4.1. Study questions and measurement methods

Study questions	**Measurement methods**
What kind of motivational and volitional strategies are used among secondary students?	MSLQ, volitional questionnaire, qualitative question
Do students use different kind of strategies in learning mathematics and mother tongue?	MSLQ, volitional questionnaire
Which strategies do students use to achieve goals?	MSLQ, volitional questionnaire, qualitative question
What kind of relationships are to be found between the theories of motivational and volitional processes?	Theoretical part of the study
Are there significant differences between the motivational and volitional strategy use between different schools and language sections?	MSLQ, volitional questionnaire

Large self-questionnaire reports offer plenty of data, which can be analysed by various statistical measures. I have presented the most interesting findings at their context. Statistical methods used in this study are partly traditional and partly more modern.

New statistical methods and the availability of increased computing power has given educational research many new tools to assess learning. Learning is a complex human phenomenon. Often researchers must dive deep into the details of

the phenomenon and there is always a risk of losing the overall picture of the phenomenon at hand. I have used Bayesian modelling methods in order to find out underlying structures in the collected data. In classical linear statistics answer are given to 'pre-data questions'. In addition to pre-data questions, Bayesian inference can also give answers to 'post-data questions'.

The qualitative data from this question was analysed manually. The responses were grouped into categories, which had been created before the analysis.

1.5. KEY CONCEPTS

Researchers use slightly different terms and concepts when discussing self-regulation. Theories of self-regulated learning (Zimmerman, 1989; 1993; 1998, 2000; Zimmerman and Martinez-Pons, 1990; Winne, 1997; Ruohotie, 2000a; Schunk and Ertmer, 2000), motivational processes (Garcia and Pintrich, 1995; Pintrich, 1995, 2000b; Wolters, 1998) and volitional processes such as action-control (Kuhl, 1996; Kuhl and Beckmann 1994; Corno, 1993; Ruohotie, 1998, 2000b) are presented with the terms and concepts used in the original texts. Many terms and concepts used in this study are discussed and redefined in Chapters 5, 6 and 7 to avoid confusion.

1.6. THE STRUCTURE OF PRESENT STUDY

The theoretical part of this study starts with an overview of the concept of self-regulation.

The triadic forms of Self-regulation (See figure 2.1.1.) by Zimmerman (2000) are presented to explain how the individual monitors his/her own internal state, his/her behaviour and his/her environment.

The presentation structure in the Chapter 2 comes from Zimmerman's learning cycle (See figure2.2.2). According to him, the three phases of the self-regulated learning are forethought, performance or volitional control, and self-reflection. This study is focusing especially on the second phase: performance of volitional control.

The first phase involves motivation, goal setting, goal orientation, strategic planning, self-efficacy beliefs, outcome expectations and intrinsic interest. These concepts are presented in the Chapters 2.2. – 2.2.5.

The Chapters 2.3. – 2.3.5 present the main theories of volitional constructs, not only from Zimmerman but also from Kuhl, Corno, Snow, Corno & Jackson and Ruohotie.

The taxonomy of individual difference constructs (Snow et al.,1996) is presented as a summary of affective, cognitive and conative constructs (see Figure 2.3.1.1) in the Chapter 2.3.1. The volitional and motivational constructs in the learning situation are presented graphically with '**dynamic spheres**' (see Figure 2.3.1.2).

The action-control theory (Kuhl, 1984; 2000) is presented in the Chapter 2.3.3. and the broader theoretical framework (the theory of the personality systems interactions, PSI) developed by Kuhl is presented in the Chapter 2.3.4.

In the Chapter 2.3.5 Corno's (1986; 1993) definitions of the educational aspects of action-control theory are presented in the Tables 2.3.5.1 and 2.3.5.2.

Chapter 2.4 presents the third phase of the Zimmerman's learning cycle: Self-reflection, self-judgements, self-evaluation and causal attributions.

The chapter 2.5 presents general theories about the self-regulation: how the self-regulatory skills develop, and what are the characteristics of a skilful self-regulator in practice.

The cross-cultural perspectives of this study are presented in Chapter 3.

In Chapter 4 methods and statistical procedures used in this study are presented.

The quantitavite cross-cultural, self-regulatory, and control strategies for learning results and models of this study are presented in the Chapter 5.

The content analyses framework and the qualitative results of this study are presented in Chapter 6.

In Chapter 7 the methods and results of quantitative and qualitative parts of the study are discussed.

Conclusions and future research directions are presented in the Chapter 8. The answers for the research questions are concluded also in the last paragraph.

1.7. ACKNOWLEDGEMENTS

This study is part of the international 'Growth Needs' and 'Motivation and Learning Strategies' projects of the Research Centre for Vocational Education supervised by Professor Pekka Ruohotie at the University of Tampere. The Growth Needs project is an international project, undertaken as a collaboration between Simon Fraser University (Canada), Western Washington University (USA), the University of Michigan (USA), Stanford University (USA) and the Pedagogic University of Tallinn. The aim of the 'Motivation and Learning Strategies' project is to analyse and model the relationships between self-regulatory skills and academic success and to indicate how it is possible to improve the self-regulatory skills of learners by educational support.

2. ACADEMIC SELF-REGULATION

2.0. SELF-REGULATIONED PATTERNS OF LEARNING

ACADEMIC SELF-REGULATION

Self-regulation refers to self-generated thoughts, feelings and actions, which are planned and systematically adapted as needed to affect one's learning (Schunk and Ertmer, 2000; see also Zimmerman, 2000)

Self-regulation refers to the learner's volitional control and factors affecting his/her motivation (Ruohotie, 2000a)

Self-regulated learning is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate and control their cognition, motivation and behaviour, guided and constrained by their goals and the contextual features in their environments. These self-regulatory activities can mediate the relationships between individuals and the context and their overall achievement (Pintrich, 2000b)

Academic self-regulation can be defined as a self-directive process through which learners transform their mental abilities into academic skills (see Zimmerman, 1998). It is quite easy to describe some of the self-regulatory attributes used by students in academic tasks. It is much more difficult to use self-regulation as an explanatory construct without identifying the key processes in students' academic performance. Many of the process constructs, such as metacognition, volition and planning, appear to overlap conceptually.

Most self-regulation theorists view learning as a multidimensional process involving personal (cognitive and emotional), behavioural and contextual components (Zimmerman, 1986; 1989). For an academic skill to be mastered, learners must behaviourally apply cognitive strategies to a task within a contextually relevant setting. Self-regulation constructs integrate the cognitive, motivational, social and behavioural strands of theory and research (see McKeachie, 2000). Researchers from different areas employ slightly different concepts, constructs and mechanisms in their models of self-regulated learning.

According to Pintrich (2000b), there are at least four common assumptions in all the different theories of self-regulated learning. The first common assumption could be called the active, constructive assumption, which follows from a general cognitive perspective. All the models view learners as active, constructive participants in the academic learning process. Learners are not just passive recipients of information from teachers or adults, rather they are active, constructive meaning-makers (c.f. Pintrich, 2000b). The second assumption is the potential for control assumption. It is closely related to the first assumption. 'All the models assume that learners can potentially monitor, control and regulate certain aspects their own cognition, motivation and behaviour as well as some features of their environments' (Pintrich, 2000b). The third common assumption is the goal, criterion or standard assumption. All models of self-regulation assume that there is some type of criterion or standard against which comparisons are made in order to decide if some type of change should be made or whether the process should continue. The fourth general assumption is that self-regulatory activities are mediators between personal and contextual characteristics and actual achievement or performance.

As a working summary, Pintrich proposes that 'self-regulated learning is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate and control their cognition, motivation and behaviour, guided and constrained by their goals and the contextual features in the environments. These self-regulatory activities can mediate the relationships between individuals and the context and their overall achievement' (Pintrich, 2000b; see also Butler and Winne, 1995, Zimmerman, 1989, 2000).

According to another definition of self-regulation, it refers to the learner's volitional control and factors affecting his/her motivation (Ruohotie, 2000a). Volitional processes involve primarily the learner's ability to manage her/his attention to, and engagement with, the problems to be solved by using cognitive, metacognitive and

resource management strategies. Learners can also control their emotions and the use of motivational strategies (Ruohotie, 2000a).

Self-regulated learning can also be seen as a fusion of skill and will (Garcia, 1995). Skill refers to students' use of different cognitive, metacognitive and resource-management strategies and will refers to students' motivational orientation in terms of goals, value and expectancies. Self-regulated learning can be viewed as the interface between motivation and cognition, following the results of research that has emphasised how both motivational and cognitive factors are important aspects of students' learning (Pintrich, 1989; Pintrich and De Groot, 1990; Zimmerman and Martinez-Pons, 1990). Individuals can also regulate their emotions and apply motivational strategies. The choice of strategy, whether it involves cognition, metacognition, resource management or motivation, depends on the individual's expectations and beliefs, values and learning goals (see Ruohotie, 2000a).

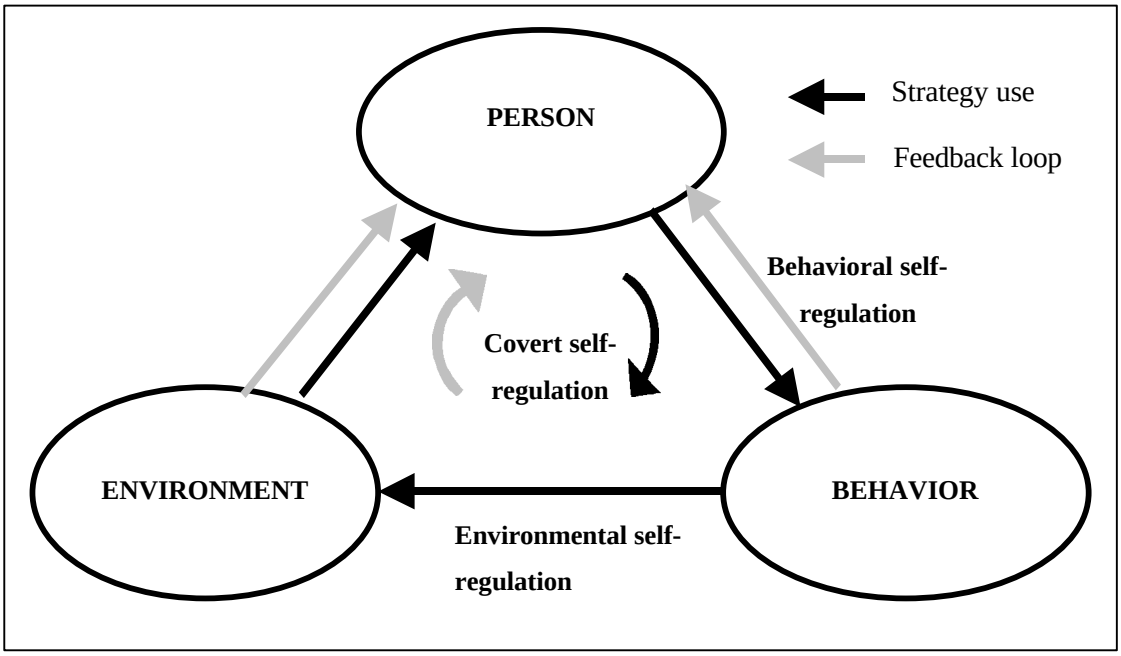
Students have different beliefs in their own learning process and about themselves as learners. They set their goals and choose their learning strategies by self-monitoring. Students have to decide what strategy to use, how to use it and may also predict beforehand the efficacy of the strategy they have chosen. Students also have domain knowledge and perhaps some cues about the tasks. Motivational beliefs play an important part in the process, too. One of them is self-efficacy, which refers to individuals' beliefs about their ability to control their own functioning (Bandura, 1993).

2.1. A TRIADIC DEFINITION OF SELF-REGULATION

Social cognitive theory (Bandura, 1986) has provided a theoretical basis for the development of a model of self-regulated learning in which personal, contextual and behavioural factors interact in such a way as to give the students an opportunity to control their learning while at the same time setting limits to self-direction. A social cognitive perspective is distinctive in viewing self-regulation as an inter-

action of personal, behavioural and environmental triadic processes (Bandura, 1986; Zimmerman, 2000). Self-regulation is not only a skill, but also the knowledge and the sense of personal agency needed to enact this skill in relevant contexts (Zimmerman, 2000).

Figure 2.1.1. Triadic forms of self-regulation (Zimmermann, 2000 p. 15)



Self-regulation is a cyclical process, because the feedback from prior performance is used to make adjustments during repeated attempts. These adjustments are needed, because personal, behavioural and environmental factors are constantly changing during the course of learning and performance and must be observed and monitored. Zimmerman (2000, p. 15) presents three self-oriented loops, as shown in Figure 2.1.1. The feedback loops involved in monitoring one's internal state, one's behaviours and one's environment constitute what Zimmerman (2000) has described as the triadic forms of self-regulation.

Regulation of personal factors, (which is referred to as covert self-regulation) involves monitoring and adjusting cognitive and affective states, such as the use of imagery for retrieving information or relaxing. Behavioural self-regulation comprises self-observation and applicable performance processes, such as learning

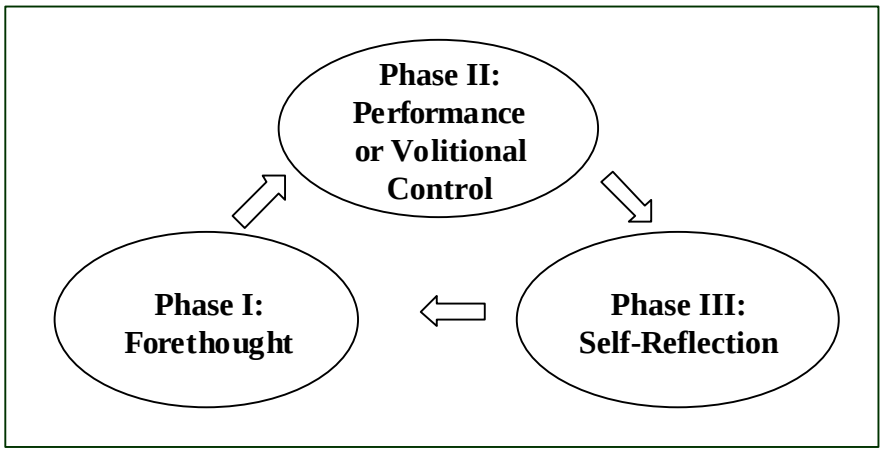
methods. Environmental self-regulation refers to the observation and adjustment of environmental conditions and outcomes.

Triadic feedback loops are assumed to be open (c.f. Zimmerman, 2000). Open loop perspectives include proactively increasing performance discrepancies by raising goals and seeking more challenging tasks.

2.2. THE ACADEMIC LEARNING CYCLE

Winne (1997) argued that every person attempts to self-regulate her or his functioning in some way so as to gain goals in life and that it is inaccurate to speak about un-self-regulated persons or even the absence of self-regulation. 'From a social constructive perspective, self-regulatory processes and accompanying beliefs fall into three cyclical phases: forethought, performance or volitional control, and self-reflection process' (Zimmerman, 2000; see Figures 2.2.1 and 2.2.2 (taken from Zimmerman, 1998 and Zimmerman, 2000)).

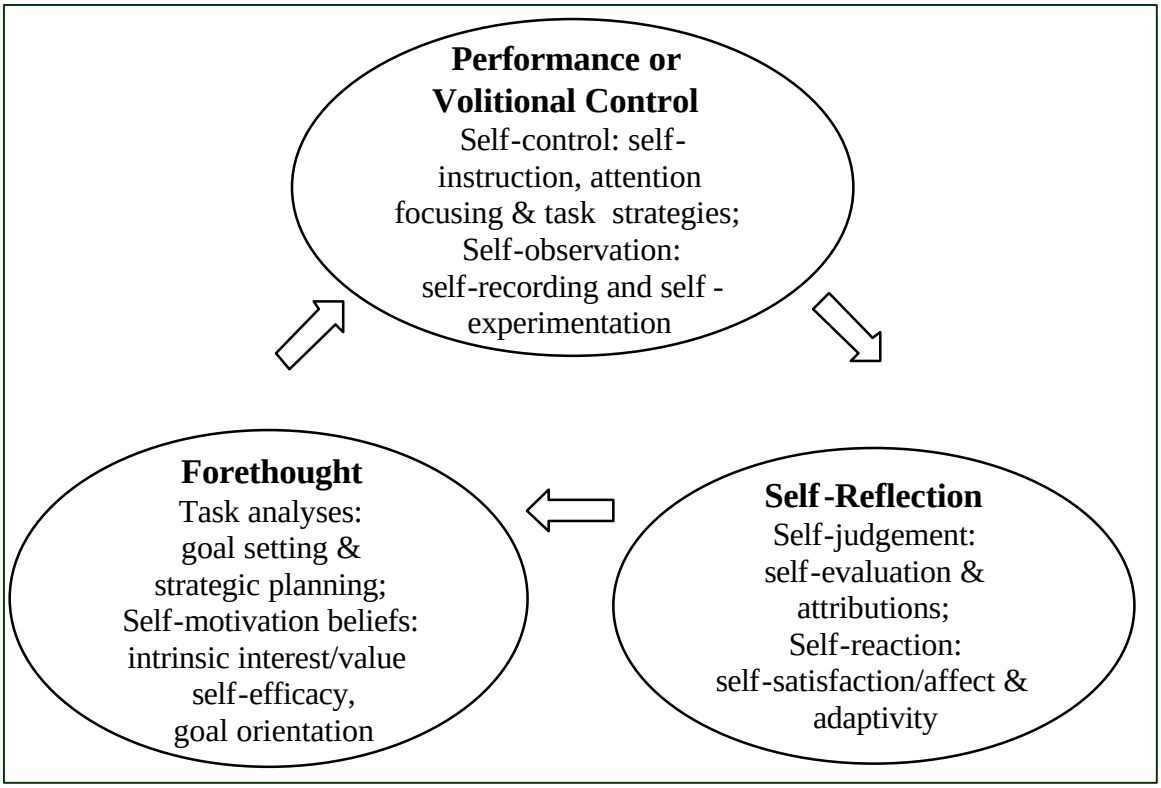
Figure 2.2.1. Academic learning cycle phases



The first phase creates the necessary conditions for learning. Zimmerman (2000) divides the forethought phase into two distinctive but closely linked categories: task analysis and self-motivational beliefs. Task analysis consists of goal setting and strategic planning. Self-motivational beliefs, such as self-efficacy, outcome

expectations, intrinsic interest or valuing and goal orientation, are underlying forethought processes of goal setting and strategic planning.

Figure 2.2.2. Cyclical phases and subprocesses of self-regulation (Zimmermann, 2000)



The second self-regulatory phase involves processes that occur during learning efforts and which guide and regulate the learning process. Zimmerman presents two major types of performance or volitional control processes: self-control and self-observation. Self-control processes, such as self-instruction, imagery, attention focusing and task strategies, help learners and performers to focus on the task and optimise their effort (Zimmerman, 2000).

The third phase, self-reflection, involves processes which occur after the learning experience and which influence reactions to that experience. Self-reflection refers to looking back on the learning experience; that is giving meaning to the learning experience (Ruohotie, 2000a). Bandura (1986) has identified two self-reflective processes that are closely associated with self-observation: self-judgement and self-

reaction. Self-judgement involves self-evaluating (comparing self-monitored information with a standard or goal) one's performance and attributing causal significance to results (see Zimmerman, 2000).

Several studies of forethought processes and beliefs have been published recently. Goal-setting and strategic planning processes are affected by personal beliefs such as self-efficacy, goal orientation, intrinsic interest and valuing of the task (see later in this Chapter). The present study focuses on the volitional processes of learning.

2.2.1. Phase I: Forethought and Motivation

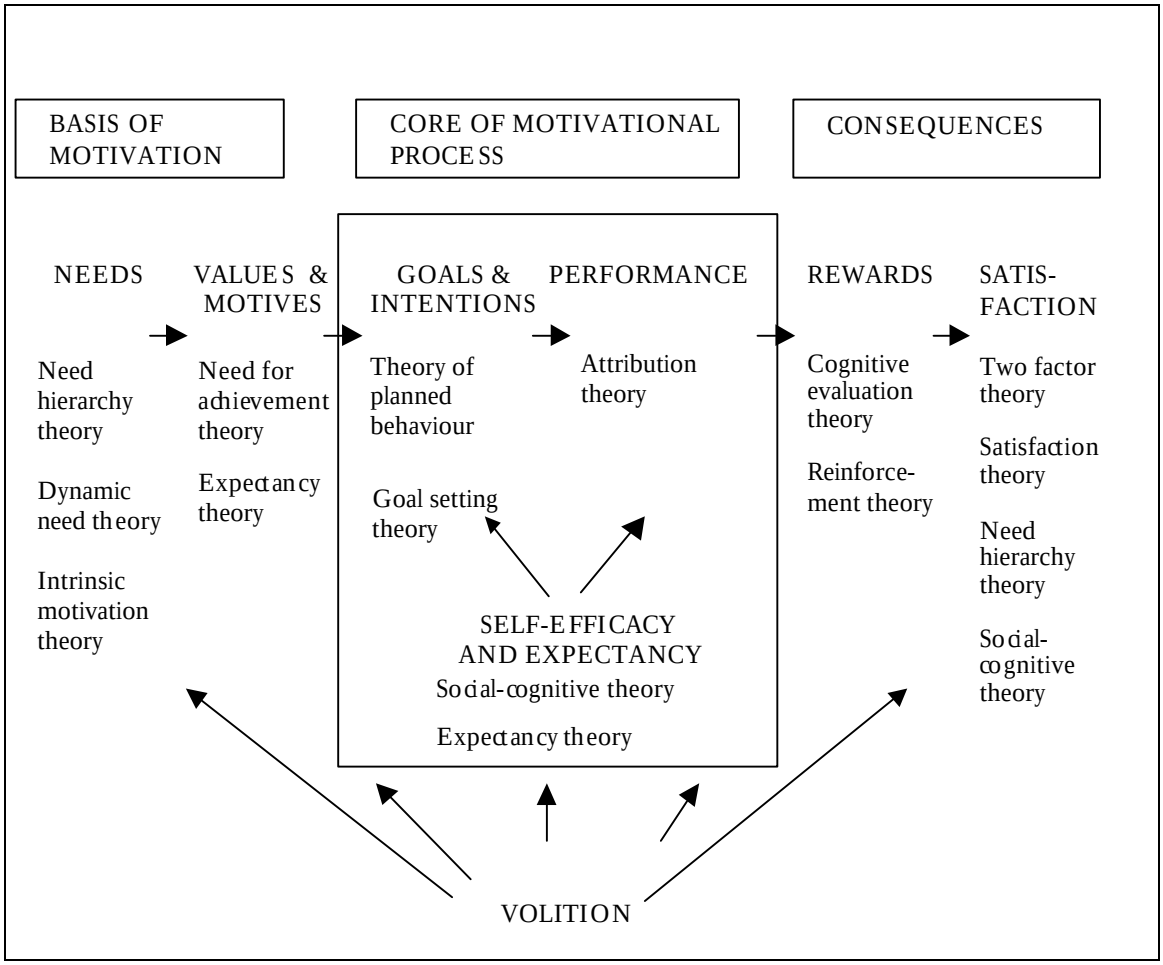
Nearly all motivation theorists assume that motivation is involved in the performance of all learned responses. Learned behaviour does not occur unless it is somehow energised.

The basic need theory of motivation views needs as dispositions toward action. Needs can be biological, affective, emotional, cognitive, aesthetic, volitional, behavioural, spiritual etc., and they can explain the actions of the individuals.

There are behavioural, cognitive, attributional, psychoanalytic, humanistic, achievement motivation and expectancy theories of motivation. Recently some motivation researchers (see Keller, 1983; Locke, 1991; Ruohotie, 1996) have turned their attention to organising and integrating the various theories of motivation into a unified description (see Figure 2.2.1.1 (from Ruohotie, 1996, adapted from Locke, 1991)).

The theoretical framework for conceptualising student motivation is an adaptation of a general expectancy value model for motivation (see Eccles, 1983; Pintrich, 1989). Using this model, Pintrich and De Groot (1990) proposed that there are three motivational components that may be linked to the three different components of self-regulated learning:

Figure 2.2.1.1. Sequence model of motivation process (from Ruohotie, 1996, adapted from Locke, 1991)



1. an *expectancy component* (including students' beliefs about their ability to perform a task);

2. a *value component* (including students' goals and beliefs about the importance and interest of the task);

3. an *affective component* (including students' emotional reactions to the task).

Pintrich and De Groot (1990) found that the motivational components were linked in important ways to students' cognitive engagement and academic performance in the classroom. The intrinsic value was strongly related to the use of cognitive strategies and self-regulation, and independent of initial performance levels, self-

efficacy and test anxiety. Students need to have both 'will' and 'skill' to be successful in academic tasks or performance.

2.2.2. Goal Setting, Goal Orientation

Goal setting refers to deciding upon specific outcomes of learning or performance. Bandura (1986) notes that goal setting and self-evaluation of goal progress constitute an important motivational mechanism. Students work toward goals and they evaluate their progress, which helps them to sustain certain behaviour. There is a clear conjunction between goal setting and outcome expectations. Students act in the ways they believe will help them attain their tasks and goals.

Locke and Latham (1990) introduced goal setting and task performance theory to explain individuals' achievement behaviour in work settings. Goal-setting theory proposes that goals represent situation-specific and conscious intentions or purposes that an individual is pursuing. They also propose (p.127) two important aspects of goal-formation:

1. *goal choice* refers to the actual goal students are trying to obtain and to the level at which they are trying to attain it;

2. *goal commitment* refers to how strongly students are attached to the goal and how determined they are to achieve the goal.

Locke and Latham (1990) also note that goal commitment can be assessed through behaviour and action because the selection of a goal does not give enough information to spur action. There has to be a volitional element to goal commitment.

Even if the goal task is well chosen, is desirable (goal level) and is achievable for the student (self-efficacy), there is still a volitional choice to be made — to pursue or not to pursue the goal — which reflects the student's commitment to the goal. According to Pintrich and Schunk (1996, p. 211) 'the willingness and commitment to enact a goal is very similar to the volitional phases in Corno's (1993) model

where the individual “crosses the Rubicon” in terms of goal acceptance and then tries to obtain that goal through volitional strategies.’

Students can be seen as *goal-directed* agents (Winne, 1995; 1997). Different goals lead students to use different strategies. Schunk and Zimmerman (1994) propose that goals that incorporate specific performance standards, are close at hand and are moderately difficult, are more likely to enhance performance than goals that are general, extend into the distant future, or are perceived as overly easy or difficult.

The *goal orientation theory* proposes that there are two main goal orientations that student can adopt (see Pintrich and Schunk, 1996, p. 252):

1. *mastery or learning orientation* with the focus on learning and mastery of the content; and

2. *performance orientation* with the focus on demonstrating ability.

According to Pintrich and Schunk the mastery goal orientation leads (in contrast to performance orientation) to adaptive attributional patterns, positive affect and interest, higher levels of cognitive engagement, more effort and persistence and better performance.

2.3.2. Strategic Planning

Learners also need methods that are appropriate for the task and the setting. Self-regulative strategies are purposive personal processes and actions directed at acquiring or displaying skill (Zimmerman, 1989; see also Weinstein and Mayer, 1986). As a result of diverse and changing intrapersonal, interpersonal and contextual conditions, self-regulating learners have to continually adjust their goals and choice strategies.

Table 2.2.3.1 (adapted from Ruohotie, 1994) indicates the learning strategies area covered by the survey questionnaire (MLSQ) and Table 6.0.1 indicates the categories used in classifying the students’ strategy-use in the content analysis part

of the study. The three general types of learning strategy scales of the MSLQ instrument used in this study are the cognitive, metacognitive and resource management scales.

Table 2.2.3.1. The organisation of learning strategies in the research study (Ruohotie, 1994)

Cognitive scale	Metacognitive scale	Resource management scale
Rehearsal strategies	Planning strategies	Time and study environment management
Elaboration strategies	Monitoring strategies	Effort management
Organisational strategies	Regulating strategies	Peer learning
Critical thinking		Help-seeking behaviour strategies

Cognitive strategies include the use by students of basic and complex strategies for processing information from texts and lectures. The basic cognitive strategy subscale measures the use of rehearsal by the students (e.g. repeating words over and over again to help them memorise the information). The two subscales on elaboration strategies (paraphrasing, summarising) and organisation strategies measure the use of more complex strategies (e.g. outlining, creating tables). In addition, a subscale on critical thinking is included which refers to the use of ideas by students (see Pintrich, 1995).

The second general category is the metacognitive control strategies. These are measured by a single large subscale on the use of strategies helping the students' control and regulate their cognition. This subscale includes planning (setting goals), self-monitoring (of one's comprehension) and regulating (e.g. adjusting the reading speed to the task) (see Garcia and Pintrich, 1994; Pintrich, 1995).

The MSLQ resource management scale includes four subscales on the students' regulatory strategies in controlling other resources besides their cognition. These strategies include managing time and the study environment (e.g. using time well), as well as regulation of effort (e.g. persistence in the face of difficult or boring tasks). Peer learning (e.g. using a study group or friends to assist in learning) and

seeking help (e.g. asking the instructor when needed) focus on the use of others in learning (see Pintrich, 1995).

Cognitive strategies help the student to codify new material and to structure knowledge. Metacognitive strategies help the student to plan, regulate, verify and shape his/her own cognitive processes. Resource management strategies help the student to control available resources — time, effort and outside help — in order to cope with the task (Ruohotie, 1996)

2.2.4. Self-Efficacy Beliefs

SELF-EFFICACY

Self-efficacy refers to personal beliefs about having the means to learn or perform effectively (Zimmerman, 2000)

Bandura (1986; 1997) developed a social cognitive model of behaviour that includes goals, expectations and self-efficacy as important parts of learning mechanisms. He views motivation as goal-directed behaviour sustained by the individual's expectations concerning the anticipated outcomes of actions. Self-efficacy refers to personal beliefs about one's capability of learning or performing actions at designated levels (Bandura, 1986). Self-efficacious students set higher goals for themselves and they choose learning strategies that are more likely to be effective than students who lack efficacy (Zimmerman and Bandura, 1994).

School students preparing themselves for examinations have efficacy judgements of their capabilities, skills and knowledge. At the same time they have outcome expectations about the grades they might receive in the exams. Normally high efficacy beliefs and outcome expectations are positively correlated . In the case of low efficacy beliefs, poor outcomes might lead to apathy or withdrawal. Bandura (1986, p. 393) suggests that outcome expectations are dependent on efficacy judgements: 'if you control for how well people judge they can perform, you account for much of the variance in the kinds of outcomes they expect'. Bandura

(1986) also notes that people tend to avoid tasks and situations they believe exceed their capabilities, but they take on tasks and activities that they believe they can handle.

Figure 2.2.4.1. Behavioural and affective reactions as a function of different levels of self-efficacy and outcome expectations (Pintrich and Schunk, 1996)

	OUTCOME EXPECTATION	
SELF-EFFICACY	**High outcome expectation**	**Low outcome expectation**
High self-efficacy	Social activism Protest	Assured, good action High cognitive engagement
Low self-efficacy	Resignation Withdrawal	Self-devaluation Depression

There is evidence that self-regulatory self-efficacy beliefs causally influence use of such regulatory processes as academic learning strategies (Schunk and Schwartz, 1993; Zimmerman et al., 1992), time management (Britton and Tessor, 1991), resisting adverse peer pressures (Bandura et al., 1996), self-monitoring (Bouffard-Bouchard et al., 1991), self-evaluation and goal setting (Zimmerman and Bandura, 1994).

2.2.3. Intrinsic Interest

Intrinsically motivated students work on a task because they find it enjoyable — task participation does not depend on other rewards or on any external constraints. Extrinsically motivated students are involved in an activity as a means to an end. They expect to get reward, praise or avoidance of punishment as a result of finishing the task.

According to Pintrich and Schunk (1996, p. 258) there is no automatic relationship between intrinsic and extrinsic motivation. They suggest that they should be thought of as separate continuums, each ranging separately from high to low. Moreover intrinsic and extrinsic motivations are contextual. The same task may be intrinsically and extrinsically motivating for different students and changes in the level of motivation are possible.

Lepper and Hodell (1989) have presented the four sources of intrinsic motivation: challenge, curiosity, control and fantasy. Activities that challenge students' skills may be intrinsically motivating (Deci, 1975). Curiosity is elicited by activities that present students with ideas that are discrepant from their present knowledge or beliefs and that appear surprising or incongruous (Lepper and Hodell, 1989). Activities that provide students with a sense of control over their academic outcomes may enhance intrinsic motivation (Deci, 1980). Intrinsic motivation can be promoted by activities that involve learners in fantasy and make-believe through simulations and games that present them with situations not actually present (Lepper and Hodell, 1989).

There is evidence (Pintrich and Schunk, 1996) that intrinsic interest can promote learning and achievement in a positive way. Intrinsic motivation is a strong and positive force for the students. Harter (1981) distinguished between students who offer intrinsic rationales such as mastery, challenge, learning and curiosity from students who are more orientated to extrinsic considerations such as grades and rewards or approval of others (see Pintrich and McKeachie, 2000). These intrinsic and extrinsic orientations are to some extent parallel to the learning and performance goal theories presented by Dweck and Elliot (1983). According to Ruohotie (2000b), 'internal (learning) goal orientation may be to learn the content in a particular domain; to experience challenge, curiosity or joy through learning; or to increase self-worth. External (performance) goal orientation is related to external goals, such as grades, rewards or acceptance.' Learner goal orientation and task

value are considered to be the value components of motivation. They have an effect on individuals' choice of activities as well as their persistence at the task.

Wolters (1998) concluded that students have a variety of strategies to actively control their motivational engagement in a manner similar to the way in which students are thought to regulate their cognitive engagement. Students who reported using more intrinsic regulation strategies tended to report stronger learning goal orientation while students who reported more extrinsic regulation strategies tended to report greater performance goal orientation

2.3. PHASE II: PERFORMANCE OR VOLITIONAL CONTROL

> VOLITION (CONATION)
>
> Volition/conation refers to mental processes which help the organism to develop and the conative constructs include impulse, desire, volition and purpose striving (Ruohotie, 1998),

A century ago, psychology used to be defined as the study of three topics: conation (volition or will), cognition and emotion. Since then the question of volition has been almost entirely neglected (see Baars, 1992, p. 93). The German psychologists Julius Kuhl and Jurgen Beckmann (1985) note that psychologists seem to have removed volition from the investigative scene because they thought that it could be accounted for by motivation.

Heinz Heckhausen and Julius Kuhl started contemporary studies of volition in Germany in the mid-1970s. A solid foundation for volitional studies was established when Heckhausen (1980) and Kuhl (1981) published their key theories. They developed a complex information processing theory of motivation, volition and related cognition and emotion in the context of action-control (Heckhausen and Kuhl, 1985; Kuhl 1985; Corno, 1993). Corno (1986; 1993) and Snow et al. (1996) found volition theories important also from the educational point of view. Garcia et al. (1998) and McCann and Garcia (1999) have tested these theories recently.

According to the action-control theory, volition plays a mediating role between the intention to learn (motivation) and the use of learning strategies (cognitive engagement) (Garcia et al. 1998).

Students often face goals set by others (e.g. schools, teachers or parents) and they are expected to perform certain academic tasks. They have to maintain these goals and, on the other hand, they have to control their other, perhaps more interesting, thoughts and ideas. Ames (1990) and Cronbach and Snow (1977) have documented many distractions (for example, social pressure outside the classroom, large student groups and unstructured, repetitive or uncompleted tasks). Many of the volitional challenges in the school environment are not created by the students themselves but exist because learning requires some degree of compliance (see McCaslin and Good, 1992).

Corno and Kanfer (1993) mention two basic assumptions concerning the domain of volition in education. Firstly, volition is not directly observable or measurable, rather it is inferred from the effects of an identifiable set of inputs on behaviour (e.g. aptitudes, tasks, instructions). Secondly, research on self-regulated learning represents only one aspect of research on volition. Volition is conceptualised in terms of the combined effects of relevant potentials, intellectual abilities and related volitional styles, self-regulatory mechanisms, task characteristics and sociocultural demands (see Corno and Kanfer, 1993; Snow 1992).

Volition is believed to develop late in childhood based on a growing awareness of personal functioning, including cognition, motivation and affection. This developmental process is influenced by socialisation practises in the home and elsewhere (Kuhl and Kraska, 1989; Corno, 1989). ‘It therefore seems likely that successful volitional training will require the kind of naturalistic, guided or participant modelling and evidence of utility that has come to characterise more effective forms of cognitive strategy training as well’ (Corno, 1989, p. 119).

Social cognitive theory (Bandura, 1986) has provided a theoretical basis for the development of a model of self-regulated learning in which personal, contextual and behavioural factors interact in such a way as to give the students an opportunity to control their learning while at the same time setting limits to self-direction.

2.3.1. Affective, Cognitive and Conative Constructs

COGNITION

Cognition is a generic term for those processes through which an organism recognises and obtains information about a certain object (Ruohotie, 2000a)

METACOGNITION

Metacognition, or 'thinking about thinking,' refers to the knowledge and regulation of thinking and learning. It directs the learner's ability to reflect upon, understand and control his/her learning (Dart 1998)

CONSTRUCT

A construct is a hypothetical, psychological state – an inferred system, structure, process, force or activity that is seen in the regular patterns of observed behaviour (Ruohotie, 2000a)

Students have to know *what* the various strategies are and *how* they are used. They should also have conditional knowledge of *when* to use different strategies and *why* to use them, depending on their goals and tasks and the context (see Hofer and Pintrich, 1998, p. 66).

According to Ruohotie (1998), it is necessary to differentiate between cognitive, affective and conative constructs to understand differences in learning styles. A construct is a concept which represents a hypothesised psychological function, which can account for regular patterns of observed relations among behavioural measures (Snow et al., 1996, p. 248).

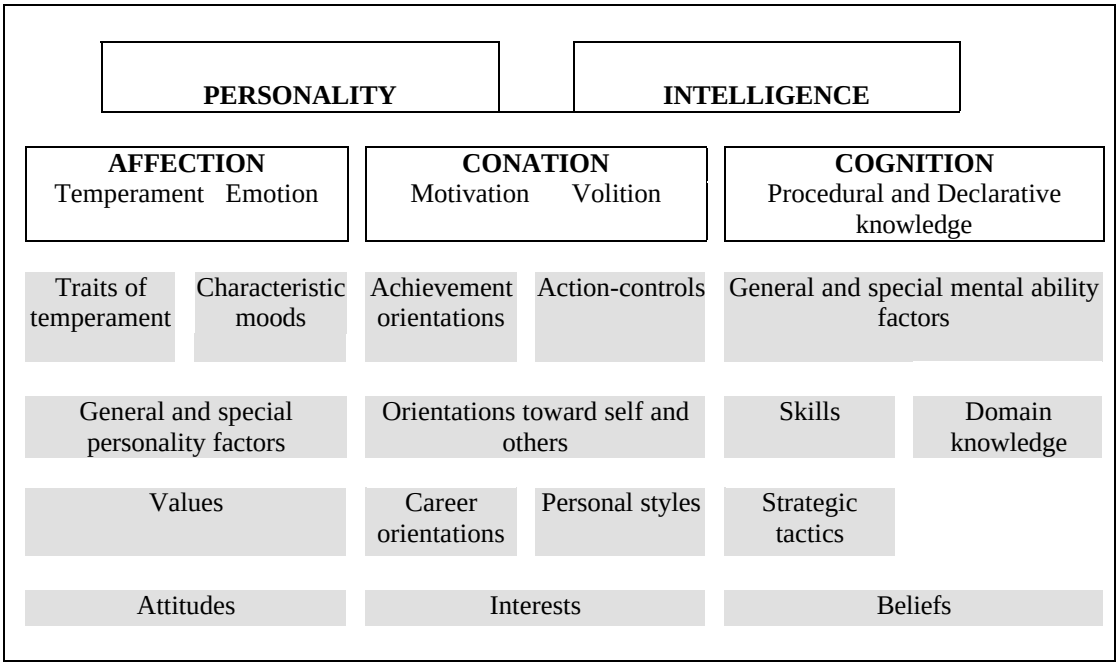
Cognitive constructs are, according to Ruohotie (2000a), processes which help an organism to recognise and obtain information. Cognitive constructs include concepts like perceiving, recognising, conceiving, judging and reasoning (see

Ruohotie, 1998, 2000a). Pintrich (1989) and Pintrich and De Groot (1990) have shown that the use of some cognitive learning strategies (e.g. rehearsal, elaboration and organisation) is related to academic performance in the classroom.

Affection can be subdivided into temperament and emotion. Temperament often refers to biological and constitutional characteristics (traits of temperament). Emotion refers to feeling states (characteristic moods) which are more directly situation-dependent (Snow et al., 1996).

Snow et al. (1996) present a taxonomy of individual difference constructs as a summary of affective, cognitive and conative constructs (see Figure 2.3.1.1). According to them, this kind of 'taxonomic structure is only a provisional lattice on which to hang theories, hypothesis and findings as research continues' (Snow et al., 1996, p. 248). In practice, it is impossible to keep many of the concepts in this taxonomy apart from each other.

Figure 2.3.1.1. Taxonomy of individual difference constructs (Snow et al., 1996)



As Snow remarks himself, the everyday constructs of intelligence and personality are shown as super-ordinate but cloudy — both terms are vague and value-laden in

popular discourse. The concepts of affection, conation and cognition are each divided in two sub-categories. Affection can be divided into temperament and emotion, conation into motivation and volition and cognition into procedural and declarative knowledge. Procedural knowledge can be defined as a set of rules or a recipe, which helps in applying knowledge. Declarative knowledge is a kind of knowledge network where concepts and facts are linked together.

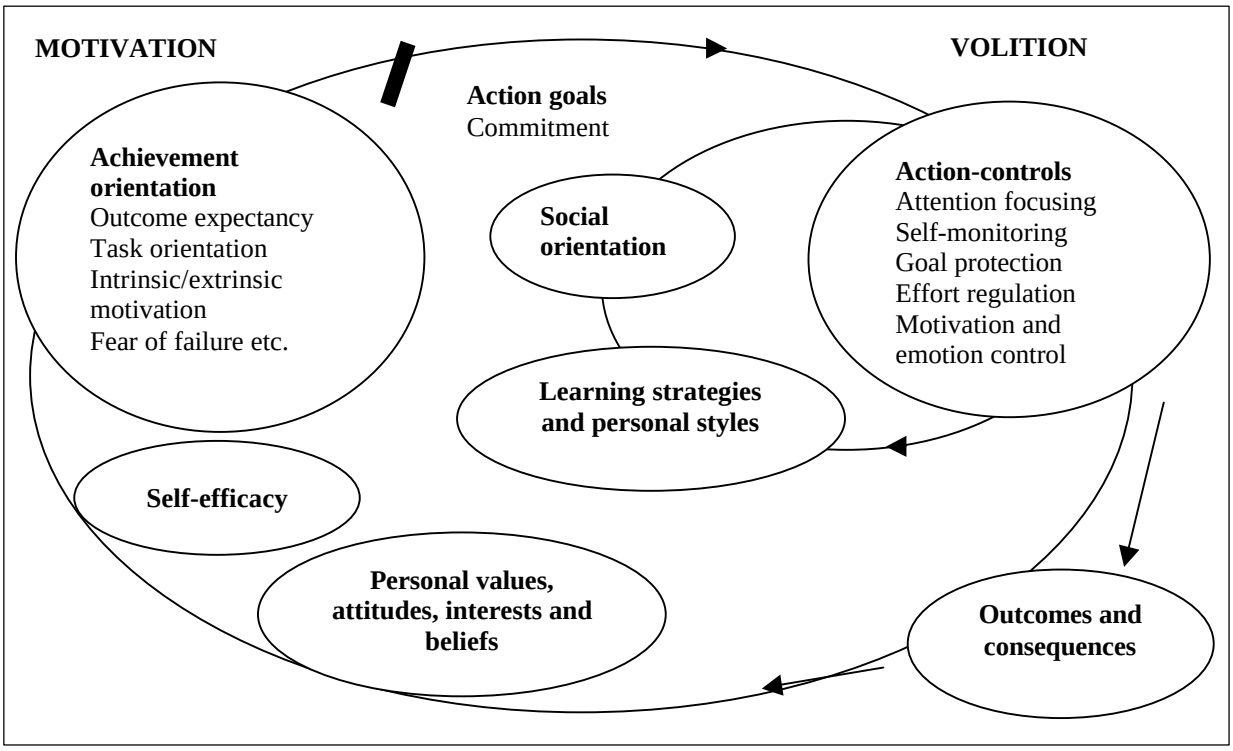
This study focuses on the concept of conation. The motivational structures of conation include internal and external goal-orientation, self-efficacy beliefs, task value interests and different interpretations of attribution (see Ruohotie, 2000a). Volitional structures include, for example, Kuhl's (1984; 1985) action-control factors (selective attention control, encoding control, emotion control, motivation control, environment control and parsimony of information processing), different control strategies and the styles of processing knowledge (see Ruohotie, 2000a).

According to Ruohotie (1994, p. 39), volitional processes form part of a larger self-regulating system, which includes motivation and related cognition and emotion. Volition helps the learner direct and control cognition, motivation and emotion. Some researchers (see Snow, 1992) prefer the term *conation* when referring to the combination of motivation and volition which describes the ability of an individual to assume responsibility, to perform his/her duties conscientiously and to accurately predict his/her success. According to Kuhl (1985), volitional processes are 'post-decisional' — they come into play after the decision to learn or complete an academic task has been made. In Zimmerman's (1998) learning cycle model, all volitional processes are preceded by a forethought phase (see Figure 2.2.1).

There is a distinguishing line between volition and motivation. Volition promotes the intent to learn and protects the commitment and concentration from competing action tendencies and other distractions (see Corno, 1989). For example, a student may be motivated to read a book in the evening. He or she is more or less motivated to do so. The student takes the book and starts to read (motivation has done its

work). Volitional processes (will) keep him or her reading, in spite of the fact that there is an interesting football match on TV**.**

Figure 2.3.1.2. Schematic representation of conative individual difference constructs in the motivation–volition cycle (Cf. Ruohotie, 1998; Snow, Corno and Jackson, 1996)



Corno (1993) and Snow et al. (1996) describe the volitional and motivational constructs in the learning situation graphically with '*dynamic spheres'* (see Figure 2.3.1.2). The relationships conveyed in the Figure are dynamic, non-linear and dependent on context. Corno does not make any distinction between pre- and post-decisional processing, or between metacognitive, meta-motivational and meta-affective (emotion control) activities. According to Corno (1993, p. 17), motivational factors help to determine the goals and the primary role of volition is in the management and implementation of these goals.

Action-controls are used to handle the competing intentions and distractions affecting attention processes or other goal-related actions in which students are engaged and to manage the student's resources efficiently. According to Snow et al. (1996) this category includes recent research on self-regulated learning.

In the learning situation, students who are open to external influences have to allow themselves to be open. Students can also make intentional efforts to influence others. For example, certain characteristics - such as empathy, persuadability and social intelligence - can differ depending on the students' attempts to influence others and on their willingness to be let others influence them (see Snow et al. 1996, p. 265).

2.3.2. Self-Control, Self-Observation and Self-Monitoring

Self-control processes, such as self-instruction, imagery, attention focusing and task strategies, help learners to focus on the task and optimise their effort (Zimmerman, 2000).

Self-management processes are fundamental subprocesses of self-regulated learning. Self-management includes components of goal setting, self-monitoring, self-instruction, self-evaluation and self-reinforcement/self-punishment (Belfiore and Hornyak, 1998; Seabaugh and Schumaker, 1994). Self-instruction refers to telling oneself how to proceed during a task. According to Zimmerman (1998), skilful self-regulators systematically use guides or techniques, such as self-instruction, to implement their strategies of learning. There is some evidence (Schunk, 1982) that self-instruction can improve students' learning. Self-instruction involves overtly or covertly describing how to proceed as one executes a task (Zimmerman, 2000).

Imagery or other kinds of mental picture can guide performance in learning some tasks or skills.

Attention focusing is a process to improve concentration and screen out other covert processes or external events (Zimmerman, 2000). Kuhl (1985) has studied the use of volitional methods of control, such as ignoring distractions and avoiding ruminating about past mistakes and found them to be effective.

Task strategies assist learning and performance by reducing a task to its essential parts and re-organising the parts meaningfully. There is lot of evidence (Weinstein and Mayer, 1986; Zimmerman and Martinez-Pons, 1988) of the effectiveness of the use of various task strategies for academic learning. These strategies include learning strategies, such as note taking, test preparation and reading for comprehension.

Self-observation refers to a person's tracking of specific aspects of his/her own performance, the conditions that surround it and the effects that it produces (Zimmerman and Paulsen, 1995). The information involved in complex performances can easily inundate naïve self -observers and lead to disorganised or cursory self-monitoring (see Zimmerman, 2000).

Academic self-monitoring refers to students' efforts to observe themselves as they evaluate information about specific personal processes or actions that affect their learning. 'Self-monitoring requires one to attend selectively to specific actions or cognitive processes, to distinguish them from other actions or processes and to discriminate their outcomes' (Zimmerman, 1995, p. 14). It can be divided into formal and informal self-monitoring:

1. *informal self-monitoring* involves casual observation or spontaneous reflection;

2. *formal self-monitoring* involves systematic observations and judgements which reflect not only the present activity but also historical and contextual personal events leading to and accompanying the activity.

Self-monitoring is important for several reasons:

1. it focuses the students' attention on a limited number of responses — when the student focuses on too many responses, no benefits are attained (Shapiro, 1984);

2. it helps the students to differentiate between effective and ineffective performance (Thoresen and Mahoney, 1974);

3. it reveals the inadequacy of a learning strategy and prompts the student to adopt a more suitable one (Pressley and Ghatala, 1990);

4. it can enhance study-management and use of study time (Zimmerman et al., 1994);

5. it fosters reflective thinking (Bandura, 1986) and can lead to better organisation of one's knowledge, more accurate self-judgements and more effective planning and goal setting for future efforts to learn (Zimmerman and Bandura, 1994);

6. it can help students to direct their attention, to set and adjust their goals and to guide their course of learning more effectively (Bandura, 1986; Corno, 1989).

Self-monitoring informs students about their own progress or lack of progress. Sometimes students fail in their self-monitoring and under- or over-estimate their academic success. This might lead, for example, to misplaced optimism which leads to low results.

Most self-regulation theorists view learning as a multidimensional process involving personal (cognitive and emotional), behavioural and contextual components. For an academic skill to be mastered, learners must behaviourally apply cognitive strategies to a task within a contextually relevant setting. This usually requires repeated attempts to learn because mastery involves coordinating personal, behavioural and environmental components, each of which is separately dynamic as well as jointly interactive. For example, no single cognitive learning strategy will work equally well for all students and few, if any, strategies will work optimally on all academic tasks. The effectiveness of a strategy may even change as a skill develops, such as when a novice science student shifts from a key-word strategy for memorising basic terms in a text passage to an organisational strategy for enhancing the integration of knowledge. As a result of these diverse and changing interpersonal, contextual and intrapersonal conditions, self-regulated learners must constantly reassess the effectiveness of their strategies.

2.3.3. Action-Control Theory

A student can believe in his or her self-efficacy and be highly motivated but still not be able to enact the intentions to which she or he is committed if his or her self-regulatory abilities are insufficient (Kuhl, 1981; 2000). Kuhl (2000) explains that he choose the term 'action-control' to avoid the term 'self-regulation', which he did not feel to be defined in functional-design terms. According to action-control theory (Kuhl, 1984; 2000), these processes are based on various mechanisms or strategies that help to keep a difficult intention active in the memory and shield it from competing action tendencies.

Action-control maintains and protects activated intention. It can operate in a *passive* or an *active* mode (Kuhl, 1987). Passive action-control is dependent on the current dominance relations among the competing action tendencies. Kuhl suggests that this is perhaps the only action-control model used by young children. They can maintain their current goal and action plan as long as it has stronger motivational power than other competing action tendencies. According to Kuhl and Kazen-Saad (1989, p. 286) active action-control supports a subordinate action tendency.

In his laboratory tests Kuhl showed that nine-year-old children have already started to use metacognitive strategies that help them protect a behavioural intention. Kuhl (1984; 1985) has described as follows six self-regulatory strategies actively used by adults to support their motivational intentions:

1. *selective attention control* 'facilitates the processing of information supporting the current intention and inhibits the processing of information supporting competing tendencies' (Kuhl, 1986, p. 427);

2. *encoding control* facilitates the protective function of volition by selectively encoding those features of stimuli that are related to the current intention (see Kuhl, 1987, p. 287);

3. *emotion control* facilitates the protective function of volition by inhibiting emotional states that might undermine the efficiency of volition (see Kuhl 1987, p. 287);

4. *motivation control* refers to a feedback relation from self-regulatory process to their own motivational basis (Kuhl, 1984) and plays an important part when the current intention is supported by a weak action tendency;

5. *environmental control* strategies may develop from the more basic strategies; according to Kuhl (1986, p.428) emotional and motivational states may be controlled by manipulation of the environment (for example, people who are on a diet may tell others about their regime, hoping that the social pressure will help them maintain the intention);

6. *parsimony of information processing* is an aspect of volitional control related to the definition of 'stop-rules' for information processing (see Kuhl, 1986, p.428); efficient action-control requires that an individual finds the optimal length for his or her decision-making process.

Volition directs and controls intellectual, emotional and behavioural energy towards academic and other goals, which are subjectively difficult to enact (Kuhl, 1986).

Self-control, the conscious form of action-control based on suppression of unintended processing, is only one of the two fundamentally different forms of central (i.e. volitional) control of motivational processes (Kuhl, 2000). Self-regulation is described in terms of largely implicit (unconscious) processes that integrate as many subsystems and processes as possible for the support of a chosen action (see Kuhl, 2000). The openness to self-related thoughts and feelings that is characteristic of self-regulation can be compared to an inner democracy, whereas self-control can be described in terms of inner dictatorship. In self-regulation, the self forms the basis of self-regulation, providing cognitive and emotional support for self-generated goals and actions. In self-control, 'the self is the target of self-control

self -regulated thoughts and feelings are suppressed to reduce the risk that any self-related thought or feeling that might be incompatible with the current conscious intention could take over' (Kuhl, 2000).

3.3.4. Personality Systems Interactions

Kuhl has developed a broader theoretical framework (the theory of the personality systems interactions, PSI) to answer the theoretical questions raised by action-control theories. Volitional competence can be related to the ability to stick to an intention and shield it against competing action tendencies (see Kuhl, 1981, 1996). It is an array of conflict-resolution mechanisms and strategies (see Kehr et al., 1999). The term 'volition' is used in this context as a general concept encompassing various forms of central coordination of mental subsystems (e.g. emotion, motivation, attention, temperament) according to a guiding principle called an active goal or intention. According to Kuhl (1996), concepts such as self-regulation and volition do not refer to a unitary mechanism or function, but can be decomposed into several mechanisms and strategies that people use to maintain their goals (attention control, motivation control, emotion and activation control, goal maintenance and impulse control).

Kuhl (1996) developed the personality systems interactions theory (PSI theory) to resolve the conceptual paradoxes of volition. PSI theory specifies the differences between the concepts of motivation and self-regulation and integrates them within a coherent framework (Kuhl, 2000). According to PSI theory, the adaptive value of volitional failure may be seen in preparing the individual for an environment that entails many unpredictable dangers: if it is not known from which direction a predator will come next time, it is better to inhibit complex representations of prognostic knowledge, the totality of one's own preferences and needs and volitionally supported goal-maintenance functions, in order to maximise attentional orienting. PSI theory offers an interesting framework for understanding the inhibitory effect of reward and punishment activity on volition (e.g. reduced planning and goal maintenance). It describes the interaction of the approach and

avoidance systems at many levels (volition and consciousness, motivation and emotion, and cognition and behaviour). Kuhl (1996) also uses PSI theory to distinguish the two states he calls 'self-regulation' and 'self-control'. These two volitional modes have a common function, which can be described in terms of central coordination of the various mental macrosystems (e.g. thinking, holistic feeling, intuitive operations and elementary sensation) in a way that maximises goal attainment, self-maintenance or both (see Kuhl, 1996). He argues that self-regulation is the mode supporting self-maintenance (which can be compared to democratic leadership of mental processors through the central coordination system) and self-control is the mode supporting goal maintenance (which can be regarded as an inner form of mild or sometimes stern dictatorship).

Unfortunately, like many good answers to complex questions, the PSI model is somewhat complicated and impractical; moreover it is not easily applicable to the purposes of educational research. That is why I have decided only to make reference to it in this study and not to fully adopt it. In this context I have to mention, that all the other models of self-regulated learning are under development, too.

Another interesting theory to explain 'self-forcing' strategies was presented by Deci and Ryan (1985; 1991; Deci, 1980). They distinguished self-determination from will; will was described as 'the capacity of the human organism to choose how to satisfy its needs'; self-determination as 'the process of utilising one's will' (Deci, 1980). Self-determination requires that people are aware of their strengths and limitations and they have to make choices to determinate how to satisfy their needs and resolve their conflicts. Intrinsic motivation is the human need to be competent and self-determining in relation to the environment (Deci, 1980). Pintrich and Schunk (1996) concluded, that 'the need of intrinsic motivation energises people's wills, and the will uses the energy of intrinsic motivation to satisfy needs, resolve conflicts among competing needs and hold needs in check. Intrinsic motivation is satisfied when an individual acts wilfully.'

2.3.5. Educational Aspects of Action-Control Theory

Corno (1986; 1993) has defined and exemplified Kuhl's (1984; 1985) six strategies of volitional control as they might appear in school settings, reflecting the meta-components of self-regulated learning (see Tables 2.3.5.1 and 2.3.5.2). In the Corno model, there are two major categories*: covert processes of self-control and overt processes of self-control* (controlling the self by controlling one's environment).

Covert processes include *cognition control, emotion control and motivation control*. Cognition control has three sub-categories:

1. *attention control* (the students' attention is selective to task-relevant information);

2. *encoding control* (students regulate their efforts according to their tasks); and

3. *information processing control* (students' try to engage in parsimony of information processing and the use of stop-rules).

Emotion control strategies help the student to control emotional states which might disrupt or inhibit his or her action. Good examples of such emotions are anxiety or feelings of inadequacy. 'When individuals learn to identify these emotional intrusions and to disengage from them, a focus on action and better goal completion can result' (Corno, 1993).

Motivation control strategies enhance or strengthen the motivational basis of intentions, regulating the attributes of goals and tasks, their enactment and their outputs (see Corno 1993). Corno presents three sub-categories of motivation:

1. *incentive escalation* (self-rewards or self-punishments);

2. *attribution/self-reinforcement* (self-reinforcement and reassurance); and

Table 2.3.5.1. Categories, definitions and examples of volitional strategies: covert processes (Corno, 1993)

I. Covert processes of self-control

A. Cognition control: managing the cognitive aspects of a task

1. Attention control

Definition: statements indicating student efforts to give selective attention to task-relevant information

Example: 'I'll try to make myself concentrate more on the work rather than letting my mind wander off somewhere else

2. Encoding control

Definition: statements indicating student efforts to act as if some parts of the task are more important to understand and act upon than others

Example: ' I have to go over the test and see where I made mistakes…go over the same test that I just had. I go over my notes, make sure I know what's going to be on the test'

3. Information-processing control

Definition: statements indicating student efforts to engage in parsimony of information processing and to apply stop rules for information processing: specifically, efforts to quickly assess the steps needed to perform a task and get down to business, efforts to avoid using strategies that overtax the information-processing system, or efforts to elect a time-out from the task for a brief period as a way of regrouping and refreshing themselves

Example: 'If I'm really tired, then the first thing I would think of is getting maybe an hour of sleep and then go to (the task), because then I'm able to concentrate better'

B. Emotion control: managing the affective aspects of a task

Definition: statements indicating student efforts to manage the affective aspects of a task and to control potentially debilitating states of worry or anxiety

Example: ' And I said, 'Now, sit down, try to relax''

C. Motivation control: managing the expectancy aspects of a task

1. Incentive escalation

Definition: statements indicating student efforts to focus on imagined or realistic positive or negative consequences, including self-reward or self-punishment

Example: ' I have to pass (the test): if I don't pass it, I'm not going to pass the class. I'll probably have to repeat it again or get an F, which I don't want to go to my record'

2. Attribution/self-reinforcement

Definition: statements indicating student efforts to provide self-reinforcement and reassurance

Example: 'Sometimes I get it and I congratulate myself'

3. Self-instruction

Definition: statements indicating student efforts to 'tell' themselves necessary acts or steps to accomplishing a task

Example: 'Let's try to think about this'

3. *self-instruction* (students efforts to 'give themselves instructions' to accomplish a task).

Overt processes of self-control consist of *environmental control* and *control of others in the task situation* (see Table 2.3.5.2). Environmental control includes two

sub-categories: *task control* and *setting control*. Task control processes can be defined as the students' efforts to determine how and when a task should be completed (Trawick and Corno, 1995). Setting control processes can be defined as the students' efforts to arrange a place where a task can be completed.

Table 2.3.5.2. Categories, definitions and examples of volitional strategies: overt processes (Corno, 1993)

II. Overt processes of self-control
A. Environmental control
1. Task control
Definition: statements indicating student efforts to streamline or simplify a task or to determine hov and when a task is to be completed
Example: 'I get all the necessary materials that I need: books, dictionary, whatever it takes'

2. Setting control
Definition: statements indicating student efforts to determine or arrange where a task is to be completed
Example: ' I'll try to get a quiet place by myself'

B. Control of others in the task situation
1. Peer control
Definition: statements indicating student efforts to use peers as a resource or to arrange situations s that friends do not detract from educational goals
Example: 'I might ask if she can get tickets another day, or say…if you are my friend, you woul understand that I can't go with you'

2. Teacher control/assistance
Definition: statements indicating student efforts to obtain special assistance from teachers
Example: ' I would ask the teacher if I can do it another day'

Control of others in the task situation consists of:

1. *peer control* (students' efforts to use peers as a resource or students' efforts to avoid being distracted from their educational goals by their friends); and

2. *teacher control/assistance* (students' efforts to obtain assistance from teachers or instructors).

It should be noted that volitional processes are hypothetically trainable like other learning and task-management strategies. However, they are 'less amenable than most cognitive strategies to a quick fix, because like all meta-level processes, volitional processes have strong developmental roots' (Corno, 1989).

2.4. PHASE III: SELF REFLECTION: SELF-JUDGEMENTS, SELF-EVALUATION AND CAUSAL ATTRIBUTIONS

Self-judgment involves self-evaluating your own performance and attributing causal significance to the results. Self-evaluation refers to comparing self-monitored information with a standard or goal (see Zimmerman, 2000).

Attributions are beliefs concerning the causes of outcomes, such as whether a poor performance is due to one's limited ability or to insufficient effort (Weiner, 1979). Weiner (1986) has also noted that studies of spontaneous attributional search suggest that a negative outcome to an event, regardless of prior expectations, will usually lead to an attributional search. Thus students are more likely to search for causes of their failures than for causes of their successes. According to Zimmerman (1998, p. 5), attributional processes are pivotal to self-reflection because the attribution of errors to lack of ability compels learners to react negatively and to give up trying to improve.

Attributions might be more likely in relatively new situations where students do not have much prior knowledge or expectation. Pintrich and Schunk (1996, p. 127) propose that attribution theory would suggest that a general cognitive mastery goal would be operative and students would search to understand why things are happening and look for the causes of events.

According to Pintrich and Schunk (1996, p. 129) 'the list of causes for success and failure provides a description of the content of attributions, but these attributions, in and of themselves, are not particularly motivational in nature'. It seems that the motivational influence of attributions derives from their classification into dimensions based on an analysis of their causal structure. These dimensions provide the psychological significance and meaning of the attributions.

Environmental (specific information, social norms, situational features) and **personal** (causal schemata, attributional biases, prior knowledge, individual difference) factors can influence attributions.

Weiner (1986) also proposes *locus* (which refers to whether a cause is seen as internal or external to the person)**,** *stability* (changeability of the cause over time and situation) and *controllability* (perception of control, varying from uncontrollable to controllable) as dimensions of the attributions.

Many cross-cultural studies have found that ability and effort are perceived as common causes of success and failure in most countries. However different cultures may classify specific attributions in different dimensions (see Chapter 3).

2.5. SELF-REGULATED STRATEGIES

Most self-regulation theorists view learning as a multidimensional process involving personal (cognitive and emotional), behavioural and contextual components (Zimmerman, 1986; 1989). For an academic skill to be mastered, learners must behaviourally apply cognitive strategies to a task within a contextually relevant setting. This usually requires repeated attempts to learn because mastery involves coordinating personal, behavioural and environmental components, each of which is separately dynamic as well as jointly interactive.

Self-regulated learning involves the three general aspects of academic learning (Pintrich, 1995):

1. *active control of the various resources* students have available (time, study environment and their use of others (such as peers and faculty members) to help them (Garcia and Pintrich, 1994; Pintrich et al., 1993));

2. self-regulation of motivation and affect, which involves *controlling and changing motivational beliefs* (efficacy) and goal orientation; students can

also learn how to control their emotions and affect (such as anxiety) in ways that improve their learning;

3. self-regulation of cognition which involves the *control of various cognitive strategies for learning*, such as the use of deep processing strategies that result in better learning and performance than students showed previously (Garcia and Pintrich, 1994; Pintrich et al. 1993).

The effectiveness of the use of these strategies will change as a skill develops. Zimmerman (1998) reminds us that, as a result of changes in interpersonal, contextual and intrapersonal conditions, self-regulated learners must constantly reassess their effectiveness.

Table 2.5.1. Phases and areas for self-regulated learning (Pintrich, 2000a)

PHASES	COGNITION	MOTIVATION/ AFFECT	BEHAVIOR	CONTEXT
Forethought, planning and activation	Target goal setting; prior content knowledge activation; meta cognitive knowledge activation	Goal orientation adoption; efficacyjudgments; easeof learning judgments and perceptions of task difficulty; task valueactivation; interestactivation	Time and effort planning; planning for self-observations of behaviour	Perceptions of task; perceptions of context
Monitoring	Metacognitive awareness and monitoring of cognition	Awareness and monitoring of motivation and affect	Awareness and monitoring of effort, time use, need for help; self-observation of behaviour	Monitoring changing task and context conditions
Control	Selection and adaptation of cognitive strategies for learning and thinking	Selection and adaptation of strategies for managing motivation and affect	Increase/decrease effort; persist, give up; help-seeking behaviour	Change or re-negotiate task; change or leave context
Reaction and reflection	Cognitive judgments; attributions	Affective reactions; attributions	Choice behaviour	Evaluation of task; evaluation of context

Table 2.5.1 summarises the framework for classifying the different phases and areas of regulation. The four phases (rows) are processes that many models of self-regulation and self-regulation share (e.g. Pintrich, 2000a; Zimmerman, 1998) and reflect goal-setting, monitoring and control and regulation processes. The four

columns represent different areas for regulation that an individual learner can attempt to monitor, control and regulate (see Pintrich, 2000a).

2.5.1. The Development of Self-Regulatory Skills

According to Ruohotie (2000a), self-regulation of learning is not always conscious, complex or metacognitive. It may also develop, like other skills, to a level where it is automatic and seems simply natural. The roots of this automatic behaviour may, however, be deep, since such subconscious self-regulation is based on knowledge, skills and beliefs that have been integrated through learning experiences over a long period of time.

It is important to develop learners' concepts of self-regulation and their skill in its use in order to enable them to be effective lifelong learners (Paris and Newman, 1990; Pintrich and De Groot, 1990; Schunk and Zimmerman, 1994). Increasing learners' perception of personal control has produced positive results. It also increases the likelihood that adopted skills and strategies will be used in new learning situations (see Ruohotie, 2000a).

Zimmerman (2000; see also Ruohotie, 2000a) identifies four different levels in the development of self-regulatory skill:

1. An *observational level* of skill occurs when learners can induce the major features of the skill or strategy from watching a model learn or perform. In addition to strategic skills, models develop performance standards, motivational orientations and values.

2. An *emulation (imitation) level* of self-regulatory skill can be described as imitative performance of the general pattern or style of a model's skill with social assistance. The model can improve the learner's approximation of the desired performance by providing guidance, feedback and social reinforcement during practice.

3. A *self-controlled level* of self-regulatory skill is attained when the learner masters a skill in a structured setting even in the absence of the model. The application of the skill depends on an internalised model that is, the representational standards of the model's performance, such as mental or verbal recollections of the model's performance.

4. A *self-regulatory skill* is achieved when the learner can systematically adapt his or her performance to changing personal and contextual conditions. The learner can vary the use of task strategies and make adjustments based on various conditions. He or she is no longer dependent on the model. The learner's own self-efficacy beliefs determine the motivation needed to sustain this level of self-regulatory skill. The mastery of self-regulatory skill means that the learner need not pay overt attention to the learning process, but can shift his or her attention to the outcomes.

The learning of a self-regulatory competence begins with the most extensive social guidance and this social support is systematically reduced as the learner acquires underlying self-regulatory skill. Even it is not necessary to advance through the four levels to master a self-regulative competence, there is some evidence that the speed and quality of learners' self-regulatory development can be enhanced significantly if learners proceed according to a multilevel development hierarchy (see Kitsantas et al. (1999); Zimmerman, 2000).

3.5.2. Self-Regulatory Processes in Practice

In practice, teachers can recognise self-regulated academic learners easily in the classroom. They are well prepared and they are interested in the subject matter. They make comments, ask questions and are ready to solve problems. Self-regulated learners are also ready to admit if they do not know the answer, or if they do not understand the teacher's ideas. They do not fear failure and if they do fail, they can learn from that too.

An individual has free will — he or she is able to make conscious choices and has the ability to monitor his or her own actions. Through self-regulation individuals control their actions so that the selected goals are achieved. Moreover, scientific evidence has shown that positive academic outcomes are related to students characterised as self-regulated learners (Pintrich and De Groot, 1990; Zimmerman and Martinez-Pons, 1990). Researchers (for example, Zimmerman and Martinez-Pons, 1986; 1992; Pintrich and De Groot, 1990; Schunk and Zimmerman, 1994) have proved that 'a common set of self-regulatory skills does exist, that these skills are highly predictive of students' academic success and that these skills can be taught' (Zimmerman and Paulsen, 1995).

Students can monitor their own behaviour, motivation and cognition and they can regulate and adjust these to fit the demands of the situation. The goal provides the standard by which students can monitor and judge their own performance and then make the necessary adjustments. It is important for self-regulated learning that individual students control their own actions — that they do not simply respond to a requirement from the teacher.

Successful use of strategies requires feedback from different sources. One of the essential features of self-regulated learning is the dynamic utilisation of the internal and external feedback system. An example of the use of external feedback could be a student who is analysing the teacher's comments by comparing them with his or her own conception of the learning situation.

When students are rethinking their goal settings and choice of strategies, while evaluating outcome products, they are getting internal feedback from the learning process. Information that is cognitively processed during self-regulation is available for inspection in working memory. Thus the process is reflective and planned (see Ruohotie, 1998).

Zimmerman (1998) and Ruohotie (2000a) compare skilful and naïve self -regulated learners in their recent articles (see Table 2.5.2.1). They show that naïve self -

regulators may not be lacking goals, but they are handicapped by the low quality of their goals. These goals tend to be non-specific and they lead to poor performance or volitional control and limited forms of self-reflection (Zimmerman, 1998). Naïve self-regulators lack self-efficacy and they try, for example, to avoid learning situations where their performance will be evaluated and compared with others. They have difficulties getting interestedin the topic or skill to be learned and they attribute problems to outside factors (e.g. a boring task). They have difficulties concentrating due to distracted thoughts or failures bothering their mind. Their choice of learning strategies might be achieved through trial and error and they may, in some cases, intentionally protect themselves from failure by leaving tasks undone.

On the other hand, skilful self-regulators form learning and performance goals and they are task orientated. They have strong self-efficacy beliefs that leads to strong motivation to learn and affective self-regulation. They show genuine intrinsic interest in the task and they search out opportunities, putting effort into learning and perceiving despite possible problems. They adapt and develop their own learning strategies and methods and they observe their learning and performance (c.f. Ruohotie, 2000 a).

Table 2.5.2.1. Differences between naive and skilful learners in self-regulation (Zimmermann, 1998; Ruohotie, 2000a)

PHASE	NAIVE SELF-REGULATOR	SKILFUL SELF-REGULATOR
Goal setting	Forms non-specific and distant goals leading to poor conditions volitional control and self-regulation	Forms a graduated system with proximal steps leading to distant goals; goals are challenges that give learners an opportunity to evaluate their personal progress
Goal orientation	Forms his/her own, ego-orientated performance goals and in achieving these aims at being better than others and getting appraisal for his/her performance. Tries to avoid learning situations if performance is to be impartially evaluated and compared with others	Forms learning/performance goals and is task-orientated; that is, desires to increase his/her competence and values learning experiences in their own right

Table 2.5.2.1. Differences between naive and skilful learners in self-regulation (cont) (Zimmermann, 1998; Ruohotie, 2000a)

PHASE	NAIVE SELF-REGULATOR	SKILFUL SELF-REGULATOR
Efficacy beliefs	Lacks self-efficacy and does not believe in his/her own potential; is anxious about learning and avoids learning opportunities	Has strong self-efficacy beliefs that lead to a strong motivation to learn and to affective self-regulation, enables setting of high goals, self-monitoring and favourable result expectations.
Concentration	Often finds it hard to concentrate due to disturbances in the environment, distracted thoughts, or errors and failures bothering the mind	Concentrates attention on own learning/performance.
Strategies of learning	Trusts in experience gained through trial and error; may in some cases intentionally protect self from failure by leaving tasks undone or by delaying them	Adapts and develops own learning techniques and methods such as verbalization or use of modelling imagery to improve his/her performance
Self-monitoring	Does not monitor own learning; depends on random information regarding own performance	Observes own learning and if necessary$_1$ alters own performance
Self-evaluation	Self-evaluation in relation to earlier learning or performance becomes impossible due to vague goals and random self-control; thus, comparing own learning and performance to others' is the only possibility (social comparison)	Evaluates own learning and performance; self-evaluation is based on clear goals and careful self-control; compares current learning to own earlier performance
Attributions	Attributes poor performance to ability limitations; this leads to negative performance expectations and undermines effort	Attributes poor results to wrong strategy, method or insufficient practice
Intrinsic interest	Has trouble developing an intrinsic interest in a topic or skill to be learned and attributes problems to outside factors such as an uninspiring teacher or boring tasks	Shows genuine interest in the topic or action to be learned; searches actively for learning opportunities, exerting effort to learn and persevering despite problems
Result expectations	Does not believe he/she can manage demanding tasks without help.	Believes he/she can manage tasks, reach goals and improve results and performance.
Adaptation	Is unsystematic in self-regulation and often trusts in intuition and guesswork to improve performance	Improves and regulates performance with the help of clearly set goals and careful self-control and self-evaluation; takes contextual factors into account as they may prevent or disturb adaptation of the selected strategy or method (e.g., variations in exercises or working environment); knows that finding the optimum learning methods usually requires a lot of practice

3. CROSS-CULTURAL PERSPECTIVES

3.0. A CROSS-CULTURAL FRAMEWORK – THEORETICAL BACKGROUND

Students, teachers and parents from different cultural background often have slightly different values, ideals and expectations. These values affect on everyday life in the school environment in many ways. I have been teaching in multicultural school environments for the last twelve years. For the last five years I have worked as a deputy head at the European School of Luxembourg. At present this school has 3,650 pupils, 420 teachers and 11 official languages and language sections. I observe cultural differences on a daily basis and must often solve problems based on these differences.

The present study assesses self-regulated aptitudes, motivational orientations and the use of learning strategies among secondary students from three different international schools in Finland and Luxembourg. The students in this study represent 14 nationalities (see Table 4.0.3) and they are mainly taught in one of four languages (Finnish, German, English and French). It was useful and interesting to find out if there would be significant differences between the schools in the questionnaire results. It is necessary to point out, that the questionnaires used in this study were not designed to measure cultural differences in the first place.

To understand the results of this study it is necessary to take a closer look at some aspects of the cultural and situational differences of learning. According to Little (1998), the constraints, values and naturally occurring contingencies embedded in the overarching sociocultural fabric of any given society guide children's achievement behaviour and shape their related beliefs. Some factors operate in similar ways in many different cultures, whereas others emerge in their own, unique, indigenous forms (Salili, 1994). This suggests that it might be possible for people in different cultural contexts to develop sets of cognitive, emotional and

motivational patterns that enable them to function adaptively in situations that are common and recurrent in those cultures (see also Niemivirta et al., 2001).

Weiner (1990) concluded that motivation must be considered within the context of social values and super-ordinate culture. Hickey and McCaslin (2001) compare and analyse the concept of 'contextual motivation' in the three different epistemological perspectives corresponding to the theories associated with Skinner, Piaget and Vygotsky. They label them as behavioural/empiricist, cognitive/rationalist and situative/sociocultural theories.

Even though the main theories and the main instrument used in this study (MSLQ) clearly share the values of the cognitive/rationalist theories, I have taken the liberty of expanding the vision towards situative/sociocultural perspectives.

Traditionally, it is assumed that behaviour is determined by individual goals and needs with limited influence from others or from the environmental context (see Jackson et al., 2000). It is also claimed that the focus on the self is primarily derived from the western, i.e. European, male-dominant culture that encourages individuals to be 'autonomous, self-directing, unique and assertive and to value privacy of choice' (see Jackson et al., 2000; Kim et al., 1994). Social context calls upon individuals to adapt their behaviour toward group-oriented goals: 'Individuals direct their behaviour to achieve goals that are beneficial to their social network affiliations (e.g. organisations, families) as well as for their individual gain' (Jackson et al., 2000).

In Chapter 2, a social-cognitive perspective on learning is presented in viewing self-regulation as an interaction of personal, behavioural and environmental triadic processes (Bandura, 1986; Zimmerman, 2000.). Environmental self-regulation refers to the observation and adjustment of environmental conditions and outcomes. Environmental and personal processes interact bi-directionally in naturalistic settings (see Figure 2.1.1). That is why Zimmerman (2000) suggests that individuals who fail to use social and physical environmental resources or who view them as an

obstacle to personal development will be less effective in regulating their lives. Internal views of self-regulatory functioning, such as will-power beliefs, are often based on insufficient information about the social and environmental nature of skilled functioning (Ericsson and Charness, 1994; Newman, 1994; Thoresen and Mahoney, 1974).

The social environment influences all the phases of self-regulation (see Figure 2.1.1). Individuals form standards for self-evaluative judgement on the basis of instruction, social feedback and modelling from peers, parents, teachers and coaches (Zimmerman, 2000). The social and physical environment is viewed, from the social cognitive point of view, as a resource for self-enhancing forethought, performance or volitional control and self-reflection (c.f. Figure 2.2.2).

According to Hickey and McCaslin (2000), the cognitive/rationalist view of learning is in terms of an intrinsic sense-making process in which 'the engagement in learning occurs quite naturally when experience is inconsistent with current understanding. Therefore engagement in learning is a function of prior knowledge, experience and understanding, relative to the environment in which learning is expected to take place.' Social cognitive theory (Bandura, 1986; 1989) has provided a theoretical basis for the development of a model of self-regulated learning in which personal, contextual and behavioural factors interact in such a way as to give the students an opportunity to control their learning while at the same time setting limits to self-direction. According to Hickey and McCaslin (2000), there are aspects of social cognitive theory that are consistent with empiricist, rationalist and sociocultural perspectives; however they argue that many of the key elements of situative/sociocultural perspectives cannot be captured within social cognitive models.

Some researchers who consider motivation from a sociocultural perspective (e.g. Järvelä and Niemivirta, 1999; Op't Eynde et al., 2001) argue for a continued reliance on individually-oriented constructs such as self-regulation as well as the

enhanced study of social and environmental preconditions and interactions (see Hickey and McCaslin, 2000, p. 44).

According to Volet (2001), there is growing empirical evidence of cognitive, motivational, volitional and emotional sensitivity to tasks and activities in relation to relatively stable factors and macro-level contextual influences (Boekaerts, 1997; 1999; Schiefele and Csikszentmilhalyi, 1995; Volet, 1997) and of knowledge structures activated in response to situational cues and circumstances (Boekaerts and Niemivirta, 2000; Pintrich, 2000a).

The data collected for this study was investigated in the light of four different cultural dimensions of the learning environment: individualism/collectivism, power distance, uncertainly avoidance and masculinity/femininity (see Table 5.1.1). The results of this analysis are presented in Section 5.1; they are discussed in Section 7.0 and my conclusions are presented in Section 8.0.

3.1. PRIVATE, PUBLIC AND COLLECTIVE SELF

People in different cultures have different constructions of the self and of others. These constructions can influence the very nature of individual experience, including cognition, emotion and motivation. Markus and Kitayama (1991) describe two divergent constructions of the self — an independent view and an interdependent view. The most significant difference between these constructions is in the role that is assigned to the other in self-definition (Markus and Kitayama, 1991, p. 245).

The major distinction among aspects of the self is between private, public and collective self (see Triandis, 1989, p.507):

1. *private self* — cognitions that involve traits, states or behaviours of the person (e.g. I am shy, I am honest, I will buy that car);

2. *public self* — cognitions concerning the generalised other's view of the self (e.g. people think that I am shy, people think I will buy that car);

3. *collective self* — cognitions concerning a view of the self that is found in some collectives (e.g. my parents thinks that I am shy, my friends believe that I spend too much money).

Triandis (1989) suggests that people sample these three kinds of selves with different probabilities in different cultures and this has specific consequences for social behaviour. There are some universal aspects of the self (e.g. I am hungry), which may have the same meaning around the world and across time. Other aspects are extremely culture-specific (e.g. religious beliefs).

Culture may be defined as 'the collective programming of the mind which distinguishes the members of one human group from another' (Hofstede, 1980). According to Triandis et al. (1990) a distinction should be made between cultural, demographic and personal constructs of culture.

Speakers of a particular dialect, living in geographical proximity, during the same historical period, share *cultural level constructs*. These include shared norms, roles, values, associations and so on. Only particular demographic groups within a culture, such as men or women, the old or the young, share *demographic level constructs***.** *Personal level constructs* result from a pattern of construct variation unique to an individual, which cannot be meaningfully interpreted by any demographic of cultural membership.

Hofstede (1980, 1991) has empirically identified important differences in cultural value systems in matched samples of employees belonging to the same multinational company in more than 40 countries.

3.2. INDIVIDUALISM/COLLECTIVISM IN THE LEARNING ENVIRONMENT

Collectivist cultures promote the view that people belonging to a group deserve lasting loyalty from other members of the group, who cannot easily free themselves from this obligation. Group members will receive protection from other members of the group. Individualist cultures promote the view that people should mainly and primarily look after their own welfare. They value autonomous definition of the self and individual goals more than group goals (see Oettingen, 1995).

Hofstede (1991) claims that families in cultures with a strong emphasis on collectivism teach their children to love and respect the needs of their in-group. In school, pupils pursue the performance goals of demonstrating required competencies more than the learning goals of expanding their competencies (Ames, 1992; Dweck and Leggett, 1988; Oettingen, 1995) and they create a social reality that makes their performance outcomes noticeable to their collective. In cultures high on individualism, children are expected to learn how to learn. According to Oettingen (1995) performance outcomes are seen as instrumental to achieving self-actualisation and the realisation of individual potential.

Markus and Kitayama (1991) have described the same phenomena with the concepts 'independent/interdependent construal of self'. Table 3.2.1 summarises the key differences between an independent and an interdependent construal of self (Markus and Kitayama, 1991, p. 230).

Individualism/collectivism was not measured in this study with any specific scale, but two MSLQ scales (peer learning and help-seeking) might give us some idea of differences in social orientation.

Table 3.2.1. Key differences between an independent and an interdependent construal of self (Markus and Kitayama, 1991, p. 230)

Feature compared	Independent	Interdependent
Definition	Separate from social context	Connected with social context
Structure	Bounded, unitary, stable	Flexible, variable
Important features	Internal, private (abilities, thoughts, feelings)	External, public (roles, relationships)
Tasks	Be unique; express self; realise internal attributes; promote own goals; be direct, 'say what's on your mind'	Belong, fit-in; occupy one's proper place; engage in appropriate action; promote others' goals; be indirect, 'read other's minds'
Role of others	Self-evaluation: others important for social comparison, reflected appraisal	Self-definition: relationships with others in specific contexts define the self
Basis of self-esteem	Ability to express self, validate internal attributes	Ability to adjust, restrain self, maintain harmony with social context

3.3. POWER DISTANCE IN THE LEARNING ENVIRONMENT

If there is a large disparity in power in a society, people learn to accept inequalities in power. In cultures with small power disparity, people value more equal distributions of power. Hofstede suggests that ideas of power distance affects school life by focusing on pupils' relationship to authority. In a culture with large power differential, children are taught to obey their parents and to treat them as superiors. Education is teacher-centred (see Stipek, 1988) and students expect teachers to control their educational activities. Parents support the teacher. The teacher has a powerful influence and the pupils tend to judge their capabilities in terms of the teacher's evaluations. Peers are also perceived through the values of teachers. Emotional distress over poor academic performance can contribute to a sense of inefficacy.

On the contrary in cultures with small power differentials, children are encouraged to express their views and they become the creators of their own performance history. Education is child-centred and teachers expect students to initiate communication, have critical ideas and to find their own ways of learning. Parents are expected to side with their child . Students' views of peer performance are less affected by the force of their teachers' or parents' evaluations because of their lesser influence (see Oettingen, 1995).

The power distance aspect was not specifically measured in this study. However there are some items of the MSLQ which might give an indication of the teacher–student relationship in the classroom situation, such as item 82 'If I haven't been able to prepare myself properly for the test, I would ask the teacher if I could do it another day'.

3.4. UNCERTAINTY AVOIDANCE IN THE LEARNING ENVIRONMENT

People in cultures with strong uncertainty avoidance are easily distressed by new, unstructured, unclear or unpredictable situations. They have a belief in absolute truths and they have strict codes of conduct. According to Oettingen (1995) they tend to be compulsive, security seeking, intolerant, aggressive and emotional. People in cultures with weak uncertainty avoidance tend to be relaxed, tolerant, risk accepting, contemplative and unaggressive.

Hofstede (1991) speculates that in cultures with strong uncertainty avoidance, foreign influences are experienced as a source of threat and stress, while familiarly and predictability are calming. Emotional reactions are accepted in home and school settings and self-righteousness is prevalent. Teachers are expected to have the right answers and to speak in a formal way, and intellectual disagreement is interpreted as a personal offence. Students adapt to highly structured, unidimensional teaching strategies (Rosenholtz and Rosenholtz, 1981), where

materials are predefined and instructions are detailed. Both students and teachers desire common rules.

Members of cultures with weak uncertainty avoidance are curious about new and foreign experiences. They are ready to face new problems and they respond reflectively rather than emotionally to ambiguities. Teachers are not expected to know everything; they use plain language and take intellectual disagreements as challenges. Students can deal with multidimensional learning strategies (Rosenholtz and Rosenholtz, 1981) that entail only partially structured learning materials, general instructions and flexible, individualised pacing.

The critical thinking scale of the MSLQ has been used to give us some information about the uncertainty avoidance tendencies of the schools. In this context the concept 'critical thinking' 'refers to the degree to which students report applying previous knowledge to new situations in order to solve problems, reach decisions, or make critical evaluations with the respect to standards of excellence' (Pintrich et al., 1991).

3.5. MASCULINITY/FEMININITY IN THE LEARNING ENVIRONMENT

According to Oettingen (1995), in masculine societies families stress achievement and competition. In schools, teachers highlight the students' academic success. The students are competitive, publicise their success and regard their failures as disasters. Oettingen (1995) also claims that subject matter that is instrumental to promoting professional careers is valued, while studying academic subjects that are labelled feminine in sex-typed societies is seen as irrelevant for men.

In more feminine societies, families stress social inter-relatedness and try to solve conflicts through compromises. In school, the average student sets the norm, the students' social adaptation is valued, and academic failure is not taken seriously. According to Oettingen (1995), the choice of academic subjects is determined by

intrinsic interests and men feel free to pursue subjects traditionally regarded as feminine.

In this study the motivational orientations of the students (as measured by the test anxiety and intrinsic and extrinsic motivation scales) have been used to give some information about the masculinity/femininity of the participating schools.

4. METHODS

4.0. SAMPLE

The sample for this study consisted of 198 secondary students (105 girls and 93 boys) from three secondary schools (see Tables 4.0.1 and 4.0. 2). The three schools used in the study were deliberately chosen, because they were rather similar. The French-Finnish school, and the German school in Helsinki, and the European school in Luxembourg, have many similar features: in particular they are all multilingual, multicultural and international schools.

Table 4.0.1. The sex of the students in the sample

Gender	Number of students	Percentage
Female	105	53 %
Male	93	47 %

Table 4.0.2. Distribution of language sections and schools

Section/School	N	Percentage
European School of Luxembourg	80	40.4
English section (LUX/EN)	*19*	*9.6*
French section (LUX/FR)	*27*	*13.6*
German section (LUX/DE)	*34*	*17.2*
French-Finnish School of Helsinki (FIN/FR)	88	44.4
German School, Helsinki (FIN/DE)	30	15.2

Nearly all the pupils in the French-Finnish School of Helsinki and the German School of Helsinki were Finnish. The population of the European school of Luxembourg was divided into three different language sections (English, French and German), which were fairly independent of each other (see Table 4.0.2). At the European School nationally seconded teachers teach mathematics and mother tongue in their home languages. In practice this means that the European School sample consists of students from the French, German and English language sections.

Students were asked to identify their cultural background, which was in some cases a very difficult task to do. In the demographic part of the questionnaire they were asked 'Which nationality group do you feel you belong to?' (see Annex 1). Fourteen different nationalities were represented (see Table 4.0.3), the largest groups being Finnish, German, British and French and Luxembourgish.

Table 4.0.3. Nationalities

Nationality	N	Percentage
Finnish	112	56.6
German	21	10.6
British	20	10.1
French	19	9.6
Luxembourgish	9	4.5
Italian	5	2.5
Austrian	2	1.0
Belgian	2	1.0
Dutch	2	1.0
Danish	2	1.0
Bosnian	1	0.5
Cambodian	1	0.5
Canadian	1	0.5
Portuguese	1	0.5
Total	198	100.0

The ages of the students ranged from 15 (one student) to 20 (one student) (see Figure 4.0.1 and Table 4.0.4). Most of the students were 17 years old and most were in the penultimate class of secondary school.

Figure 4.0.1 Age distribution

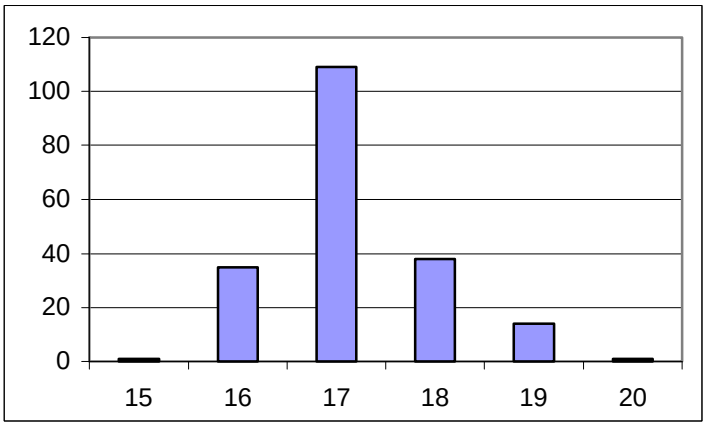


Table 4.0.4. Age statistics

Variable	Mean	Std Dev	Minimum	Maximum	Median	Mode
AGE	17.16	.83	15.0	20.0	17	17

4.1. THE INSTRUMENTS

The students responded to the MSLQ self-report questionnaire (Pintrich et al., 1991; 1993) which included items concerning student motivation, use of cognitive strategies, use of metacognitive strategies and use and management of effort. Each item was assessed on a 5-point score (1= 'not at all true of me' to 5= 'very true of me'). Scales were constructed by taking the mean of the items that made up that scale. The MSLQ questionnaire is discussed in more detail in Section 4.2 below.

An additional volitional questionnaire was created for this study. The use of volitional strategies and mechanisms was assessed with 20 questions (see Section 4.3 below).

With the MSLQ there is also an optional demographic sheet to gather students' background data. For this study I made some modifications, especially to the demographic part of the questionnaire (see Annex 1). In the demographic part, the students were asked about their cultural background and their last course grades were recorded. The qualitative part of the questionnaire is presented in the chapter 6. All the questionnaires were translated from English into Finnish, French and German, and four language versions of the questionnaires were used in the study. Translations were proof-read and pre-tested in the participating schools before the real testing situation (see Annex 1).

The students were asked about the last course they had taken in mathematics or in their first language (mother tongue). They were assigned their questionnaires at random, and in the end 113 students answered the motivational questionnaires with respect to mathematics and 85 with respect to mother tongue (see Table 4.1.1). All

the questions for the two subjects were exactly the same; only the subject about which the students were asked changed. Students completed the questionnaire during the actual meeting time of a class and they were asked to consider their motivation and use of learning strategies for that specific course. Most of the students replied to the questionnaire during their mother tongue or mathematics lessons. Their teachers conducted the test. Even though the questionnaire was completed in the classroom context, the test arrangement does not necessarily measure the situational context, but general attitudes and opinions of the participants. It takes about 30 minutes for the students to answer the whole questionnaire. The tests were carried out in the schools during the school year 1997/98.

Table 4.1.1. The subject about which the students in the sample were asked

Subject	Number of students	Percentage
Mother tongue	85	42.9
Mathematics	113	57.1

All the participating students received feedback on the MSLQ as a kind of 'thank-you' for participating in our studies. The feedback was given on nine scales of MSLQ (task value, self-efficacy for learning and performance, test anxiety, rehearsal, elaboration, organisation, metacognition, time and study environment management and effort regulation, see Section 4.2.2 below). The feedback sheet gave the student's individual scores, the class's scale means and quartile information. There were also suggestions on how to increase levels of motivation and strategy-use (see Annex 2).

4.2. MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE

The Motivated Strategies for Learning Questionnaire (MSLQ) is a self-report instrument designed to measure student motivational beliefs and strategy-use. It is based on a general social-cognitive view of motivation and learning strategies

(Pintrich, 1988a; 1988b; 1989; Weinstein and Mayer, 1986), with the student represented as an active processor of information whose beliefs and cognitions are important mediators of instructional input and task characteristics.

By focusing on the roles of both motivation and cognition in the classroom, the MSLQ also addresses recent advances in self-regulated learning, which emphasise the interface between motivation and cognition (Schunk and Zimmerman, 1994). In contrast to another widely used self-report instrument, the Learning and Study Strategies Inventory (LASSI, Weinstein et al., 1987) the MSLQ takes a more detailed view of the motivational processes involved in self-regulated learning and contextualises motivation and learning strategies by assessing them at the course level (see Garcia and Pintrich, 1995).

There are essentially two sections to the MSLQ, a motivation section and a learning strategy section (see Table 4.2.2.1). The motivational scales are based on a general social-cognitive model of motivation that proposes three general motivational constructs (Pintrich, 1988a; 1988b; 1989): *expectancy, value* and *affect*. According to Garcia (1995) expectancy components refer to students' beliefs that they can accomplish a task. Value components focus on the reasons why students engage in an academic task. The affectional construct has been operationalised in terms of responses to the test anxiety scale, which taps into students' concerns over taking examinations. The motivation section consists of 31 items that assess students' goals and value beliefs for a course, their beliefs about their ability to succeed in the course and their anxiety about tests on the course.

The learning strategy section is based on a general cognitive model of learning and information processing (see Weinstein and Mayer, 1986; Garcia and Pintrich, 1995). It contains three general types of scales:

1. *cognitive strategies*, including students' use of basic and complex strategies for processing information from texts and lectures;

2. *metacognitive control strategies* which help students to control and regulate their own cognition;

3. *resource management strategies,* which include students' regulatory strategies to control other resources beside cognition (e.g. using their time well, having a good place to study etc.) and help-seeking (e.g. seeking help from peers or teachers when needed).

The learning strategies section contains 31 items on students' use of different cognitive and metacognitive strategies. In addition, it includes 19 items concerning students' management of different resources.

4.2.1. MSLQ Questions

There are 81 items in the MSLQ questionnaire. To give an example of the way the MSLQ questionnaire is built it is possible to take a closer look at, for example, item 22. This is one of four items assessing information about the intrinsic goal orientation of the students. Goal orientation refers to the student's perception of the reasons why he or she is engaging in a learning task. Having an intrinsic goal orientation towards an academic task indicates that the student's participation in the task is an end in itself, rather than participation being the means to an end.

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

By contrast, item 30 is one of the extrinsic goal orientation questions. Extrinsic goal orientation complements intrinsic goal orientation and concerns the degree to which the student perceives him or herself to be participating in a task for reasons such as grades, rewards, performance, evaluation by others and competition.

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

In the original form of the MSLQ questionnaire all 81 items were scored on a 7-point Likert scale, from 1 (not at all true of me) to 7 (very true of me). More recently, a 5-point Likert scale has been used for most work with the MSLQ test. All the questions in this study were scored on a 5-point scale.

4.2.2. MSLQ Summative scales

Likert scales (also called summative scales) consist of items reflecting extreme positions on a continuum, items with which people are likely either to agree or disagree. Summative scales are constructed by taking the mean of the scores on the items that make up that scale. An individual's score, for example, for intrinsic goal orientation, would be computed by summing the scores on the four component items and taking the average. In the MSLQ between four and eight questions are usually used to measure a value. There are 15 different summative scales on the MSLQ (see Table 4.2.2.1), and in this study they were used together.

Table 4.2.2.1. MSLQ summative scales and subscales

SCALES	**QUESTION NUMBER** (R = reversed question)
I. Motivation scales	
1. Value components	
Intrinsic goal orientation	1,16, 22, 24
Extrinsic goal orientation	7, 11, 13, 30
Task value	4, 10, 17, 23, 26, 27
2. Expectancy components	
Control of learning beliefs	2, 9, 18, 25
Self-efficacy for learning and performance	5, 6, 12, 15, 20, 21, 29, 31
3. Affective components	
Test anxiety	3, 8, 14, 19, 28
II Learning strategies scales	
1. Cognitive and metacognitive strategies	
Rehearsal	39, 46, 59, 72
Elaboration	53, 62, 64, 67, 69, 81
Organisation	32, 42, 49, 63
Critical thinking	38, 47, 51, 66, 71
Metacognitive self-regulation	33R, 36, 41, 44, 54, 55, 56, 57R, 61, 76, 78, 79
2. Resource management strategies	
Time and study environment management	35, 43, 52, 65, 70, 73, 77R, 80R
Effort regulation	37R, 48, 60R, 74
Peer learning	34, 45, 50
Help-seeking	40R, 58, 68, 75

To identify respondents who simply check the questions instead of responding, it is desirable that some of them are reversed. These negatively worded questions and their ratings have to be reversed before computing the individual's score.

The developers of MSLQ have published detailed descriptions of each summative scale, as well as relevant statistics such as internal reliability coefficients, means, standard deviations and zero order correlations with final course grade for each item and scale (see Pintrich et al., 1991). By way of illustration, statistics for the task value scale are shown in Table 4.2.2.2.

Task value refers to the student's evaluation of the how interesting, important and useful the task is ('What do I think of this task?'). High task value should lead to more involvement in learning. On the MSLQ, task value refers to students' perceptions of the course material in terms of interest, importance and utility.

Table 4.2.2.2. Items and statistics for the task value component of the MSLQ scale ([1])

Items
4. I think I will be able to use what I learn in this course in other courses.
10. It is important for me to learn the course material in this class.
17. I am very interested in the content area of this course.
23. I think the course material in this class is useful for me to learn.
26. I like the subject matter of this course.
27. Understanding the subject matter of this course is very important to me.

Alpha: .90

Descriptive statistics

Item	Mean	Standard deviation	Correlation with final grade
4	5.33	1.72	.15
10	5.87	1.24	.15
17	5.32	1.64	.21
23	5.72	1.38	.18
26	5.46	1.66	.19
27	5.54	1.40	.22
Scale	**5.54**	**1.25**	**.22**

([1]) The data presented here were gathered from a sample of 380 students at a Midwestern college in the US in 1980.

4.2.3. Validity and Reliability of the MSLQ

The final version of the MLSQ used in this study reflects 12 years of work on various waves of data collection (1986–89), mainly at the University of Michigan (Pintrich et al., 1991; 1993). The items on earlier versions of the MSLQ underwent the usual statistical and psychometric analyses including internal reliability coefficient computation, factor analysis and correlations with academic performance measures. After data analysis, the items were revised as the conceptual model underlying the instrument was refined (see Garcia and Pintrich, 1995). The results from the confirmatory analyses of the motivational items and subscales are presented in Table 4.2.3.1 and those for the cognitive strategy items in Table 4.2.3.2 (taken from Pintrich et al, 1993). According to Garcia and Pintrich (1995) the coefficient alphas are robust, demonstrating good internal consistency.

Table 4.2.3.1. Structural model for motivational items (Pintrich et al., 1993)

Item	Lambda-Ksi Estimates	Scale
q. 1	.64	Intrinsic goal orientation
q. 16	.69	
q. 22	.66	
q. 24	.55	
q. 7	.71	Extrinsic goal orientation
q. 11	.58	
q. 13	.48	
q. 30	.44	
q. 4	.57	Task value
q. 10	.64	
q. 17	.88	
q. 23	.86	
q. 26	.88	
q. 27	.84	

Scale	Lambda-Ksi Estimates	Item
Control beliefs about learning	.57	q. 2
	.38	q. 9
	.84	q. 18
	.47	q. 25
Self efficacy for learning and performances	.83	q. 5
	.70	q. 6
	.63	q. 12
	.71	q. 15
	.86	q. 20
	.89	q. 21
	.77	q. 29
	.87	q. 31
Test anxiety	.60	q. 3
	.42	q. 8
	.62	q. 14
	.88	q. 19
	.76	q. 28

Measurement model for motivation scales (standardised solution). Goodness of fit indices for this model are as follows: GFI = .77; AGFI = .73 X^2/df = 3.49; RMR = .07 (Pintrich et al., 1993).

Table 4.2.3.2. Structural model for cognitive strategy items (Pintrich et al., 1993)

q. 39	.62	Rehearsal	Organisation	.57	q. 32
q. 46	.63			.55	q. 42
q. 59	.56			.45	q. 49
q. 72	.58			.75	q. 63
q. 37	.53	Effort management	Cognition and metacognition	.40	q. 33
q. 48	.65			.44	q. 36
q. 60	.52			.47	q. 41
q. 74	.74			.54	q. 44
				.53	q. 54
q. 34	.54	Peer learning		.58	q. 55
q. 45	.82			.43	q. 56
q. 50	.84			.35	q. 57
				.60	q. 61
q. 40	.20	Help seeking		.61	q. 76
q. 58	.17			.55	q. 78
q. 68	.90			.50	q. 79
q. 75	.79				
q. 53	.60	Elaboration	Time and study	.52	q. 35
q. 62	.60			.81	q. 43
q. 64	.74			.52	q. 52
q. 67	.42			.56	q. 65
q. 69	.71			.64	q. 70
q. 81	.65			.37	q. 73
				.48	q. 77
q. 38	.49	Critical thinking		.40	q. 80
q. 47	.76				
q. 51	.66				
q. 66	.74				
q. 71	.67				

Measurement model for cognitive strategy scales (standardised solution). Goodness of fit indices for this model are as follows: GFI = .78; AGFI = .75 $X^2/df = 2.26$; RMR = .08.

The results of the analysis of the various scales of the questionnaires are presented in Table 4.2.3.3. Lambda-Ksi estimates for the different subscales range from .45 to .91. They are rather stable, demonstrating good internal consistency. Assor and Connell (1992) have suggested that self-assessments of competence may not be stable when the students are quite young, because, in fact, the children's perceptions of competence are changing rapidly as a function of development and experience. However Garcia and Pintrich (1995) have found that children's perceptions of

competence can show moderate stability, enough to meet basic psychometric requirements that allow for valid assessment. They have also shown that the internal consistency or coherence of factor structures generated from self-report questionnaires may vary with age.

Table 4.2.3.3. Descriptive statistics, internal reliability coefficients and correlations with final course grade for motivation and learning strategy scales (Pintrich et al., 1993)

	Mean	Std. Dev	Coefficient alpha	r with final course grade
Motivation scales				
Intrinsic goal orientation	5.03	1.09	.74	.25
Extrinsic goal orientation	5.03	1.23	.62	.02
Task value	5.54	1.25	.90	.22
Control of learning beliefs	5.74	0.98	.68	.13
Self-efficacy for learning and performance	5.47	1.14	.93	.41
Test anxiety	3.63	1.50	.80	– .27
Learning strategies scales				
Rehearsal	4.53	1.35	.69	.05
Elaboration	4.91	1.08	.75	.22
Organisation	4.14	1.33	.64	.17
Critical thinking	4.16	1.28	.80	.15
Metacognitive self-regulation	4.54	0.90	.79	.30
Time and study environment management	4.87	1.05	.76	.28
Effort regulation	5.25	1.10	.69	.32
Peer learning	2.89	1.53	.76	– .06
Help-seeking	3.84	1.23	.52	.02

The overall validity of self-report questionnaires or interviews has been questioned throughout the history of empirical psychology (Garcia and Pintrich, 1995). Actual observations or some behavioural indicator of the use of strategies can provide better construct validity. However Garcia and Pintrich (1995) are convinced that carefully designed self-report instruments (such as the MSLQ used here) can be safely used with students in the upper elementary classes and beyond.

As to the predictive validity of the scales, Table 4.2.3.3 shows their correlations with the students' final grades for the course they were taking when they were tested with the MSLQ. Of course, these grades are not direct indicators of learning. The expected tendencies were seen in the correlations, which reinforced the validity of the scales (see Pintrich et al., 1993). Students who used effort regulation, elaboration and metacognitive self-regulation were more likely to receive high

grades in the course. The correlations among the different scales (see Annex 4) suggest that the scales are valid measures of the volitional, motivational and cognitive constructs.

4.3. VOLITIONAL QUESTIONS

Volitional questionnaire variables and scales, which were created for this study, were analysed to see if they were technically applicable for linear statistic computations, such as explorative and confirmatory factor analyses (See, Annex 6). The construct validity of the scales were tested with Cronbach's alpha (Cronbach, 1951). The data was investigated with factor analyses. The validity of the factors was tested once again with Cronbach's alpha.

Table 4.3.1. Statistical procedures: Volitional questionnaire variables, scales and factors.

STATISTICAL PROCEDURES		
Volitional questionnaire variables	*Volitional questionnaire scales*	*Volitional questionnaire factors*
Descriptive statistics (Annex 6)	Descriptive statistics	Descriptive statistics (Annex 7)
	Construct validity test (Cronbach's alpha)	Construct validity test (Cronbach's alpha)
	Factor analyses (3-factor varimax rotation)	Non-linear Bayesian path structures modelling

An additional volitional questionnaire was devised and administered with the aim of covering all the volitional control strategies presented by Kuhl (1985), Corno and Kanfer (1993) and Trawick and Corno (1995). The items for this questionnaire are presented taxonomically in Table 4.3.2b (overleaf). Items 83–85, 87–91 and 99 were derived from the examples of volitional strategies given by Trawick and Corno (1995, p. 61). Items 92 and 94–100 were derived from the volitional questionnaire devised by Teresa Garcia et al. (1998). Other items were developed to complement missing measurement tools in parts of the volitional taxonomy. All

the questions were modified for secondary-school students. Reliability coefficient computations, factor analysis and correlations with academic performance measures were undertaken to define the final version of the analyses.

The most common (e.g. Tabachnick & Fidell, 1996, 13-17) criteria for accepting variables for the further analyses are that standard deviation maximum half the mean and skeweness is less than +/- .3. These criteria were inspected with the help of descriptive statistics presented in Annex 6. Examination suggested rejection of various variables. Four variables (var82, var85, var87 and var92) had standard deviation more than half the mean. The second criterion suggested the rejection of 16 variables. The rejection level was re-examined with another level (+/- .8). The new examination suggested rejection of three variables (var82, var88 & var91).

In the original study plan, all the volitional questions were placed on four scales representing covert and overt processes of self-control, according to the taxonomy presented by Trawick and Corno (1995) (see Table 4.3.2).

Table 4.3.2.a Volitional scales

SCALES	**QUESTION NUMBER** (R = reversed question)
III. Volitional strategies scales	
1. Covert processes of self-control	
Cognition and emotion control	83,84,88,90,92R,94,96
Motivation control	85,86,87,97, 98
2. Overt processes of self-control	
Environmental control	89, 91, 95
Control of others in the task situation	82, 93, 99, 100, 101

The first scale combined the questions of cognition and emotion control. Its Cronbach's alpha was not very high (.29), which was not a good sign.

Table 4.3.2.b Volitional questions categorised in taxonomies

A. COGNITION CONTROL	
	Attention control
84.	Quite often I'll try to make myself concentrate more on the work rather than letting my mind wander off somewhere else.
92 R	I have trouble getting started on my course work even when I have to do it.
94.	I make sure I do my course work even when I want to watch television.
96.	When I do my course work, I am able to block out distractions and concentrate on what I am doing.
	Encoding control
83.	During the test I go over my answers again and again to find all the possible mistakes I have made.
	Information processing control
88.	When I'm really tired, I decide to take a rest — after the break I can concentrate better on my work.
B. EMOTION CONTROL	
90.	When I am getting nervous I have to say to myself 'Now, sit down, try to relax!'
C. MOTIVATION CONTROL	
	Incentive escalation
85.	Sometimes I think while studying 'I have to pass the test: if I don't pass it I'll probably have to repeat it again'.
	Attribution/self-reinforcement
87.	Sometimes when I am studying for the exam I say to myself 'Sometimes I get it and I congratulate myself'.
97.	To make myself finish an assignment, I promise myself a reward, like taking a break, getting something to eat, etc. when I'm done.
	Self instruction
86.	When I find out that I have made a mistake in my work I say to myself 'Let's try to do it once again!'
98.	If I start to feel nervous about getting my course work done, I say to myself 'I know I can do this'.
D. ENVIROMENTAL CONTROL	
	Task control
89.	When I am studying for the exam, I get all the necessary materials that I need: books, dictionary, whatever it takes.
	Setting control
91.	If I'm not able to study because of my environment, I'll try to get a quiet place by myself.
95.	If other students are goofing off in class, I will not look at them and try to concentrate on the instructor.
101.	If somebody in the classroom is disturbing me, I ask him/her to stop it or I change my place in the classroom.
E. CONTROL OF OTHERS	
	Peer control
93.	I make sure I finish my course work even if my friends ask me to do something with them.
100.	If I don't understand my course work, I will ask a friend for help.
	Teacher control/assistance
82.	If I haven't been able to prepare myself properly for the test, I would ask the teacher if I could do it another day.
99.	If I don't understand something in class, I will ask the instructor to go over it again.

R reversed item

The motivation control scale items gave confusing information. For example, question 85 ‘Sometimes I think while studying “I have to pass the test: if I don’t pass it I’ll probably have to repeat it again”’ correlated negatively (–.28) with the last grade (see Table 5.3.1.1). On the other hand, item 97 ‘To make myself finish an assignment, I promise myself a reward, like taking a break, getting something to eat, etc. when I’m done’ had the opposite effect (correlation with last grade =.14). Nevertheless the Cronbach’s alpha for the scale as a whole was quite high (.52).

The results of the environmental control scale were more encouraging. Its alpha was fairly good (.58) and the correlations with the latest grade suggested moderate validity.

It is difficult to draw a line between environmental control and the control of others. Many of the questions could be in both scales — controlling others is an important part of environmental control. Item 82, ‘If I haven’t been able to prepare myself properly for the test, I would ask the teacher if I could do it another day’, was not really part of the scale — not in Europe, anyway (see discussion in Section 5.1). After excluding this item , the alpha was rather modest (.40) and the scale correlated only slightly (.18) with the last grade.

Overall, the planned volitional scales were a disappointment. The scales were not coherent and the results were not satisfactory.

An exploratory factor analysis (varimax rotation) was performed on the additional questionnaire items. Only in the first analysis was the eigenvalue predicted to be greater than 1. Principal component varimax rotation analysis resulted in seven factors. In the 7-factor analysis, there were two factors consisting of a single item. To avoid unnecessary incoherence a 3-factor analysis was made (see Annex 3 and Table 4.3.3). Items with a relatively low loading in the 3-factor analysis (Items 82, 86, 88 and 97) were withdrawn from the final version (see Annex 3).

Table 4.3.3. Volitional factors (3-factor varimax rotation solution)

	ITEMS ON EACH SCALE	Factor loading
Factor 1.		
ATTENTION CONTROL Alpha = .70		
Attention control and social strategies		
93	I make sure I finish my course work even if my friends ask me to do something with them	.72
94	I make sure I do my course work even when I want to watch television	.68
96	When I do my course work, I am able to block out distractions and concentrate on what I am doing	.65
92 R	I have trouble getting started on my course work even when I have to do it	.63
95	If other students are goofing off in class, I will not look at them and try to concentrate on the instructor	.52
101	If somebody in the classroom is disturbing me, I ask him/her to stop it or I change my place in the classroom	.40
Factor 2		
SELF-INSTRUCTION STRATEGIES Alpha = .54		
Motivation control — self-talk		
87	Sometimes when I am studying for the exam I say to myself 'Sometimes I get it and I congratulate myself'	.64
85	Sometimes I think while studying 'I have to pass the test: if I don't pass it I'll probably have to repeat it again'	.58
98	If I start to feel nervous about getting my course work done, I say to myself 'I know I can do this'	.52
84	Quite often I'll try to make myself concentrate more on the work rather than letting my mind wander off somewhere else	.48
95	If other students are goofing off in class, I will not look at them and try to concentrate on the instructor	.45
83	During the test I go over my answers again and again to find all the possible mistakes I have made	.43
Factor 3		
SELF-HELPING STRATEGIES Alpha = .49		
Control of others, Emotion control, Self-reinforcement		
100	If I don't understand my course work, I will ask a friend for help	.67
99	If I don't understand something in class, I will ask the instructor to go over it again	.59
90	When I am getting nervous I have to say to myself 'Now, sit down, try to relax!'	.56
86	When I find out that I have made a mistake in my work I say to myself 'Let's try to do it once again!'	.47

R reversed item

According to the 3-factor analysis results, it seems to be possible to combine the items used in the additional volitional questionnaire into three main scales labelled by researcher: *attention strategies* (attention control and social strategies); *self-instruction strategies* (motivation control); and *self-helping strategies* (control of others and emotion control). Allthough not strong, the factor loadings for these scales were satisfactory, with alphas varying between .49 and .70 (see Table 4.3.3).

Attention strategies refer to the student's ability to concentrate on the task (attention control) and his/her skill in blocking out social distractions which might disturb the current action (social strategies). Self-instruction strategies combine a variety of self-talk strategies, which are used for self-reinforcement, incentive escalation and encoding control. Students might use these strategies to remind themselves during the test about their chosen strategies (e.g. to check the answers several times) and possible consequences of a failure to motivate themselves for better results. Self-helping strategies refer to the strategies used to get help or assistance from others (students, instructor), to control their own emotional states and to provide self-reinforcement and reassurance.

These new scales were used to analyse the students' motivation. The results are presented in Chapter 5 and discussed in Chapter 7.

4.4. STATISTICAL METHODS

The statistical procedures were conducted in several stages (See tables 4.4.1 and 4.5.1.).

First of all the MSLQ items were analysed to see if they were technically applicable for further statistic computations (See Annex 6). The traditional construct validity of the MSLQ scales was tested with Cronbach's alpha (Cronbach, 1951).

Table 4.4.1. Statistical procedures: MSLQ variables and MSLQ scales

STATISTICAL PROCEDURES	
MSQL variables	*MSQL scales*
Descriptive statistics (Annex 6)	Descriptive statistics (Annex 7)
	Construct validity test (Cronbach's alpha)
	Scale correlations
	Non-linear Bayesian path structures modelling

The earlier discussed criteria for accepting variables for the further analyses were examined also with MSLQ variables (See, Annex 6). Examination suggested rejection of various variables. Four variables (var3, var28, var39 and var50) had standard deviation more than half the mean. The second criterion suggested the rejection of 41 variables out of 81. The rejection level was re-examined with another level (+/- .8). The new examination suggested rejection of seven variables (var2, var3, var12, var18, var 41, var50 & var72). In spite of the examined rejection proposals, I decided to make all the statistical computations with all the MSLQ variables in order to be able to compare the results of this study with other studies made using the same instrument.

Statistical methods used in this study are partly traditional and partly more modern. Traditional linear models are built using exploratory and confirmatory factor analysis on the data. These traditional methods are based on linear extrapolation.

More recently, increased computing power and new applications have made it possible to utilise non-linear statistical information on the complex latent variable models of natural phenomena and artificial systems (see Ruohotie, 1999). Many of these non-linear methods are based on Bayesian and information-theoretic approaches for building models from continuous and categorical data (see Tirri, 1999). The developments in building latent variable models expressed with graphical structures such as Bayesian networks (Heckermann, 1996; Lauritzen, 1996) and in Bayesian analysis (using, for example, Markov chain Monte Carlo

methods (Gilks et al., 1996) have changed the level of complexity that can be addressed in modelling data (see Tirri et al., 1997).

For this study, non-linear modelling was performed by using the latest software applications developed by the NONE (Non-linear Modelling in Social Sciences) project([2]), the Research Centre for Vocational Education (RCVE)([3]) and the Complex Systems Computation Group (CoSCo) ([4]) . All the data from this study were analysed with a graphical interface of the statistical software, which models non-linear Bayesian path structures from the data (see Myllymäki and Tirri, 1998). More information on the Bayesian modelling software development was reported at the American Educational Research Association in May 2000 (Ruohotie et al., 2000).

In classical linear statistics answer are given to 'pre-data questions'. In addition to pre-data questions, Bayesian inference can also give answers to 'post-data questions', i.e. what is the state of the world given a set of related data (Tirri, 1999). The difference between 'descriptive' and 'predictive' models (see Huberty, 1994, p.30; Tirri, 1999) is evident. Descriptive modelling restricts itself to describing the particular situation at hand while predictive modelling seems to offer the scientist highly interesting possibilities of making plausible inferences about the future based on the mathematically sound models found within the data. This prediction principle is called model averaging (Berger, 1985). According to the Tirri (1999), 'the more data we get, the less uncertain we are about our models. With enough data in this averaging of many models reduces to a degenerate case where one model has such a high posterior probability that the predications of other models are ignored.' More information about prediction principles can be found in the Bayesian literature (Berger, 1985, Tirri, 1999).

([2]) http://www.cs.helsinki.fi/research/cosco/Projects/NONE/frames_ns.html

([3]) http://www.uta.fi/laitokset/aktk

According to the Bayesian community thinking, all models are false, but some of them are useful (see Bernardo and Smith, 1994). Modelling is successful if the models predict current and future things we can observe. 'In our viewpoint, models are a means (a language) to describe interesting properties of the phenomenon to be studied, but they are not intrinsic to the phenomenon itself' (Tirri, 1999). Bayesian and information-theoretic methods have already proved their applicability in modelling industrial processes and economic or biological phenomena (see e.g., Gilks et al., 1996; Heckermann 1997; Kontkanen et al. 1996a; 1996b; Nadel and Stein, 1992). According to Ruohotie (1999) 'there is no reason to doubt that non-linear modelling will have a profound impact on the understanding of social phenomena also.'

4.5. CONTENT ANALYSIS METHODS

Qualitative researchers study spoken and written records of human experience. According to Denzin and Lincoln (2000, p. 639), there have been three major social science and literary approaches to textual discourse analysis. They are all associated with a long theoretical and research tradition: content analysis with the quantitative approach to media analysis; semiotics with the structural tradition in literary criticism; and narrative discourse analysis with the recent post structural developments in interpretive theory (see also, Lieblich et al., 1998).

Classical content analysis comprises techniques for reducing text to a unit-by-variable matrix. By analysing the matrix quantitatively it is possible to test hypotheses. According to Ryan and Bernard (2000, p. 785), the researcher can produce a matrix by applying the set of codes to a set of qualitative data (including written text). Theoretically, content analysis assumes that codes of interest can be discovered and described. In classical content analysis the researcher selects the texts. The next step is to code each unit for each of the variables in the codebook. 'This produces a unit-by-variable matrix, that can be analysed using a variety of statistical techniques' (Ryan and Bernard, 2000, p. 785). The reliability of the

analysis 'concerns the extent to which an experiment, test or any measuring procedure yields the same results on repeated trials' (Carmines and Zeller, 1979, p. 11). Multiple coders can improve the external validity of the content analysis, so that the researcher can see whether the constructs being investigated are shared and whether multiple coders can reliably apply the same codes (see Ryan and Bernard, 2000, p. 785). Bernard (1994) argues that, ultimately, the validity of a concept depends on the utility of the device that measures it and the collective judgment of the scientific community that a construct and its measure are valid. He continues, 'valid measurement makes valid data, but validity itself depends on the collective opinion of researchers.'

Table 4.5.1. Statistical procedures: Qualitative question.

STATISTICAL PROCEDURES
Qualitative Question
Fixed categories
Manual data classification
Descriptive statistics
Data comparison

The statistical procedures were conducted in four stages (See Table 4.5.1).

In this study students were asked to describe their method and strategy use in an open-ended study situation (Annex 8). Most of them (192 out of 198) answered the question. Some did not take the task very seriously, but the majority of the answers indicate that the students had approached the question seriously. The situation they were asked to consider was:

> It is evening. You are preparing yourself for the test, which takes place tomorrow. There are lots of pages to be read and you have also other, more interesting things to do at home. What methods or strategies are you using to learn in the most effective way? How do you force yourself to study?

The qualitative data from this question was analysed manually. The responses were grouped into categories which had been created before the analysis using the following principles (see Guba and Lincoln, 1981, p. 243; Kautto-Koivula, 1993, p. 157):

1. categories must reflect the purposes of the research and be based on the definitions and operationalisations of variables in the research design;

2. categories must be exhaustive, e.g. it must be possible to place each piece of information in one category or another;

3. categories must be mutually exclusive;

4. categories must be independent of each other;

5. categories must be derived from a single classification principle, so that the levels of the analysis are kept separate.

The responses were analysed unit by unit and the strategy use reported by students was coded according the theoretical scheme shown in Table 6.0.1. The same person coded all the responses twice and compared the results, resolving any discrepancies. A frequency matrix table was created (Table 6.1.2). The results of this qualitative analysis are compared with the quantitative results in Chapter 6.

5. CROSS-CULTURAL, SELF-REGULATORY, AND CONTROL STRATEGIES FOR LEARNING: QUANTITATIVE RESULTS

5.0. PERFORMANCE AND EXPECTATION

In the demographic part of the questionnaire students were asked to give their latest grades in the subject under consideration and their expected next grade. Some of the results from German School in Helsinki and the European School were not on the same scale (4–10) as the rest of the answers. In order to be comparable these replies were rescaled following instructions from the schools.

Table 5.0.1.a Distribution of last grades and expectations for the next grade

Grade	Grade frequency	Expectation frequency
4.00	5	0
4.50	3	1
5.00	7	5
5.50	2	1
6.00	18	17
6.50	8	2
7.00	30	32
7.50	11	8
8.00	40	62
8.50	5	8
9.00	39	51
9.50	6	2
10.00	24	9

Tables 5.0.1.a and 5.0.1.b show that, overall, students are realistic with their grade expectations, although there is a bit of optimism in the air in the lower end.

Table 5.0.1.b Correlation of last grades and expectations for the next grade

		LAST GRADE	NEXT GRADE EXPECTATION
GRADE	Pearson Correlation Sig. (2-tailed)	1	.699
EXPECT	Pearson Correlation Sig. (2-tailed)	.699	1

** Correlation is significant at the 0.01 level (2-tailed).

The high achieving students seemed to be a bit more pessimistic about their future success. The content analysis part of the present study revealed a lot of self-persuasion about grades; for example 'I have been working hard lately so I am sure that my grade is getting better' (see Chapter 6).

Table 5.0.2 suggests that mathematics grades are awarded more strictly than mother tongue grades. At least there is a considerable difference in the means. In both subjects the mean expected grade is higher than the last mean grade achieved. Another feature worthy of comment is that female students scored higher grades than male students in both mother tongue and mathematics (see Tables 5.0.3 and 5.0.4).

Table 5.0.2. Statistics for mathematics and mother tongue — last grade and expectations for the next grade

Variable	Mean	Std Dev	Minimum	Maximum	N
Mathematics grade	7.56	1.61	4.00	10.00	113
Mathematics expectations	7.74	1.23	4.50	10.00	113
Mother tongue grade	8.09	1.35	4.50	10.00	85
Mother tongue expectations	8.14	1.00	5.50	10.00	85

Table 5.0.3. Statistics for mathematics and mother tongue differentiated by sex

	Grade mother tongue	Std Dev mother tongue	Grade mathematics	Std Dev mathematics
Females	8.36	1.40	7.72	1.61
Males	7.78	1.23	7.30	1.72

Table 5.0.4. Overall difference between girls and boys in grades

	N	Mean	Std. Dev.	SE of mean
Females	105	7.9990	1.545	.151
Males	93	7.5000	1.545	.160

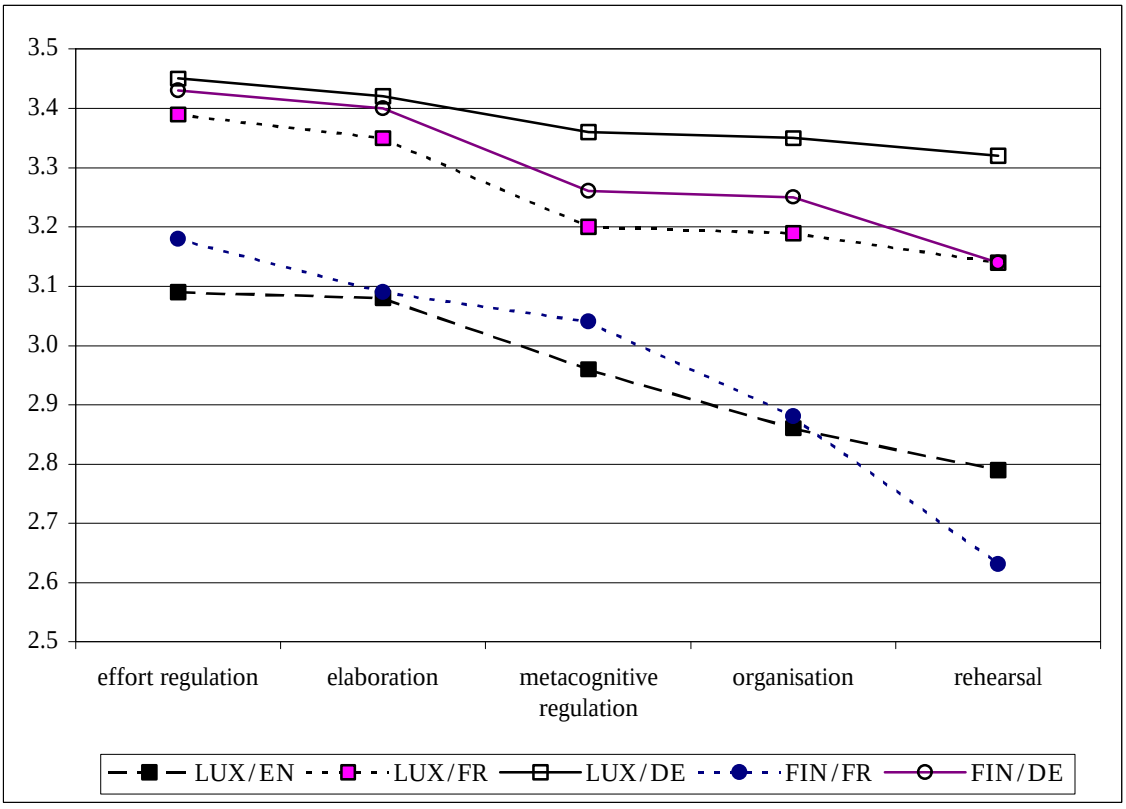
Mean difference = .4990; Levene's test for equality of variances: F= .094, P= .759

5.1. CROSS-CULTURAL RESULTS

Figure 5.1.1 shows that the use of cognitive and metacognitive learning strategies varies between schools and language sections. The students from the German

language section in Luxembourg (LUX/DE) and the German School in Helsinki (FIN/DE) seem to be more conscious of the use of learning strategies than other students. This conclusion is not a surprise, because in Germany study habits and studying styles are systematically taught to all students, starting in primary school.

Figure 5.1.1. Learning strategy-use: schools and language sections



One of the purposes of this study was to find out if there were differences between the schools in the questionnaire results. The cross-cultural dimensions discussed in Chapter 2 are linked to the relevant scale or item on the questionnaire in Table 5.1.1.

Table 5.1.1. The cross-cultural dimensions with their scales and items of measurement

Dimensions	Scale/item
1. Individualism — collectivism	Peer learning
2. Great power distance — small power distance	Item 82
3. Strong uncertainty avoidance — weak uncertainty avoidance	Critical thinking
4. Masculinity — femininity	Extrinsic motivation Intrinsic motivation Test anxiety

From the point of view of individualism/collectivism, it is evident that all our sample groups come from individualistic cultures. The effect of peer learning is low. Data collected from Asian students (Markus and Kitayama, 1991) show different kinds of social values and behavioural models. The almost non-existent differences between the schools participating in this study on the peer learning scale (see Table 5.1.2) confirm that all groups of students share the same kind of social orientation.

Table 5.1.2. Mean values on the cross-cultural scales: schools and language sections

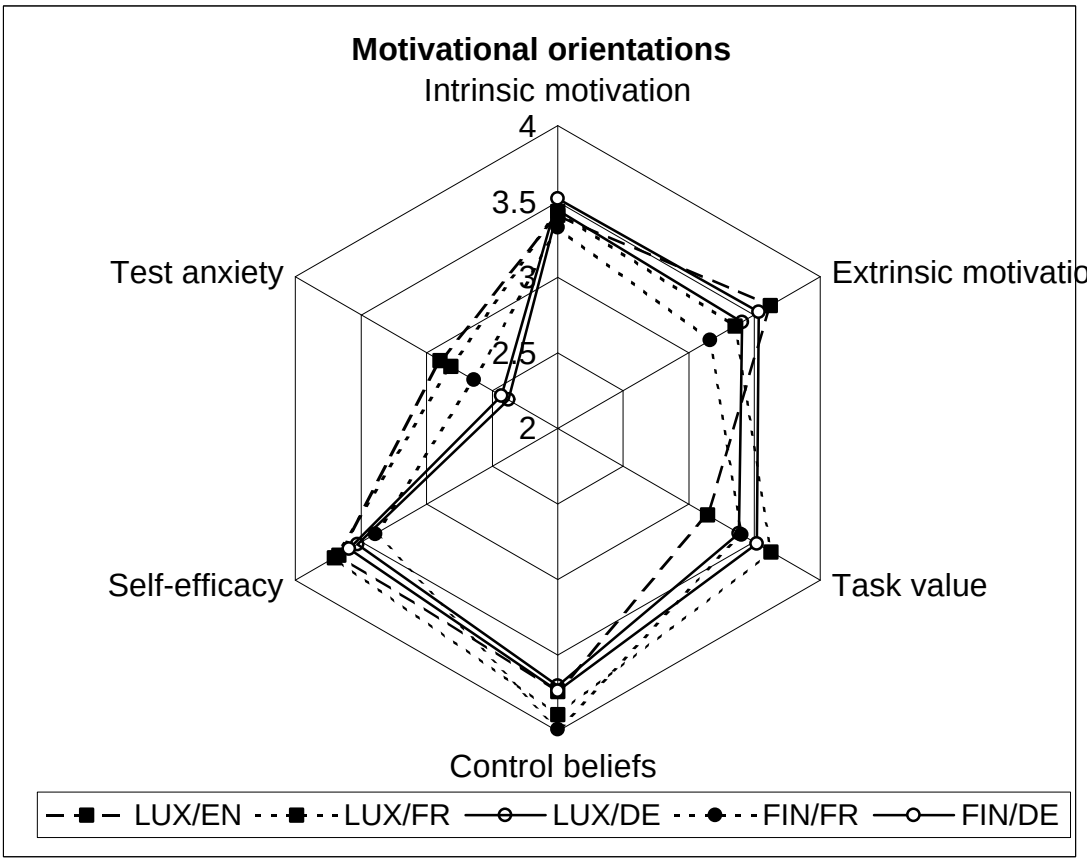
	LUX/EN	LUX/FR	LUX/DE	FIN/FR	FIN/DE
Peer learning	2.49	2.41	2.23	2.32	2.43
Item 82	1.79	2.19	2.26	1.83	1.63
Critical thinking	3.01	2.84	3.01	2.80	2.70
Self-efficacy	3.67	3.70	3.53	3.39	3.67

Do students feel comfortable asking their teachers questions and do they feel free to show initiative? When we talk about power distance we are speaking about authority relations. Item 82, *If I haven't been able to prepare myself properly for the test, I would ask the teacher if I could do it another day* got an unexpected reaction from the students. In their answers, some students added a remark to the effect that *it is impossible to ask such a question.* Of the 198 students, 104 (52.5%) did not feel that it was possible to ask the teacher to postpone a test. The Finnish students and the English section of the European school in particular did not feel able to influence their teacher in this respect (see Table 5.1.2).

In the MSLQ, the critical thinking scale refers to the degree to which the students report applying previous knowledge to new situations or making critical evaluations with respect to standards of excellence (see Pintrich et al., 1991). In cultures with weak uncertainty avoidance, students are expected to be curious about new things and challenges. The teachers are used to intellectual disagreement and they

encourage their students to think creatively and critically. The schools participating in this study seem to be more or less in the middle of the spectrum on this scale. The Finnish students report a slightly lower use of critical thinking processes than the other student groups (see Table 5.1.2).

Figure 5.1.2. Motivational orientations: schools and language sections



According to Oettingen (1995), in 'masculine' schools, the teachers highlight the academic success of their students and the students are competitive and consider failure a disaster. The motivational orientations might be expected to reflect these values in practice. Figure 5.1.2 shows that the motivational orientations were quite similar in all the schools and language sections used in this study.

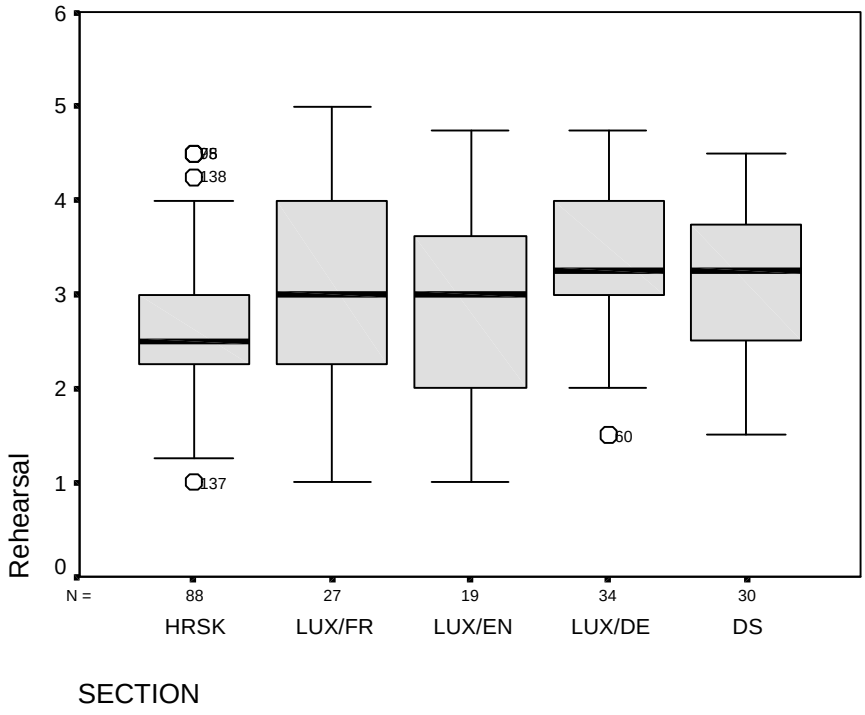
Figure 5.1.2 also shows that the students in the German section of the European school and in the German School in Helsinki seem to be somewhat less worried about their success in the tests. However, the differences are quite small.

Students' self-efficacy beliefs for learning and achievement do not vary much between the participating schools (see Table 5.1.2.). In general the teaching and learning cultures seem to be quite similar in the schools chosen for this study. The English, German, French and Finnish speaking students seem to have much in common in the three different schools.

5.1.1. THE USE OF THE LEARNING STRATEGIES IN THREE SCHOOLS

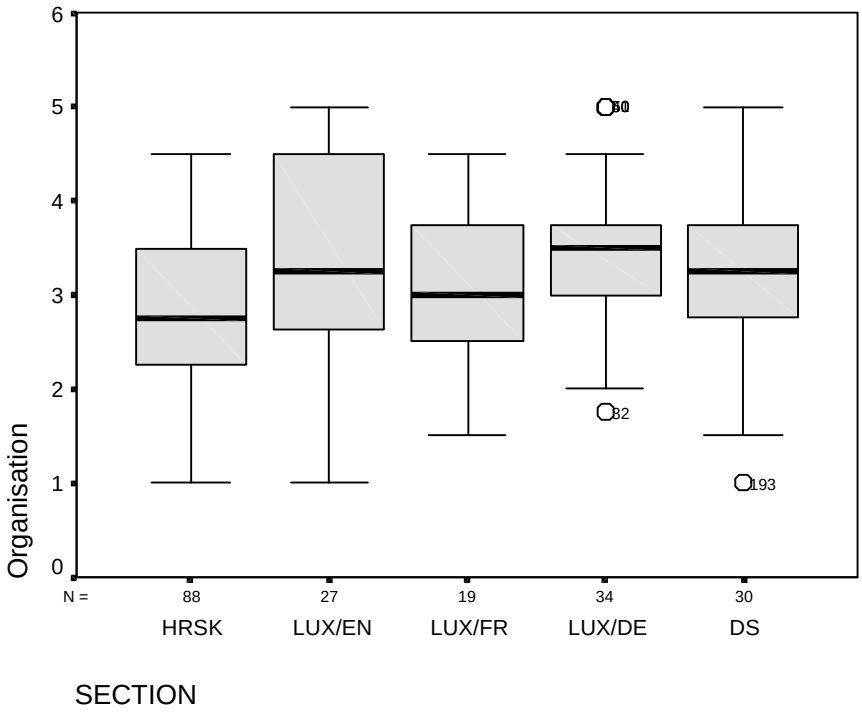
Even though the differences were rather little in the pre-selectioned domains – some differences can be found.

Figure 5.1.1.1. Rehearsal strategy use and schools/sections



It is evident that the students in different schools and language sections seem to have some differences in the use of learning strategies. German students in Luxembourg and pupils from the Deutsche Schule report higher use of rehearsal strategies. These strategies have an effect on attention and the processes involved in acquiring knowledge (See, Ruohotie, 2002)

Figure 5.1.1.2. Organisation strategy use and schools/sections



The same schools and language sections report also of the higher use of organisation strategies which help students in selecting the information to be learned and in building internal connections within it.

5.2. MSLQ RESULTS

The results of the MSLQ in this study (see Table 5.2.1) support all the findings of the earlier MSLQ tests reported by Pintrich et al. (1993). Scale reliabilities are good.

The alpha coefficients range from .45 (peer learning) to .91 (self-efficacy), with most of the alphas above .60.

Table 5.2.1. Descriptive statistics, internal reliability coefficients and correlations with last course grade for motivation and learning strategy scales

Scale	Mean	Std. Dev.	Alpha	Corr. (r) with latest grade
Motivation Scales				
Intrinsic goal orientation	3.40	.80	.66	.15
Extrinsic goal orientation	3.33	.89	.67	.09
Task value	3.42	.80	.79	.27
Control of learning beliefs	3.86	.75	.64	.04
Self-efficacy	3.51	.83	.91	.45
Test anxiety	2.61	.85	.70	–.21
Learning strategies scales				
Rehearsal	2.91	.88	.67	–.05
Elaboration	3.22	.81	.75	.19
Organisation	3.12	.89	.66	.06
Critical thinking	2.84	.82	.73	.09
Metacognitive self-regulation	3.12	.81	.74	.18
Time and study management	3,32	.71	.71	.12
Effort regulation	3.26	.78	.52	.28
Peer learning	2.39	.81	.45	.08
Help-seeking	3.28	.82	.55	.11

N=198

The MSLQ scales correlate modestly with the last grade. Some of them show clear predictive validity. The self-efficacy scale (r with the grade = .45) seem to be the most highly predictive. This scale is designed to assess two aspects of expectancy: expectancy for success and self-efficacy. In this sample, a similar negative correlation (–.21) between the test anxiety scale and grade was found as was obtained in the University of Michigan study (Pintrich et al., 1993).

The time and study management and the effort regulation scales have a fairly strong positive correlation with the last grade (.28). It seems to be important for the students to be able to regulate their time and study environment and to control their effort and attention in the face of distractions. According to Pintrich et al. (1991, p. 27) ‘effort management is important to academic success because it not only signifies goal commitment, but also regulates the continued use of learning strategies’.

High motivational task value should lead to more involvement in learning. In this study it was found that the task value scale of the MSLQ correlated well (.27) with grade received (see Table 5.2.1) When comparing the use of different self-regulatory strategies by students with an excellent grade and less successful students, similar conclusions emerge.

Intrinsic goal orientation correlated significantly with some other motivational scales (task value .54 and self-efficacy .47), with all cognitive and metacognitive learning strategies (ranging from .27 to .56) and with some resource management strategies (effort regulation .41 and time and study management .36) (see Annex 4). However extrinsic goal orientation only correlated significantly with test anxiety (.32), rehearsal (.32) and task value (.27). Task value correlated with self-efficacy (.45), with all cognitive and metacognitive learning strategies (ranging from .29 to .51), with effort-regulation (.41) and with time and study management (.39).

According to Zimmerman (1998), naïve self -regulated learners have low self-efficacy level, they are performance goal orientated and uninterested in the task. On the contrary, skilful self-regulators have specific hierarchical goals, they are mastery orientated, intrinsically motivated and their self-efficacy level is high.

Table 5.2.2 presents the scale means for two group of students — those with excellent grades (last grade > 9) and those with the weakest results (last grade <=6). High self-efficacy level, task orientation, intrinsic motivation and the use of cognitive and metacognitive learning strategies seem to be characteristic of the successful learners. They are also able to manage their study environment better and are more able to organise their use of time. Weaker students are clearly suffering from test-anxiety. Of course, there might be other underlying aptitudes, which were not measured in this study.

Table 5.2.2. Scales and grades for weak and excellent students

Scale	Scale mean for students with last grade =< 6 (N=36)	Scale mean for students with last grade > 9 (N=30)	Difference
Self-efficacy	2.99	4.19	1.20
Task value	3.16	3.83	0.67
Effort regulation	3.01	3.66	0.65
Time and study management	3.01	3.55	0.54
Elaboration	3.03	3.46	0.43
Intrinsic goal orientation	3.32	3.74	0.42
Metacognitive self-regulation	3.09	3.42	0.33
Critical thinking	2.79	3.11	0.32
Organisation	3.13	3.43	0.30
Attention control	2.85	3.14	0.29
Extrinsic goal orientation	3.27	3.51	0.24
Self help	3.55	3.74	0.19
Control of learning beliefs	3.83	3.92	0.09
Help-seeking	3.30	3.28	– 0.02
Peer learning	2.34	2.27	– 0.07
Rehearsal	3.04	2.92	– 0.12
Self-instruction	3.13	2.79	– 0.34
Test anxiety	2.94	2.45	– 0.49

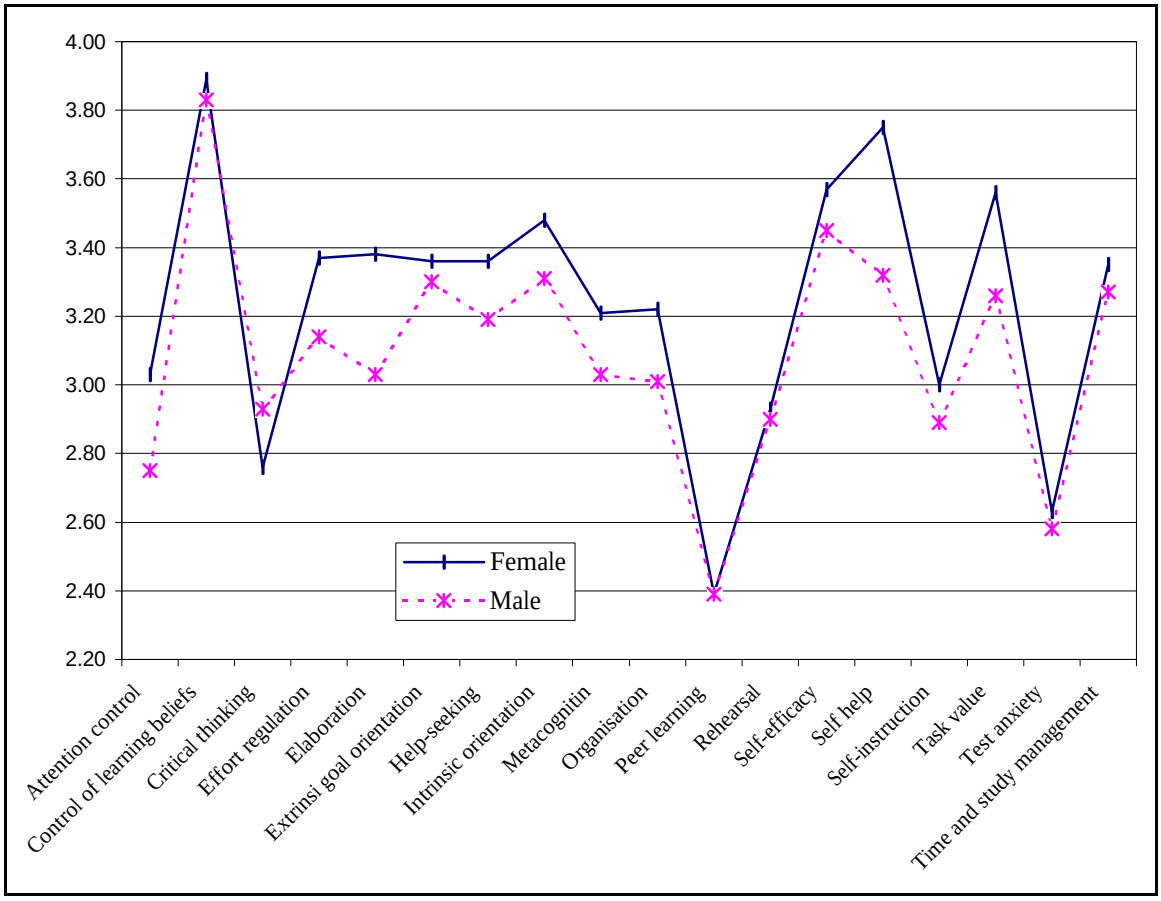
According to Schunk and Zimmerman (1994), self-efficacy beliefs instil not only greater motivation to learn, but also greater motivation to self-regulate your own learning (see also Zimmerman, 1998). Meece et al. (1990) have noted that students who are low in self-efficacy tend to be more anxious about their learning. In this study, self-efficacy beliefs are the most predictive scale for academic success (see Table 5.2.2). The self-efficacy scale also has the highest correlation with the last grade (Table 5.2.1).

According to Pintrich and De Groot (1990), skilful students report having learning or mastery goal orientation and significantly greater intrinsic interest in learning tasks. On the contrary, naïve learners adopt performance goal orientation and they have difficulties in developing an interest in the task. The same kind of conclusions

can be drawn from the statistics of this study, in that academically successful students have higher mean scores on both intrinsic and extrinsic goal orientation (see Table 5.2.2).

According to Zimmerman (1998) skilful self-regulators are able to concentrate their attention on their learning performance whereas naïve self -regulators are easily distracted by competing thoughts.

Figure 5.2.1.1. Questionnaire scales and gender



In this study, successful students used more attention control strategies than less successful ones. On the other hand, self-instruction strategies were more often used by the less successful group. Garcia and Pintrich (1994) proved that in some cases naïve self -regulators might intentionally use self-handicapping strategies such as

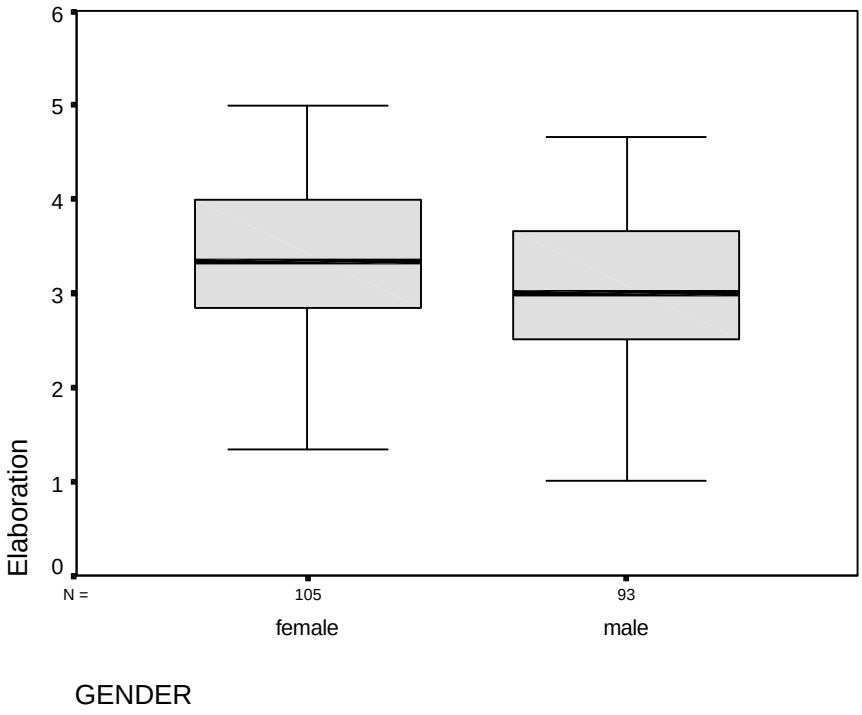
deliberately exerting low effort, in order to maintain favourable self-perceptions. In addition, it seems that naïve self -regulators devote a lot of attention to their emotional states (such as test anxiety) whereas skilful learners are able to remain focused on their learning performance.

The differences in the strategy use of naïve and skilful regulators are discussed also in Chapter 6.8.

5.2.1. Gender differences

Female students who participated to this study seem to have, in general, better study habits than their male fellow students.

Figure 5.2.1.2. Elaboration scale and gender

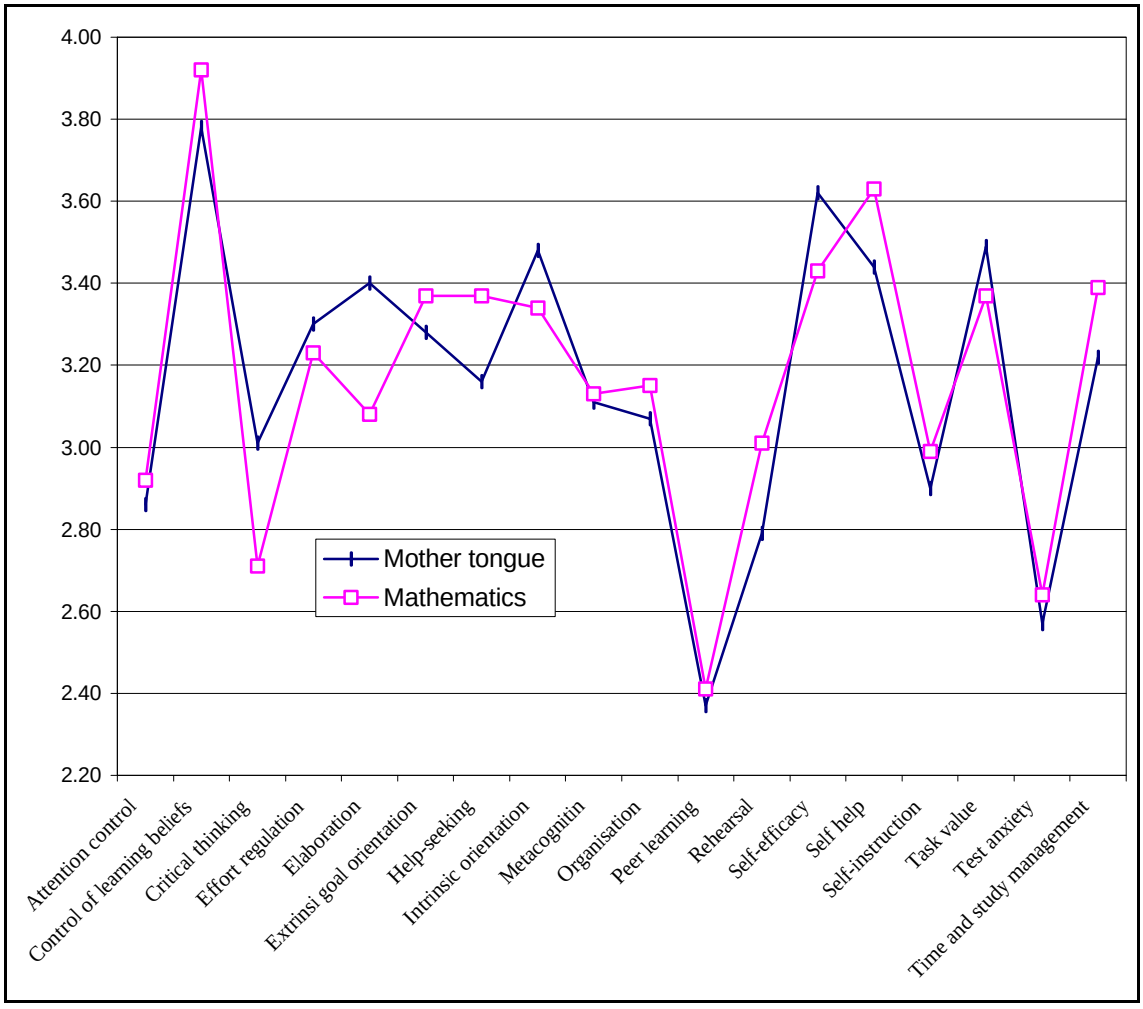


Female students are more motivated, they use more cognitive and metacognitive learning strategies and they are more interested in the task (see Figure 5.2.1.1). Especially the elaboration scales shows clear differences in using elaboration strategies, which help students, store information in long-term memory by building

internal connections between new information and prior knowledge (See figure 5.2.1.2). It is no wonder that they score higher grades than male students both in mother tongue and in mathematics (see Tables 5.0.3 and 5.0.4).

The only scale where male students scored higher means than females was the critical thinking scale. It was somewhat surprising that the gender differences were greatest on the self-help scale. Female students are not afraid of asking for help when it is needed.

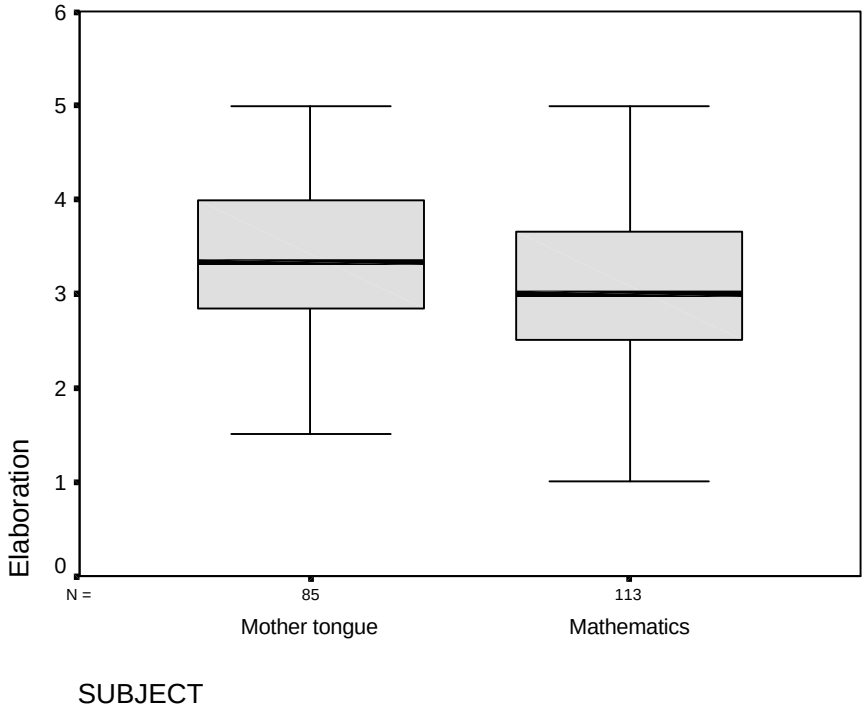
Figure 5.2.2.1. Questionnaire scales and subjects (mathematics and mother tongue)



5.2.2. Subject differences

The scale means for this study show that there are clear differences between the students' strategy-use in mother tongue and in mathematics (Figure 5.2.2.1). In mathematics the students are more organised and they use a lot more rehearsal strategies than they do in mother tongue lessons. They are also more inclined to seek help.

Figure 5.2.2.2. Elaboration scale: Mother tongue and mathematics



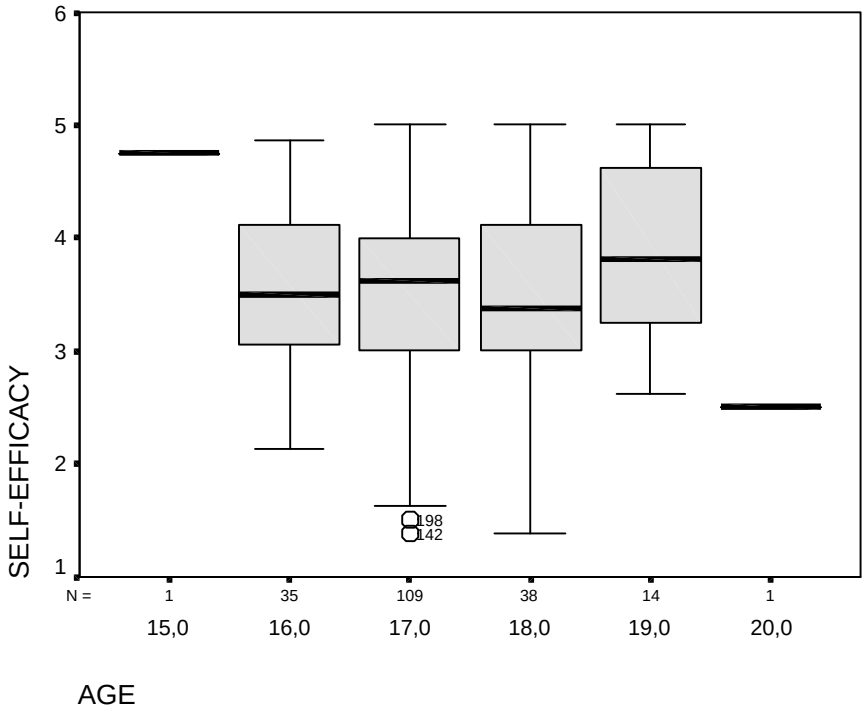
In mother tongue the students use more elaboration strategies (Figure 5.2.2.2.) and critical thinking than in mathematics. It is also important to notice that, at least in this sample, students are more intrinsically motivated and have higher task value for mother tongue than for mathematics. Maybe that is why they score better grades in mother tongue than in mathematics (see Table 5.0.2).

It is interesting to compare the results of the linear (as in Figure 5.2.2.1) and non-linear (Figures 5.4.1 and 5.4.2) analyses. It seems that non-linear methods give an entirely different picture of the strategy-use in different subjects.

5.2.3. AGE DIFFERENCES

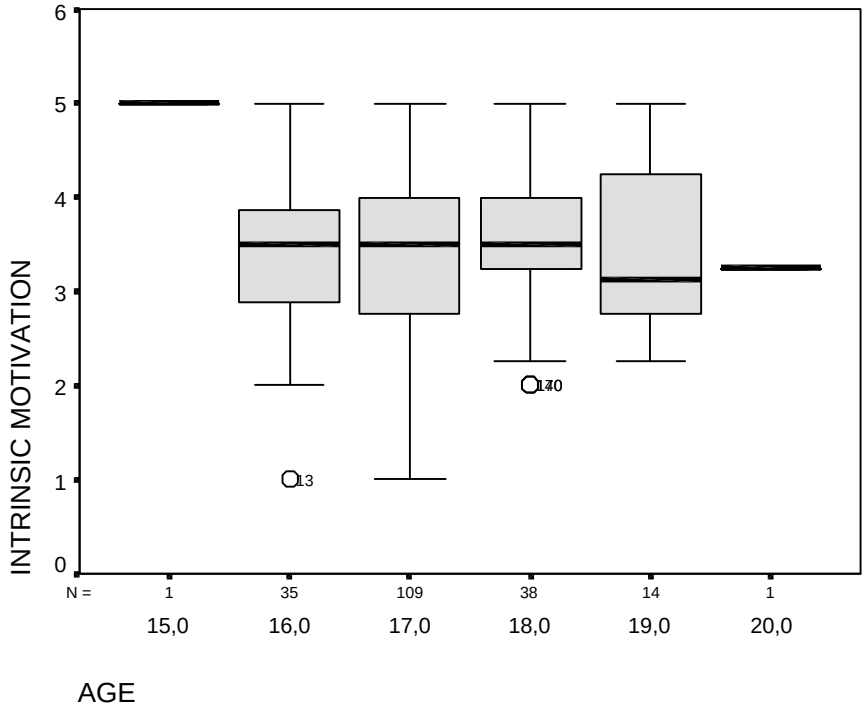
In general, the use of learning strategies was not related with the age in this study.

Figure 5.2.3.1. Age: Self-efficacy



There are anyway some findings to report. The youngest student of this study (Figure 5.2.3.1) has a relatively high self-efficacy mean. On the other hand the oldest student has an opposite result. This kind of result is very easy to understand. It is obvious that the 20 year old student has repeated several classes or there have been other problems with his/her school career. He/she does not believe in him/herself in to the same extent as than the younger companion.

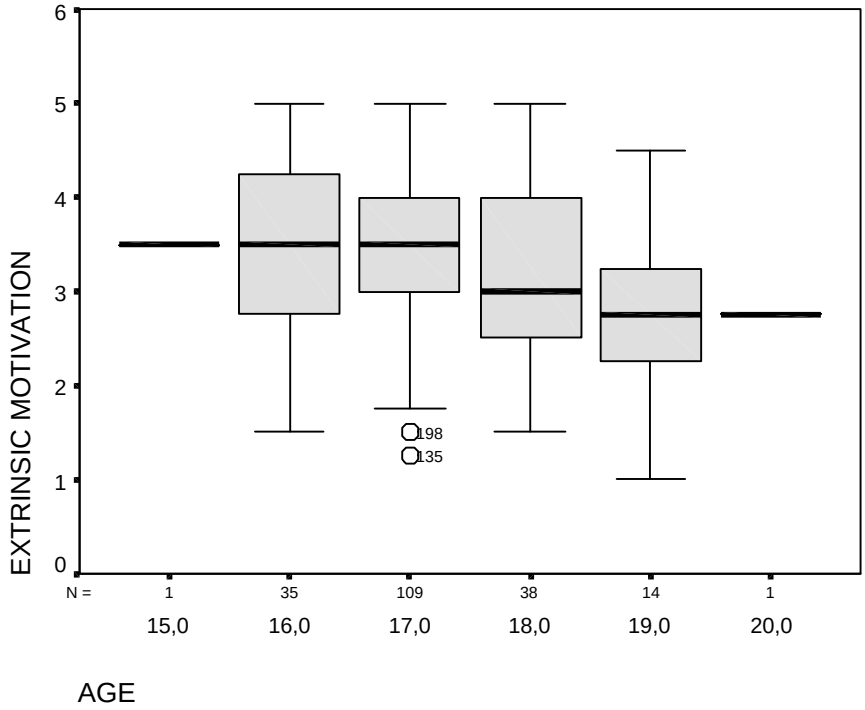
Figure 5.2.3.2. Age: Intrinsic interest



The same young student has extremely high intrinsic motivation to study (Figure 5.2.3.2) at the same time as his/her friend has rather low intrinsic interest level. The extrinsic motivation level seems to be nearly the same (Figure 5.2.3.3.).

From the same figures it is possible to make some other conclusions. It seems that self-efficacy beliefs and intrinsic interest are relatively stable among the secondary classes. There are no changes on it. On the contraty the extrinsic motivation seems to diminish among elderly students.

Figure 5.2.3.3. Age: Extrinsic motivation



5.3. VOLITIONAL QUESTIONNAIRE RESULTS

The volitional questionnaire measures the use of different strategies. Even though the Likert-scaled questions (1=not very true of me, 5=very true of me) do not ask about the use of different strategies directly, it is easy to draw conclusions from the answers.

The mean of scores on the different volitional strategies varied from 1.92 to 4.03 (out of a possible range of 1 to 5, see Table 5.3.1.1). It seems that the majority of students (97%) frequently use a cognitive information processing control strategy 'When I'm really tired, I decide to take a rest — after the break I can concentrate better on my work' (mean 4.03). On the other hand, 58.1% of the students never or seldom use a teacher control strategy 'If I haven't been able to prepare myself properly for the test, I would ask the teacher if I could do it another day') (mean 1.92/5) (see Table 5.3.1.1).

Table 5.3.1.1. Volitional questions — process of self control

	COVERT PROCESS OF SELF CONTROL	Mean	Std Dev	r with grade
A. COGNITION CONTROL (mean 3.28)				
	Attention control (mean 3.12)			
84.	Quite often I'll try to make myself concentrate more on the work rather than letting my mind wander off somewhere else	3.50	1.16	–.07
92 R	I have trouble getting started on my course work even when I have to do it.	2.50	1.29	.05
94.	I make sure I do my course work even when I want to watch television	3.40	1.22	.18
96.	When I do my course work, I am able to block out distractions and concentrate on what I am doing	3.09	1.19	.19
	Encoding control (mean 3.21)			
83.	During the test I go over my answers again and again to find all the possible mistakes I have made	3.21	1.19	.01
	Information processing control (mean 4.03)			
88.	When I'm really tired, I decide to take a rest — after the break I can concentrate better on my work	4.03	1.07	.01
B. EMOTION CONTROL (mean 3.49)				
90.	When I am getting nervous I have to say to myself: 'Now, sit down, try to relax!'	3.49	1.27	.05
C. MOTIVATION CONTROL (mean 3.01)				
	Incentive escalation (mean 2.43)			
85.	Sometimes I think while studying: 'I have to pass the test: if I don't pass it I'll probably have to repeat it again'	2.43	1.36	–.28
	Attribution/self-reinforcement (mean 2.90)			
87.	Sometimes when I am studying for the exam I say to myself: 'Sometimes I get it and I congratulate myself'	2.65	1.36	–.15
97.	To make myself finish an assignment, I promise myself a reward, like taking a break, getting something to eat, etc. when I'm done	3.16	1.32	.14
	Self instruction (mean 3.40)			
86.	When I find out that I have made a mistake in my work I say to myself: 'Let's try to do it once again!'	3.66	1.07	.05
98.	If I start to feel nervous about getting my course work done, I say to myself: 'I know I can do this'	3.15	1.09	.08
II. OVERT PROCESSES				
A. ENVIROMENTAL CONTROL (mean 3.28)				
	Task control (mean 3.83)			
89.	When I am studying for the exam, I get all the necessary materials that I need: books, dictionary, whatever it takes	3.83	1.14	.13
	Setting control (mean 3.09)			
91.	If I' m not able to study because of my environment, I'll try to get a quiet place by myself.	3.88	1.20	.11
95.	If other students are goofing off in class, I will not look at them and try to concentrate on the instructor	2.75	1.16	.01
101.	If somebody in the classroom is disturbing me, I ask him/her to stop it or I change my place in the classroom.	2.66	1.28	.02
B. CONTROL OF OTHERS (mean 2.98)				
	Peer control (mean 3.32)			
93.	I make sure I finish my course work even if my friends ask me to do something with them	2.99	1.15	.11
100.	If I don't understand my course work, I will ask a friend for help	3.66	1.16	.14
	Teacher control/assistance (mean 2.65)			
82.	If I haven't been able to prepare myself properly for the test, I would ask the teacher if I could do it another day	1.92	1.24	–.13
99.	If I don't understand something in class, I will ask the instructor to go over it again	3.37	1.26	.16

R reversed item

The correlation of these items with the last grade was fairly modest (range of r from –.28 to .16). The volitional processes seem to have very little to do with performance outcomes directly.

Table 5.3.1.2. Volitional factor scales

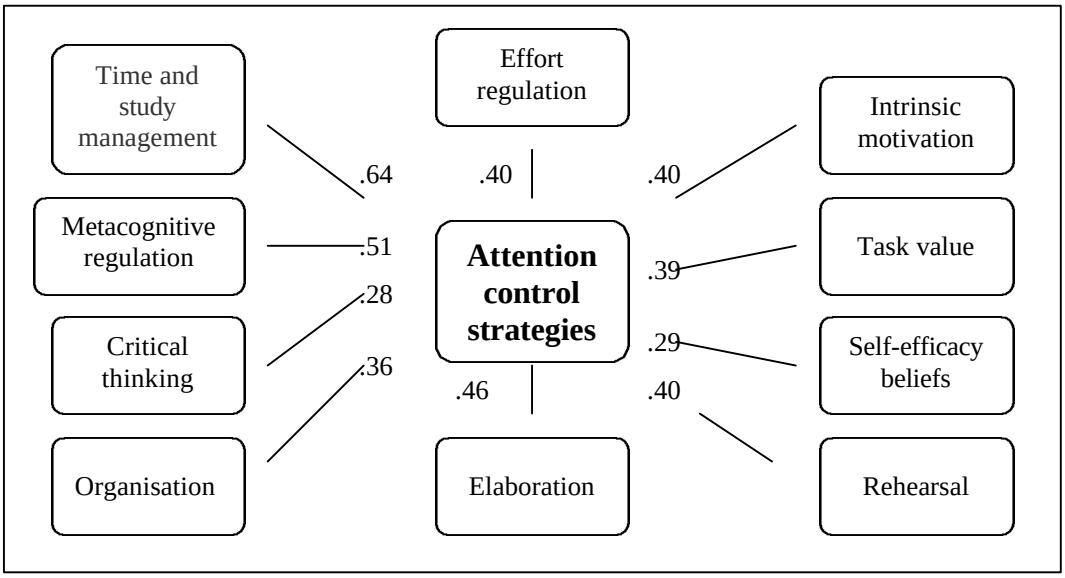
Volitional factor scales	Mean	Std. Dev.	Alpha	Corr. (r) with latest grade
Attention control	2.90	.77	.70	.15
Self-instruction	2.95	.67	.54	–.14
Self-helping	3.55	.79	.49	.16

5.3.1. Volitional Scales

The original volitional scales did not have either face or content validity, so new volitional scales were devised using factor analysis, as discussed in Section 4.3. However these volitional factors did not correlate significantly with the last grade either (see Table 5.3.1.2).

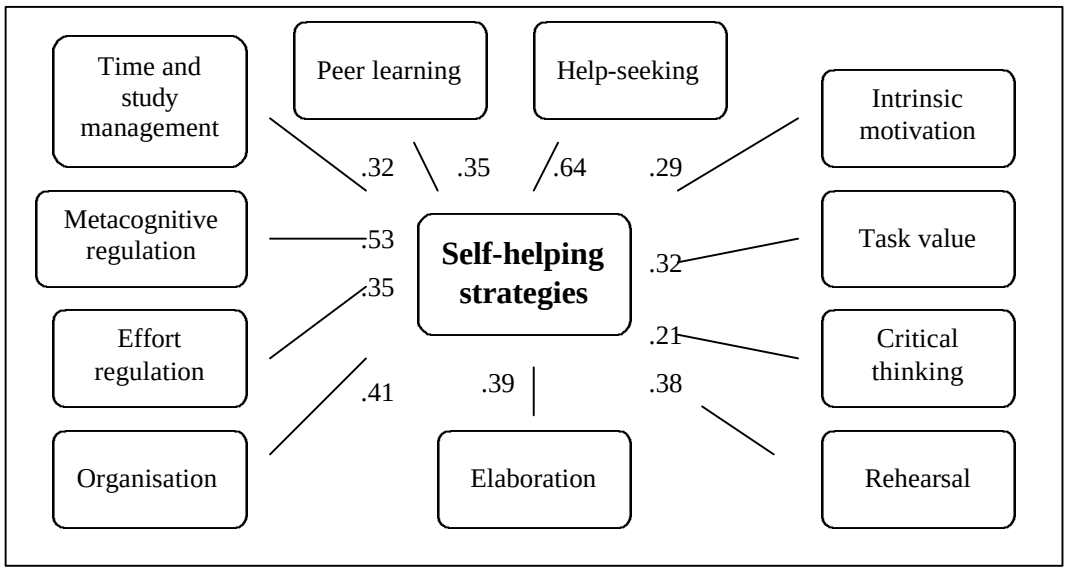
Despite this lack of correlation some other interesting relationships were found. The attention control factor correlated positively with all of the motivational, cognitive and metacognitive and resource management mechanisms and strategies (range .28 to .64) (see Figure 5.3.1.1). In spite of the fact that the attention control scale did not correlate significantly ($r = .15$, $p = .039$) with the last grade, it appears to play an important, if indirect, part in academic success. The results of this study suggest that attention control strategies are involved in the important processes of self-regulation. The use of attention control strategies may have an indirect influence. For example, it may to have an effect through the level of usage of cognitive strategies by the students, which is positively related to academic performance.

Figure 5.3.1.1. Correlations with attention control strategies



The self-helping factor correlated modestly (range .21 to .53) with the same scales as the attention control factor except for self-efficacy beliefs (see Figure 5.3.1.2). Furthermore, the self-helping factor correlated with the peer learning (.35) and help-seeking (.64) scales.

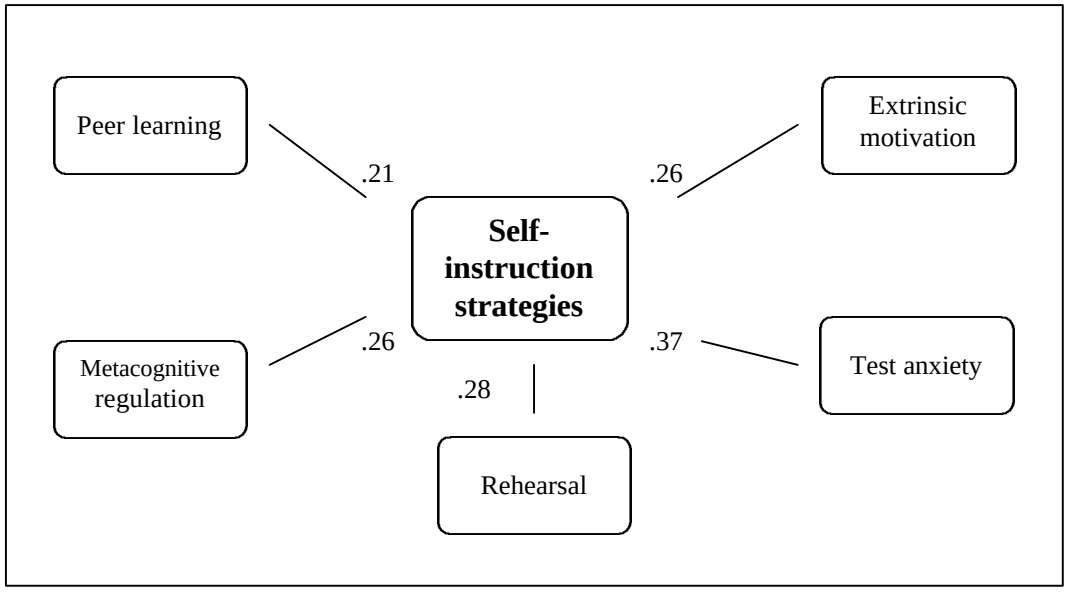
Figure 5.3.1.2. Correlations with self-helping strategies



These findings seem to support the model of self-regulated learning in which the students are using attention control and self-helping strategies to monitor and

regulate the use of other strategies (e.g. motivation, cognitive learning and resource management strategies) to complete an academic task.

Figure 5.3.1.3. Correlations with self instruction strategies



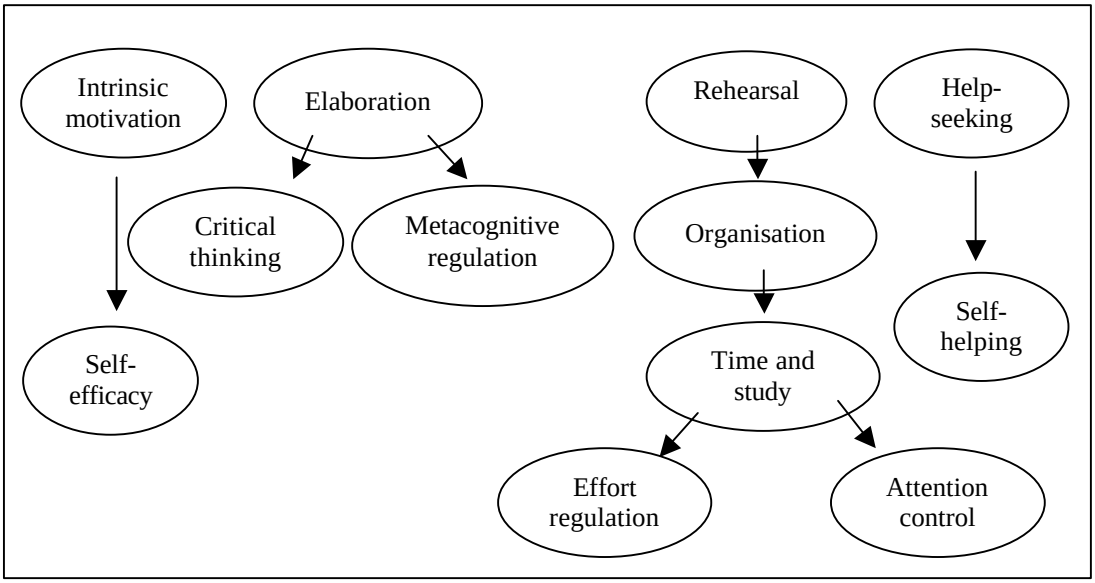
The self-instruction factor correlated with extrinsic goal orientation (r = .26), test-anxiety (.37) and with some cognitive and metacognitive learning strategies (rehearsal .28 and metacognitive self-regulation .26) (see Figure 5.3.1.3). The relation between self-instruction strategies, extrinsic goal orientation and test-anxiety is very interesting. Previous research indicated that 'a reliance on extrinsic motivation is associated with a surface-level cognitive engagement in academic tasks' (Wolters, 1998; Pintrich and De Groot, 1990). Students might use various self-instructional strategies and methods to overcome their difficulties.

5.4. BAYESIAN RESULTS

Non-linear modelling was done in two phases. First the modelling for all the material was performed and secondly analyses for mother tongue and mathematics were performed separately (see Figures 5.4.1 and 5.4.2). The non-linear modelling

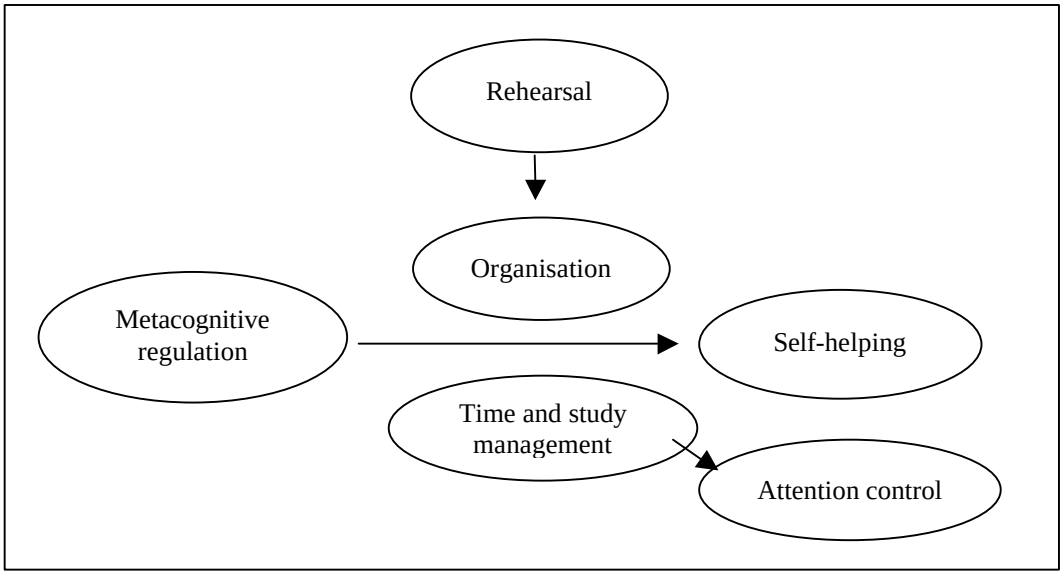
gave clearly different kinds of models for mathematics and for the mother tongue. The models for mathematics and the entire data set were similar, but the models for

Figure 5.4.1. Non-linear model of the general data (all data and mathematics)



mother tongue differ in many ways. It is evident that the use of self-regulatory strategies changes situationally depending on the task, subject, environment, etc.

Figure 5.4.2. Non-linear model of the general data (mother tongue)



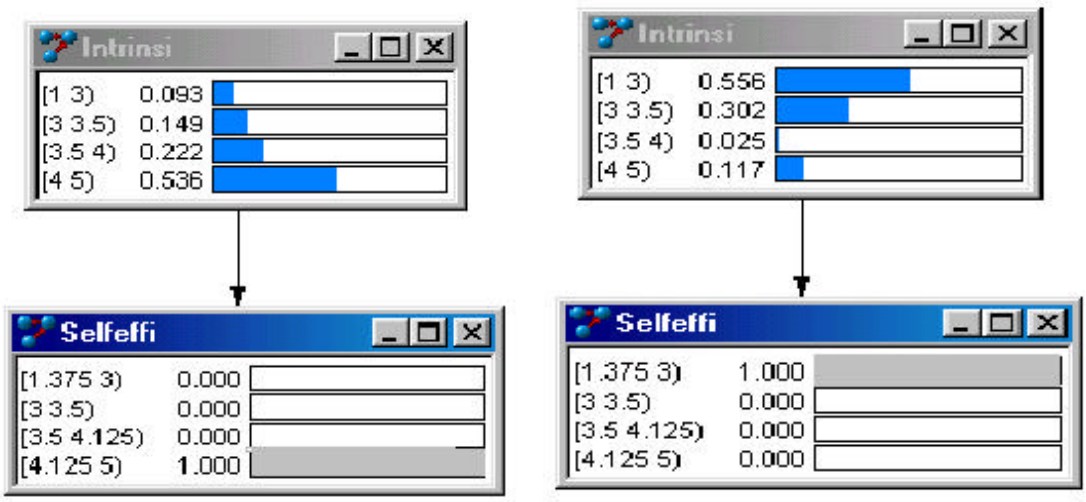
In the non-linear Bayesian path structure analyses four major interdependent relationship models were found within the total data set and for mathematics

(Figure 5.4.1). These models represent the underlying structures of the scales and factors found in this data. According to Bayesian principles, it is not important to look at the numerical values of the dependencies, as we are used to doing in linear analysis. It is more important to study whether the models are useful or not. Bayesian models derived from data also allow us to predict the relationships and consequences with different numerical values (see Myllymäki and Tirri, 1998).

5.4.1. Self-Efficacy – Intrinsic Motivation

Intrinsically motivated students work on task because they find it enjoyable — task participation does not depend on rewards or any other external constraints. Self-efficacy can be defined as 'people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances' (Bandura, 1986, p.391). According to Bandura (1997, p.219), the growth of intrinsic interest is fostered through affective self-reactive and self-efficacy mechanisms. Students show more interest in activities at which they feel efficacious and from which they derive self-satisfaction.

Figure 5.4.1.1. Non-linear modelling: post-data speculation with the relation between intrinsic motivation and self-efficacy (all data)



In Figure 5.4.1.1 questionnaire scale values 1–5 are divided into four classes (for example, 1–3, 3–3.5, 3.5–4 and 4–5) and the frequencies of each class are shown on the right. With the Bayesian models it is possible to speculate with 'post-data questions'. For example it is possible to fix all the values in self-efficacy to be 5 or 1 and to study the influence of the change on related items (see Figure 5.4.1.1).

By comparing the values of the 'post-data' speculations presented in Figure 5.4.1.1 it is possible to draw some conclusions. High self-efficacy values are related to relatively high intrinsic motivation values, but 9% of the population still has low intrinsic motivation values. Bandura proposes (1997) that sometimes there might be a temporal lag between newly acquired efficacy beliefs and the growth of interest. Harackiewicz et al. (1985) have found that perceived self-efficacy mediates task enjoyment, but these factors are not linearly related

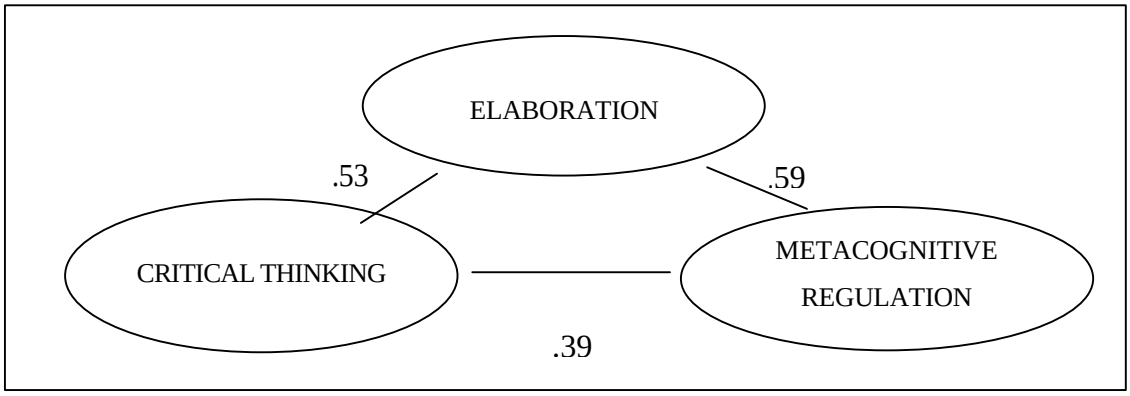
When self-efficacy expectations are low, most of the students are not highly intrinsically motivated. It is however interesting to notice that, in spite of the low self-efficacy values, 12% of the population still have the highest scores on intrinsic motivation.

Bandura's theories of self-efficacy (1982, 1986) predict that when self-efficacy is low, students will not engage in new tasks that might help them learn new skills. This leads to resignation, apathy, withdrawal and self-devaluation. In the light of this study, it seems that the relation between self-efficacy beliefs and intrinsic motivation is not at all automatic — in some cases self-efficacy beliefs and intrinsic motivation could be considered as separate continuums, each ranging independently from high to low. All teachers are familiar with this effect. There are students who know how to complete the task, but they are not interested in doing it. And there are students who are very keen on the task, but who, for one reason or another, are not capable of doing it.

5.4.2. Cognitive and Metacognitive Information Processing Strategies

Non-linear modelling of all the data revealed some interesting features. The model in Figure 5.4.2.1 deals with the cognitive and metacognitive information processing strategies. It models the relationships between three deep-processing MSLQ scales: critical thinking, metacognitive self-regulation and elaboration.

Figure 5.4.2.1. Correlations between elaboration, critical thinking and metacognitive regulation



According to Pintrich et al. (1991) the critical thinking scale on the MSLQ refers to the degree to which students report having applied previous knowledge to new situations in order to solve problems, reach decisions, or make critical evaluations with respect to standards of excellence. Students use different elaboration strategies like note taking, summarising and paraphrasing to store information into long-term memory by building connections between new information and prior knowledge. The metacognitive self-regulation scale refers to students' awareness, knowledge and control of cognition.

These three deep processing strategy families are closely related to one another. Traditional correlations (shown in Figure 5.4.2.1) support the non-linear model. Correlations are moderate in this study (r = .39 to .59) as well as in the original MSLQ material (r = .53 to .67, see Pintrich et al., 1991). The relationships in this model are already well documented (see e.g. Pintrich et al., 1991; 1993; Garcia,

1995; 1996). The present study focuses more on the non-linear elements of Figures 5.4.1 and 5.4.2.

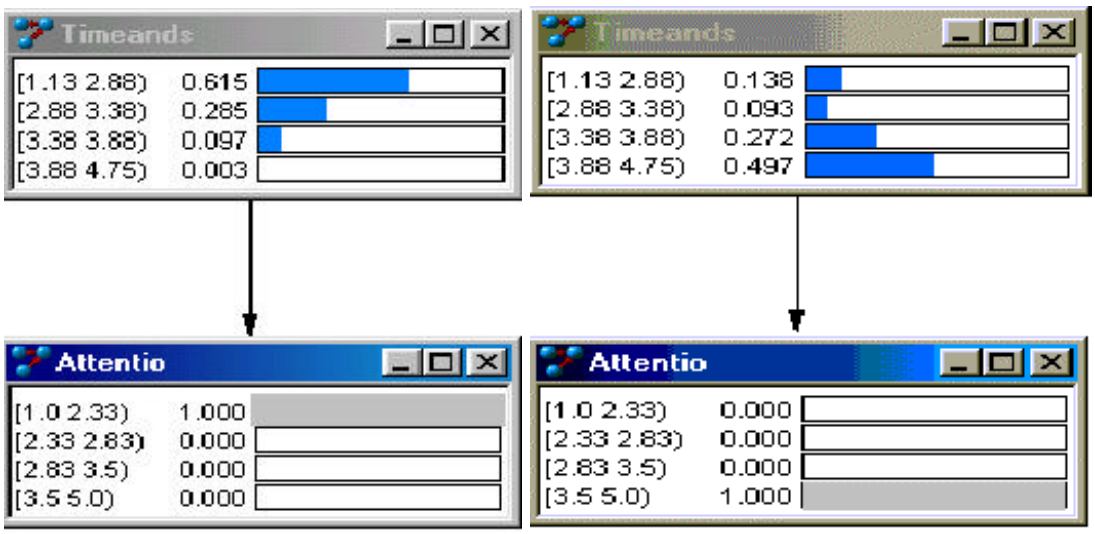
5.4.3. Attention Control, Rehearsal and Resource Management Strategies

The attention control factor is composed of items from the volitional questionnaire devised for this study. Attention control strategies refer to self-monitoring and self-discipline strategies as well as to some social strategies. The student is motivated to keep his/her attention on the task and he/she actively monitors him/herself to maintain this high level of attention. If needed, the student is ready to clear all distractions out of the way.

According to Pintrich et al. (1991), time management involves scheduling, planning and managing study time; study environment management refers to the setting where the student does her/his work. Students have to manage and regulate not only their cognition, but also their time and study environments.

According to the non-linear modelling, attention control strategies and the time and study management strategies are related for mother tongue (Figure 5.4.2). For example it is easy to imagine that in different writing tasks students have to actively control their attention level while bearing in mind the time limits. In the first 'post-data' non-linear speculation (see Figure 5.4.3.1) the attention level of the students is fixed to be very low. A student who does not have enough self-discipline or who fails to monitor his/her own concentration on the task will also have difficulties with the time and study environment management. If the attention level is fixed to be very high, the consequences for the use of time and study environment management are not so dramatic.

Figure 5.4.3.1. Non-linear modelling: post-data speculation with the relation between attention control and time and study management (mother tongue data)



The non-linear modelling for all the data and for mathematics reveals another type of model-chain (see Figure 5.4.1 and Annex 5) including effort regulation, organisation and rehearsal strategies in addition to time and study management.

Effort management reflects a commitment to completing tasks, even if the tasks are uninteresting and there are difficulties or distractions. Effort regulation could be described as the students' ability to control their effort and attention in the face of different kind of tasks. By using effort regulation strategies the student signifies his/her goal commitment and regulates the continued use of selected learning strategies.

Organisation strategies help the student to select proper information and create connection constructs with other information. According to Pintrich et al. (1991), the MSLQ organisation scale includes items which measure the use of some organisation strategies, such as outlining, clustering, modelling and the main idea-finding strategies.

Non-linear modelling involving the attention control level (see Annex 5) for all the data and mathematics revealed similar kinds of relationships to the use of time and

study management as with the mother tongue data. The effect of attention control modelling with other strategy families was less obvious, in spite of the established relationship. Students who make an effort on the task and who are able to control their attention have a good basis for the use of resource management strategies and for the use of rehearsal strategies.

5.4.4. Self-Helping and Help-Seeking

Help-seeking and self-helping strategies could be described as two sides of the same coin. The concepts may overlap in many ways, but a self-regulating student needs to help him/herself and if needed, seek help from others.

Help-seeking is a complex process for the self-regulating student. It differs from other self-regulated strategies, and from self-helping strategies, because it is basically a social strategy, involving other individuals. According to Newman (1994, p.298), 'in the particular case of help-seeking, important decisions — regarding whether to ask, what to ask and whom to ask — are no doubt controlled to a large extent by affect.'

The help-seeking process is closely related to motivational and affectional factors (see Newman, 1994, p.288). According to Nelson-Le Gall and Jones (1990) the third and fifth graders characterised as intrinsically motivated were more likely to ask for hints than for direct answers. Pupils characterised as extrinsically motivated were as likely to ask for answers as for hints. In this study, the help-seeking scale correlated clearly with metacognitive self-regulation strategies (r = . 27) and with peer learning strategies (r = .50). The help-seeking scale did not correlate much with intrinsic motivation (r = 0.11) or with extrinsic motivation (r = .14).

The self-helping scale was composed of items dealing with control of others and self-reinforcement and emotion control (e.g. item 90 'When I am getting nervous I have to say to myself "Now, sit down, try to relax"'). The self-helping scale cor-

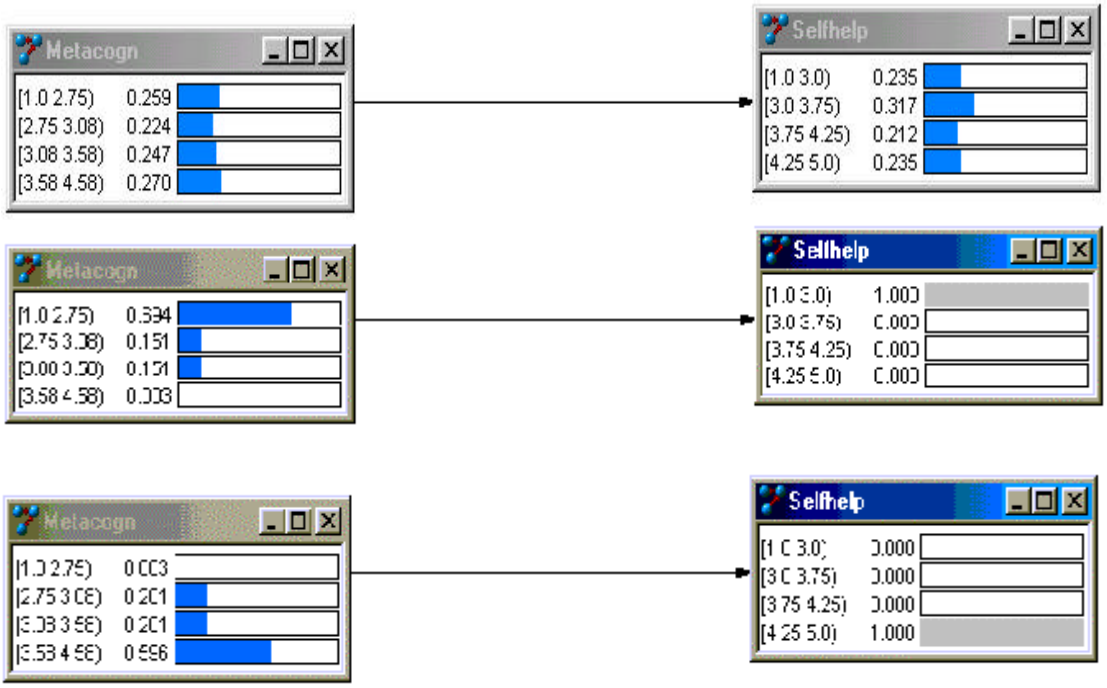
related positively with most of the MSLQ scales except extrinsic goal orientation, control of learning beliefs and test anxiety.

The relation between help-seeking strategies and self-helping strategies was clearly established in mathematics but not at all in mother tongue (see Figures 5.4.1 and 5.4.2). The results of non-linear modelling suggest that a clear change of strategy structure takes place between the two subjects. According to Wolters (1998, p.233) students adapt or modify their strategy-use (volition, information processing and extrinsic and intrinsic goal orientations) to fit situational demands.

Apparently, in mathematics students more often face problems which are not easily solved. They have to use strategies which facilitate the problem-solving task. If they are not able to help themselves, they may allow themselves to ask for help from others more readily than in other subjects. When it comes to mother tongue, help-seeking does not take place so often. Tasks are different and students choose their strategies in a different way. In non-linear modelling self-helping strategies were related to metacognitive self-regulation strategies. Metacognition refers to the awareness, knowledge and control of cognition. In mother tongue it is important, for example, that students understands what they are reading and that they are able to control and adjust their progress by monitoring their cognitive activities.

Figure 5.4.4.1 contains a non-linear model of the relationships between meta-cognitive regulation strategies and self-helping strategies in mother tongue. These results can be interpreted as showing that hardly anyone is able to use metacog-nitive regulation strategies effectively, if at the same time the use of self-helping strategies is low and vice versa. In other words it seems that students who are unable to regulate their cognitive activities are also unable to help themselves.

Figure 5.4.4.1. Non-linear modelling: post-data speculation — the relationship between self-helping strategies and metacognitive regulation (mother tongue data)



6. SELF-REGULATORY ABILITIES: QUALITATIVE APPROACH

6.0 THE FRAMEWORK OF CONTENT ANALYSIS

The main interest of the content analysis part of the present study are:

1. what kind of strategies do students use when they plan to study for a test?
2. how do students plan their time use and how do they deal with their environmental challenges?
3. what kind of strategies do they use to manage their social relationships?
4. what kind of strategies do they use when they are regulating their motivation, attention, emotions and behaviour?
5. what kind of non-constructive strategies may students have?

Table 6.0.1. Theoretical disposition of the statements concerning the use of learning strategies

Learning strategies	**Resource management strategies**
Rehearsal strategies	Time management strategies
Elaboration strategies	Environment management strategies
Organisation strategies	Peer learning strategies
Critical thinking strategies	Effort regulation strategies
	Help seeking strategies
Control and regulation strategies	Social control strategies
	Self-helping strategies
Encoding control strategies	
Attention control strategies	**Non-constructive strategies**
Motivation regulation strategies	
Affect regulation strategies	
Behavioural regulation strategies	
Self-instruction	

The responses to the open-ended question (see Section 4.5) were analysed unit by unit and the strategy use reported by students was coded according to the theoretical disposition shown in Table 6.0.1. In the end a frequency matrix table was created

(see Table 6.1.2). The results were then compared to and amalgamated with the quantitative results.

6.1. CONTENT ANALYSIS RESULTS

The general results of the content analysis are shown in Tables 6.1.1. to 6.1.3. Most of the students report motivation strategy use. Students are also very often concerned by the time aspect of their studies. Surprisingly many students reported of the use of affect regulation. They monitored their stress levels and they prepared food and drinks to make them feel better. Many students had quite creative strategies to help them relax before a test.

Self-regulated learners have a large arsenal of cognitive and metacognitive strategies which are used, when necessary, to accomplish a task. They are proficient at monitoring and, if necessary, modifying their strategy use in response to shifting task demands (see Wolters, 1998; Butler and Winne, 1995). For example a student who wants to study for an upcoming exam and decides to go to his or her room and close the door behind him or her(environmental control strategy), makes mind-maps to understand and memorise the textbook better (elaboration strategy), takes pauses every half-an-hour (effort regulation strategy), phones a friend to ask for clarification (peer learning strategy) and promises him- or herself a reward next day if he or she studies the whole evening (motivation control strategy) has used various volitional strategies (see Wolters, 1998, p. 225). The students of this sample reported using an average of 3.6 strategies each (see Table 6.1.1). Some students did not use any categorised strategies and some reported of the use of as many as nine different strategies.

Table 6.1.1. Content analysis, statistics

	Minimum	Maximum	Mean	Std. Dev.	N
Number of strategies reported	.00	9.00	3.6111	1.97324	198

Table 6.1.2. Content analysis, frequency matrix

	Frequency N=198	%
Motivation regulation strategies	101	51.01
Time management strategies	75	37.88
Affect regulation strategies	73	36.87
Rehearsal strategies	67	33.84
Environment management strategies	60	30.30
Behavioural regulation strategies	57	28.79
Attention control strategies	53	26.77
Elaboration strategies	50	25.25
Effort regulation strategies	46	23.23
Self-instruction strategies	33	16.67
Social control strategies	25	12.63
Organisation strategies	23	11.62
Critical thinking strategies	18	9.09
Encoding control strategies	16	8.08
Non-constructive strategies	7	3.54
Help seeking strategies	6	3.03
Self-helping strategies	3	1.52
Peer learning strategies	2	1.01

Table 6.1.3. The frequency of use of cognitive, resource management and metacognitive strategies

	Cognitive strategies	Resource management strategies	Metacognitive strategies
Frequency	81	137	175
Percentage	40.91	69.19	88.38

It would have been interesting to ask further questions of the students who reported the use of attention control strategies. Students described their efforts to monitor their concentration. They also had ways of forcing themselves to do things which were not intrinsically motivating. Some students wrote of the use of the strong willpower to finish the work (*I just force myself to do it – and it works*). As a researcher I would be most interested to find out how they did it.

Only two students out of 198 reported using peer-learning strategies and only eight students said they would ask for help if they needed it. These results are in line with the findings reported in Section 5.1 on the cross-cultural comparisons.

In spite of the fact that this study was undertaken in the upper secondary level of three international schools, seven students reported of the use of non-constructive strategies. Their attitude towards learning was negative and they were doing their best to underachieve in the tests. The fact that they were in the very demanding secondary classes proves that they had capacity for success for one reason or other they just did not want to be successful in their studies (see Table 6.5.1.)

6.2. THE USE OF COGNITIVE AND METACOGNITIVE LEARNING STRATEGIES

Cognitive control and regulation includes the types of activities that students engage in to adapt and change their cognition. According to Pintrich (2000b p. 459), 'in most of the models of metacognition and self-regulated learning, control and regulation activities are assumed to be dependent on, or at least strongly related to, metacognitive monitoring activities, although metacognitive control and monitoring are conceived as separate processes' (see also Butler and Winne, 1995). If a student reads a textbook with the goal of understanding it, then as the student monitors his/her comprehension, this monitoring process can provide the student with information about the need to change reading strategies (see Pintrich, 2000b). In this study students reported that they were asking themselves questions, they were thinking about the contents and they were returning to parts of the material which were not yet fully understood.

In recent years many studies have focused on the use of cognitive strategies and their effect on direct enhancement of student learning. Research on cognition has shown that there are many different memory and learning strategies (e.g. rehearsal, elaboration and organisation) students may apply to various academic tasks (Pintrich, 1989; Pintrich and Schrauben, 1992; Schneider and Pressley, 1989;

Weinstein and Mayer, 1986; Garcia and Pintrich, 1994). The content analysis part of this study found that 41% of the students used cognitive learning strategies to help them to learn and memorise the material (see Table 6.1.3).

Table 6.2.1. The categories and sub-categories of cognitive and metacognitive learning strategies

Rehearsal • Revision • Going through the notes • Underlining and making notes • From easy to difficult
Elaboration • Learning formulae • Summarising and paraphrasing • Self-questioning
Organisation
Critical thinking

6.2.1. Rehearsal Strategies

Rehearsal strategies seemed to be well known by the students participating in this study. The basic form of rehearsal strategy is to read the text or notes over and over again. Some students say the material to themselves sometimes even out loud. A number of sub-categories of rehearsal strategies were found in the present study (see Table 6.2.1). These are illustrated in Tables 6.2.1.1 to 6.2.1.4 below.

Table 6.2.1.1. Rehearsal strategies: revision

I have developed a revision habit
I study the subject material and work out sums if it is for a maths exam
I often also wake earlier in the morning to revise
I read the subject material a couple of times, first in detail and after that more generally

A student might try to activate the information in working memory by reading his or her notes and memorising key words of the text. Basic rehearsal strategies involve reciting or naming items from a list to be learned (Table 6.2.1.1).

Some students feel that going through their notes helps them to understand and memorise the material (Table 6.2.1.2.).

Table 6.2.1.2. Rehearsal strategies: going through the notes

I read everything through and revise the material again with the use of notes
Going through notes helps substantially
Finally I read through notes made in class
In the morning on the bus I read through the notes in my exercise book and swear a lot

Highlighting or underlining text in a rather passive and unreflective manner (Table 6.2.1.3) can be more like a rehearsal strategy than an elaborative strategy (see Garcia and Pintrich, 1994). According to Pintrich et al. (1991), 'these strategies are assumed to influence the attention and encoding processes, but they do not appear to help students construct internal connections among the information or integrate the information with prior knowledge.'

Table 6.2.1.3. Rehearsal strategies: underlining and making notes

I underline the most important points (I will then read through them)
I study again making notes, and go over these notes several times
I underline and make additional notes on the text I am reading
I underline what are, in my opinion, the most important points in the material to make the subject more clear
I underline the important points in the text or make myself notes

Some students prefer to start with the easy tasks or texts and only when they have got enough repetition or self-confidence do they tackle the more challenging tasks or texts (Table 6.2.1.4).

Table 6.2.1.4. Rehearsal strategies: from easy to difficult

With maths I first work out the easy problems and then move on to the difficult ones

33.84% of the students reported some use of rehearsal strategies. Many students felt it was important to use these strategies on the day of the test – either early in the morning, on the way to the school in the bus or just before the test.

6.2.2. Elaboration Strategies

Elaborative and organisational strategies are both considered to be deeper processing strategies (see Weinstein and Mayer, 1986; Garcia and Pintrich, 1994). In this content analysis every fourth student (25.25%) reported using elaboration strategies. The elaboration strategies found in the present study were sub-divided into learning formulae, summarising and paraphrasing and self-questioning (see Tables 6.2.2.1 to 6.2.2.3).

In mathematics and physics some students prefer not to learn the detailed information, but they are keen to understand general lines, patterns or mathematical formulae (see Table 6.2.2.1).

Table 6.2.2.1. Elaboration strategies: learning formulae

I do not even look at the details, but I'll try to remember the main features of the material, possible formulae

The use of elaboration strategies helps students to integrate and connect new information with prior knowledge. Students summarise and paraphrase the material they are studying. They make notes and create analogies and mind-maps. These strategies help students to store information into long-term memory (see Pintrich et al., 1991) by building internal connections between the items to be learned.

Table 6.2.2.2. Elaboration strategies: summarising and paraphrasing

I try to outline tasks by sketching them and using logic
I study in a disciplined manner by creating mind maps
I scan the book, my notes and other material. I look at the main themes and titles and write down the themes
I often make notes, to make the work easier for myself

Some students find it useful to elaborate the learned material mentally, for example by asking themselves questions.

Table 6.2.2.3. Elaboration strategies: self-questioning

Read all my revision notes and try to remember the ideas. Then, do something else to relax. Afterwards, come back to my notes to see what I remember and what I must still revise
In the night, just before falling asleep, I normally think about the test and I make questions for myself

6.2.3. Organisation Strategies

Organisation strategies help the learner to select appropriate information and construct connections among the information to be learned (see Pintrich et al., 1991). For example, a student may divide the material into paragraphs, themes and units to be able to follow her/his own progress and to ease her/his tasks. Some students cluster, outline and select the main ideas in the text to help them understand the material better. According to Pintrich et al. (1991), 'organisation is an active, effortful endeavour and results in the learner being closely involved in the task.'

Research on strategy use and information processing suggests that students gain a deeper level of comprehension when they use elaboration and organisational strategies in contrast to simple rehearsal strategies (Garcia and Pintrich, 1994; Entwistle and Marton, 1984). Not all students use these strategies, including some of those who have been taught to use them. Students who have a self-schema of a 'good strategy user' (Pressley, 1986) may be more likely to use the appropriate cognitive strategies. According to Garcia and Pintrich (1994), it is not enough for

teachers to teach good strategy use; individual students must construct the self-schema of a good strategy user for themselves.

Table 6.2.3.1. Organisation strategies

I first read my class notes from my exercise book and then the book and then again the exercise book. It helps when the material in the notebook is summarised
I underline and write background notes about the material in question
I underline important points, and then read my notes and the underlined material
I underline and write notes in order to learn more efficiently
* I revise the most important points and I skip other ones, or I do not study them as thoroughly as the important ones.
I don't revise a less important section, and try to study more important sections thoroughly
If there is too much to study and I know that I will run out of time halfway through, I select what I believe are the most important sections of the course and learn those
I read a paragraph once, after which I write a summary of it
I pick 3-5 entities (depending on the nature of the subject matter). I write notes on them from memory in pencil. I then check the book and correct my notes in pen
I write a summary that I will read up until the exam
I glance at the texts first, write notes, and then outline the sections that seem most important
I read the subject in sections, recapping in my mind the material after each section. I often then read the section again
I scan through the exam sections and remember the most important points
I scan through the exam material in order to build a complete picture. Now I know exactly what I am reading and in what order, and this helps me avoid a panic in the face of an overwhelming revision load
I divide the material to be revised into parts and then attempt to read/clear one part at a time
I divide the exam subject into parts, pieces or topic groups, so I know all the time where I am at
In order to learn efficiently I read for example, the piece, followed by the notes I made in the lesson, and then I deliberate it to myself and set myself questions
I concentrate and read through the text as well as all the material while trying to understand

6.2.4. Critical Thinking

The last category of cognitive strategy included in this study is critical thinking. It can be defined as the student's ability to apply previous knowledge to new situations in order to solve problems, reach decisions, or make critical evaluations with respect to standards of excellence (Pintrich and McKeachie, 2000). There are some disagreements among researchers about the nature of these strategies (see, for example, Lipman, 1991 and Norris, 1992). It seems that they are domain and discipline specific strategies (see Pintrich and McKeachie, 2000).

In some studies, critical thinking strategies are classified as metacognitive strategies. That is not the case in this study. The formulation of the open-ended question in this study did not really allow the students to respond with critical thinking strategies of a traditional type. That is why all the answers in which students seemed to reflect on their prior knowledge were either efforts to code and understand the new material (for example, Student A in Table 6.2.4.1) or to avoid mistakes made earlier (Student B). Another version of this strategy is to focus on material which has caused difficulties in the past (Student C). The strategy of learning from one's earlier mistakes has been classified here in the critical thinking category. It is an important strategy, which has not been studied very much in spite of its popularity as a teaching method students have all been forced to correct their mistakes from time to time.

Table 6.2.4.1. Critical thinking

A) If I do not understand the course material, I try to understand if I do not understand, I take my maths book which explains the course
B) …and then I look at the test which we have had earlier and I look at the mistakes I made and I try to understand them to avoid remaking them
C) If there is a lot to study and I know that I do not have time to read it all, I concentrate on the most important matters with which I have had problems earlier

6.3. THE USE OF RESOURCE MANAGEMENT STRATEGIES

Resource management strategies can be described as strategies which help students to control time, effort and outside help in order to perform the task (see Ruohotie, 2000a). There are a variety of strategies which assist students in managing the resources available (see Table 6.3.1). These resources include time available for studying, the study environment, others such as friends and teachers as well as learner themselves in terms of effort and persistence (see Pintrich and McKeachie, 2000). These strategies help students both to adapt to their environment and to change their environment to fit their needs (see Sternberg, 1985).

Table 6.3.1. The categories and sub-categories of resource management strategies

Time management • Time planning • Time ritual • Break planning • Time limit • Lack of time
Environment management • Quiet place • Distraction elimination : • Collection of all the necessary materials • Going elsewhere • Taking it easy
Peer learning
Effort regulation
Help seeking
Social control • Social command • Social withdrawal • Social know-how • Social help • Trouble-sharing
Self-helping

In this study, 69% of students used resource management strategies. These strategies could be seen as cognitive or even metacognitive in nature, but they are different enough to be placed in a separate category (cf. Pintrich and McKeachie, 2000).

6.3.1. Time Management Strategies

Time management is a classic strategy included in many traditional study programs (e.g. Deese and Deese, 1979). It involves planning, scheduling and managing study time in an effective way. Time management varies in level from an evening to weekly or monthly scheduling. An important part of time management is realistic goal setting how is the time available to be divided in the context of the material to be studied? Sometimes a student needs to adapt his/her planning while actually studying. Pintrich and McKeachie (2000) remark that it is useful for a student to have a weekly schedule for studying that helps organise her/his time, but this schedule also needs to be flexible enough to allow for adaptations in the light of course demands.

The time management strategies used in this study can be divided into five different types (see Table 6.3.1). These are discussed in turn below, and illustrated in Tables 6.3.1.1 to 6.3.1.5.

Students have various ways of planning how to use the time available in the most effective way. Time planning is often related to some aspect of the value of the task (e.g. its difficulty).

Table 6.3.1.1. Time management strategies: time planning

I have to reserve the whole evening for this
In Maths I start earlier than the night before. Usually three days in advance
I set myself a specific length of time (eg one hour) and study for exactly that amount of time
I try to divide my time
I usually start studying a few days before
I have already prepared for this work several days ago

Students seems to have a multitude of habits related to time management: for example there are those who wake up early on the morning of the test or those who feel they have to study their notes intensively two minutes before the test.

Table 6.3.1.2. Time management strategies: time rituals

Le matin du test, je me lève tôt (+/- une heure) pour revoir mes notes
I have to desperately revise two minutes before the exam starts

Some students plan the use of their study time beforehand by dividing it systematically into shorter periods: *I try to divide up the time, giving myself (e.g.) half an hour of studying and then some rest and leisure, then some more study*.

Table 6.3.1.3. Time management strategies: break planning

I try to divide up the time, giving myself (e. g.) half an hour of studying and then some rest and leisure, then some more study
I also set my alarm clock, so after about half an hour I can have a break. Not that it always works…
I study about an hour, then I have some rest, and then I will study again

Students set time limits for themselves: deadlines, goals, decision to stop at a certain time (for example, *I just set myself a time limit and a goal whichever I reach first).*

Table 6.3.1.4. Time management strategies: time limits

I just set myself a time limit and a goal whichever I reach first
I decide beforehands a deadline, when I will stop studying

Sometimes students realise that they cannot learn the course material in a limited time – so they do not even try to do their best. These strategies are related to self-handicapping: for example, *I don't lack motivation, but I don't usually have time for studying.*

Table 6.3.1.5. Time management strategies: lack of time

I don't have a lack of motivation, but rather a lack of time, usually

6.3.2. Environment Management Strategies

Sixty students reported the management of their environment: they wanted to study in their own room, in the library or at their desk.

Environment management refers to the observation and adjustment of environmental conditions and outcomes. Students have to manage the setting in which they work and study. Traditionally (see Pintrich et al., 1991) the ideal study environment for a student is quiet and free from visual and auditory distractions. Surprisingly many students participating in this study had a different idea of the ideal study environment. It seems that some students need to turn on the television to be able to concentrate. Many students feel that listening to 'studying music' somewhere in the background helps them avoid other auditory distractions. One student prefers to play his music loud enough to drown out anything else happening in the house.

Environmental strategies can be divided into five sub-categories (see Table 6.3.1 and Tables 6.3.2.1 to 6.3.2.5).

Table 6.3.2.1. Environment management strategies: quiet place

I sit down somewhere, where I am alone
I lock myself in my room, put music on and then take my books and other things out
Close the doors to the room, and put on the radio or something
I shut myself in my room, where there is only a table, a chair and something to eat
I withdraw to a quiet place to study and I put on the TV without sound
I make my study area as pleasant as possible, by putting on peaceful music ie 'study music' and closing the door
I will close the door to my room and will usually put on some background music

Quiet place strategies occur when a student wants to find a quiet place to withdraw and study in peace for example, *I will close the door to my room in which there are only a table, a chair and something to eat* (Table 6.3.2.1).

With distraction elimination strategies students clear their study environment of all possible distractions for example, *I'll go to a silent room, where there are no other 'stimuli' available* (Table 6.3.2.2).

Table 6.3.2.2. Environment management strategies: distraction elimination

I take a pile of food or drink, and get settled in a peaceful armchair with my books
I settle down in the living room at an empty table so as not to be disturbed by anything at all.
A peaceful study area is vital, otherwise I can't concentrate
I go into my own room and study. I don't let anything disturb me
I reserve a cosy environment for study, so that other temptations do not become overwhelming
I gather all my books and go into a quiet room, where there are no other stimuli
I try to find a peaceful place where there is nothing that would interest me
I turn off radios, TVs and the computer
I fetch food and drinks from the kitchen, shut myself away in a room and put music on loud enough **so** that I won't hear other sounds in the house (such as the TV)

Some students emphasise collecting all the necessary materials (Table 6.3.2.3). They collect food, drinks, all the books, notes, dictionaries etc. at their desk, so that when they start studying they do not have to make unnecessary breaks. For example *I'll clean up my desk. Then I will spread out all the course material (books, notes, a pencil, a ballpoint pen and paper).*

Some students prefer to study in libraries or in cafes, not at home (see Table 6.3.2.4). For example *If there are plenty of books to be studied, I go away from home, for example to the library cafeteria, where it is quiet and there is nothing else to do except read.*

Table 6.3.2.3. Environment management strategies: material collection

I tidy my work desk. I spread my exam things onto it (book, notes, pencil, pen, paper)
I clear my desk of anything that could distract me, make a cup of tea, sit down and work
I go to my own room, turn off the TV and radio, take all the required material out and decide to concentrate only on the topic

Table 6.3.2.4. Environment management strategies: going elsewhere

If there is a lot to study, I leave the home environment, and go for example, to a café, where it is peaceful, and there is nothing else to do but study
I spend the evening in the library and read there

Some students do their best to make their environment as comfortable as possible taking the risk of not being able to study at all *I'll go to my room to study and I'll take it easy all the evening* (Table 6.3.2.5).

Table 6.3.2.5. Environment management strategies: taking it easy strategy

I go to my room to revise and take it easy in the evening

6.3.3. Effort Regulation

It is necessary that students have the ability to control their effort and attention in the face of distractions and uninteresting tasks. Effort management is self-management and it reflects a commitment to complete one's goals despite difficulties and distractions (see Pintrich et al., 1991). According to Ruohotie (2000a), effort control refers to intentional, purposeful and metacognitively guided decisions about an individual's level of application to a task. Learning demands high levels of mental effort and, therefore, effort control. Effort management is important to academic success (Pintrich et al., 1991) because it not only signifies goal commitment, but also regulates the continuing use of learning strategies.

Table 6.3.3.1. Effort regulation statements

I have to sleep enough to be at my best tomorrow in the exam
I never study after midnight or else I will be extremely tired in the morning, and won't be able to concentrate on the exam
* I work in phases, I mean that I work a bit, then I take a break, and after that I work again and so on.
I study the material to be tackled in short sections, and occasionally concentrate on other things
I have frequent breaks to conserve 'mind energy', so that I can boost my intellectual performance
Study for 30 minute periods with 10 minute breaks for relaxation
Study for an hour, take a short break, study for an hour, take a short break, relax for an hour, look over notes

6.3.4. Peer Learning

The open-ended situation presented to the students appeared to focus on individual regulation, and only two students reported using peer-learning strategies. Pintrich et al. (1991) have shown that collaboration with peers has positive effects on achievement. Dialogue with peers can help students clarify course material and reach insights they might not have attained alone.

Table 6.3.4.1. Peer learning strategies

If problems arise, I phone my friends
I usually go around an hour before the exam to school to repeat the main points and ask others for help with my problems

6.3.5. Social Control

The social control category of this study sometimes overlapped with the environmental control and help-seeking categories. Social control strategies can also be categorised as part of environment management. However they are dealt with separately in the present study. Five different types of social control strategy were identified (see Table 6.3.1) and nearly 13% of the students reported using such strategies.

The first type of social control strategy is social command: students actively ask parents and friends not to disturb them: e.g. *Stay away, do not call me, do not disturb me tonight!*

Table 6.3.5.1. Social control strategies: social command

I will ask my friend not to call me tonight!
I shut myself in my room and try not to get distracted by any noise
I take care of my household chores. After that I kick my parents out

Social withdrawal strategies involve hiding from social contacts. Students may take the telephone off the hook or they may not answer when called, hide in their rooms, or wait for silent times (such as night time) when they escape from social pressures (e.g. *I find it much easier to concentrate when everyone is asleep and it is night*).

Table 6.3.5.2. Social control strategies: social withdrawal

I go somewhere, where I will not be disturbed by my family
I pull the phone plug out of the wall
I don't even look at what others are doing and I don't answer the phone. I want to be alone as it is the only way I can concentrate – peacefulness
I find it much easier to concentrate when everyone is asleep at night

Students may use their socials skills to ease their own workload. Knowing the teacher's habits and customs may enable them to 'question spot' and deliberately choose to learn only part of the study material . As one student wrote *knowing the teacher helps me to avoid the most devilish questions.*

Table 6.3.5.3. Social control strategies: social know-how

I think about what kind of things the teacher might ask me and memorise what are, in my opinion, the exam subject's most important areas
I study the points that**,** in my opinion, are more likely to appear in the exam – the teachers knowledge helps me to avoid fiendish tasks

Another type of social control strategy is social help. Students may ask somebody (e.g. their mother) to ask them questions about the course material in order to find out how well the material has been learnt.

Table 6.3.5.4. Social control strategies: social help

First I read my exercise book through in detail a couple of times, and ask someone (for example my mum) to question me

Finally, some students like to discuss the forthcoming test with their friends. The goal is to share the situation with somebody else to get some support. One student in this study wrote: *and then I have a break. I will talk with my friends by phone about how awful the test is. I feel better at once if the friend can console me*.

Table 6.3.5.5. Social control strategies: trouble sharing

I will talk with my friends by phone about how awful the test is. I feel better at once if the friend can console me.

6.3.6. Help Seeking

There is a large body of research (see Pintrich et al.,1991; Newman, 1994) which indicates that peer help, peer tutoring and individual teacher assistance facilitate student achievement. Students can learn to manage the support of others. They can seek help from their peers or from their teachers. High-achievers have been found to engage in help seeking from their teachers or classmates relatively frequently (see Karabenick and Knapp, 1991; Zimmerman and Martinez-Pons, 1986).

Table 6.3.6.1. Help seeking strategies

I will ask my teacher to explain it again
In Maths I begin studying early in the evening – If I do not understand something after studying I will still have time to then ask the teacher
If problems arise, I will ask a family member
I sometimes ask family members to forbid me from watching TV for example, in case I try to
I sometimes phone a friend, who can explain it to me

6.4. THE USE OF METACOGNITIVE CONTROL AND REGULATION STRATEGIES

Conscious selection and assessment of strategies can be called metacognition. Metacognition refers to the awareness, knowledge and control of cognition. Metacognitive knowledge includes individuals' knowledge about their own schemas, strategies and processes and the conscious awareness of their learning abilities as well as awareness of the difficulty of tasks and their demands (see Ruohotie, 2000a). Awareness of one's own learning abilities is generally related to

Table 6.4.1. The categories and sub-categories of metacognitive control and regulation strategies

Encoding control

Attention control
- Improving concentration
- Distraction avoidance
- Self-forcing
- Mind-wandering avoidance
- Involving self-belief
- Giving up

Motivation regulation
- Self-reward
- Positive outcome thinking (rewards)
- Negative outcome thinking (punishments)
- Intrinsic interest: task value/learning goal /interest
- Other motivation regulation statements
- Self-efficacy statements

Affect regulation
- Studying can be fun
- Learning by fear
- Relaxation
- Test anxiety

Behavioural regulation
- Nutrition
- Need for sleep

Physical conditions

Self-instruction statements
- Reminding
- Rule of life principles
- Self-reinforcement, task value strengthening

motivational beliefs, such as self-efficacy, control beliefs and expectancy of success. Awareness of learning tasks is linked to task value and goal-orientation (see Ruohotie, 2000a). According to Pintrich and McKeachie (2000), the term metacognition refers to two aspects of cognitive life: 1) awareness of and knowledge about cognition; and 2) control and regulation of cognition.

In the present analysis the metacognitive control and regulation strategies were divided into six main categories: encoding control, attention control, motivation regulation, affect/emotion regulation, behavioural regulation and self-instruction (see Table 6.0.1). Several of these were in turn divided into sub-categories (see Table 6.4.1).

6.4.1. Encoding Control Strategies

The volitional control strategies have been defined in this study in a way proposed by Kuhl (1987) and Corno (1993). The encoding control strategies are understood in a wider perspective including Kuhl's parsimony of information processing.

Students regulate their efforts according to their tasks. Encoding control facilitates the protective function of volition by selectively encoding those features of stimuli that are related to the current intention (see Kuhl, 1987, p. 287). The encoding control strategies indicate student efforts to act as if some parts of the task are more important to understand and act upon than others (Corno, 1993). Strategies indicating student efforts to engage in parsimony of information processing and to apply stop rules for information processing are also included in this category. Efficient action-control requires that an individual finds the optimal length for his or her decision-making process (see Kuhl, 1986, p.428). By self-testing, questioning and monitoring her/his attention while reading, students ensure their comprehension of the study material. Students can also avoid using strategies that overload their information processing systems.

In spite of the wide conceptual range of the possible strategies for this category, only 8% of the students reported using encoding control strategies. Perhaps the research method used in this study is not the best one to detect the use of encoding control strategies; it would be preferable for a researcher to be 'nearer' to the individual student and her/his study environment to register the use of complex information processing strategies.

Table 6.4.1.1. Encoding control strategies

If I don't understand what I have read I revise it, for example, from my notes
If I do not understand what I have read, … and I'll go through all the main areas and if they are mastered, I'll do something else
I concentrate on reading and occasionally think about the contents
In general subjects I look over the main themes, and consider what I know about each of them
I revise the main points in my mind and if everything is clear, I can do what I want
I keep matters in order of importance, ie I decide to definitely study. If there is too much to study, and I know that I will run out of time halfway through, I will select what are, in my opinion, the most important parts of the course and learn those

Typical statements indicating encoding control strategies in which students monitor on their own learning include *If I do not understand what I have read, …* and *I'll go through all the main areas and if they are mastered, I'll do something else* (see Table 6.4.1.1).

There was one particularly interesting statement. One student wrote that she *keeps matters in the order of importance*. This a clear metacognitive monitoring strategy statement which necessities the control and regulation of information processing.

6.4.2. Attention Control Strategies

Attention control strategies refer to those strategies an individual uses to carry out intentions. Attention control statements indicate student efforts to give selective attention to task-relevant information. Students can develop their attentiveness and choose which activity on which to concentrate (see Ruohotie, 2000a). Active atten-

tional selectivity 'facilitates the processing of information supporting the current intention and inhibits the processing of information supporting competing tendencies' (Kuhl, 1986, p. 427). The main tasks of attention control strategies are to keep the mind concentrated on the task and to protect the individual from distractive stimuli.

The attention control statements collected in this study can be divided into six sub-categories (see Table 6.4.1 and Tables 6.4.2.1 to 6.4.2.6).

Teachers can easily recognise students who have problems concentrating. The maintenance of a high concentration level in all tasks all the time is impossible: the concentration level varies depending on the subject, task, personal interests, goal setting and various other reasons. During the school day or study session students are forced to monitor, control and regulate their concentration level constantly.

Students have various different strategies to help their concentration. The learning strategy chosen is closely related to concentration. Students can focus and maintain their concentration by underlining texts, by making notes and by writing summaries. The statements using concentration strategies focus on meta-level concentration control (e.g. *I'll try to concentrate on task*). Such statements indicate that the student is willing to control his/her concentration during the task.

Table 6.4.2.1. Attention control strategies: concentration

I try to just concentrate on studying, even though it doesn't always work
I concentrate as best I can and underline the most important points
I'll try to concentrate on the task!

Students have also numerous strategies to avoid distractions. For some it is enough to turn off the TV, radio and computer. Students 'empty' or 'shut' their minds to distractions (*I shut my mind to everything interesting and I simply force myself to*

read for a test) or they deliberately eliminate all possible distractions beforehand (see Table 6.4.2.2).

Table 6.4.2.2. Attention control strategies: distraction avoidance

I remove everything interesting from my mind and simply force myself to study for the exam.
I try to concentrate and remove everything else from my mind
I first eliminate all possible distractions: I turn off the TV and radio, clear my work desk of everything unnecessary, and change into comfortable clothes
I refuse to let other activities interfere with my studying

The subcategory of attention control strategies called 'self-forcing' is very easy to understand, because the strategies sound so familiar and evident (see Table 6.4.2.3). As a psychological phenomena it is rather complex and very difficult, if not impossible, to conceptualise. For a researcher the statement *I just force myself to do …* reveals the active use of metacognitive regulation. An individual has a goal and she/he is ready to protect the goal from any distractions by all possible means: self-monitoring, attention control, self-regulation, cognitive strategy choice etc. If the individual reaches his/her goal we say that she/he has a strong will, or that she/he is using the volitional strategies in an effective way. If she/he fails, then we might speak about a weak will or self-regulation failure.

However these observations do not give a full description of the complex processes of volition and will-power. Kuhl (1996) asks an interesting question: does the child who interrupts his/her homework and joins his/her friends playing in front of the window demonstrate a weakness of will or does the child have extraordinary willpower because he/she is not intimidated by the threat of being punished by his/her parents? PSI theory (see Section 3.3.4) was developed in an effort to answer such questions.

Deci and Ryan's theory of self-determination (see Section 3.3.4) is useful in the context of a student being intrinsically motivated to finish her/his task. However if that is not always the case in the statements of self-forcing (see Table 6.4.2.3). Students seem to use will-power and will in situations where motivation has faded away and they have to finish their task by force. Rigby et al. (1992) have conceptualised motivation to have both intrinsic and extrinsic dimensions. Intrinsic motivation concerns activities which are engaged in for their own sake (self-determined). Sometimes, extrinsic motivation involves a progression from behaviours that were originally extrinsically motivated but became internalised and are now self-determined. Student A (Table 6.4.2.3) seems to go through this kind of process (*In the beginning I force myself to study, but when I get going, I have no difficulties concentrating and then I really want to learn everything and am able to study it all*).

Table 6.4.2.3. Attention control strategies: self-forcing

In addition, I force myself to concentrate on my work
I simply force myself
I force myself to look ahead and study
I force myself to study for at least 4 hours, after which I can take a small break before summarising
I decide to make myself notes on all the study material, and can't stop until they are ready
I force myself to study for a certain time, for example 30 minutes, and then take a break
I decide I can manage to study. The decision sticks!
My willpower keeps me on course
A lot of willpower.
I just get off my butt and start to study
I use RAW WILLPOWER and discover that once the studying is done, it is done. I start to toil, and anticipate the moment, when I can go off to do something more fun – I never the less try to concentrate on my studying: the faster I get it done, the faster that moment will come.

Students participating in this study used a variety of practical strategies to avoid their mind wandering while concentrating on the task (Table 6.4.2.4). Student A has to write all the time to keep her thoughts in the matter, student B listens classical music and the student C has decided to have a 'preventive' break every 40 minutes.

Table 6.4.2.4. Attention control strategies: mind wandering avoidance

A) In the beginning I force myself to study, but when I get going, I have no difficulties concentrating and then I really want to learn everything and am able to study it all
B) I find it hard to control what enters my mind sometimes so I put some classical music on, which helps me to concentrate and generally puts me at ease, and then I try to focus until I am sure that my mind will not wander again
C) In order to get my studying done, I don't allow myself to think about any 'alternative activities', but instead concentrate on intensive reading and follow my own proven techniques, remembering to take short 'breaks' every 40 minutes or so

Some students reported strategies relating to their self-knowledge and their beliefs about themselves as academic learners and their own capabilities to concentrate and study. Student A (Table 6.4.2.5) knows that his studying skills and concentration are rather weak so he puts in extra effort to maintain his concentration level. This kind of defensive pessimism increases effort. Student E seems to know by experience that if she is able to concentrate, her studying time will be much shorter. This knowledge motivates her to try her best.

Table 6.4.2.5. Attention control strategies: involving self-belief

A) I know that my 'study skill' and ability to concentrate are quite poor, so I try my best and read my exercise book and notes
B) If I concentrate, then I do not use as much time

In contrast to defensive pessimism, giving up (self-handicapping) is the withdrawal or decrease of effort to negotiate affective outcomes (see Garcia and Pintrich, 1994). Students who have negative self-beliefs, use these beliefs as a defence system to explain possible future failure. In other words, there are students who do not try their best because they are convinced beforehand that their efforts will not be

successful. When they fail in the test, for which they were not properly prepared, they get reinforcement for their negative thinking. According to Garcia and Pintrich (1994), self-handicapping is anticipatory; it is *a priori* preparation for possible failure. In the study by Martin et al. (2001), self-handicapping was the strongest negative predictor of academic outcomes.

The attitude of student A in Table 6.4.2.6 can be explained by the theory of self-handicapping. By strategically withdrawing effort, a sense of self-worth can be preserved. By contrast, Student B is unable to resist one specific kind of distraction an ice hockey match on TV . He seems to know that it is no use to fight against that distraction and to waste energy on the fight. He allows himself to give in, but only to this very specific temptation. His weak point of self-regulation is characteristic of a certain kind of 'accepted exception' if you fail you fail in a very structured way and you have control of the situation all the time. In that case your volitional impairment or failure in self-regulation does not cause too many problems. In general, individuals often have to deal with 'selective or controlled failures' in self-regulation (broken diets, unkept promises, etc).

Table 6.4.2.6. Attention control strategies: giving up

A) Unfortunately I often succumb to the temptations of TV, music, and food. As a result, I often give up trying
B) I force myself to read even if I can't concentrate, but if there is an ice hockey game on TV, then I have to watch it even if I study at the same time for the exam

6.4.3. Motivation Regulation Strategies

Motivation regulation includes attempts to regulate various motivational beliefs such as goal orientation (the purpose of doing a task), self-efficacy (judgments of competence to perform a task) as well as task value beliefs (beliefs about the importance, utility and relevance of the task) Pintrich (2000a, p. 99). Motivation control strategies enhance or strengthen the motivational basis of intentions, regulating the attribution of goals and tasks, their enactment and their outputs (see

Corno 1993). Corno presents three sub-categories of motivation: incentive escalation (self-rewards or self-punishments); attribution/self-reinforcement (including reassurance); and self-instruction. In this study the self-instruction statements are dealt with separately later on. Wolters (1998) identified five main categories of strategies used to combat low motivation (extrinsic regulation, intrinsic regulation, information processing, volition and other motivation). Extrinsic regulation consisted of strategies suggesting that students would rely on an externally provided reward to sustain motivation or performance goals strategies in which the students would think about, refer to, consider or remind themselves of their desire to do well in the examinations in order to overcome the motivational problem. Intrinsic regulation consisted of mastery goal strategies, task value strategies (designed to increase their value for the material or task), interest strategies (students tried to make the material more interesting or the task more enjoyable) and efficacy strategies.

The categories of motivation regulation statements which were reported in this study are displayed in Table 6.4.1 and illustrated in Tables 6.4.3.1 to 6.4.3.6.

For this study it is not always necessary, or indeed possible, to categorise all the motivation statements as either intrinsic or extrinsic motivation regulation. Self-reward, and positive and negative outcome thinking strategies could be classified as extrinsic motivation regulation, but many intrinsically motivated students seem to use self-rewards as an additional reason or bonus for completing the task. It seems evident that students use various motivation regulation strategies depending on the subject or situation. Wolters (1998) reports that self-regulated learners adapt or modify their strategy use to fit situational demands including motivational regulation. 'Intrinsic motivation is contextual and refers to how people view activities and it can vary over time and with changes of circumstances. Different levels of intrinsic and extrinsic motivation can exist within individuals at a given time' (Pintrich and Schunk, 1996).

Zimmerman and Martinez-Pons (1990) and Purdie and Hattie (1996) found that students promise themselves an external reward, including naps, TV privileges, ice cream, or time with friends, as a way of building extrinsic motivation for completing the task. Many students in this study used these kinds of self-rewards to recompense themselves for the efforts they have made in studying (*I reward myself with Cadbury's Dairy Milk chocolate* or *I train myself in study by promising myself rewards*).

Table 6.4.3.1. Motivation regulation strategies: self-reward

I sometimes reward myself after studying
I might possibly 'reward' my revision with some 'interesting activity'
I promise myself rewards (for example, breaks or food)
I reward myself with food and treats
I reward myself with a Cadbury's Dairy Milk chocolate bar
I train myself to study by promising myself rewards

Some students try to regulate their motivation by thinking about the possible positive outcomes of their efforts *If I study hard now, I can get a good mark on the exam*. Some of the statements in this category were rather close to emotion regulation (*I motivate myself with the knowledge that I will get feeling of success and a good mark on exam, if I study*). In Table 6.4.3.2 Student A motivates himself by reasoning in a very constructive way: *The results of the exam are directly proportional to the efforts given in studying*.

Table 6.4.3.2. Motivation regulation strategies: positive outcome thinking

I think: 'If/when I study hard now, I can get a good mark on the exam"
I motivate myself with the knowledge that I will get feeling of success and a good mark on exam, if I study
A) The results in the exam are directly proportional to the effort given in studying.
I try to remember that I have to study in order to get even a moderate grade
I always say to myself, that I will be pleased later on to have such good grades

McCann and Garcia (1999) created the Academic Volitional Strategy Inventory (AVSI) questionnaire. They discovered that the most frequently endorsed strategy was 'thinking about possible negative consequences.' In their study 93% (N=378) students reported the use of this particular strategy. When students think of the possible negative outcomes they seem to exaggerate. For example Student A in Table 6.4.3.3. says *If I don't pass the test, I'll probably have to repeat the course*. In fact he is doing rather well: his last grade was 7 /10 and he was expecting to get 8/10 in the next term. He is simply using unrealistic 'threats' in order to motivate himself. Student B declares that she is not very good at motivating herself to work and that she always does her work at the last minute. According to quantitative data she is one of the most successful students in her class. This kind of behaviour could be called defensive pessimism. 'Defensive pessimists set unrealistically low expectations and think through a variety of possible outcomes prior to events in which their performance is to be evaluated' (Martin et al., 2001). With an increase in effort, performance is often subsequently unimpaired (Norem and Cantor, 1986) and setting lower expectations can serve to establish performance standards that are less difficult to achieve (Showers and Ruben, 1990).

There is a stereotype that Finnish people have very Lutheran attitudes towards work and suffering which are believed to bring transfiguration and glory in the end. Some of the students (for example, C and D in Table 6.4.3.3) seem to share that attitude.

Task value can be defined as the value an individual attaches to success or failure on a task. Eccles (1983) proposed three components of task value: the individual's perception of the importance of the task, the intrinsic value or interest of the task and the utility value of the task for future goals.

Table 6.4.3.3. Motivation regulation strategies: thinking of negative outcomes

I want to work hard and, out of fear of getting bad marks, 'have to' study.
I make myself work by thinking of the exams and the consequences of this work in the short and long-term
A) I motivate myself by thinking that if I don't pass the exam; I will have to re-sit the whole course again.
B) I am bad at motivating myself to work and almost always leave everything till the last minute. I think that if I don't do anything now, it will cause problems later on.
I motivate myself by thinking that by doing/studying something well now, I don't have to come back to it later on.
I tell myself that if I don't get through this course, I will have to re-take it OR if this goes on, I will never be able to leave school.
C) I think that it is better to "suffer" for one night and study effectively to get the task out of the way than fail and have to re-sit the exam, or re-take the course.
D) I think of all the nice things I will do on the evening after the exam and that will keep me going while I waste a whole evening reading for it.
Motivation is at its peak in the mornings. Two consecutive fails will stall my studies and more than likely cause me to drop from the course.

In Table 6.4.3.4 Student A tries to regulate her motivation by thinking of the importance of the test (*When I have no wish to study, I think how important the exam is to me*) . Student B manipulates her motivation by thinking that studying is right now the most important thing to her and the most useful, too. The perceived importance of a task is related to a student's general goal orientation and value may relate to the strength or intensity of the behaviour (see Pintrich and McKeachie, 2000).

Table 6.4.3.4. Motivation regulation strategies: task value/learning goal/interest

A) When I have no wish to study, I think about how important the exam is to me
B) I think that studying is most important and useful right now
I study, because I want to learn and better myself
C) I try to get interested in the subject by first glancing at the list of contents
My motivation is the future – it is worth studying, so that it will be bright
I think that it is worth studying, because I want to get into a good university

Student C tries to increase her interest in the material by having a glance at the index. Interest can be defined as students' general attitude to or liking of the task. Sansone et al. (1992) have provided empirical evidence that students actively work to control their ongoing effort for uninteresting tasks. In their research, some of the college students who were asked to complete a required or important task which was rather boring, engaged in strategies designed to increase interest and sustain their persistence at a task.

Responses in which students tried to regulate their motivation, but did not provide a clear indication of how, or did it in ways that did not fit into any of the existing motivational categories were placed in an 'other' category (see Table 6.4.3.5). For example, Student A finds motivation by thinking that she can get rid of the task by studying it; Student B appeals to her sense of duty. Student C forces himself to be motivated, but we do not know how he does it. Student D finds her motivation by thinking that failing would be indefensible.

Table 6.4.3.5. Motivation regulation strategies: other

A) I motivate myself with the thought that it will all be over eventually
B) I motivate myself to study by relying on my sense of responsibility
C) I motivate myself through the use of force
D) But if the subject is boring, I motivate myself by thinking that failing in the exam is unforgivable

Finally, some students reported having problems with their motivation (Table 6.4.3.6). Student A declares that if she is not able to study, she doesn't motivate herself, because it would be useless. Student B is an interesting case: to understand his lack of motivation it maybe a good idea to look at his results on the MSLQ scales. Compared to the average scores, he scored very low on task value (1.83/3.42) and self-efficacy (1.63/3.51) , low on intrinsic motivation (2.50/3.39), rather high on extrinsic motivation (3.75/3.32) and very high on test anxiety (4.40/2.61) . It is no wonder that his use of learning strategies and metacognitive

regulation are low, with the exception of a high rate of use of rehearsal strategies (4.00/2.91).

Table 6.4.3.6. Motivation regulation strategies: self-efficacy statements

A) I don't actually motivate myself with anything. If I really am too tired, I don't study, as it wouldn't be useful anyway
B) I suffer from a serious lack of motivation when it comes to studying the subjects I don't like or can't really understand

6.4.4. Affect/Emotion Regulation Strategies

Affective self-regulation refers to the control of short- and long-term emotional states related to the pupils' aspiration level, their hope-for-success and fear-of-failure, their persistence and epistemic resilience and their readiness to tune themselves to different task-affordances (Snow, 1994).

Students use a wide range of affect regulation strategies . Studying involves all kind of emotions such as anticipation, hopelessness, anxiety, enjoyment, boredom, pride and disappointment. These emotions can influence both motivational and volitional processes, thereby inhibiting or promoting successful goal outcomes (McCann and Garcia, 1999; Hembree, 1988; Pekrun, 1992; Volet, 1997). The strategies managing the affective aspects of a task can indicate students' efforts to control potentially debilitating states of worry or anxiety (see Corno, 1993). These strategies include, for example, telling yourself to calm down, focusing on your breathing to calm down, relaxation exercises, reminding yourself of things that make you feel good, or simply strategies to change the boring work to fun.

The affect regulation strategies found in this study can be divided into four sub-categories (see Table 6.4.1 and Tables 6.4.4.1 to 6.4.4.4).

Table 6.4.4.1 illustrates some 'studying can be fun' strategies. Student A needs to entertain himself time to time, otherwise he looses his concentration on the task. Student B makes studying more interesting by drawing pictures in books. Student

C finds studying more pleasant if he listens music at the same time and student D likes to eat at the same time. Comfortable clothes are needed for student E, while Student F nicely summarises the main idea of this category: if the study situation/material/task is enjoyable, much harder work ensues.

Table 6.4.4.1. Affect/emotion regulation strategies: studying can be fun

A) I have to entertain myself a bit when revising, or else I will loose my concentration.
B) I make studying fun (for example, by drawing in my books)
C) It is more fun to study when you listen to music at the same time
D) If I eat something nice at the same time, studying feels more fun
E) I change into comfortable clothes
F) I work much harder for the subjects I enjoy, however

Many people are familiar with the deadline-syndrome nothing gets done until the last minute. Some students need to have a clear deadlines, or heavy stress with the fear of the negative outcomes, before they can find enough motivation to start working. In Table 6.4.4.2 Student A states that he sometimes has difficulties getting going: he has to have some pressure before he is able to learn. He learns only through fear! Similarly Student B evokes the urgency of the situation to be sure that he is able to study.

Table 6.4.4.2. Affect/emotion regulation strategies: learning by fear

A) Sometimes it just does not happen and I make things more interesting. If there is sufficient or too much pressure present, I learn out of fear
B) If I get scared I make sure that I feel the urgency of the situation. I find that I can work better if there is a set deadline and I'm under pressure

According to Corno and Kanfer (1993) students can use different relaxation strategies to neutralise an overemphasis on negative states during the goal-striving process and thereby foster a focus on task-relevant concerns. Some students reported using self-instruction strategies (see Section 6.4.6 below) to control their

emotional balance. With relaxation strategies students have a clear goal to calm themselves down

Table 6.4.4.3. Affect/emotion regulation strategies: relaxation

I first relax by watching TV or doing something else before studying
I make a cup of coffee, drink it, and then get to work
Before I start working, I eat well and listen to music
I relax in the bath, and read at the same time

by watching television, listening to music, drinking a cup of coffee or taking a bath before starting the study session.

The general definition of test anxiety is 'an unpleasant feeling or emotional state that has psychological and behavioural concomitants and that is experienced in formal testing or other evaluative situations' (Dusek, 1980). The cognitive component (worry) of test anxiety refers to the thoughts that accompany anxiety, such as working about the test, thinking about the consequences of failing etc (see Pintrich and Schunk, 1996). The emotional component refers to the actual physiological and emotional arousal that individuals experience as they take a test. This arousal can become a classically conditioned affective reaction to evaluation situations (see Wigfield and Eggles, 1989; Pintrich and Schunk, 1996). Most people do feel some anxiety when put in a performance situation. For the test anxious students, the anxiety becomes overwhelming and it interferes with their ability to perform a task they have mastered in another situation (see Pintrich and Schunk, 1996).

Test anxiety, which taps into students concern over taking examinations, was also measured by the MSLQ questionnaire in the quantitative part of this study. The results were clear test anxiety is closely related to high extrinsic goal orientation.

Empirical research on the negative effects of anxiety on performance is extensive. Hembree (1988) found that test anxiety causes poor performance, is negatively related to self-esteem, and is directly related to students' defensiveness and fear of negative evaluation.

Table 6.4.4.4 gives an example of test anxiety: Student A declares that for her exams are the dark side of the studying, because she is normally nervous in test situations. She is aware of her weakness and is probably able to prepare herself in a constructive way for examinations.

Table 6.4.4.4. Affect/emotion regulation strategies: test anxiety

A) Exams are the downside of learning, as I get very nervous.

6.4.5. Behavioural Regulation Strategies

The triadic model of social cognition (Zimmerman, 2000, see Figure 3.1.1) presents a framework where behaviour is an aspect of the person even though it is not part of the internal 'self' that is represented by cognition, motivation and affect. Individuals can observe and monitor their own behaviour and attempt to control and regulate it. These activities can be considered self-regulatory for an individual (see Pintrich, 2000b). Behavioural self-regulation comprises self-observation and applicable performance processes, such as learning methods (see Zimmerman, 2000). In the context of this study behavioural strategies are conceptualised as dealing with the psychophysical well-being of a student. There is a vague connection between this idea and Maslow's (1954) basic needs theories, at least with the lowest level of his taxonomy (physiological needs: hunger, thirst, bodily comfort).

Students in this study seemed to control the state of their body and regulate themselves or their conditions in at least in three different areas: nutrition (e.g. coffee, food); need for sleep and physical conditions (e.g. changing position, going for a walk) (see Tables 6.4.5.1 to 6.4.5.3). Behavioural monitoring strategies were used to monitor or control their behaviour in the learning situation many students

seemed to know themselves rather well. They knew when was the best time to go to sleep or to wake up to be at their best in the test situation. They also seemed to be familiar with their physical limits they knew when it was time to go for a walk, or have something to eat to keep themselves going.

It is evident that it is difficult to study if one is hungry as Student A says *I eat something little, because I can't work if I am hungry* (Table 6.4.5.1). Student B makes herself coffee to keep herself awake. It is not so difficult to imagine that many students are using all kind of stimulants (such as Coca-Cola, energy drinks etc.) to keep themselves awake.

Table 6.4.5.1. Behavioural regulation strategies: nutrition

A) I also eat something light, because if I am hungry I can't work
I eat and drink well before starting
I drink tea, and start to read through the exam material
B) I drink coffee in order to remain alert
I also try to sip coffee so I don't fall asleep
I often eat while studying
Comfortable clothes, good food
I prepare something small to nibble as well as a cup of coffee, forget everything else, and start reading
I prepare a good stock of food for myself
I drink coffee and refuse to let myself get out of my chair

Each individual has her/his daily rhythm and there are important personal differences e.g. in the need for sleep. In Table 6.4.5.2 Student A seems to be familiar with her own rhythm and she goes to sleep before 10 p.m. as otherwise she is unable to do anything correctly the next day.

Table 6.4.5.2. Behavioural regulation strategies: need for sleep

A) I never work late, and take care to end before 10pm as otherwise I am unable to do anything right the next day.

The night before the exam I go to sleep earlier than normal and try to think about something else and relax a while before bedtime I go to sleep early and study in the morning

Every athlete who has tried long distance running knows how important it is to regulate running speed, breathing and nutrition balance. Studying for an exam is a similar kind of performance. Students can regulate their efforts and also their physical conditions in order to keep their concentration levels high. In Table 6.4.5.3 Student A takes five-minute breaks during which he opens the window to get fresh air and moves around in the house in order to help his body continue to work. Student B changes her position regularly. Student C goes for a walk to keep awake (*So that I don't fall asleep, I walk with the dog or just anywhere*). For student D walking is the best way to go through what she has learned

Table 6.4.5.3. Behavioural regulation strategies: physical conditions

I need a break after every hour! A) I take a 5 minute break, during which I open the window and stretch my legs B) I can change rooms or my position completely C) So that I don't fall asleep, I walk with the dog or anywhere else D) I go for a walk after school, sometimes I learn on the way or shut myself in my room and then go through the study material in stages, making a few notes (but not copying from the text) and then walk a bit, going through what I've just learnt

6.4.6. Self-Instruction Strategies

Self-instruction refers to telling oneself how to proceed during a learning task. There is some evidence (Schunk, 1982) that self-instruction can improve students' learning. Self-verbalisation is used as a teaching method (e.g. Graham et al., 1998) with children with special educational needs. In the present study, self-instruction statements combine a variety of self-talk strategies, which are used for reminding oneself of a task, rule-of-life statements and motivation regulation, such as self-reinforcement. Nearly 17% of students reported of the use of these strategies. This

number does not include all the ‘I tell myself’ statements which belong in other categories.

Reminding statements are typical of self-instruction. Students want to recall their goals and reinforce their efforts in various areas. Sometimes self-instruction strategies can have many different functions at the same time. Self-talk could be a way for a student to decrease her/his emotional arousal (c.f. McCann and Garcia, 1999) and escalate motivation. By telling herself that *there are only few test weeks in the future and then everything is over* Student A in Table 6.4.6.1 is looking for reassurance, both motivational and emotional.

Table 6.4.6.1. Self-instruction strategies: reminding

I tell myself that I can do more interesting things during the weekend.
I tell myself that I can do other things later and that I now have to study
A) I tell myself that there are only a few weeks of exams left, and then this will all be over
I motivate myself by telling myself that I only have to learn it once

For one reason or another, in the German speaking sample there were students who were reminded themselves of elevated rule-of-life principles which they had doubtless learnt from their parents or teachers (see Table 6.4.6.2).

The final category of metacognitive strategies is self-reinforcement or task-value strengthening (see Table 6.4.6.3). By telling herself to strain and stretch for good

Table 6.4.6.2. Self-instruction strategies: rule of life principles

I live by the motto ‘first work, then pleasure’
I always tell myself that good results will make me happy later
But I tell myself to shut off, since school is not the most important thing in life

performance, Student A is looking for motivational reinforcement. Student B reminds himself of the importance of the test to strengthen his task-value orientation.

Table 6.4.6.3. Self-instruction strategies: self-reinforcement, task-value strengthening

A) I tell myself, that now is the time to make an effort and achieve good results
I tell myself that I have to have to be successful in my life
B) I tell myself that the examination is important. My will is so strong that I am bound to learn

6.5. NON-CONSTRUCTIVE STRATEGIES

Most of the self-control and self-regulation strategies presented in this Chapter are aimed at improving individuals' performances in an academic situation. However some of the students have a different goal: they are not actively looking for improvement on the contrary, they have given up. Self -handicapping and defensive pessimism theories were discussed above, but those strategies are not completely non-constructive.

Table 6.5.1. Non-constructive strategies

A) It is much more fun to have a good time at home and only one unpleasant hour in the exam than to have a very unpleasant evening at home and one "relaxing" hour in the exam.
B) I can't manage to read all the material…I will do anything but that, which I am supposed to do and perhaps read through the exam topic once between 1-3 in the morning
C) If I am tired – I go to sleep. If there is something good on TV – I will watch it, school has been put on the back burner in my life
I spend my time trying to think of something 'useful' or important to do, so that I won't have to study and if I do decide to read, it is already so late that I am tired and cannot concentrate on studying. I worry and wonder on the way to school why I didn't study more

There is something in common among the first three cases (A, B and C). They are all boys, aged 16-17, they have low intrinsic (1.5 – 2.75) and extrinsic (1.5 –2.00) motivation and low task value (1.33 – 2.83). They got quite good marks (7 –8/10) in

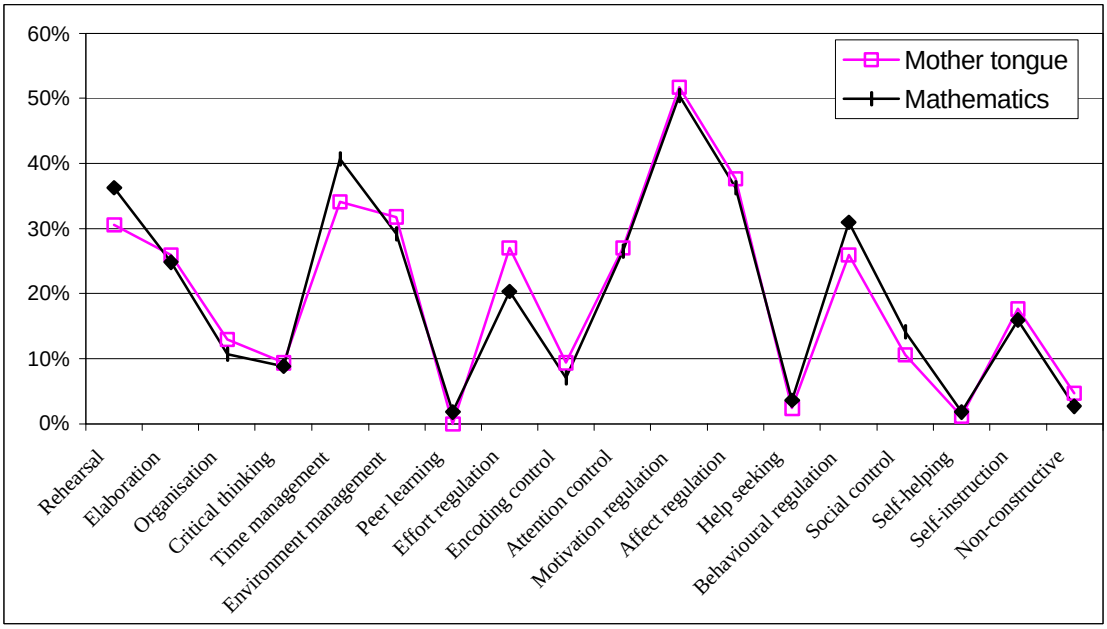
their last school report, but they are all expecting to get lower grades in the next school report. They report attitudes which suggest other interests (TV, sleep, other interesting things, work avoidance). It seems that at this moment school is too much for them – they are not able to find the 'right' attitude for studies

All secondary school teachers can recognise this type of student in their classrooms. With the data collected for this study it is not possible to make further analysis of this non-productive behaviour. However it would be very interesting to make a case study of this kind of student to find out the reasons for this type of attitude.

6.6. MOTHER TONGUE AND MATHEMATICS

Figure 6.6.1 and Table 6.6.1 show the percentage of the students using various strategies in mother tongue and mathematics in the content analysis part of this study. The differences are surprisingly small, compared to the relatively large differences between the two subjects found in the MSLQ scale results (see Section 5.2.2).

Figure 6.6.1. Content analysis by subject



Nevertheless students report using more rehearsal in mathematics in both parts of the present study. Generally, in mother tongue students use more effort regulation (a difference of 6.70%) than in mathematics. On the other hand students use more behavioural regulation (5.09%), rehearsal strategies (5.69%) and time management strategies (6.59%) in mathematics.

Table 6.6.1. Content analysis by subject

Strategies	Mother tongue N=85	%	Mathematics N=113	%	Difference (%)
Effort regulation	23	27.06%	23	20.35%	6.71
Environment management	27	31.76%	33	29.20%	2.56
Encoding control	8	9.41%	8	7.08%	2.33
Organisation	11	12.94%	12	10.62%	2.32
Non-constructive	4	4.71%	3	2.65%	2.06
Self-instruction	15	17.65%	18	15.93%	1.72
Affect regulation	32	37.65%	41	36.28%	1.37
Motivation regulation	44	51.76%	57	50.44%	1.32
Elaboration	22	25.88%	28	24.78%	1.10
Critical thinking	8	9.41%	10	8.85%	0.56
Attention control	23	27.06%	30	26.55%	0.51
Self-helping	1	1.18%	2	1.77%	–0.59
Help seeking	2	2.35%	4	3.54%	–1.19
Peer learning	0	0.00%	2	1.77%	–1.77
Social control	9	10.59%	16	14.16%	–3.57
Behavioural regulation	22	25.88%	35	30.97%	–5.09
Rehearsal	26	30.59%	41	36.28%	–5.69
Time management	29	34.12%	46	40.71%	–6.59

6.7. GENDER DIFFERENCES

The gender differences in the content analysis part of the present study were quite marked (Table 6.7.1). Female students reported much more frequent use of motivation regulation (21.17%), attention control regulation (18.03%) and elaboration strategies (17.20%) than their male fellow students. Girls also made more frequent use of nearly all the other strategies, except non-constructive withdrawal, which seems to be a gender related phenomena for males in this study.

There are some clear explications. According to MSLQ scales of this study, female students are more motivated, they use more cognitive and metacognitive learning strategies and they are more interested in the task than male students.

Table 6.7.1. Content analysis by gender

Strategies	Female N=105	%	Male N=93	%	Difference (%)
Motivation regulation	64	61.0	37	39.8	21.17
Attention control	37	35.2	16	17.2	18.03
Elaboration	35	33.3	15	16.1	17.20
Time management	45	42.9	30	32.3	10.60
Encoding control	13	12.4	3	3.2	9.16
Affect regulation	43	41.0	30	32.3	8.69
Organisation	16	15.2	7	7.5	7.71
Self-instruction	21	20.0	12	12.9	7.10
Critical thinking	13	12.4	5	5.4	7.00
Environment management	35	33.3	25	26.9	6.45
Rehearsal	38	36.2	29	31.2	5.01
Help seeking	5	4.8	1	1.1	3.69
Effort regulation	26	24.8	20	21.5	3.26
Self-helping	3	2.9	0	0.0	2.86
Peer learning	2	1.9	0	0.0	1.90
Behavioural regulation	30	28.6	27	29.0	–0.46
Social control	13	12.4	12	12.9	–0.52
Non-constructive	0	0.0	7	7.5	–7.50

6.8. SKILFUL AND NAÏVE REGULATORS

In their recent articles Zimmerman (1998) and Ruohotie (2000a) have compared skilful and naïve self -regulated learners (see also Table 3.5.2.1). The MSLQ results of the present study have shown that self-efficacy beliefs are the most predictive scale for academic success (see Table 5.2.2) and has the highest correlation with the last grade (Table 5.2.1). Academically successful students have higher means in both intrinsic and extrinsic goal orientation and successful students use more attention control strategies than less successful ones. They have higher means on the task value and time and study environment management scales, and they use more cognitive learning strategies and effort regulation. On the other hand, the less successful group used self-instruction strategies more often.

The content analysis also reveals dramatic differences in methods and self-beliefs between these two groups of students (Table 6.8.1). Students with high grades regulated their motivation much more than their less successful schoolfellows. They also used many more attention control strategies (12.78%), encoding control strategies (9.44%) and cognitive learning strategies (elaboration 8.89%, organisation 8.33% and critical thinking 4.44%). By contrast the less skilful students used more social control strategies (6.67%), non-constructive strategies (5.56%) and self-instruction strategies (4.44%).

Table 6.8.1. Content analysis by high and low achievement

Strategies	Grade <=6 N=36	%	Grade >9 N=30	%	Difference (%)
Motivation regulation	15	41.67	19	63.33	21.67
Attention control	5	13.89	8	26.67	12.78
Encoding control	5	13.89	7	23.33	9.44
Elaboration	10	27.78	11	36.67	8.89
Organisation	3	8.33	5	16.67	8.33
Effort regulation	6	16.67	7	23.33	6.67
Critical	2	5.56	3	10.00	4.44
Affect regulation	14	38.89	13	43.33	4.44
Peer learning	0	0.00	1	3.33	3.33
Self-helping	0	0.00	1	3.33	3.33
Behavioural monitoring	12	33.33	11	36.67	3.33
Time management	15	41.67	13	43.33	1.67
Help seeking	1	2.78	1	3.33	0.56
Environment management	12	33.33	9	30.00	–3.33
Self-instruction	4	11.11	2	6.67	–4.44
Non-constructive	2	5.56	0	0.00	–5.56
Social control	6	16.67	3	10.00	–6.67

6.9. TWO CASE STUDIES

To clarify the motivational orientations and the use of different volitional strategies I have chosen two cases for a deeper analysis.

Case A: Male student, last grade = 10/10

First I eliminate all possible distractions: I turn off the TV and radio, I clean my desk of all unnecessary things and I choose comfortable clothes. I think that studying is right now the most important thing to do and it is

useful. I try to get interested in the subjects by glancing through the index at first and by thinking of all the matters related to the topics. I read the textbook, or I do the maths if I am going to have a maths test. If there are any problems, I will ask help from my family members or I'll phone my friends.

In the first example, the student is intrinsically motivated, task value orientated and he has set his goals clearly. He is managing his time and study environment with skill. He is ready to regulate his efforts according to the task and he plans his studies very carefully beforehand. He uses various learning strategies and there is no sign of test-anxiety. He has good self-confidence and he knows that he can pass the tests without problems. This student uses various volitional processes while studying. It is obvious that he is aware of all the possible distractions and he intentionally tries to eliminate them beforehand.

The attention control factor correlated positively with all of the motivational, cognitive and metacognitive and resource management mechanisms and strategies (with correlations ranging from .28 to .64) used by our example student. In spite of the fact that the attention control scale did not correlate significantly ($r = .15$, $p = .039$) with the last grade, there is no doubt that it plays an important part in academic success. In the light of the results of this study, the attention control strategies seem to be active all the time in the important processes of self-regulation. The use of attention control strategies may have an indirect influence. For example it may have an effect through the usage of cognitive strategies by the students, which is positively related to academic performance. Additional statistical analysis is needed to examine this phenomenon.

Volitional control strategies are mechanisms used by students to manage the maintenance of intentions (see Kuhl and Kazen-Saad, 1989). Volitional controls are considered to be higher order and more conscious than the more automatic controls. 'When information-processing demands are high and competing goals are

present, control strategies help maintain focus on intended rather than competing actions' (Snow et al., 1996, p.273).

The Case A student is consciously open to seeking/accepting help from his peers, if needed. The volitional self-helping factor correlated (with an r ranging from .21 to .41) with the same scales as the attention control factor except for self-efficacy beliefs. Furthermore, the self-helping factor correlated with the peer learning (.35) and help-seeking (.63) scales (see Annex 4).

These findings seem to support the model of self-regulated learning in which the student is using attention control and self-helping strategies to monitor and regulate the use of other strategies (e.g. motivation, cognitive learning and resource management strategies) to complete an academic task.

Case B: Male student, last grade 8/10

I know that my studying skills and my concentration are rather weak, so I try to do my best and I read the textbook and my notes. I underline parts of the text and I make notes from the text I read. I think 'If/when I study properly now, I might get reasonable marks for the test'.

In the second example, the student is extrinsically goal-orientated and his learning beliefs are quite realistic. He is using some personal learning strategies and he has modest but realistic expectations about his success in the coming test, even if he is suffering from some test-anxiety (3.8/5). He forces himself to continue by managing his motivational control beliefs with self-talk. He is well aware of his weakness in concentration. That is why he is trying to do his best to monitor his concentration and attention.

The self-instruction factor correlated with extrinsic goal orientation (r =.26), test-anxiety (r = .37) and with some cognitive and metacognitive learning strategies (r = .29 for rehearsal and .26 for metacognitive self-regulation). It is evident that this student is using various self-instructional strategies and methods to overcome his

difficulties. The relation between self-instruction strategies, extrinsic goal orientation and test-anxiety is very interesting. Previous research indicated that ‘a reliance on extrinsic motivation is associated with a surface-level cognitive engagement in academic tasks’ (Wolters, 1998).

These two different real examples suggest that students have different volitional styles and their volitional strategy-use is closely linked to their motivation and goal-orientations. There is also evidence that students adapt or modify their strategy-use (volition, information processing and extrinsic and intrinsic goal orientations) to fit situational demands (Wolters, 1998, p.233).

7. DISCUSSION

7.0. CROSS-CULTURAL DISCUSSION

The modest cultural differences presented in this study seem to be mainly divergences of the cultures of the different school/language sections — not divergences of nationalities or any other ethnic groups. For example, the mainly Finnish students in the German School in Helsinki have many characteristics in common with the mainly German students in the German section of the European School of Luxembourg. The schools and language sections probably reflect their original cultures, but in the framework of this study, these influences were not recorded.

The MSLQ results of the European students presented in this thesis seem to confirm the results obtained at the University of Michigan (see Pintrich et al., 1991; 1993). The MSLQ appears to be a reliable and valid instrument for the assessment of the students' motivational beliefs and strategy-use in different cultural environments. On the other hand, MSLQ might not be the best tool for examining cultural similarities or dissimilarities at least this study does not show that it is good instrument for this purpose.

Some cognitive theorists, cultural/contextualist psychologists, many of them from non-western countries (Bond, 1986; Kagitcibasi, 1996) have claimed that cognition, motivation and behaviour have little meaning outside the specific cultural environments in which they are embedded and therefore cannot be compared in abstraction across contexts. According to Volet (2001) this is a typical approach of cross-cultural psychologists.

According to Volet (2001), studies which simply compare the cognitive or motivational characteristics of groups of students from different countries or ethnic groups and do not identify or measure the aspects of culture assumed to be

responsible for observed variations, have been criticised (Betancourt and Lopez , 1993).Yet, according to Sinha (1996), the cross-cultural and cultural positions do not need to be in competition. They should rather be seen as complementary, each enriching the other.

Triandis (1989, p. 517) concluded that the three aspects of the self (private, public and collective) are differently sampled in different cultures, depending on the complexity, level of individualism and looseness of the culture. 'The more complex, individualistic and loose the culture, the more likely it is that people will sample the private self and the less likely it is that they will sample the collective self.'

Oettingen (1995) assessed children's self-efficacy beliefs concerning their academic capabilities in East Berlin, West Berlin, Moscow and Los Angeles. She concluded that cross-cultural research on self-efficacy beliefs clarify how these beliefs originate under different social and institutional practices. It seems evident that individualistic personalities prefer, for example, to set goals for themselves that relate to self-actualisation and collectivistic individuals prefer to set goals for themselves that relate to promoting the welfare of their in-group. Earley (1993) found that assessed level of self-efficacy was a highly valid predictor of performance for both types of people (i.e. individualists and collectivists). This finding supports the assumption that the effects of self-efficacy on performance are universal.

Available evidence seems to indicate that efficacy beliefs have similar effects on human functioning across cultures, although there are many open questions and definition difficulties with this type of study. Only a few cross-cultural comparisons have been made of study habits using self-report measures. It is possible that the measurements used in this and in some other self-report studies (e.g. Niemivirta et al., 2001), are not sensitive enough to capture the phenomena under study. One problem may be the difficulty of developing equivalent forms of inventories in the languages of the cultures being compared (see Moreno and Di Vesta, 1991). The

use of introspective reports, which are typically quite useful in the study of cognition, emotion and motivation, may be problematic in cross-cultural research because of the cultural context: people seem to have little access to the absolute extent of their attention or responsiveness to others (see Markus and Kitayama, 1991).

How deep are the cultural differences? As Markus and Kitayama (1991) put it, 'are the observed differences primarily a reflection of differences in styles of behavioural expression, or do they also reflect differences in the phenomenology accompanying the behaviour?' Are there culture-free aspects of cognition, emotion and motivation? How do motivation and learning strategies vary in different schools and cultures?

According to Volet (2001), 'it is argued that motivation in learning context is best understood if conceptualised as a dynamic construct and as a dual psychological and social phenomenon. The interplay of relatively consistent, distinct and unique aspects of context with relatively stable, variable and responsive motivational beliefs and appraisals highlights the systemic and situated nature of learning, where both individual and situational dimensions affect students' motivation and engagement in learning'.

7.1. CONTENT ANALYSIS DISCUSSION

The validity of the content analysis of this study could have been improved by using multiple coders. It would have helped also to have had more transparency in the concepts and constructs being investigated. On the other hand the quantitative measures in this part of the study are rather modest. The main interest has been in understanding the phenomena of self-regulation by categorising and investigating the concepts and their application in practice.

Although the strategy categories were in theory quite clear, independent and in line with the criteria presented in Section 4.5, in practice there were sometimes

difficulties in categorising some statements. There was an unexpected overlap between the concepts of critical thinking and encoding strategies, and also between behavioural regulation and affect regulation strategies .

The use of the different strategies depends on many factors. There are also different ways to map and understand the use of these strategies. The questionnaire was administered in a natural learning setting. The open-ended question was posed and students were asked to tell to the researcher what kind of strategies they use outside the classroom context. It can be debated whether the results of this kind of question are valid. It might be more beneficial to map the strategy use in an actual studying context without prefixed categories.

7.2. SELF-REGULATED LEARNING DISCUSSION

The MSLQ results of the European students presented in this thesis seem to confirm the results obtained with Americans at the University of Michigan. The MSLQ appears to be a reliable and valid instrument for the assessment of students' motivational beliefs and strategy-use in different cultural environments.

The results of the final version of the additional questionnaire suggested that at least three volitional factors exist: attention control strategies, self-instruction strategies and self-helping strategies. These three factors seem to be a logical part of the students' personal action-control practice. They also fit well with the model of conative processes presented in Figure 2.3.1.2.

McCann and Garcia (1999) created the Academic Volitional Strategy Inventory (AVSI) instrument to assess the management of motivation and emotion during goal-striving processes. Although the expected emotion regulation/motivation regulation dichotomy did not emerge, they were able to distinguish three families of volitional strategies: reassurance strategies, stress reduction strategies and negative self-talk strategies (see McCann and Garcia, 1999). The self-instruction factor found

in this study could correspond rather well the self-talk strategy described by McCann and Garcia.

Volitional factors seem to be in harmony with the Zimmerman's (1998) model of self-regulated learning — especially with the second self-regulatory phase which deals with processes that occur during learning efforts and which guide and regulate the learning process (see Figure 2.2.2).

According to Tirri (1999), the Bayesian approach is fundamentally sound and flexible; it produces clear and direct inferences and makes use of all the available information. The most promising feature seems to be the possibility of interpreting probability — it gives tools to answer 'post-data' questions. On the other hand, Bayesian modelling leaves a lot of responsibility to the researcher who is interpreting the results.

Non-linear models, as presented in this study, seem to be useful for a better understanding of the complex phenomena of self-regulated learning. In the first place it is very interesting to observe data from different points of view. The information derived from the data with traditional linear, descriptive statistical methods is of course the solid cornerstone of the academic study. The additional non-linear perspective completes the results found in the traditional way.

The relation between cognitive and metacognitive information processing strategies found in the entire data set and in the data for mathematics is not a surprise. It is well known that critical thinking, metacognitive regulation and elaboration strategies are closely linked with one another. The model found in the mother tongue data gave clear evidence that students can use different types of strategy, related situationally to the subject. All the models found with non-linear modelling seem to fit the general framework of self-regulated learning (see Figures 2.2.2 and 2.3.1.2).

After six years of volitional research I have learned that it is very difficult to measure volitional processes by any means. Self-reporting questionnaires will maybe never give clear information about these complex internal processes. The open-ended question answers that were analysed with content analyses methods gave more information about the self-monitoring and self-control processes of the students.

It could be useful to observe students in the real situations and record the working process with several means. Patrick & Middleton (2002) argue for using multiple methods to investigate self-regulated learning – only by using a range of methodologies it is possible to be able to appreciate fully the complexity of the phenomena of self-regulated learning. Peter Op't Eyende & al. (2001) asked chosen students to think aloud during the problem-solving task. Immediately after finishing, the student accompanied the researcher to another room where "Video-based stimulated recall interview" (Prawatt & Anderson, 1994) took place. The student was asked to recall what he did, thought and felt while solving the problem.

Elisabeth Vialpando De Groot (2002) used different interviewing approaches (unstructured, in-depth; structured; and semi structured) to explore students' and teachers' perceptions of their experiences of learning and schooling. The results of her studies suggest the power of interviewing for gaining a better understanding of factors related to self-regulated learning.

Another interesting way to get more information about one's own self-perceptions in self-regulation could be phenomenology. As a method, phenomenology helps us to understand the importance of our own perceptions and thinking about ourselves and about external world, so that we can direct and regulate our own behaviour. According to Ruohotie (2002b), it also helps us to understand how students may be helped to respect themselves, develop their competence and ability to make decisions and choices, control themselves and to carry the responsibility for their learning.

8.0. CROSS-CULTURAL CONCLUSIONS

The students who make up the sample for the present study belong to individualistic cultures; they have rather low power distance; are in the middle of the spectrum of uncertainty avoidance; and are closer to a feminine than to a masculine learning environment society.

Even though the sample for this study consisted of groups of Finnish, German, British and French students, the cultural differences shown by the MSLQ were almost non-existent. All of the groups seemed to share the same cultural dimensions — or at least the measures used in this study did not reveal any substantial differences. The minor cultural dissimilarities found can be explained by the divergences of the different school cultures and the different syllabuses in various language sections. In particular, the German students have been taught to use some learning strategies systematically. Apart from this, the three schools in two different countries seem to share the same general educational values.

On the other hand, in nearly all schools in Europe student populations are becoming more diverse. Individual differences were significant in this sample (see Kivinen, 1999; 2000; 2001). It will be a challenge to the schools to create learning experiences that will allow the integrity of every student. According to Wlodkowski and Ginsberg (1995), 'an approach to teaching that meets the challenge of cultural pluralism and can contribute to the fulfilment of the purpose of higher education has to respect diversity; engage the motivation of all learners; create a safe, inclusive and respectful learning environment; derive teaching practices from principles that cross disciplines and cultures; and promote justice and equity in society.'

8.1. CONTENT ANALYSIS CONCLUSIONS

According to the results of the content analysis, students reported using an average of 3.6 strategies when preparing for a forthcoming test. Some students did not use any categorised strategies and some reported the use of as many as nine strategies.

The majority (88%) of the students used metacognitive strategies to control or regulate their attention, motivation, emotion or behaviour. Most of the students report motivation strategy use. Surprisingly, in comparison with the recent literature, many students reported of the use of affect regulation. Resource management strategies were used by 69% of students. Students seemed to be especially concerned about time planning and environmental adjustment.

The subject differences found were surprisingly small. Students were using more effort regulation strategies in mother tongue than in mathematics. On the other hand students used more behavioural regulation rehearsal strategies and time management strategies in mathematics.

The gender differences in the content analysis part of the present study were quite substantial. Female students reported using motivation regulation, attention control regulation and elaboration strategies more frequently than their male fellow students. Girls also made more use of nearly all the other strategies except for non-constructive strategies.

The content analysis also revealed some important differences in the strategy-use of successful and unsuccessful students. Students with high grades regulated their motivation much more than their less successful comrades. They also used more attention control, encoding control and cognitive learning strategies. The less skilful students used more social control, self-instruction and non-constructive strategies.

The use of non-constructive strategies seems to be a gender related phenomenon. Some male students use strategies which are not aimed at academic success. They report attitudes which suggest they have other, greater, interests outside the school.

8.2. MSLQ CONCLUSIONS

The MSLQ offers a solid instrument for the assessment of students' motivational beliefs and strategy use. Gender differences were evident on the MSLQ scales as in the content analysis. Female students reported more effective study habits than male students. Their intrinsic and extrinsic motivation scale means were higher, they used more cognitive and metacognitive learning strategies and they were more task orientated. Female students scored substantially higher grades than male students both in mother tongue and in mathematics.

According to the scale means, there was also a difference between the students' strategy-use in mother tongue and mathematics. In mathematics students were more organised and they used a lot more rehearsal strategies than in mother tongue lessons. They were also more inclined to seek help. In mother tongue, students used more elaboration strategies and critical thinking than in mathematics. Students studying mother tongue were more intrinsically motivated and they had higher task value than in mathematics. The results of the non-linear modelling suggest that the strategies are structured in different ways in mathematics and mother tongue. In mathematics students more often face problems which are not easily solved, and they have to use strategies which facilitate problem-solving. If they are not able to help themselves, they may let themselves ask for help from others more readily than in other subjects. Students adapted or modified their strategy-use to fit subject demands.

8.3. VOLITIONAL SCALE CONCLUSIONS

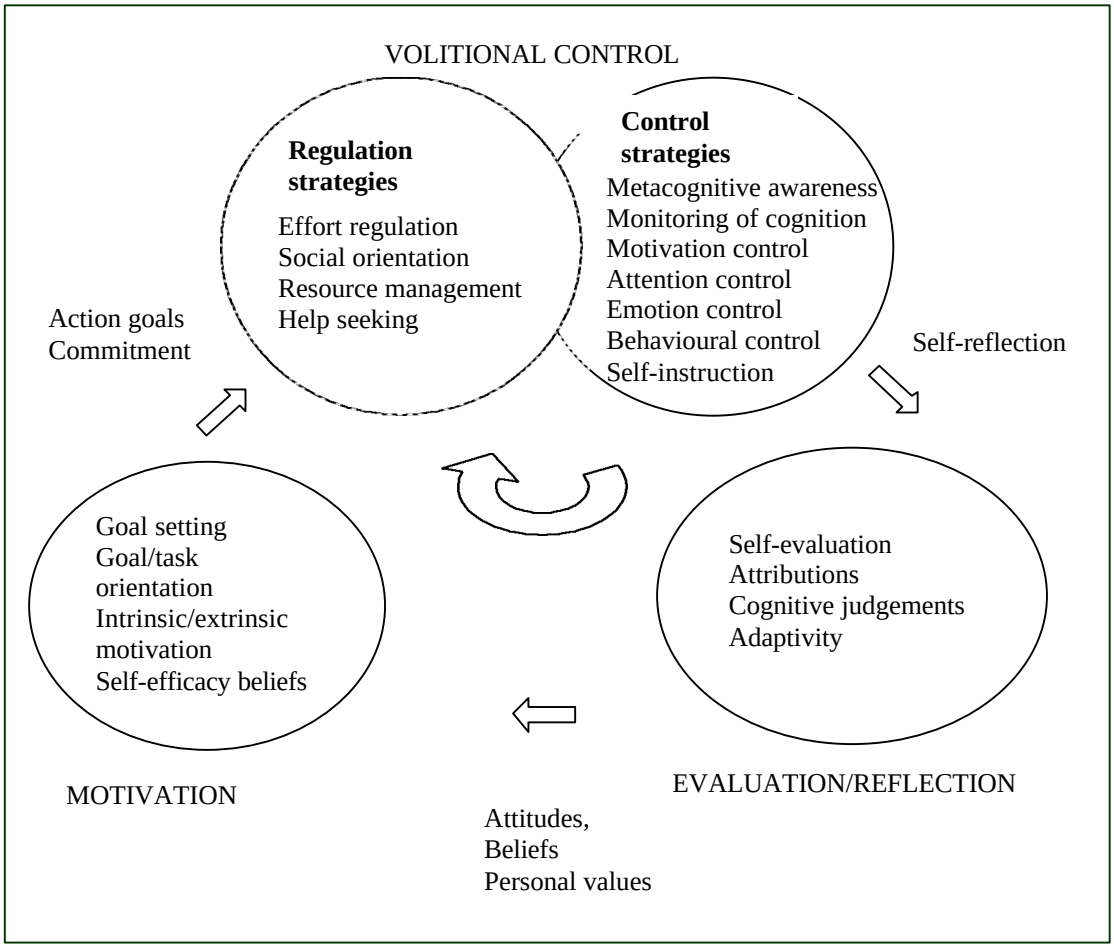
The additional volitional questionnaire instrument created for this study did not work as expected and the intended scales were a disappointment. On the other hand, factor analysis suggested that at least three volitional factors were to be found in the material: attention control strategies, self-instruction strategies and self-helping strategies. These new factors did give some valuable information about volitional strategies. The attention control factor found in this study correlated positively with

all of the motivational, cognitive and metacognitive, and resource management mechanisms and strategies. These strategies seem to be involved in the important processes of self-regulation. The self-helping factor correlated with the same scales as the attention control factor, except for self-efficacy beliefs. These findings support the model of self-regulated learning in which the students are using attention control and self-helping strategies to monitor and regulate their use of other strategies (e.g. motivation, cognitive learning and resource management strategies) to complete an academic task. Self-instruction strategies were associated with extrinsic goal orientation and test-anxiety, which are typically indicators of a surface-level cognitive engagement in academic tasks.

The results of this study can be synthesised in a cyclical model of the different phases and subprocesses of self-regulation (Figure 8.3.1). Phase one involves goal-setting, planning, activation of perceptions, knowledge of task and context as well as the self in relation to the task. The second phase involves volitional regulation strategies: efforts to regulate self or task, manage available resources or social context or the environment. The third phase involves self-control processes, which represent active self-monitoring of cognition, motivational level, attention control, emotions and metacognitive awareness of different aspects of the self. The fourth phase involves reactions and reflections to the self and the task or context (c.f. Pintrich, 2000a).

Students' personal beliefs and interests affect the goal setting process — for example, their goal orientation, motivation level (intrinsic–extrinsic) and self-efficacy beliefs. Action-control strategies (attention focusing) maintain or protect chosen goals in the core of the volitional phase of the process. Students change their use of cognitive and metacognitive learning strategies, social strategies (e.g. help-seeking), resource management strategies and effort regulation strategies depending on their situation and actual needs. In the third phase, self-reflection takes place. Students evaluate their progress and their implementation of the learning process and discuss the reasons for failure or success.

Figure 8.3.1. Cyclical phases and subprocesses of self-regulation



8.4. FUTURE RESEARCH DIRECTIONS

The development of self-regulatory skills has been studied by Zimmerman (2000) amongst others. The conclusions of these studies were presented in Section 2.5.1. It seems evident that the theory presented by Zimmerman needs further validation and research. With the measures used in the present study, it was not possible to make conclusions about the acquisition or development of self-regulated skills. From the educational point of view, further information about the development of these skills is crucial.

The cross-cultural part of the present study raised many questions without answers. According to the theories (see Figures 2.2.1 and 2.2.2) the social environment

influences all phases of self-regulation. If that is the case, the models of self-regulated learning might well vary in different cultures and different environments. It is claimed that much of the research on self-regulated learning has a distinct Western flavour to it (c.f. Pintrich, 2000a). The emphasis in European and American research is on the individual and the self in actual models of self-regulation. Another aspect that needs much more research is the contextual influence on all phases of self-regulation. There is some evidence of cognitive, motivational, volitional and emotional sensitivity to task and activities (Volet, 2000; Boekaerts, 1997; 1999). How deeply do the situational circumstances influence the different phases of self-regulation?

The volitional learning strategy measurement instrument made for this study did not fulfil all expectations, even though it gave important information about the use of attention control strategies, help-seeking strategies and self-instruction strategies. The Academic Volitional Strategy Inventory (AVSI) developed by McCann and Garcia (1999), provided evidence for the utility of an instrument measuring self-regulatory actions related to maintaining effort and motivation on goal directed activity. As researchers tend to say, the instrument is still to be finalised. There is a clear need to develop a standardised measuring instrument of self-regulated learning processes and goals for educational learning environment. It would also be interesting to test the Volitional Components Inventory (VCI) instrument developed recently by Kuhl and Fuhrmann (1998) in educational settings.

It would be highly desirable to use multiple methods to investigate self-regulated learning. Qualitative methodologies can be profitably employed to enhance understanding related to self-regulated learning and the contexts that support it (c.f. Butler, 2002).

The role of goal setting and the quality of goal orientation seems to be important for individuals in the process of self-regulation. On the other hand, self-regulated learning is a complex and multifaceted phenomenon and the links to goal orien-

tation are not simple. It might be possible to develop a more sophisticated and realistic model of goals and self-regulated learning by investigating the connections between different types of goal and different cognitive, motivational and behavioural mediators and outcomes (c.f. Pintrich, 2000b, p. 489).

The answers to the open-ended question , analysed in the content analysis part of the present study, revealed a large variety of cognitive and metacognitive strategies which students use when they want to accomplish a task. Further and more detailed studies of that area could produce new information about planning and monitoring processes. From the educational point of view, it would be necessary to gather more data to illuminate the different kinds of self-regulatory problem. The functioning/non-functioning of self-control and regulation processes could be examined and it would be interesting to have further information on the development of different types of avoidance strategies.

8.5. FROM THEORY TO PRACTICE

All students regulate their academic learning and performance in one way or another. It seems evident that students with strong self-efficacy beliefs and learning goal orientation (intrinsic interest in the task or performance and high task value) use the different kinds of cognitive and metacognitive learning strategies more actively and are more sensitive to control; they regulate their motivation, attention control and emotions when necessary. Their goal orientation protects their intentions, and students with solid goal orientation are better able to deal with difficulties and distractions.

The students in this study were given feedback on their MSLQ scores (see Section 4.1). Many students were surprised at seeing their own profiles. These secondary school students, aged 15 to 20, did not have a clear picture of themselves, as students or as learners. Ideally, self-regulatory studying skills, the use of various learning strategies and the use of various volitional strategies should be taught more

at the secondary level. The teachers and instructors themselves should be well trained self-regulators so as to be able teach these skills, since instructions to monitor the very early stages of skill acquisition may disturb the learning process (Winne, 1995), particularly in low ability learners. Boekaerts (1997) advises that teachers should be trained: (1) to create learning environments in which students can learn to self-scaffold their learning process; and (2) to design tasks that allow students to improve their planning, initiation and completion of intended actions. Self-regulated learning skills are not automatically picked-up in secondary schools. According to Pintrich (2000b), 'the use of various cognitive and self-regulatory strategies involves a level of engagement that is often more demanding in terms of time and effort for students than their normal level of engagement'.

There is lot of research evidence (e.g. Trawick and Corno, 1995; Zimmerman, 1998; Boekaerts and Niemivirta., 2000) that self-regulative skills can be taught to students. Children with special educational needs seem to especially profit from the teaching of self-regulatory skills (see Graham et al., 1998). We need to train pupils and students 'in the use of self-regulatory skills to the point where appropriate self-regulation occurs without thought in most situations, but where the individual is able to take conscious self-regulatory measures when a situation poses new complications or uncertainties' (McKeachie, 2000).

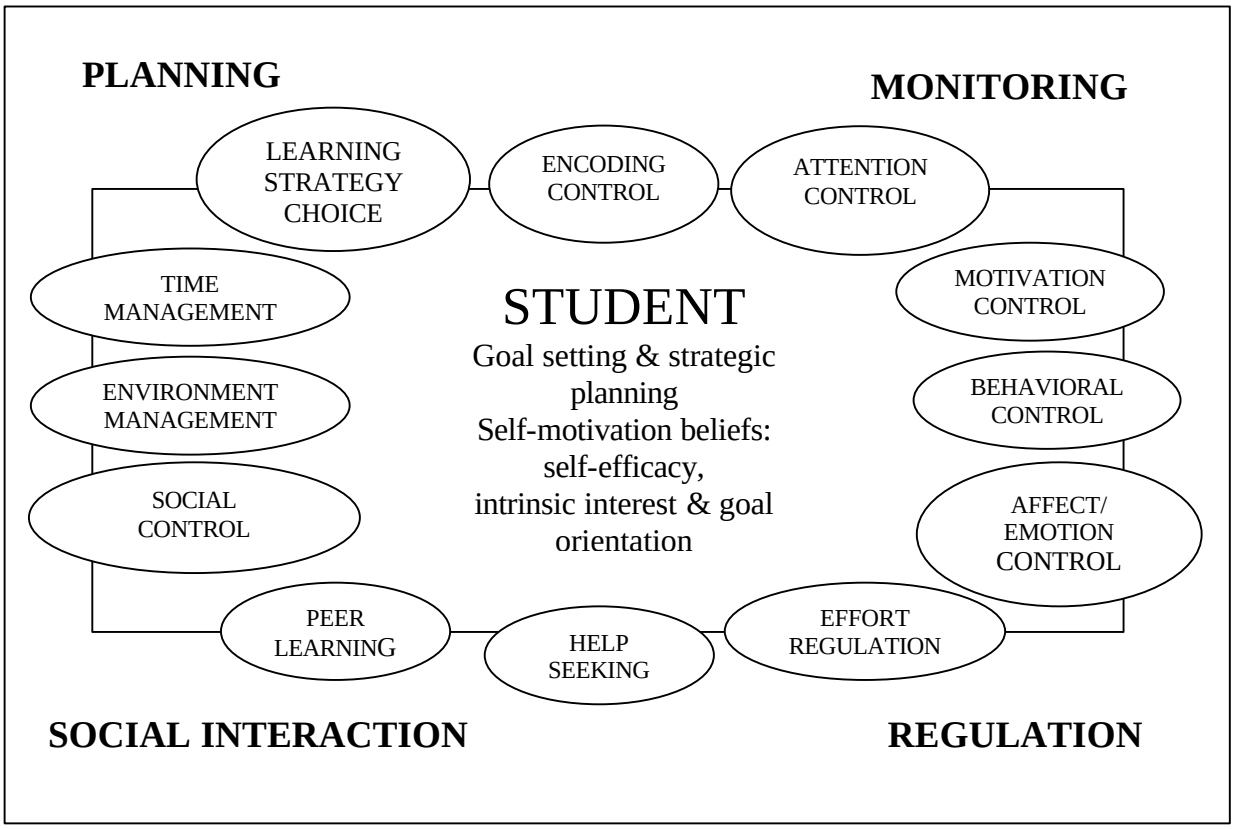
I work in the European School of Luxembourg. We have 3750 pupils in 11 language sections. Our 255 teachers are selected and seconded by the 15 EU member countries, and sent to Luxembourg. Normally they are excellent professionals with solid experience in the field and they can stay in our school for between two and nine years. Every year about 14% of the teaching staff changes. As a deputy head, I have a good opportunity to observe teachers coming from all the member countries with their ideas and know-how.

The European Schools have an integration policy for children with special needs. At the moment we have 30 teachers who work with children with very special

needs such as Down syndrome, autism, challenging behaviour, hyper/hypo activity etc. We have also 17 learning support teachers who work in cooperation with classroom teachers to help pupils with temporary or mild learning difficulties.

In our recent internal meetings and in-service training we have discussed self-regulation and attention control difficulties. In my opinion there is wide gap between theory and practice. At the moment the European School is, at least in the primary section, moving slowly 'from teaching to learning' and 'from remedial teaching to learning support'. Teachers do focus more on learning goals rather than only making plans for content of the curriculum. This new approach should, in theory, give lots of opportunities for pupils to learn cross-curriculum competences, such as self-regulatory skills. It is however rather difficult to introduce the ideas of self-regulated learning for the teachers.

Figure 8.5.1. A student-orientated model of self-regulated learning



In spite of the efforts of the educational research community to spread information about the latest developments in educational research, most teachers are not yet familiar with the ideas of self-regulated learning. The first difficulty is the language used by educational and psychological researchers and I do not mean the spoken language but the conceptual language. It seems to be difficult even for well-educated professionals to understand the concepts of self-regulation and volition, not to mention the parents and the students themselves. The new student-orientated model of self-regulation, which was made as a result of this study, is presented in the Figure 8.5.1. It focuses on the regulation possibilities from the students' point of view. It gives an overall idea of the wide range of possibilities for planning, acting in social situations, controlling and regulating when faced with a learning task. Note that subject area, situational aspects (e.g. the difficulty of the task) and many other factors are omitted from this model.

At the core of the model are goal setting and strategic planning and self-motivation beliefs (such as intrinsic interest, goal orientation and self-efficacy beliefs).

Zimmerman (2000) indicated that 'self-regulatory skills are of little value if a person cannot motivate themselves to use them.' I often start a discussion with a student by asking for her/his ideas of studying. The students who come to my office have often difficulties in motivation or they have really weak self-beliefs. Experience has shown that it is useless to start teaching good study habits or the use of various cognitive and metacognitive learning strategies, if the student is completely lacking in motivation, and interest and has a weak or negative idea of her/himself as a learner. The first task for the teacher is to find (together with the student) reasons to study and to build self-confidence. The next step is to analyse how the student uses the various planning, monitoring, controlling and regulating strategies. The picture helps to demonstrate for the student, in a concrete way, which are strong areas and which areas are still to be explored. When needed, the MSLQ has proved to be rather a good instrument for measuring student motivation and strategy use. The practical problem is that it is quite difficult to devise

individual tests and analyses for individual students in the school context. It would be a wonderful idea to have solid measurement tool software which could give results directly after the questionnaire has been administered. Maybe it could work nicely on the Internet; at the moment at least one project at the University of Helsinki is concerned with this kind of development.

This approach also works rather well when talking to parents. If a student is under-achieving or in danger of having to repeat the class, the parents want to know and understand why. Very often they have a rather black and white picture of the school or the student it is easy to blame a teacher, or the school or the laziness of the student for the negative results. Figure 8.5.1 helps to focus the discussion to the key areas of students' learning process: motivation/lack of motivation, goal setting/ quality of goal setting, interest, self-efficacy beliefs, self-regulatory skills and self-regulation practice. Instead of allocating guilt, the discussion can then concentrate on ways to understand and help the student with her/his motivation or learning problems.

Pintrich (1995) suggests five objectives that may improve learner's self-regulation:

1. a learner has to be more conscious of his/her activities, motivation and cognition;

2. a learner has to adopt positive motivational beliefs;

3. teachers have to present self-regulatory models;

4. learners should be allowed to practice adapting to different learning strategies; and

5. learning tasks should support the broad use of self-regulation.

If school systems adopt the new ideas of learning in practice, there will be major consequences in all these areas. Traditionally school teachers have taught subject-

oriented knowledge. The new approach to learning is radically changing the role of teachers as well as the role of students. The focus has been shifted from (from the pupils' point of view) learning traditional knowledge to learning the diverse cognitive and affective factors that guide learning and life at school. Hautamäki et al. (2001) conceptualise learning-to-learn as ' the ability and willingness to adapt to novel tasks, activating one's commitment to thinking and the perspective of hope by means of maintaing one's cognitive and affective self-regulation in and of learning action'.

From the teacher's point of view the change is evident: instead of teaching subject-oriented knowledge, teachers should provide opportunities for pupils to learn (in a context defined by the curriculum and learning goals) and observe and assess learned skills and competences in a reflective way. Unfortunately cross-curriculum skills such as 'learning to learn' do not seem at present to be the responsibility of anybody in the school hierarchy. This is a real challenge for all school systems.

8.6. SUMMARISED ANSWERS FOR THE STUDY QUESTIONS

What kind of motivational and volitional strategies are used among secondary students?

Motivational orientations and the use of learning strategies were measured with MSLQ-questionnaire. The results of the MSLQ in this study are presented in the table 5.2.1. These results support all the findings of the earlier MSLQ tests.

An additional volitional questionnaire was created for this study to measure volitional strategy use. The original volitional scales did not have sufficient validity, so new volitional scales were devised using factor analyses. Attention control, self-instruction and self-helping factors were found. The result of this study support a model of self-regulated learning in which the students use attention control and self-help strategies to monitor and regulate the use of other strategies (e.g. motivation, cognitive learning and resource management) to complete an academic task.

In the qualitative part of the study the strategies used by secondary school students were categorised in a) learning strategies, b) control and regulation strategies, c) resource management strategies and d) non-constructive strategies (Table 6.0.1.). The majority (88%) of the students used metacognitive strategies to control or regulate their attention, motivation, emotion or behaviour. Most of the students report motivation strategy use. Many students reported of the use of affect regulation. Resource management strategies were used by 69% of students. Students seemed to be especially concerned about time planning and environmental adjustment.

Do students use different kind of strategies in learning mathematics and mother tongue?

The quantitative part of the results showed that there are clear differences between the students' strategy-use in mother tongue and in mathematics (Figure 5.2.2.1). In mathematics the students are more organised and they use a lot more rehearsal strategies than they do in mother tongue lessons. They are also more inclined to seek help. In mother tongue the students use more elaboration strategies (Figure 5.2.2.2.) and critical thinking than in mathematics. Also the non-linear modelling (Figures 5.4.1. and 5.4.2.) gave different kinds of models for mathematics and for the mother tongue. It seems evident, that the use of self-regulatory strategies changes situationally depending on the task and subject.

Figure 6.6.1 and Table 6.6.1 show the percentage of the students using various strategies in mother tongue and mathematics in the content analysis part of this study. The differences are small. Students report using more rehearsal in mathematics in both parts of the present study. Generally, in mother tongue students use more effort regulation (a difference of 6.70%) than in mathematics. On the other hand students use more behavioural regulation (5.09%), rehearsal strategies (5.69%) and time management strategies (6.59%) in mathematics.

Which strategies do students use to achieve goals?

Especially the qualitative part of this study gives information about the spectrum of different kind of strategies secondary school students in order to achieve their study goals. Nearly 90 percent of the students used metacognitive strategies, 70 percent of the students used resource management strategies and 40 percent of the students used cognitive strategies (See Table 6.1.3.). Half of the students regulated their motivation and 38 percent of the students reported using time management strategies. Surprisingly many students (36 %) were regulating their emotions.

Are there significant differences between the motivational and volitional strategy use between different schools and language sections?

The teaching and learning cultures seem to be quite similar in the three international schools chosen for this study. The English, German, French and Finnish speaking students seem to have much in common. There are some differences to be found in the use of learning strategies. German students in Luxembourg and pupils from the Deutsche Schule report higher use of rehearsal and organisational strategies. They have also lower text anxiety level (Figure 5.1.2.) than other schools and language sections. Students' self-efficacy beliefs for learning and achievement do not vary much between the participating schools (Table 5.1.2.).

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A N N E X E S

ANNEX 1. THE QUESTIONNAIRES USED IN THIS STUDY

FINNISH QUESTIONNAIRE – MOTHER TONGUE
THE MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE

ÄIDINKIELI _____

Seuraavat väittämät koskevat suhtautumistasi äidinkielen kurssin opintoihin ja sisältöihin ja niissä kartoitetaan odotuksiasi ja kokemuksiasi kurssin opiskelusta. Väittämiin ei ole oikeita tai vääriä vastauksia. Kaikki vastauksesi ovat luottamuksellisia ja ne eivät vaikuta äidinkielen arvosanaan. Kyselyn tulokset analysoidaan Tampereen yliopistossa syksyn 1998 aikana. Mikäli haluat, niin saat kyselyn tuloksista kirjallisen palautteen.

Seuraaviin kysymyksiin vastaaminen kestää noin 30 - 40 minuuttia.

A.	Koulu	
B.	Luokka	
C.	Nimi	
D.	Sukupuoli	(1= nainen, 2 =mies)
E.	Ikä	vuotta kuukautta (esim. 17 vuotta 11)
F.	Kuinka kauan olet käynyt tätä koulua?	vuotta (esim. 10 vuotta)
G.	Mihin kansallisuusryhmään tunnet kuuluvasi?	Olen (esim. suomalainen)
H.	Viimeisin äidinkielen arvosana todistuksessa?	
I.	Arvio seuraava äidinkielen arvosanasi?	

Mieti äidinkielen kurssiasi ja vastaa seuraaviin kysymyksiin. Arvioi kunkin väittämän osalta, missä määrin se vastaa sinun käsitystäsi asiasta. Merkitse vastauksesi ympäröimällä jokaisen väittämän jälkeen se vastausvaihtoehdon numero, joka parhaiten vastaa käsitystäsi (1 = Väittämä ei pidä lainkaan paikkaansa…5= Väittämä vastaa käsitystäni erittäin hyvin)

	OSA A. Oppimiskokemukset ja motivaatio	1=väittämä ei pidä lainkaan paikkaansa 5=väittämä vastaa käsitystäni erittäin hyvin
1	Opiskelen kaikkein mieluimmin asioita, jotka ovat vaativia ja joista voin oppia jotain uutta.	1 2 3 4 5
2	Pystyn oppimaan tähän kurssiin sisältyvät asiat, jos vain opiskelen oikealla tavalla.	1 2 3 4 5
3	Kokeen aikana pohdin sitä, miten heikosti menestyn muihin oppilaisiin verrattuna.	1 2 3 4 5
4	Voin luullakseni hyödyntää tällä kurssilla oppimiani asioita myös toisilla kursseilla.	1 2 3 4 5
5	Uskon saavani tästä kurssista erinomaisen arvosanan.	1 2 3 4 5
6	Olen vakuuttunut siitä, että ymmärrän kaikkein vaikeimmatkin asiat, joita käsitellään tällä kurssilla.	1 2 3 4 5
7	Minulle on juuri nyt tärkeintä saada hyvä arvosana tältä kurssilta	1 2 3 4 5
8	Vastatessani koetehtäviin minua askarruttavat samanaikaisesti ne tehtävät, joihin en osaa vastata.	1 2 3 4 5

9	On omaa syytäni, jos en opi tällä kurssilla käsiteltäviä asioita.	1 2 3 4 5
10	Minulle on tärkeää oppia tällä kurssilla käsitellyt asiat.	1 2 3 4 5
11	Minulle on tärkeintä korottaa arvosanojeni keskiarvoa, joten päätavoitteeni tällä kurssilla on saada mahdollisimman hyvä arvosana.	1 2 3 4 5
12	Uskon pystyväni oppimaan tällä kurssilla opetettavat peruskäsitteet.	1 2 3 4 5
13	Mikäli se suinkin on mahdollista, haluan saada paremman arvosanan tällä kurssilla kuin luokkatoverini.	1 2 3 4 5
14	Kokeen aikana ajattelen mahdollisesta epäonnistumisesta koituvia seurauksia.	1 2 3 4 5
15	Uskon ymmärtäväni kaikkein vaikeimmatkin asiat, jotka opettaja esittää tällä kurssilla.	1 2 3 4 5
16	Opiskelen kaikkein mieluimmin asioita, jotka askarruttavat minua, vaikka ne olisivatkin vaikeita.	1 2 3 4 5
17	Olen hyvin kiinnostunut tämän kurssin aihepiiristä.	1 2 3 4 5
18	Jos ponnistelen riittävän lujasti, opin kyllä tällä kurssilla käsiteltävät asiat.	1 2 3 4 5
19	Minulla on vaikea ja hermostunut olo koetta suorittaessani.	1 2 3 4 5
20	Uskon selviytyväni erinomaisesti tämän kurssin tehtävistä ja kokeista.	1 2 3 4 5
21	Uskon menestyväni hyvin tällä kurssilla.	1 2 3 4 5
22	Minulle tuottaa suurinta tyydytystä se, että voin perehtyä kursseilla käsiteltäviin asioihin mahdollisimman syvällisesti.	1 2 3 4 5
23	Uskon, että tämän kurssin opiskelusta on minulle käytännön hyötyä.	1 2 3 4 5
24	Jos minulla olisi tällä kurssilla mahdollisuus valita tehtäviä tai kirjallisuutta, valitsisin sellaisia, joista voisin oppia jotain uutta, vaikka en siitä syystä saisikaan parasta mahdollista arvosanaa.	1 2 3 4 5
25	Jos en ymmärrä tähän kurssiin liittyviä asioita, se johtuu siitä, etten yritä tarpeeksi lujasti.	1 2 3 4 5
26	Pidän tämän kurssin sisällöstä.	1 2 3 4 5
27	Tällä kurssilla käsiteltävien asioiden ymmärtäminen on minulle hyvin tärkeää.	1 2 3 4 5
28	Koetilanteessa tunnen sydämeni sykkivän nopeasti.	1 2 3 4 5
29	Opin varmasti ne tiedot ja taidot, joita tällä kurssilla opetetaan.	1 2 3 4 5
30	Minulle on tärkeää onnistua opinnoissani ja näyttää muille (perheelleni, ystävilleni, luokkatovereilleni) mihin kykenen.	1 2 3 4 5
31	Kurssin vaikeuden ja omat taitoni huomioon ottaen menestyn luultavasti hyvin tällä kurssilla.	1 2 3 4 5

	OSA B. Opiskeluun liittyvät toimintatavat	
32.	Jäsentelen kurssiin liittyviä tekstejä helpottaakseni ajatusteni hahmottumista.	1 2 3 4 5
33.	Tunneilla minulta jää usein kuulematta ja huomaamatta tärkeät asiat, koska ajatukseni harhailevat muualla.	1 2 3 4 5
34.	Lukiessani kurssiin liittyviä tekstejä pyrin usein selittämään luokkatovereilleni ja ystävilleni, mitä olen oppinut.	1 2 3 4 5
35.	Opiskelen sellaisessa paikassa, jossa minun on helppo keskittyä työhöni.	1 2 3 4 5
36.	Kun luen kurssikirjoja, niin teen itselleni kysymyksiä helpottaakseni asian hahmottamista.	1 2 3 4 5
37.	Tämän kurssin asioiden lukeminen on usein kyllästyttänyt minua niin paljon, että olen lopettanut lukemisen ennen alkuperäisiä suunnitelmiani.	1 2 3 4 5
38.	Olen monesti huomannut pohtivani, pitävätkö kurssilla kuulemani tai lukemani asiat paikkansa.	1 2 3 4 5
39.	Harjoittelen kurssiin liittyviä asioita kertomalla niitä itselleni koko ajan.	1 2 3 4 5
40.	Vaikka jotkut asiat kurssilla tuottaisivatkin minulle vaikeuksia, yritän silti tulla toimeen omin avuin ilman toisten apua.	1 2 3 4 5
41.	Kun tulen epävarmaksi lukemani ymmärtämisestä, niin palaan takaisinpäin ja yritän selvittää asiat itselleni.	1 2 3 4 5
42.	Opiskellessani käyn läpi muistiinpanojani ja muita kurssitekstejä ja yritän löytää niistä kaikkein tärkeimmät ajatukset.	1 2 3 4 5
43.	Käytän tehokkaasti kurssin opiskeluun varaamani ajan.	1 2 3 4 5
44.	Jos huomaan, että minun on vaikea ymmärtää lukemaani tekstiä, niin muutan lukemistyyliä.	1 2 3 4 5
45.	Pyrin yhteistyöhön luokkatovereitteni kanssa kurssiin liittyvien tehtävien teossa tai kokeeseen valmistauduttaessa.	1 2 3 4 5

46.	Opiskellessani kertaan kurssiin liittyviä asioita lukemalla moneen kertaan muistiinpanoja ja kurssikirjoja.	1 2 3 4 5
47.	Kun oppitunnilla tai kirjallisuudessa esitetään jotakin ilmiötä koskeva teoria, selitys tai johtopäätös, arvioin mielessäni, onko niiden tueksi tarpeeksi todisteita.	1 2 3 4 5
48.	Olen työskennellyt ahkerasti selvittääkseni tämän kurssin, vaikken pidäkään tämän kurssin sisällöstä.	1 2 3 4 5
49.	Teen yksinkertaisia kaavioita, piirroksia tai taulukoita, jotka auttavat minua jäsentelemään kurssimateriaalia.	1 2 3 4 5
50.	Varaan usein aikaa, jotta voisin keskustella kurssin aikana pienessä ryhmässä luokkatovereitteni kanssa kurssimateriaaliin liittyvistä asioista.	1 2 3 4 5
51.	Minulle kurssimateriaali on jonkinlainen lähtökohta, jonka pohjalta yritän kehitellä omia ajatuksia.	1 2 3 4 5
52.	Minulle tuottaa vaikeuksia pitäytyä kurssiaikataulussa.	1 2 3 4 5
53.	Kun opiskelen kurssiin liittyviä asioita, yhdistelen erilaisista lähteistä (kuten muistiinpanoista, oppikirjoista ja keskusteluista) saamiani tietoja.	1 2 3 4 5
54.	Ennenkuin syvennyn lukemaan uutta tekstiä, silmäilen sitä usein nähdäkseni, miten se on jäsennelty.	1 2 3 4 5
55.	Lukiessani tähän kurssiin liittyviä tekstejä, teen itselleni kysymyksiä varmistuakseni siitä, että olen ymmärtänyt lukemani.	1 2 3 4 5
56.	Pyrin mukauttamaan omaa lukemis- ja oppimistyyliäni niin, että se vastaa opettajan vaatimuksia ja opetustyyliä.	1 2 3 4 5
57.	Olen huomannut usein tämän kurssin aikana, etten ymmärrä lukemastani asiasta juuri mitään.	1 2 3 4 5
58.	Pyydän opettajaa selvittämään tarkemmin ne asiat, joita en ymmärrä tarpeeksi hyvin.	1 2 3 4 5
59.	Opettelen ulkoa avainsanoja, jotka palauttavat mieleeni tärkeitä käsitteitä ja asiayhteyksiä kurssin sisällöstä.	1 2 3 4 5
60.	Kun opiskeltavat asiat ovat olleet liian vaikeita, olen jättänyt ne väliin ja keskittynyt helpompiin osioihin.	1 2 3 4 5
61.	Kurssikirjoja lukiessani pyrin ensin miettimään, mitä minun oikein pitäisi tällä kurssilla oppia, sen sijaan että kahlaisin kaiken kurssimateriaalin lävitse.	1 2 3 4 5
62.	Pyrin löytämään yhteyksiä tämän kurssin ja toisten kurssien sisältöjen välille, milloin se on vain mahdollista.	1 2 3 4 5
63.	Lukiessani kurssiin liittyvää kirjallisuutta kirjoitan muistiin tärkeimmät käsitteet.	1 2 3 4 5
64.	Opiskellessani pyrin suhteuttamaan tämän kurssin uudet tiedot aikaisemmin opittuun.	1 2 3 4 5
65.	Minulla on tietty paikka, jossa voin rauhassa opiskella.	1 2 3 4 5
66.	Pyrin kehittelemään omia ajatuksia sen pohjalta, mitä olen tällä kurssilla oppinut.	1 2 3 4 5
67.	Opiskellessani kirjoitan muistiin lyhyitä yhteenvetoja kirjojen ja muistiinpanojen pääasioista.	1 2 3 4 5
68.	Jos en ymmärrä kurssilla käsiteltyä asiaa, pyydän apua joltain luokkatoveriltani.	1 2 3 4 5
69.	Pyrin ymmärtämään tällä kurssilla opetettuja asioita vertailemalla ja yhdistelemällä oppimateriaalin ja opetuksen sisältöä.	1 2 3 4 5
70.	Pidän huolen siitä, että noudatan säännöllistä viikko-ohjelmaa lukemisessa ja tehtävien teossa.	1 2 3 4 5
71.	Kun kuulen tai luen kurssilla jonkun väitteen tai päätelmän, mietin sille aina vaihtoehtoisia mahdollisuuksia.	1 2 3 4 5
72.	Teen itselleni muistilistoja kurssin tärkeistä asioista ja opettelen ne ulkoa.	1 2 3 4 5
73.	Käyn tunnollisesti oppitunneilla.	1 2 3 4 5
74.	Pystyn viemään aloittamani työn loppuun asti silloinkin, kun kurssimateriaali on tylsää ja vähemmän kiinnostavaa.	1 2 3 4 5
75.	Pyrin löytämään ryhmästäni oppilaita, joilta voin tarpeen tullessa kysyä neuvoa.	1 2 3 4 5
76.	Lukiessani tähän kurssiin sisältyvää kirjallisuutta pyrin selvittämään itselleni ne käsitteet ja asiat, jotka ovat minulle vaikeita ymmärtää.	1 2 3 4 5
77.	En ole käyttänyt kovinkaan paljon aikaani tämän kurssin opiskeluun, koska minulla on ollut muuta tekemistä.	1 2 3 4 5
78.	Olen asettanut itselleni tällä kurssilla sellaisia tavoitteita, joiden avulla olen voinut ohjata opiskeluani.	1 2 3 4 5

79.	Jos jokin asia jää minulle epäselväksi oppitunnilla, niin yritän selvittää sitä heti oppitunnin jälkeen.	1 2 3 4 5
80.	Minulla on harvoin aikaa kerrata muistiinpanojani ja tenttikirjoja ennen koetta.	1 2 3 4 5
81.	Yritän soveltaa kurssimateriaalin ajatuksia oppitunneilla tekemällä kysymyksiä ja osallistumalla keskusteluihin.	1 2 3 4 5

	OSA C. Tahto	
82.	Jos en syystä tai toisesta ole voinut valmistautua kokeeseen tarpeeksi hyvin, niin sanon sen opettajalleni ja ehdotan kokeen siirtämistä.	1 2 3 4 5
83.	Usein kokeiden aikana pakotan itseni lukemaan vastaukseni uudestaan ja uudestaan löytääkseni tekemäni virheet.	1 2 3 4 5
84.	Minun täytyy usein pakottaa itseni keskittymään lukemiseeni, etteivät ajatukseni harhailisi muissa asioissa	1 2 3 4 5
85.	Ajattelen aina välillä lukiessani:” Minun on läpäistävä tämä tentti, muuten joudun suorittamaan sen uudestaan!”	1 2 3 4 5
86.	Kun huomaan, että olen tehnyt työssäni virheen, sanon itselleni: ” Yritetäänpä vielä kerran!”	1 2 3 4 5
87.	Ajattelen joskus kokeeseen lukiessani: ”Joskus minä kyllä tämän suoritan – ja sitten onnittelen itseäni!	1 2 3 4 5
88.	Ollessani väsynyt, päätän levätä hetken, ja jatkaa tauon jälkeen virkistyneenä työtäni.	1 2 3 4 5
89.	Valmistautuessani tenttiin päätän hankkia kaiken tarpeellisen: kirjat, muistiinpanot ja apuvälineet.	1 2 3 4 5
90.	Hermostuessani sanon itselleni päättäväisesti: Rauhoitu! Koita keskittyä!	1 2 3 4 5
91.	Jos en saa ympäristön häiriöiltä luettua, etsin itselleni rauhallisemman lukupaikan.	1 2 3 4 5
92. R	Koulutöiden tekemisen aloittaminen tuottaa minulle aina välillä ongelmia – jopa silloin, kun minun ehdottomasti pitäisi niitä tehdä.	1 2 3 4 5
93.	Pidän huolen siitä, että teen tehtäväni loppuun, vaikka ystäväni pyytäisivät minua tekemään jotain muuta kanssaan.	1 2 3 4 5
94.	Pidän huolen siitä, että teen tehtäväni, vaikka haluaisin katsella televisiota.	1 2 3 4 5
95.	Jos toiset oppilaat pelleilevät luokassa, yritän olla katsomatta heitä, ja keskittyä kuuntelemaan opettajaa.	1 2 3 4 5
96.	Kun teen koulutehtäviäni, pystyn keskittymään töihini ja torjumaan kaikki muut häiriöt ympäristöstäni.	1 2 3 4 5
97.	Saadakseni tehtyä työni loppuun lupaan itselleni palkkion – esimerkiksi tauon, syötävää tai jotain muuta, kun olen valmis.	1 2 3 4 5
98.	Jos hermostun ja alan epäilemään, etten saa työtäni valmiiksi, niin sanon itselleni:” Tiedän, että pystyn tekemään tämän loppuun!”.	1 2 3 4 5
99.	Jos en ymmärrä jotain tunnilla, pyydän opettajaa selittämään asian vielä kertaalleen.	1 2 3 4 5
100	Jos en ymmärrä tehtäviäni, niin kysyn joltakin ystävältä neuvoa.	1 2 3 4 5
101	Jos joku toinen oppilas häiritsee minua, niin pyydän häntä lopettamaan tai siirryn itse muualle.	1 2 3 4 5

Lopuksi pieni ajatusleikki. Kuvaile omia tapojasi selviytyä tilanteesta.

On ilta. Valmistaudut seuraavana päivänä pidettävään kokeeseen. Luettavaa on paljon ja kotona olisi mielenkiintoisempaakin tekemistä. Mitä keinoja tai strategioita käytät oppiaksesi tehokkaasti? Millä keinoilla motivoit itsesi opiskelemaan?

Kiitos!

Haluaisitko saada palautetta kyselyn tuloksista? KYLLÄ / EI

ENGLISH QUESTIONNAIRE – MATHEMATICS
THE MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE

MATHEMATICS

The following questions ask about your motivation for and attitudes about this class. Remember there are no right or wrong answers. All your answers are confidential and they don't have any influence on your grades in mathematics. All the answers are going to be analysed in the University of Tampere during the autumn 1998.

It takes about 25 - 40 minutes to answer these questions.

A.	Class	
B.	Language section	
C.	Name	
D.	Sex	(1= woman, 2 =man)
E.	Age	years months (ex. 17 years 11 months)
F.	How many years you have been in this school?	Years (ex. 10 years)
G.	In which nationality group you feel to belong to?	(ex. English)
H.	Last grade in Mathematics	
I.	Estimate your next Mathematics grade?	

Think about the last course you have had in mathematics and answer all the questions thoughtfully. Use the scale below to answer the questions. If you think that the statement is very true of you, circle 5; if a statement is not at all true of you, circle 1. If the statement is more of less true of you, find the number between 1 and 5 that best describes you.

	Part A. Motivation	1=not very true of me 5 =very true of me
1	In a class like this, I prefer course material that really challenges me so I can learn new things.	1 2 3 4 5
2	If I study in appropriate ways, then I will be able to learn the material in this course.	1 2 3 4 5
3	When I take a test I think about how poorly I am doing compared with other students.	1 2 3 4 5
4	I think I will be able to use what I learn in this course in other courses.	1 2 3 4 5
5	I believe I will receive an excellent grade in this class.	1 2 3 4 5
6	I'm certain I can understand the most difficult material presented in the readings for this course.	1 2 3 4 5
7	Getting a good grade in this class is the most satisfying thing for me right now.	1 2 3 4 5
8	When I take a test I think about items on other parts of the test I can't answer.	1 2 3 4 5
9	It is my own fault if I don't learn the material in this course.	1 2 3 4 5
10	It is important for me to learn the course material in this class.	1 2 3 4 5
11	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.	1 2 3 4 5
12	I'm confident I can learn the basic concepts taught in this course.	1 2 3 4 5
13	If I can, I want to get better grades in this class than most of the other students.	1 2 3 4 5
14	When I take tests I think of the consequences of failing.	1 2 3 4 5
15	I'm confident I can understand the most complex material presented by the instructor in this course.	1 2 3 4 5
16	In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.	1 2 3 4 5

17	I am very interested in the content area of this course.	1 2 3 4 5
18	If I try hard enough, then I will understand the course material.	1 2 3 4 5
19	I have an uneasy, upset feeling when I take an exam.	1 2 3 4 5
20	I'm confident I can do an excellent job on the assignments and tests in this course.	1 2 3 4 5
21	I expect to do well in this class.	1 2 3 4 5
22	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.	1 2 3 4 5
23	I think the course material in this class is useful for me to learn.	1 2 3 4 5
24	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.	1 2 3 4 5
25	If I don't understand the course material, it is because I didn't try hard enough.	1 2 3 4 5
26	I like the subject matter of this course.	1 2 3 4 5
27	Understanding the subject matter of this course is very important to me.	1 2 3 4 5
28	I feel my heart beating fast when I take an exam.	1 2 3 4 5
29	I'm certain I can master the skills being taught in this class.	1 2 3 4 5
30	I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.	1 2 3 4 5
31	Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.	1 2 3 4 5

	Part B. Learning Strategies	
32.	When I study the readings for this course, I outline the material to help me organise my thoughts.	1 2 3 4 5
33.	During class time I often miss important points because I'm thinking of other things.	1 2 3 4 5
34.	When studying for this course, I often try to explain the material to a classmate or friend.	1 2 3 4 5
35.	I usually study in a place where I can concentrate on my course work.	1 2 3 4 5
36.	When reading for this course, I make up questions to help focus my reading.	1 2 3 4 5
37.	I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do.	1 2 3 4 5
38.	I often find myself questioning things I hear or read in this course to decide if I find them convincing.	1 2 3 4 5
39.	When I study for this class, I practice saying the material to myself over and over.	1 2 3 4 5
40.	Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone.	1 2 3 4 5
41.	When I become confused about something I'm reading for this class, I go back and try to figure it out.	1 2 3 4 5
42.	When I study for this course, I go through the readings and my class notes and try to find the most important ideas.	1 2 3 4 5
43.	I make good use of my study time for this course.	1 2 3 4 5
44.	If course readings are difficult to understand, I change the way I read the material.	1 2 3 4 5
45.	I try to work with other students from this class to complete the course assignments.	1 2 3 4 5
46.	When studying for this course, I read my class notes and the course readings over and over again.	1 2 3 4 5
47.	When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.	1 2 3 4 5
48.	I work hard to do well in this class even if I don't like what we are doing.	1 2 3 4 5
49.	I make simple charts, diagrams, or tables to help me organise course material.	1 2 3 4 5
50.	When studying for this course, I often set aside time to discuss course material with a group of students from the class.	1 2 3 4 5
51.	I treat the course material as a starting point and try to develop my own ideas about it.	1 2 3 4 5
52.	I find it hard to stick to a study schedule.	1 2 3 4 5
53.	When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.	1 2 3 4 5
54.	Before I study new course material thoroughly, I often skim it to see how it is organised.	1 2 3 4 5
55.	I ask myself questions to make sure I understand the material I have been studying in this	1 2 3 4 5

	class.	
56.	I try to change the way I study in order to fit the course requirements and the instructor's teaching style.	1 2 3 4 5
57.	I often find that I have been reading for this class but don't know what it was all about.	1 2 3 4 5
58.	I ask the instructor to clarify concepts I don't understand well.	1 2 3 4 5
59.	I memorise key words to remind me of important concepts in this class.	1 2 3 4 5
60.	When course work is difficult, I either give up or only study the easy parts.	1 2 3 4 5
61.	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.	1 2 3 4 5
62.	I try to relate ideas in this subject to those in other courses whenever possible.	1 2 3 4 5
63.	When I study for this course, I go over my class notes and make an outline of important concepts.	1 2 3 4 5
64.	When reading for this class, I try to relate the material to what I already know.	1 2 3 4 5
65.	I have a regular place set aside for studying.	1 2 3 4 5
66.	I try to play around with ideas of my own related to what I am learning in this course.	1 2 3 4 5
67.	When I study for this course, I write brief summaries of the main ideas from the readings and my class notes.	1 2 3 4 5
68.	When I can't understand the material in this course, I ask another student in this class for help.	1 2 3 4 5
69.	I try to understand the material in this class by making connections between the readings and the concepts from the lectures.	1 2 3 4 5
70.	I make sure that I keep up with the weekly readings and assignments for this course.	1 2 3 4 5
71.	Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.	1 2 3 4 5
72.	I make lists of important items for this course and memorise the lists.	1 2 3 4 5
73.	I attend this class regularly.	1 2 3 4 5
74.	Even when course materials are dull and uninteresting, I manage to keep working until I finish.	1 2 3 4 5
75.	I try to identify students in this class whom I can ask for help if necessary.	1 2 3 4 5
76.	When studying for this course I try to determine which concepts I don't understand well.	1 2 3 4 5
77.	I often find that I don't spend very much time on this course because of other activities.	1 2 3 4 5
78.	When I study for this class, I set goals for myself in order to direct my activities in each study period.	1 2 3 4 5
79.	If I get confused taking notes in class, I make sure I sort it out afterwards.	1 2 3 4 5
80.	I rarely find time to review my notes or readings before an exam.	1 2 3 4 5
81.	I try to apply ideas from course readings in other class activities such as lecture and discussion	1 2 3 4 5

	Part C. Volition	
82.	If I haven't been able to prepare myself properly for the test, I would ask the teacher if I could do it another day	1 2 3 4 5
83.	During the test I go over my answers again and again to find all the possible mistakes I have made.	1 2 3 4 5
84.	Quite often I'll try to make myself concentrate more on the work rather than letting my mind wander off somewhere else	1 2 3 4 5
85.	Sometimes I think while studying: "I have to pass the test : if I don't pass it I'll probably have to repeat it again."	1 2 3 4 5
86.	When I find out that I have made a mistake in my work I say to myself:" Let's try to do it once again!"	1 2 3 4 5
87.	Sometimes when I am studying for the exam I say to myself: "Sometimes I get it, and I congratulate myself."	1 2 3 4 5
88.	When I'm really tired, I decide to take a rest - after the break I can concentrate better on my work.	1 2 3 4 5
89.	When I am studying for the exam, I get all the necessary materials that I need: books, dictionary, whatever it takes.	1 2 3 4 5

90.	When I am getting nervous I have to say to myself: "Now, sit down, try to relax!"	1 2 3 4 5
91.	If I' m not able to study because of my environment, I'll try to get a quiet place by myself.	1 2 3 4 5
92 R	I have trouble getting started on my course work even when I have to do it.	1 2 3 4 5
93.	I make sure I finish my course work even if my friends ask me to do something with them.	1 2 3 4 5
94.	I make sure I do my course work even when I want to watch television.	1 2 3 4 5
95.	If other students are goofing off in class, I will not look at them and try to concentrate on the instructor.	1 2 3 4 5
96.	When I do my course work, I am able to block out distractions and concentrate on what I am doing.	1 2 3 4 5
97.	To make myself finish an assignment, I promise myself a reward, like taking a break, getting something to eat, etc. when I'm done.	1 2 3 4 5
98.	If I start to feel nervous about getting my course work done, I say to myself: "I know I can do this."	1 2 3 4 5
99.	If I don't understand something in class, I will ask the instructor to go over it again.	1 2 3 4 5
100.	If I don't understand my course work, I will ask a friend for help.	1 2 3 4 5
101.	If somebody in the classroom is disturbing me, I ask him/her to stop it or I change my place in the classroom.	1 2 3 4 5

To finish this questionnaire there is a little mind-game. Describe your own methods or strategies in a following situation.

It is evening. You are preparing yourself for the test, which takes place tomorrow. There are lots of pages to be read and you have also other, more interesting things to do at home. What methods or strategies are you using to learn in the most effective way? How do you force yourself to study?

Thank You very much for answering these questions!

Do you want to get feedback for your answers? YES/ NO

GERMAN VERSION OF THE QUESTIONNAIRE – MOTHER TONGUE

DIE MOTIVIERTEN STRATEGIEN FÜR LERNBEFRAGUNG

MUTTERSPRACHE _____

Die folgenden Behauptungen beziehen sich darauf, welchen Standpunkt Sie in bezug auf die Studien und Inhalte des Muttersprachkurses einnehmen. In den Behauptungen werden Ihre Erwartungen und Erfahrungen in Hinblick auf den Kurs erforscht. Ihre Antworten sind vertraulich und haben keine Auswirkung auf die Muttersprachsnote. Die Ergebnisse der Befragung werden an der Universität Tampere während des Herbstsemesters 1998 analysiert. Wenn Sie wollen, können Sie eine schriftliche Rückmeldung von den Ergebnissen der Befragung erhalten.

Die Beantwortung der folgenden Fragen dauert etwa 30-40 Minuten.

A.	Schule			
B.	Klasse			
C.	Name			
D.	Geschlecht			(1= Frau, 2 = Mann)
E.	Alter	Jahre	Monate	(z.B. 17 Jahre 11)
F.	Wie lange haben Sie diese Schule besucht?	Jahre		(z.B. 10 Jahre)

G.	Zu welcher Nationalität fühlen Sie sich zugehörig?	Ich bin (z.B. Finne/Finnin)
H.	Ihre Muttersprachsnote im letzten Zeugnis?	
I.	Ihre Einschätzung die nächste Note betreffend?	

Denken Sie an Ihren Muttersprachunterricht und beantworten Sie die folgenden Fragen. Beantworten Sie jede Behauptung so, wie es Ihrer Meinung entspricht. Markieren Sie Ihre Antworten durch Einkreisen der Nummer, die am ehesten Ihre Meinung entspricht.
(1= Die Behauptung trifft nicht zu…5= Die Behauptung trifft absolut zu.)

	TEIL A. Lernerfahrungen und Motivation	1=Die Behauptung trifft überhaupt nicht zu. 5=Die Behauptung spiegelt meine Meinung wider.
1	Ich lerne am liebsten Dinge, die schwierig sind und von denen ich etwas Neues lernen kann.	1 2 3 4 5
2	Ich kann die Inhalte dieses Kurses lernen, wenn ich nur auf die richtige Weise lerne.	1 2 3 4 5
3	Während einer Prüfung denke ich darüber nach, wie schlecht ich gegenüber anderen Schüler vorankomme.	1 2 3 4 5
4	Meiner Meinung nach kann ich die Dinge, die ich in diesem Kurs gelernt habe, auch in anderen Kursen nutzen.	1 2 3 4 5
5.	Ich glaube, dass ich eine ausgezeichnete Note in diesem Kurs erhalte.	1 2 3 4 5
6	Ich bin davon überzeugt, dass ich selbst die schwierigsten Dinge, die in diesem Kurs behandelt werden, verstehen kann.	1 2 3 4 5
7	Gerade jetzt ist es mir am wichtigsten, dass ich in diesem Kurs eine gute Note erhalte.	1 2 3 4 5
8	Bei der Beantwortung der Prüfungsaufgaben beschäftigen mich gleichzeitig die Aufgaben, auf die ich nicht antworten kann.	1 2 3 4 5
9	Es ist meine eigene Schuld, wenn ich nicht die Dinge lerne, die in diesem Kurs behandelt werden.	1 2 3 4 5
10	Mir ist es wichtig, dass ich die in diesem Kurs behandelten Inhalte lerne.	1 2 3 4 5
11	Mir ist es am wichtigsten, den Durchschnittswert der Noten zu erhöhen, und so ist mein Hauptziel in diesem Kurs, eine möglichst gute Note zu erhalten.	1 2 3 4 5
12	Ich glaube, dass ich die Grundbegriffe, die in diesem Kurs gelehrt werden, lernen kann.	1 2 3 4 5
13	Wenn es nur möglich ist, will ich in diesem Kurs bessere Noten erhalten, als meine Klassenkameraden.	1 2 3 4 5
14	Während einer Prüfung denke ich an die Folgen eines möglichen Misserfolgs.	1 2 3 4 5
15	Ich glaube, dass ich die schwierigsten Themen, die der Lehrer in diesem Kurs darstellt, verstehe.	1 2 3 4 5
16	Ich lerne am liebsten Dinge, die mich beschäftigen, auch wenn sie schwierig sind.	1 2 3 4 5
17	Ich bin sehr interessiert am Thema dieses Kurses.	1 2 3 4 5
18	Wenn ich hart genug arbeite, werde ich bestimmt die Themen lernen, die in diesem Kurs behandelt werden.	1 2 3 4 5
19	Ich bin schlecht und fühle mich nervös während einer Prüfung.	1 2 3 4 5
20	Ich glaube, dass ich ausgezeichnet mit den Aufgaben und Prüfungen dieses Kurses fertig werde.	1 2 3 4 5
21	Ich glaube, dass ich Erfolg in diesem Kurs haben werde.	1 2 3 4 5
22	Es befriedigt mich am meisten, wenn ich einen möglichst tiefen Einblick in die Themen, die in dem Kurs behandelt werden, gewinnen kann.	1 2 3 4 5

23	Ich glaube, dass die Teilnahme an diesem Kurs von praktischem Nutzen für mich ist.	1 2 3 4 5
24	Wenn ich in diesem Kurs die Möglichkeit hätte, Aufgaben oder Literatur zu wählen, würde ich solche wählen, von denen ich etwas Neues lernen könnte, auch wenn ich deswegen nicht die best mögliche Note erhielte.	1 2 3 4 5
25	Wenn ich die Dinge, die in diesem Kurs behandelt werden, nicht verstehe, liegt es daran, dass ich es nicht hart genug versuche.	1 2 3 4 5
26	Ich mag den Inhalt dieses Kurses.	1 2 3 4 5
27	Das Verstehen von Dingen, die in diesem Kurs behandelt werden, ist mir sehr wichtig.	1 2 3 4 5
28	In einer Prüfungssituation schlägt mein Herz schnell.	1 2 3 4 5
29	Ich werde mir sicher Kenntnisse und Fähigkeiten aneignen, die in diesem Kurs gelehrt werden.	1 2 3 4 5
30	Mir ist es wichtig, Erfolg in meinen Studien zu haben und den anderen (meiner Familie, meinen Freunden, meinen Klassenkameraden) zu zeigen, wozu ich fähig bin.	1 2 3 4 5
31	Wenn man die Schwierigkeit des Kurses und meine eigene Fähigkeit berücksichtigt, werde ich bestimmt Erfolg in diesem Kurs haben.	1 2 3 4 5

	Teil B. Handlungsweisen bei den Studien	
32.	Ich gliedere die Kurstexte, um die Gestaltung meiner Gedanken zu erleichtern.	1 2 3 4 5
33.	Während der Lektionen überhöre ich oft wichtige Sachen, weil ich in Gedanken versunken bin.	1 2 3 4 5
34.	Beim Lesen der Kurstexte will ich häufig meinen Klassenkameraden und Freunden erklären, was ich gelernt habe.	1 2 3 4 5
35.	Ich lerne an einem solchen Platz, an dem ich mich leicht auf meine Arbeit konzentrieren kann.	1 2 3 4 5
36.	Wenn ich die Kursbücher lese, stelle ich mir Fragen, um die Gestaltung der Sache zu erleichtern.	1 2 3 4 5
37.	Das Lesen der Dinge, die in diesem Kurs behandelt werden, hat mich so oft gelangweilt, dass ich mit dem Lesen aufgehört habe, obwohl es gegen meine ursprünglichen Pläne gewesen ist.	1 2 3 4 5
38.	Ich habe mehrmals gemerkt, dass ich darüber nachdenke, ob die in einem Kurs behandelten Punkte wahr sind oder nicht.	1 2 3 4 5
39.	Ich übe die in einem Kurs zu behandelnden Sachen dadurch, dass ich sie mir ständig erzähle.	1 2 3 4 5
40.	Auch wenn einige Kursinhalte mir Schwierigkeiten bereiten würden, versuche ich, ohne Hilfe anderer zurecht zu kommen.	1 2 3 4 5
41.	Wenn ich mich im Verstehen dessen, was ich gelesen habe, unsicher fühle, gehe ich zurück und versuche, ins Reine mit den Dingen zu kommen.	1 2 3 4 5
42.	Wenn ich studiere, gehe ich meine Notizen und andere Texte durch und versuche, die wichtigsten Gedanken zu finden.	1 2 3 4 5
43.	Ich nutze effektiv die Zeit, die ich mir zum Studieren genommen habe.	1 2 3 4 5
44.	Wenn ich merke, dass es mir schwer fällt, die Dinge, die ich gelesen habe, zu verstehen, werde ich die Art des Lesens verändern.	1 2 3 4 5
45.	Ich versuche, mit meinen Klassenkameraden bei der Aufgabenlösung oder bei der Vorbereitung auf eine Prüfung zusammenzu arbeiten.	1 2 3 4 5
46.	Wenn ich lerne, wiederhole ich durch Lesen der Notizen und Kursbücher mehrmals die Sachen, die in einem Kurs behandelt werden.	1 2 3 4 5
47.	Wenn in einer Lehrstunde oder in Literatur eine Theorie, eine Erklärung oder eine Schlussfolgerung dargestellt wird, die ein Phänomen betreffen, überlege ich, ob es genug Beweise gibt, die die dargestellte Theorie, Erklärung oder Schlussfolgerung stützen.	1 2 3 4 5
48.	Ich habe fleissig gearbeitet, um mit diesem Kurs fertig zu werden, obwohl ich den Inhalt des Kurses nicht mag.	1 2 3 4 5
49.	Ich mache einfache Schemata, Zeichnungen oder Tabellen, die mir bei der Gestaltung des Kursmaterials helfen.	1 2 3 4 5
50.	Ich nehme mir häufig Zeit, um im Laufe des Kurses in einer kleinen Gruppe mit meinen Klassenkameraden über die zu dem Kursmaterial gehörenden Themen diskutieren zu können.	1 2 3 4 5

51.	Für mich ist das Kursmaterial irgendein Ausgangspunkt, der die Basis dafür bildet, wie ich meine eigenen Gedanken entwickeln kann.	1 2 3 4 5
52.	Es macht mir Schwierigkeiten, mich an den Zeitplan des Kurses zu halten.	1 2 3 4 5
53.	Wenn ich den Kurs betreffende Dinge studiere, verbinde ich Kenntnisse, die ich aus verschiedenen Quellen (wie z.B. Notizen, Lehrbüchern und Diskussionen) erhalten habe.	1 2 3 4 5
54.	Bevor ich mich in einen neuen Text vertiefe, lese ich ihn oft durch, um zu sehen, wie er gestaltet ist.	1 2 3 4 5
55.	Beim Lesen der Texte, die zu diesem Kurs gehören, stelle ich mir Fragen, um mich zu vergewissern, dass ich den gelesenen Text verstanden habe.	1 2 3 4 5
56.	Ich versuche, meine eigene Lese- und Lernart derart anzupassen, dass sie den Anforderungen und Lehrmethoden des Lehrers entspricht.	1 2 3 4 5
57.	Ich habe während dieses Kurses oft bemerkt, dass ich von dem, was ich gelesen habe, beinahe nichts verstehe.	1 2 3 4 5
58.	Ich bitte den Lehrer, die Dinge genauer zu erklären, die ich nicht gut genug verstehe.	1 2 3 4 5
59.	Ich lerne Schlüsselwörter auswendig, die mir wichtige Begriffe und Zusammenhänge ins Gedächtnis zurückrufen können.	1 2 3 4 5
60.	Wenn die zu lernenden Dinge zu schwierig gewesen sind, habe ich sie übersprungen und mich auf leichtere Dinge konzentriert.	1 2 3 4 5
61.	Beim Lesen der Kursbücher versuche ich zuerst darüber nachzudenken, was ich eigentlich in diesem Kurs lernen sollte, statt das ganze Kursmaterial durchzugehen.	1 2 3 4 5
62.	Ich versuche, Zusammenhänge zwischen dem Kursinhalt und den Inhalten anderer Kurse zu finden, wenn es nur möglich ist.	1 2 3 4 5
63.	Wenn ich die Kursliteratur lese, mache ich mir Notizen von den wichtigsten Begriffen.	1 2 3 4 5
64.	Beim Lernen versuche ich, die neuen Kenntnisse dieses Kurses in ein Verhältnis zu dem zu setzen, was ich früher gelernt habe.	1 2 3 4 5
65.	Ich habe einen gewissen Ort, an dem ich in Ruhe studieren kann.	1 2 3 4 5
66.	Ich versuche, eigene Gedanken aufgrund dessen zu entwickeln, was ich in diesem Kurs gelernt habe.	1 2 3 4 5
67.	Beim Lernen mache ich kurze Zusammenfassungen über Kernpunkte der Bücher und Notizen.	1 2 3 4 5
68.	Wenn ich das im Kurs behandelte Thema nicht verstehe, bitte ich einen meiner Klassenkameraden um Hilfe.	1 2 3 4 5
69.	Ich versuche, die in diesem Kurs gelehrten Dinge dadurch zu verstehen, dass ich den Inhalt des Kursmaterials und den des Unterrichtes vergleiche und verbinde.	1 2 3 4 5
70.	Wenn ich lese und Aufgaben mache, sorge ich dafür, dass ich mit dem Wochenprogramm Schritt halte.	1 2 3 4 5
71.	Wenn ich in einem Kurs irgendeine Behauptung oder Schlussfolgerung höre oder lese, überlege ich immer alternative Möglichkeiten für sie.	1 2 3 4 5
72.	Ich mache mir Notizen von den wichtigen Themen des Kurses und lerne sie auswendig.	1 2 3 4 5
73.	Ich gehe gewissenhaft in den Unterricht.	1 2 3 4 5
74.	Ich kann die Arbeit, mit der ich begonnen habe, auch dann zum Abschluss bringen, wenn das Kursmaterial langweilig und weniger interessant ist.	1 2 3 4 5
75.	Ich versuche, in meiner Gruppe Studenten zu finden, die ich um Rat fragen kann, wenn es nötig ist.	1 2 3 4 5
76.	Wenn ich die zu diesem Kurs gehörende Literatur lese, versuche ich, mir über die Begriffe und Dinge klar zu werden, die für mich schwierig zu verstehen sind.	1 2 3 4 5
77.	Ich habe nicht so viel Zeit mit dem Lernen verbracht, weil ich andere Dinge zu tun hatte.	1 2 3 4 5
78.	Ich habe mir solche Ziele in diesem Kurs gestellt, mit deren Hilfe ich meine Studien habe steuern können.	1 2 3 4 5
79.	Wenn mir irgendeine Sache in einer Lehrstunde unklar bleibt, versuche ich, das direkt im Anschluss an die Stunde zu klären.	1 2 3 4 5
80.	Ich habe selten Zeit, vor einer Prüfung meine Notizen und die Prüfungsbücher zu wiederholen.	1 2 3 4 5
81.	Ich versuche, die Gedanken des Kursmaterials so anzupassen, dass ich in den Lehrstunden Fragen stelle und an den Diskussionen teilnehme.	1 2 3 4 5

	Teil C. Der Wille	
82.	Wenn ich mich irgendeinem Grunde nicht gut genug auf die Prüfung habe vorbereiten können, so erzähle ich es meinem Lehrer und schlage vor, dass die Prüfungszeit geändert wird.	1 2 3 4 5
83.	Während der Prüfungen zwinge ich mich oft dazu, meine Antworten wieder und wieder zu lesen, um die Fehler zu finden, die ich gemacht habe.	1 2 3 4 5
84.	Ich muss mich oft dazu zwingen, dass ich mich auf das Lesen konzentriere, so dass ich nicht in Gedanken versinke.	1 2 3 4 5
85.	Ich denke häufig beim Lesen: " Ich muss diese Prüfung bestehen, sonst muss ich sie noch einmal absolvieren!"	1 2 3 4 5
86.	Wenn ich bemerke, dass ich in meiner Arbeit einen Fehler gemacht habe, sage ich mir: "Versuchen wir's noch einmal!"	1 2 3 4 5
87.	Wenn ich mich auf eine Prüfung vorbereite, denke ich manchmal: "Irgendwann werde ich diese Prüfung bestehen -und dann werde ich mir selbst gratulieren!"	1 2 3 4 5
88.	Wenn ich müde bin, entscheide ich, dass ich eine Pause mache und nach der Pause erfrischt mit meiner Arbeit weitermache.	1 2 3 4 5
89.	Wenn ich mich auf eine Prüfung vorbereite, entscheide ich, dass ich alles anschaffe, was nötig ist: Bücher, Notizen und Hilfsmittel.	1 2 3 4 5
90.	Wenn ich nervös werde, sage ich mir entschlossen: "Ruhig! Versuche, dich zu konzentrieren."	1 2 3 4 5
91.	Wenn ich nicht lesen kann, weil die Umgebung meine Konzentration stört, suche ich einen ruhigeren Platz.	1 2 3 4 5
92. R	Es macht mir manchmal Schwierigkeiten, mit den Hausaufgaben anzufangen - sogar dann, wenn ich sie unbedingt machen sollte.	1 2 3 4 5
93.	Ich sorge dafür, dass ich die Aufgaben erledige, auch wenn meine Freunde mich bitten, mit ihnen etwas anderes zu tun.	1 2 3 4 5
94.	Ich sorge dafür, dass ich die Aufgaben erledige, obwohl ich fernsehen wollte.	1 2 3 4 5
95.	Wenn die anderen Schüler in der Klasse scherzen, versuche ich, sie nicht anzuschauen und mich auf das zu konzentrieren, was der Lehrer sagt.	1 2 3 4 5
96.	Wenn ich meine Hausaufgaben mache, kann ich mich auf meine Arbeit konzentrieren und alle anderen Störungen in meiner Umgebung abwehren.	1 2 3 4 5
97.	Um meine Arbeit zu Ende zu bringen, verspreche ich mir eine Belohnung - zum Beispiel eine Pause, etwas zu Essen oder etwas anderes, wenn ich mit meiner Arbeit fertig bin	1 2 3 4 5
98.	Wenn ich nervös werde und vermute, dass ich mit meiner Arbeit nicht fertig werde, sage ich mir: "Ich weiss, dass ich sie zu Ende führen kann!"	1 2 3 4 5
99.	Wenn ich im Unterricht etwas nicht verstehe, bitte ich den Lehrer, die Sache noch einmal zu erklären.	1 2 3 4 5
100	Wenn ich meine Aufgaben nicht verstehe, frage ich irgendeinen Freund um Rat.	1 2 3 4 5
101	Wenn ein anderer Schüler mich stört, bitte ich ihn, aufzuhören oder setze mich irgendwo anders hin.	1 2 3 4 5

Zum Schluss ein kleines Gedankenspiel. Beschreiben Sie kurz, wie Sie in der folgenden Situation handeln.

Es ist Abend. Sie bereiten sich auf die Prüfung vor, die am nächsten Tag gehalten wird. Es gibt viel zu lesen und zu Hau gäbe es interessantere Sachen zu tun. Welche Methoden oder Strategien wenden Sie an, um effektiv zu lernen? Auf welche Weise motivieren Sie sich, so dass Sie für die Prüfung lernen?

Danke!

Sind Sie daran interessiert, etwas über die Ergebnisse der Befragung zu erfahren?
JA/NEIN

QUESTIONNAIRE SUR LA MOTIVATION DANS LES STRATÉGIES D'APPRENTISSAGE

MATHÉMATIQUES

Ce questionnaire a pour objectif de mesurer votre motivation et vos stratégies d'apprentissage dans les cours de mathématiques. Vos réponses seront confidentielles et n'auront aucune influence sur vos notes dans cette discipline. L'ensemble des réponses obtenues sera analysé à l'université de Tampere (Finlande) au cours de l'été 1999.

Prévoir entre 25 et 40 minutes pour remplir ce questionnaire.

A.	Classe	
B.	Section linguistique	
C.	Nom	
D.	Sexe	(1 = féminin 2 = masculin)
E.	Age	ans mois (ex. :17 ans 11 mois)
F.	Depuis combien de temps étudiez-vous dans cette école ?	ans (ex. : 10 ans)
G.	À quelle nation avez-vous le sentiment d'appartenir ?	(ex. : belge)
H.	Dernière note obtenue en mathématiques	
I.	Quelle sera selon vous votre prochaine note en mathématiques?	

Voici 81 questions. Réfléchissez au dernier cours de mathématiques que vous avez suivi et répondez soigneusement aux questions posées. Choisissez le chiffre qui convient dans la colonne de droite (de 1 = Ce n'est pas du tout mon cas à 5 = C'est tout à fait mon cas).

	Partie A. Motivation	1 = Ce n'est pas du tout mon cas 5 = C'est tout à fait mon cas
1	Je préfère que le contenu d'un cours comme celui-ci soit vraiment difficile et me permette ainsi d'acquérir des connaissances nouvelles.	1 2 3 4 5
2	Si j'étudie correctement, je serai capable d'assimiler le contenu du cours.	1 2 3 4 5
3	Quand je passe un contrôle, j'ai l'impression de ne pas être au niveau des autres élèves.	1 2 3 4 5
4	Je pense pouvoir réutiliser dans d'autres matières les connaissances acquises dans ce cours.	1 2 3 4 5
5	Je crois que je vais obtenir d'excellents résultats.	1 2 3 4 5
6	J'ai la certitude de pouvoir comprendre les points les plus difficiles abordés en cours.	1 2 3 4 5
7	Obtenir de bons résultats est à court terme ce qui m'importe le plus.	1 2 3 4 5
8	Pendant un contrôle, je réfléchis aux autres questions posées auxquelles je n'ai pas su répondre.	1 2 3 4 5
9	Si je n'assimile pas le contenu du cours, c'est de ma faute.	1 2 3 4 5
10	Il est important pour moi d'assimiler le programme de ce cours.	1 2 3 4 5
11	L'essentiel pour moi en ce moment, c'est d'améliorer ma moyenne générale, et mon objectif principal dans ce cours est d'obtenir un bon résultat.	1 2 3 4 5
12	Je pense être capable d'assimiler les notions fondamentales enseignées dans ce cours.	1 2 3 4 5
13	Dans la mesure du possible, je veux obtenir dans cette matière de meilleures notes que les autres élèves.	1 2 3 4 5
14	Lorsque je passe un contrôle, je pense aux conséquences qu'aurait un échec.	1 2 3 4 5
15	J'estime que je suis capable de comprendre les points les plus complexes présentés par	1 2 3 4 5

	l'enseignant.	
16	Dans une classe comme celle-ci, je préfère que le sujet étudié éveille la curiosité, même s'il est difficile.	1 2 3 4 5
17	La matière enseignée dans ce cours m'intéresse beaucoup.	1 2 3 4 5
18	Si je fournis un effort suffisant, je comprendrai le contenu de l'enseignement.	1 2 3 4 5
19	Je me sens mal à l'aise et je perds mes moyens quand je passe un examen.	1 2 3 4 5
20	J'estime pouvoir obtenir de très bons résultats aux devoirs et aux contrôles	1 2 3 4 5
21	Je pense bien réussir dans cette matière.	1 2 3 4 5
22	Mon principal objectif à ce cours est d'essayer de comprendre aussi parfaitement que possible.	1 2 3 4 5
23	Je pense qu'il est utile pour moi d'assimiler le contenu de ce cours.	1 2 3 4 5
24	Lorsque j'en ai l'occasion, je choisis des exercices qui me donnent l'occasion d'acquérir des connaissances nouvelles, même si je n'obtiens pas forcément un bon résultat.	1 2 3 4 5
25	Si je ne comprends pas le contenu du cours, c'est que je n'ai pas fourni un effort suffisant.	1 2 3 4 5
26	J'aime la matière enseignée dans ce cours.	1 2 3 4 5
27	Il est très important pour moi de comprendre le contenu de ce cours.	1 2 3 4 5
28	Mon coeur se met à battre très vite quand je passe un examen.	1 2 3 4 5
29	J'ai la certitude de pouvoir acquérir les compétences enseignées dans ce cours.	1 2 3 4 5
30	Je veux réussir à ce cours parce que je veux montrer ce que je suis capable de faire à ma famille, mes amis, mon employeur, ou à d'autres personnes.	1 2 3 4 5
31	Compte tenu du degré de difficulté du cours, de l'enseignant et de mes compétences, je pense obtenir de bons résultats.	1 2 3 4 5

	Partie B. Stratégies d'apprentissage	
32.	Quand j'étudie un chapitre du programme, je survole l'ensemble pour m'aider à structurer mes idées.	1 2 3 4 5
33.	En classe, il m'arrive souvent de ne pas saisir des points importants parce que je pense à autre chose.	1 2 3 4 5
34.	Quand j'étudie, j'essaie souvent d'expliquer le contenu du cours à un camarade de classe ou à un ami.	1 2 3 4 5
35.	J'étudie habituellement dans un endroit où je peux me concentrer sur mon travail.	1 2 3 4 5
36.	Quand j'étudie un chapitre du programme, je me pose des questions pour orienter ma lecture.	1 2 3 4 5
37.	Quand j'étudie pour ce cours, par ennui ou par paresse je ne termine pas le travail que je comptais faire.	1 2 3 4 5
38.	Je me demande souvent si ce que j'entends en classe ou ce que je lis est convaincant.	1 2 3 4 5
39.	Quand j'étudie pour ce cours, je m'exerce à répéter mes leçons plusieurs fois.	1 2 3 4 5
40.	Même si j'éprouve des difficultés à assimiler le contenu du cours, j'essaie de travailler seul(e), sans me faire aider.	1 2 3 4 5
41.	Lorsque je ne comprends pas bien un point à étudier, je reviens en arrière et j'essaie de l'éclaircir.	1 2 3 4 5
42.	Lorsque j'étudie pour ce cours, je relis les chapitres à étudier et mes notes de cours pour dégager les notions principales.	1 2 3 4 5
43.	J'utilise au mieux le temps que je consacre à l'étude de ce cours.	1 2 3 4 5
44.	Si les chapitres à étudier sont difficiles à comprendre, je change ma façon de lire.	1 2 3 4 5
45.	J'essaie de travailler avec d'autres camarades de classe pour faire les devoirs imposés.	1 2 3 4 5
46.	Lorsque j'étudie, je lis mes notes de cours et les chapitres à étudier à de nombreuses reprises.	1 2 3 4 5
47.	Lorsqu'une théorie, une interprétation ou une conclusion est présentée en classe ou dans les chapitres à étudier, j'essaie de voir par moi-même si elle repose sur des arguments solides.	1 2 3 4 5
48.	Je travaille sérieusement pour obtenir de bons résultats à ce cours, même si ce qu'on y fait ne me plaît pas.	1 2 3 4 5

49.	Je fais des schémas, des diagrammes ou des tableaux simplifiés pour m'aider à structurer les points étudiés.	1 2 3 4 5
50.	Lorsque j'étudie pour ce cours, je prévois souvent du temps pour discuter des questions abordées avec un groupe d'élèves de la classe.	1 2 3 4 5
51.	Je me sers du contenu du cours comme point de départ pour développer mes propres réflexions.	1 2 3 4 5
52.	Il m'est difficile de respecter un programme de travail.	1 2 3 4 5
53.	Lorsque j'étudie, je rassemble des informations provenant de différentes sources (conférences, lectures et discussions...).	1 2 3 4 5
54.	Avant d'étudier une nouvelle partie du programme en détail, je la parcours souvent rapidement pour voir comment elle est organisée.	1 2 3 4 5
55.	Je me pose des questions pour m'assurer que je comprends les points étudiés en cours.	1 2 3 4 5
56.	Je m'efforce de modifier ma façon d'étudier pour m'adapter aux exigences du cours et au style pédagogique de l'enseignant.	1 2 3 4 5
57.	Quand j'étudie pour ce cours, je me rends souvent compte que je n'ai pas fait attention à ce que je lisais.	1 2 3 4 5
58.	Je demande à l'enseignant des éclaircissements sur les notions que je ne comprends pas bien.	1 2 3 4 5
59.	Je mémorise des mots clés pour me rappeler les notions importantes présentées pendant le cours.	1 2 3 4 5
60.	Lorsque le programme est difficile, j'abandonne ou je me contente d'étudier les points qui ne posent pas de difficulté.	1 2 3 4 5
61.	Quand j'étudie, j'essaie non seulement de lire mais d'assimiler le point abordé en cours.	1 2 3 4 5
62.	Chaque fois que possible, j'essaie d'établir des relations entre ce que j'apprends dans cette matière et dans d'autres disciplines.	1 2 3 4 5
63.	Lorsque j'étudie, je relis mes notes de cours et je résume les notions importantes.	1 2 3 4 5
64.	Lorsque j'étudie pour ce cours, j'essaie de mettre en relation le contenu de l'enseignement avec ce que je sais déjà.	1 2 3 4 5
65.	Je dispose d'un endroit à moi pour travailler.	1 2 3 4 5
66.	J'essaie de réfléchir par moi-même à partir de ce que j'apprends en cours.	1 2 3 4 5
67.	Lorsque j'étudie, je fais de brefs résumés des chapitres que je lis et de mes notes de cours.	1 2 3 4 5
68.	Lorsque je ne comprends pas la question traitée, je demande l'aide d'un camarade de classe.	1 2 3 4 5
69.	J'essaie de comprendre le programme du cours en établissant des relations entre mes lectures et les notions présentées en classe.	1 2 3 4 5
70.	Je veille à faire en temps et en heure les devoirs et les lectures hebdomadaires imposés par ce cours.	1 2 3 4 5
71.	Chaque fois que je lis ou que j'entends une affirmation ou une conclusion dans le cadre du cours, je pense à d'autres solutions possibles.	1 2 3 4 5
72.	Je fais la liste des points importants du cours et je les apprends par coeur.	1 2 3 4 5
73.	J'assiste régulièrement aux cours.	1 2 3 4 5
74.	Même lorsque les points abordés en cours sont sans intérêt, je finis toujours mon travail.	1 2 3 4 5
75.	J'essaie de voir quels sont les camarades auxquels je pourrai demander de l'aide si nécessaire.	1 2 3 4 5
76.	Lorsque j'étudie pour ce cours, j'essaie de voir quelles sont les notions que je ne comprends pas bien.	1 2 3 4 5
77.	Je me rends souvent compte que je ne consacre pas beaucoup de temps à ce cours parce que j'ai d'autres activités.	1 2 3 4 5
78.	Je me fixe des objectifs afin d'orienter mon travail pendant chaque période que je consacre à l'étude.	1 2 3 4 5
79.	Si les notes que je prends en classe ne sont pas claires, je les corrige toujours après coup.	1 2 3 4 5
80.	Avant un examen, je trouve rarement le temps de revoir mes notes ou les chapitres à étudier.	1 2 3 4 5
81.	J'essaie d'appliquer les réflexions issues de mon travail personnel dans d'autres parties du cours (cours magistraux, discussions…)	1 2 3 4 5

	Partie C. Volition	
82.	Si, pour une raison ou pour une autre, je n'ai pas pu me préparer correctement à un contrôle, je le dis à mon professeur et je lui demande s'il est possible de le passer plus tard.	1 2 3 4 5
83.	Pendant un contrôle, il m'arrive souvent de me contraindre à relire plusieurs fois mes réponses pour déceler les erreurs que j'ai commises.	1 2 3 4 5
84.	Je dois souvent me forcer à me concentrer sur ma lecture pour éviter que mes pensées ne se dispersent.	1 2 3 4 5
85.	Tout en lisant, je n'arrête pas de penser : "Je dois réussir cet examen, sinon il faudra que je le repasse!".	1 2 3 4 5
86.	Lorsque je me rends compte que j'ai fait une erreur dans mon travail, je me dis : "Essayons encore une fois!".	1 2 3 4 5
87.	Je pense parfois, en révisant pour un examen: "Un jour, je réussirai et je serai content de moi!"	1 2 3 4 5
88.	Lorsque je suis fatigué, je m'accorde une petite pause et, après, je retrouve de l'énergie pour travailler.	1 2 3 4 5
89.	Lorsque je prépare un examen, je décide de rassembler tout ce dont j'ai besoin: livres, notes et tout ce qui peut m'être nécessaire.	1 2 3 4 5
90.	Lorsque je m'énerve, je me répète avec conviction : "Du calme! Essaie de te concentrer!"	1 2 3 4 5
91.	Si je suis dérangé dans mon travail à la place où je me trouve, je cherche un endroit plus tranquille pour étudier.	1 2 3 4 5
92.	J'ai toujours du mal à me mettre au travail, même quand il faut absolument que je le fasse.	1 2 3 4 5
93.	Je fais en sorte de terminer d'abord mon travail, même si des camarades me proposent de faire autre chose.	1 2 3 4 5
94.	Je fais en sorte de terminer d'abord mon travail, même quand j'ai envie de regarder la télévision.	1 2 3 4 5
95.	Si des élèves font les pitres en classe, j'essaie de faire comme si je ne les voyais pas et j'écoute attentivement le professeur.	1 2 3 4 5
96.	Lorsque je fais mes devoirs, j'essaie de me concentrer sur mon travail sans me laisser distraire par ce qui peut se passer autour de moi.	1 2 3 4 5
97.	Pour m'aider à faire un travail jusqu'au bout, je me promets une récompense (par exemple une pause, une friandise ou autre chose) une fois que j'aurai terminé.	1 2 3 4 5
98.	Si je commence à devenir nerveux et à me demander si je pourrai terminer un travail,je me dis "Je sais que je suis capable d'y arriver!"	1 2 3 4 5
99.	Si je ne comprends pas un point du cours, je demande au professeur de le réexpliquer.	1 2 3 4 5
100	Si je ne comprends pas un devoir, je demande conseil à un ami.	1 2 3 4 5
101	Si un autre élève me dérange, je lui demande d'arrêter ou je m'installe à une autre place.	1 2 3 4 5

Voici, pour terminer, un petit exercice d'imagination. Comment réagiriez-vous dans la situation décrite ci-dessous?

C'est le soir. Demain, vous devez passer un contrôle. Il y a beaucoup de points à revoir et il y aurait bien des choses plus intéressantes à faire à la maison. Quels moyens et quelles stratégies utilisez-vous pour étudier efficacement? Comment vous incitez-vous à travailler?

Merci d'avoir répondu à ces questions!

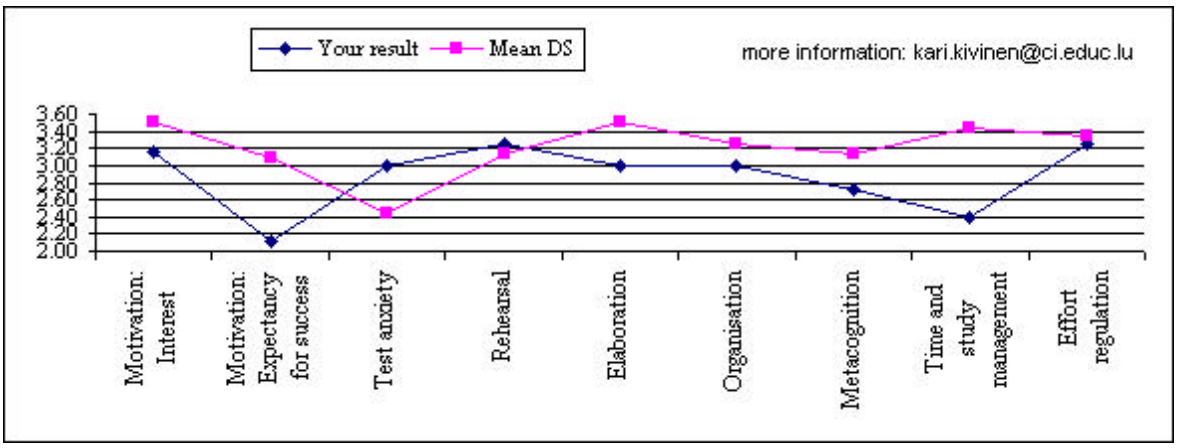
Souhaitez-vous être informé(e) des résultats de cette enquête? OUI /NON

ANNEX 2. THE FEEDBACK FORM USED WITH THE STUDENTS

	Your result	Mean
Motivation: Interest	3.17	3.52
Motivation: Expectancy for success	2.13	3.10
Test anxiety	3.00	2.43
Rehearsal	3.25	3.14
Elaboration	3.00	3.51
Organisation	3.00	3.26
Metacognition	2.71	3.14
Time and study management	2.40	3.43
Effort regulation	3.25	3.33

Name of the student

The purpose of this questionnaire was to gather some information about your study habits, your learning skills, and your motivation for schoolwork. This feedback is intended to help you determine your own strenghts and weaknesses as a student. All of the motivational and study skills mentioned on this feedback are learnable. We hope that you will find our suggestions helpful!



Motivation - Interest: This is to measure of how interested you are in the material being covered in your course. A high score means you like the subject matter and are very interested in the content area of the class.

Motivation- Expectancy for succes: This is a measure of your potential succes in this course and of your self-confidence for understanding the course content. A high score means that you think you will do well in the course.

Test Anxiety: This is a measure of how much you worry about tests and how often you have distracting thoughts when you take an exam. In contrast to the other scales, a high score here means that you are anxious in testing situations.

Congnitive strategy: Rehearsal: This is a measure of how often you use study strategies such as rereading class notes and course readings and memorising lists of key words and concepts. A high score means you use these strategies often.

Cognitive strategy: Elaboration: This scale reflects how often you attempt to summarise or put to your own words the material you read, and how often you try to relate the material to what you already know or have learned.

Cognitive strategy: Organisation: This scale refers to your ability to select the main ideas from your readings as well as your attempts to organise and put together what you need to learn in the course.

Metacognition: This is a measure of how often you think about what you are studying - f.ex. do you monitor your attention while you read ? Do you adjust your reading speed if you are reading something difficult. A high score means that you try to plan your work and check whether you understand the course material.

Resource management: Time and study space: A high score means that you have a method for managing your schelude and you try to study somewhere where you can finish your schoolwork.

Resource management: Self-effort: This scale refers to your willingness to try hard on your schoolwork, even when the work is difficult. A high score means that you try hard and exert effort in your studying.

ANNEX 3. STATISTICS FOR THE 3-FACTOR VARIMAX ROTATION OF THE VOLITIONAL DATA

Table A3.1. Eigenvalues for the 3-factor varimax rotation

Factor	Eigenvalue	% of variance	Cumulative %
1	3.88116	19.4	19.4
2	2.00612	10.0	29.4
3	1.55366	7.8	37.2

Table A3.2. Item loadings for the 3-factor varimax rotation

	Factor 1	Factor 2	Factor 3
VAR00093	**0.72**	0.12	0.05
VAR00094	**0.68**	–0.08	0.34
VAR00096	**0.65**	0.07	0.18
VAR00092	**0.63**	–0.11	–0.24
VAR00095	**0.52**	0.45	–0.04
VAR00101	**0.40**	0.28	0.09
VAR00089	**0.35**	0.07	0.31
VAR00087	0.07	**0.64**	0.06
VAR00085	–0.29	**0.58**	–0.29
VAR00098	0.31	**0.52**	0.25
VAR00084	–0.30	**0.48**	0.10
VAR00083	0.09	**0.43**	0.08
VAR00097	0.08	**0.38**	0.34
VAR00082	0.14	**0.30**	–0.18
VAR00100	–0.07	–0.10	**0.67**
VAR00099	0.24	–0.10	**0.59**
VAR00090	0.06	0.34	**0.56**
VAR00086	0.20	0.37	**0.47**
VAR00091	0.36	0.31	**0.39**
VAR00088	0.00	0.02	**0.26**

ANNEX 4. THE INTERCORRELATIONS OF SCORES ON THE MOTIVATIONAL SCALES

MSLQ AND VOLITIONAL QUESTIONNAIRE CORRELATIONS	Intrinsic	Extrinsic	Task value	Control beliefs	Self-efficacy	Test anxiety	Rehearsal	Elaboration	Organisation	Critical thinking	Metacognition	Time and study	Effort regulation	Peer learning	Help seeking	Attention control	Self-instruction
Extrinsic	0.13																
Task value	0.54	0.27															
Control beliefs	0.09	0.03	0.16														
Self-efficacy	0.47	0.16	0.45	0.3													
Test anxiety	-0.02	0.32	0.04	0.01	-0.21												
Rehearsal	0.29	0.32	0.29	0.02	0.09	0.3											
Elaboration	0.46	0.18	0.51	0.05	0.35	-0.01	0.47										
Organisation	0.27	0.19	0.31	0.08	0.19	0.1	0.66	0.57									
Critical thinking	0.52	0.04	0.34	-0.08	0.34	-0.03	0.23	0.53									
Metacognition	0.56	0.24	0.5	0.15	0.41	0.11	0.56	0.59	0.59	0.39							
Time and study	0.36	0.15	0.39	-0.03	0.3	0.05	0.47	0.35	0.5	0.22	0.58						
Effort regulation	0.41	0.22	0.41	0.1	0.37	0.03	0.33	0.34	0.37	0.26	0.52	0.63					
Peer learning	0.21	0.14	0.2	-0.07	0.02	0.16	0.28	0.32	0.28	0.21	0.28	0.18	0.15				
Help seeking	0.11	0.14	0.2	0.05	-0.04	0.09	0.29	0.22	0.27	0.03	0.27	0.19	0.17	0.5			
Attention control	0.4	0.22	0.39	0	0.29	0.01	0.4	0.46	0.36	0.28	0.51	0.64	0.59	0.16	0.17		
Self-instruction	0.15	0.26	0.13	0.01	-0.05	0.37	0.29	0.15	0.11	0.13	0.26	0.08	0.04	0.21	0.15	0.3	
self-helping	0.29	0.17	0.32	0.07	0.14	0.04	0.38	0.39	0.41	0.21	0.53	0.32	0.32	0.35	0.63	0.28	0.23

ANNEX 5. NON-LINEAR MODELLING: POST-DATA SPECULATION ON ATTENTION CONTROL

Figure A5.1. The relationship between attention control, cognitive learning strategies and resource management strategies (all data and mathematics): maximum attention control

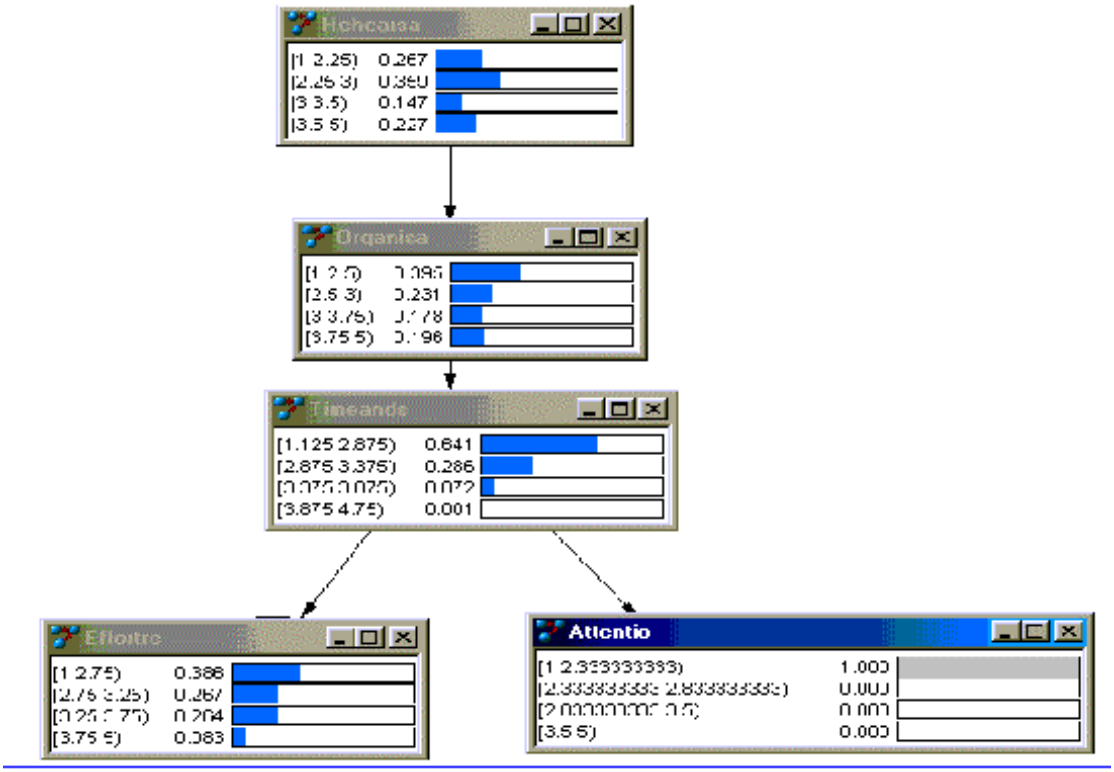
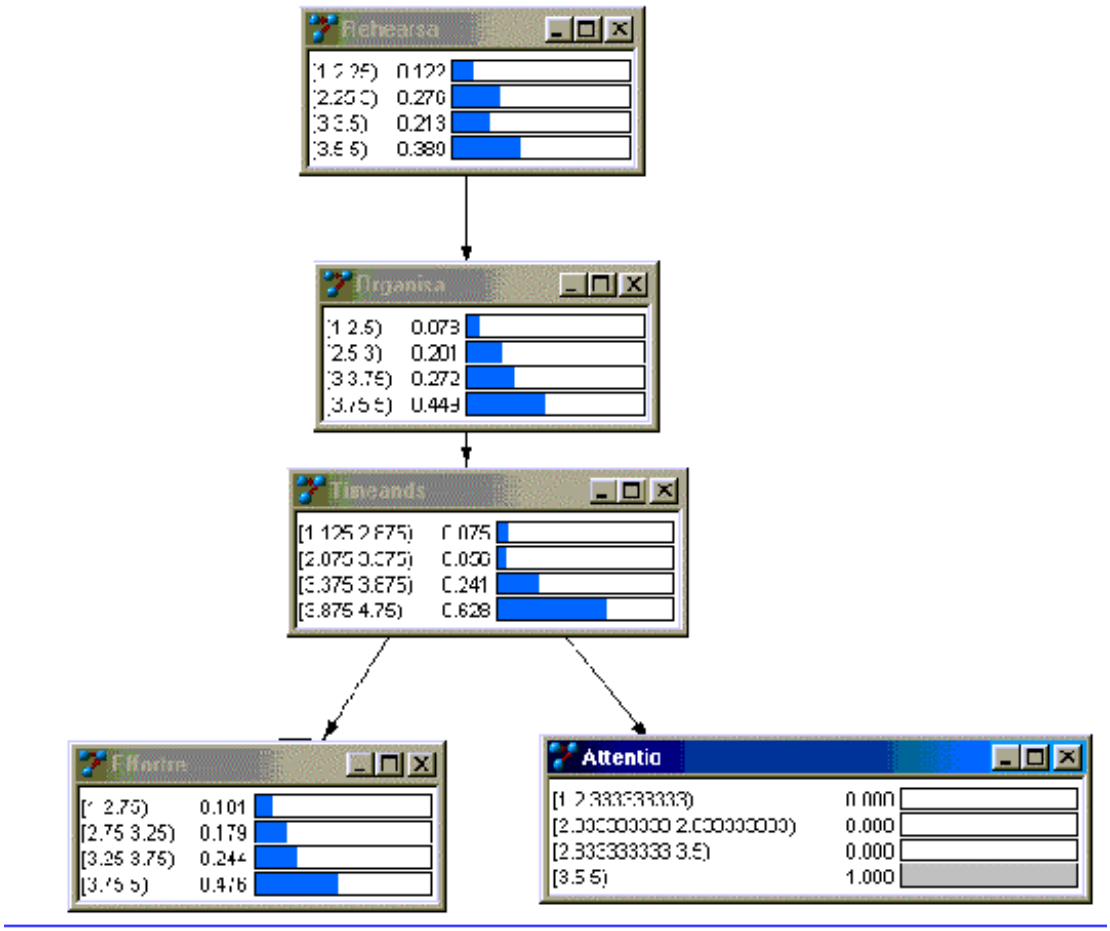


Figure A5.2. The relationship between attention control, cognitive learning strategies and resource management strategies (all data and mathematics): minimum attention control



ANNEX 6

Describtive statistics of the motivation variables

Variable	Mean	Mode	S.D.	Skewness	Std. Err.	Kurtosis	Std. Err.	Min	Max
VAR00001	3.37	3	1.02	-0.22	0.17	-0.34	0.34	1	5
VAR00002	4.09	5	1.01	-1.08	0.17	0.76	0.34	1	5
VAR00003	2.03	1	1.10	0.88	0.17	-0.02	0.34	1	5
VAR00004	3.72	4	1.14	-0.77	0.17	-0.06	0.34	1	5
VAR00005	3.06	3	1.11	-0.14	0.17	-0.51	0.34	1	5
VAR00006	3.24	4	1.26	-0.31	0.17	-0.88	0.34	1	5
VAR00007	3.51	4	1.17	-0.40	0.17	-0.68	0.34	1	5
VAR00008	3.24	4	1.31	-0.38	0.17	-0.93	0.34	1	5
VAR00009	3.74	5	1.18	-0.66	0.17	-0.49	0.34	1	5
VAR00010	3.93	5	1.05	-0.75	0.17	-0.08	0.34	1	5
VAR00011	3.64	5	1.21	-0.59	0.17	-0.46	0.34	1	5
VAR00012	4.49	5	0.71	-1.29	0.17	1.17	0.34	2	5
VAR00013	2.97	3	1.39	-0.02	0.17	-1.22	0.34	1	5
VAR00014	2.76	1	1.38	0.16	0.17	-1.21	0.34	1	5
VAR00015	3.41	4	1.21	-0.38	0.17	-0.75	0.34	1	5
VAR00016	3.84	4	1.08	-0.74	0.17	-0.08	0.34	1	5
VAR00017	2.95	3	1.03	-0.01	0.17	-0.31	0.34	1	5
VAR00018	4.20	5	0.88	-1.25	0.17	1.96	0.34	1	5
VAR00019	2.55	2	1.19	0.31	0.17	-0.85	0.34	1	5
VAR00020	3.28	3	1.03	-0.11	0.17	-0.38	0.34	1	5
VAR00021	3.51	3	1.08	-0.36	0.17	-0.36	0.34	1	5
VAR00022	3.13	3	1.22	-0.02	0.17	-0.85	0.34	1	5
VAR00023	3.47	3	1.17	-0.35	0.17	-0.64	0.34	1	5
VAR00024	3.26	3	1.20	-0.19	0.17	-0.75	0.34	1	5
VAR00025	3.42	3	1.20	-0.32	0.17	-0.72	0.34	1	5
VAR00026	2.98	3	1.12	-0.10	0.17	-0.66	0.34	1	5
VAR00027	3.46	3	1.12	-0.34	0.17	-0.56	0.34	1	5
VAR00028	2.47	1	1.30	0.41	0.17	-1.01	0.34	1	5

Describtive statistics of the learning strategy variables

	Mean	Mode	S.D.	Skewness	Std. Err.	Kurtosis	Std. Err.	Min	Max
VAR00029	3.64	3	0.95	-0.07	0.17	-0.78	0.34	1	5
VAR00030	3.20	3	1.22	-0.19	0.17	-0.83	0.34	1	5
VAR00031	3.49	4	1.06	-0.35	0.17	-0.41	0.34	1	5
VAR00032	2.95	2	1.33	0.07	0.17	-1.17	0.34	1	5
VAR00033	3.00	3	1.23	-0.10	0.17	-0.96	0.34	1	5

VAR00034	2.34	1	1.19	0.51	0.17	-0.69	0.34	1	5
VAR00035	3.77	4	1.16	-0.81	0.17	0.00	0.34	1	5
VAR00036	2.77	2	1.28	0.27	0.17	-0.95	0.34	1	5
VAR00037	3.21	3	1.30	-0.22	0.17	-1.00	0.34	1	5
VAR00038	2.67	3	1.27	0.25	0.17	-0.98	0.34	1	5
VAR00039	2.29	1	1.22	0.66	0.17	-0.56	0.34	1	5
VAR00040	2.72	2	1.31	0.27	0.17	-1.04	0.34	1	5
VAR00041	4.11	5	0.95	-1.09	0.17	0.87	0.34	1	5
VAR00042	3.81	5	1.12	-0.72	0.17	-0.25	0.34	1	5
VAR00043	2.83	3	1.19	0.16	0.17	-0.81	0.34	1	5
VAR00044	2.94	3	1.19	0.08	0.17	-0.84	0.34	1	5
VAR00045	2.88	3	1.26	-0.01	0.17	-1.03	0.34	1	5
VAR00046	3.51	4	1.26	-0.45	0.17	-0.84	0.34	1	5
VAR00047	2.82	3	1.19	0.08	0.17	-0.78	0.34	1	5
VAR00048	2.82	3	1.18	0.13	0.17	-0.79	0.34	1	5
VAR00049	2.70	3	1.31	0.29	0.17	-0.98	0.34	1	5
VAR00050	1.95	1	1.05	0.90	0.17	-0.09	0.34	1	5
VAR00051	2.76	3	1.18	0.15	0.17	-0.74	0.34	1	5
VAR00052	3.08	3	1.33	-0.07	0.17	-1.11	0.34	1	5
VAR00053	3.39	4	1.19	-0.40	0.17	-0.70	0.34	1	5
VAR00054	2.89	2	1.30	0.06	0.17	-1.15	0.34	1	5
VAR00055	2.70	2	1.25	0.25	0.17	-1.00	0.34	1	5
VAR00056	2.67	2	1.24	0.25	0.17	-1.03	0.34	1	5
VAR00057	3.53	4	1.28	-0.50	0.17	-0.84	0.34	1	5
VAR00058	3.45	4	1.24	-0.44	0.17	-0.81	0.34	1	5
VAR00059	3.25	4	1.22	-0.13	0.17	-0.99	0.34	1	5
VAR00060	3.55	4	1.19	-0.54	0.17	-0.58	0.34	1	5
VAR00061	3.06	3	1.18	0.04	0.17	-0.88	0.34	1	5
VAR00062	3.06	4	1.24	-0.15	0.17	-0.96	0.34	1	5
VAR00063	3.03	3	1.29	-0.03	0.17	-1.05	0.34	1	5
VAR00064	3.42	3	1.09	-0.33	0.17	-0.38	0.34	1	5
VAR00065	3.69	5	1.36	-0.70	0.17	-0.77	0.34	1	5
VAR00066	3.27	3	1.18	-0.11	0.17	-0.76	0.34	1	5
VAR00067	3.06	5	1.43	-0.04	0.17	-1.31	0.34	1	5
VAR00068	3.64	4	1.19	-0.56	0.17	-0.60	0.34	1	5
VAR00069	3.28	3	1.08	-0.26	0.17	-0.45	0.34	1	5
VAR00070	2.68	2	1.33	0.34	0.17	-1.05	0.34	1	5
VAR00071	2.67	2	1.12	0.21	0.17	-0.78	0.34	1	5
VAR00072	2.61	2	1.24	0.31	0.17	-0.97	0.34	1	5
VAR00073	3.99	5	1.12	-0.88	0.17	-0.04	0.34	1	5
VAR00074	3.47	4	1.17	-0.52	0.17	-0.58	0.34	1	5
VAR00075	3.31	4	1.29	-0.34	0.17	-0.95	0.34	1	5
VAR00076	3.71	4	0.95	-0.55	0.17	-0.09	0.34	1	5
VAR00077	2.70	3	1.27	0.21	0.17	-0.94	0.34	1	5
VAR00078	2.86	3	1.14	-0.01	0.17	-0.75	0.34	1	5
VAR00079	3.25	3	1.15	-0.23	0.17	-0.70	0.34	1	5
VAR00080	3.78	5	1.14	-0.70	0.17	-0.32	0.34	1	5
VAR00081	3.10	3	1.23	-0.07	0.17	-0.86	0.34	1	5

Descriptive statistics of the volitional variables

	Mean	Mode	S.D.	Skewness	Std. Err.	Kurtosis	Std. Err.	Min	Max
VAR00082	1.92	1	1.24	1.29	0.17	0.55	0.34	1	5
VAR00083	3.21	3	1.19	-0.11	0.17	-0.88	0.34	1	5
VAR00084	3.50	4	1.16	-0.51	0.17	-0.53	0.34	1	5
VAR00085	2.43	1	1.36	0.52	0.17	-1.01	0.34	1	5
VAR00086	3.66	4	1.07	-0.63	0.17	-0.16	0.34	1	5
VAR00087	2.65	1	1.36	0.22	0.17	-1.23	0.34	1	5
VAR00088	4.03	5	1.07	-1.03	0.17	0.41	0.34	1	5
VAR00089	3.83	5	1.14	-0.75	0.17	-0.31	0.34	1	5
VAR00090	3.49	4	1.27	-0.65	0.17	-0.57	0.34	1	5
VAR00091	3.88	5	1.20	-0.93	0.17	-0.07	0.34	1	5
VAR00092	2.50	2	1.29	0.45	0.17	-0.96	0.34	1	5
VAR00093	2.99	3	1.15	-0.04	0.17	-0.75	0.34	1	5
VAR00094	3.40	3	1.22	-0.38	0.17	-0.72	0.34	1	5
VAR00095	2.75	3	1.16	0.30	0.17	-0.56	0.34	1	5
VAR00096	3.09	2	1.19	0.01	0.17	-0.98	0.34	1	5
VAR00097	3.16	4	1.32	-0.25	0.17	-1.05	0.34	1	5
VAR00098	3.15	3	1.09	-0.29	0.17	-0.52	0.34	1	5
VAR00099	3.37	3	1.26	-0.27	0.17	-0.96	0.34	1	5
VAR00100	3.66	4	1.16	-0.56	0.17	-0.53	0.34	1	5
VAR00101	2.66	2	1.28	0.24	0.17	-1.08	0.34	1	5

ANNEX 7

Descriptive statistics – MSLQ and volitional questionnaire scales

	Mean	S.D.	Skewness	Std. Err.	Kurtosis	Std. Err.	Min	Max
Intrinsic	3.40	0.80	-0.17	0.17	-0.04	0.34	1.00	5.00
Extrinsic	3.33	0.89	-0.16	0.17	-0.53	0.34	1.00	5.00
Task value	3.42	0.80	-0.17	0.17	-0.27	0.34	1.17	5.00
Control beliefs	3.86	0.75	-0.36	0.17	-0.15	0.34	1.75	5.00
Self-efficacy	3.51	0.83	-0.31	0.17	-0.43	0.34	1.38	5.00
Test anxiety	2.61	0.85	0.16	0.17	-0.61	0.34	1.00	4.80
Rehearsal	2.91	0.88	0.08	0.17	-0.55	0.34	1.00	5.00
Elaboration	3.22	0.81	-0.19	0.17	-0.34	0.34	1.00	5.00
Organisation	3.12	0.89	-0.01	0.17	-0.36	0.34	1.00	5.00
Critical Thinking	2.84	0.82	0.27	0.17	-0.14	0.34	1.00	5.00
Metacognitive Self-Regulation	3.12	0.60	-0.13	0.17	0.20	0.34	1.00	4.58
Time and study management	3.32	0.71	-0.42	0.17	-0.25	0.34	1.13	4.75
Effort regulation	3.26	0.78	-0.18	0.17	0.12	0.34	1.00	5.00
Peer Learning	2.39	0.81	0.20	0.17	-0.45	0.34	1.00	4.33
Help Seeking	3.28	0.82	-0.45	0.17	0.00	0.34	1.00	5.00
Self-instruction	2.95	0.67	-0.19	0.17	-0.44	0.34	1.33	4.50
Attention control	2.90	0.77	0.00	0.17	-0.32	0.34	1.00	5.00
Self-helping	3.55	0.79	-0.64	0.17	0.28	0.34	1.00	5.00

ANNEX 8. QUESTIONNAIRE ANSWERS

1 L/B
Je me mets dans mon lit dans le sens où je dors, tel que lorsque je lève la tête, rien n'attire mon attention. Je mets de la musique lorsqu'il s'agit de faire des exercices ou de comprendre et je l'éteins si je dois apprendre quelque chose par cœur. Je rassemble tout ce qui pourrait m'être utile pour mes révisions, mais je màrrange toujours pour finir ce que je faisais avant mes révisions, pour mon plaisir et pour que je n'aie pas envie de le continuer pendant mes révisions (tel un roman ou une lettre. Et une fois commencées, pour les mathématiques, je me passionne et ne m'arrête pas avant d'avoir fini !

2 L/C
C'est tout simple, je me mets à étudier comme si rien d'autre ne se passe à la maison. Je me concentre bien sur mon travail mais je me permets des pauses plus longues pour pouvoir un peu faire ce que j'aurais aimé plus qu'étudier (p. ex. Regarder la télé).

3 L/D
Je fais d'abord des choses plus intéressantes puis dans la soirée je travaille.

4 L/E
Je m'enferme dans ma chambre et j'allume la musique pour ne pas entendre les autres. Puis je sors tout ce que j'ai besoin pour étudier et j'essaie de faire un résumé de tout ce qu'il y a à revoir. Généralement si je n'ai pas très envie de revoir je fixe un horaire (étudier pendant ½ heure puis faire une pause,…).

5 L/F
J'essayerais d'être raisonnable, je travaillerais quelques heures, mais je ferais tout de même quelques pauses; j'ai toujours besoin de me divertir un peu en révisant, sinon je perds ma concentration. Je ne travaille jamais tard, je prends soin d'avoir fini avant 22h00 sinon je ne pourrais rien faire correctement. D'habitude, quand je dois vraiment faire quelque chose, je m'y met sérieusement, et je ne fais pas autre chose à la place.

6 L/G
Pour étudier efficacement, je range d'abord mon bureau puis je rassemble toutes les affaires dont j'ai besoin pour étudier (livres, blocs notes, cours). Si je ne comprends pas le cours, je m'efforce de comprendre sinon je prends un livre de math expliquant le cours. Quand je suis fatigué de travailler, je fais une pause en allant prendre de l'air ou en faisant de la musique et après je reprends mon travail. Je m'incite à travailler en pensant aux tests et aux conséquences de ce travail à court et à long terme. En plus je pense aux regrets que j'ai quand je perds mon temps.

7 L/H
Il faudrait d'abord savoir ce que l'on entend par des choses bien plus intéressantes. Enfin, d'abord je prends mon cours, puis je le lis, puis je regarde les tests que l'on a fait auparavant, je vois les fautes que j'ai fait et j'essaie de comprendre pour ne plus les refaire. Puis je fais quelques exercices. Le jour du test, je revois les notions importantes. Voilà la recette magique !

8 L/I
J'essaie de travailler efficacement et de me concentrer.

9 L/J
J'essaie d'oublier les autres choses intéressantes à faire et me consacre à mon travail en espérantfinir le plus vite possible pour être libre de faire ce que je veux après et afin d'avoir la conscience tranquille.

10 L/K
A 8h00 du soir, je m'aperçois qu'il y a test et j'étudie après mes devoirs (je lis plusieurs fois la leçon en m'attardant sur les définitions et les règles). Je termine avec quelques exercices. Puis, le sentiment du devoir accompli, je peux tranquillement vaquer à mes occupations.

11 L/L
J'essaie de travailler jusque tard le soir afin de bien assimiler la matière. Le matin, je me réveille un peu plus tôt pour revoir mes notes.

12 L/M
Je révise les points les plus importants et je laisse tomber les autres, ou alors je les apprends moins bien que les autres.

13 L/N
Je décide de laisser tomber les études et au lieu de travailler, je profite de toutes les choses intéressantes à faire à la maison. C'est plus agréable de passer de bonnes heures à la maison et une seule mauvaise heure à l'examen que de passer une mauvaise soirée entière à la maison et une heure « relax » à l'examen.

14 L/O
Je me dépêche de faire mes devoirs vite fait bien fait et après je fais mes activités plus intéressantes et ensuite lorsque je ne fais plus rien je revois mes notes.

15 L/P
Je lis plusieurs fois ce qu'il faut apprendre (3-4 fois), après je le sais et je peux faire autre chose.

16 L/Q
D'abord l'école est plus importante que mes petites envies quelque qu'elles soient. De plus mes envies peuvent attendre et être reprises plus tard. Par contre l'école, elle, n'attend pas, donc je finis d'apprendre mon contrôle, puisque je me dis, que j'ai certainement pas envie d'aller en cours sans avoir appris mon contrôle, et même si j'insiste, je me dis en moi-même, si t'y vas tu prendras des heures puis te diras, je vais faire une petite pause. Celle-ci deviendra plus grande. Comme le temps passe vite, t'auras perdu ton temps et rien appris !

17 L/R
Je travaille jusque tard le soir en écoutant de la musique et le lendemain je me réveille plus tôt pour réviser.

18 L/S
Je me mets dans mon salon à une table vide pour ne pas être déconcentrée par n'importe quoi. Je me dis qu'il faut que j'étudie bien pour ne pas devoir passer un an de plus à l'école et pouvoir faire le métier qui me plaît.

19 L/T
Le fait de savoir que j'ai un contrôle me suffit pour me mettre au travail. Donc je n'ai pas de stratégie pour m'inciter à travailler. Par contre, quand je me mets au travail je le fais sérieusement. Je m'isole dans ma chambre et je mets tout ce don't je pourrais avoir besoin à porter de main. Le matin du test, je me lève tôt (+/- une heure) pour revoir mes notes.

20 L/U
Je me dis qu'il faut que je travaille car j'en aurai besoin et que ça m'apportera plus de bénéfices que la distraction que je peux reporter ou enregistrer si c'est un film. Par contre, si quand je rentre de l'école, ma série préférée passe, je me permets de la regarder pour me détendre avant le travail. Après je suis plus disposé à travailler je fais plus vite et même mieux parfois.

21 L/V
Je me dis que je dois réussir dans la vie, et pour ça il faut travailler et étudier donc je révise pour mon contrôle.

22 L/W
Les devoirs avant tout tel est mon DICTOR.
Même si il y a autre chose plus important, je l'ignore et je monte dans ma chambre pour étudier. Nous aurons tout le temps de nous amuser après nos études. Pour l'instant, j'étudie pour assurer ma vie.

23 L/X
De toutes façons je ne travaille presque que le soir (après 19h00). Si c'est un test important, et que je n'ai pas fini à 24h00, je mets le réveil plus tôt ou j'étudie lors des heures libres avant le contrôle.

24 L/Y
Je me dis qu'il vaut mieux que je révise si je veux réussir. Je me dis que je pourrais faire ces choses plus intéressantes pendant le week-end. Bien souvent je vais faire ces choses plus intéressantes mais je finis toujours par réviser quand même.

25 L/Z
Je travaille par phase c'est à dire que je travaille un peu, puis je me divertis, puis je travaille à nouveau et ainsi de suite.

26 L/AA
J'ai de la volonté. Je sais que je dois travailler pour le contrôle alors je le fais. Le seul cas où je ne le ferais pas, c'est uniquement si j'étais malade ou très fatiguée (pour une raison quelconque), mais en règle générale, je vais aux contrôle en étant préparée.

27 L/AB
Je vais travailler sans arrêt jusqu'à connaître si c'est une matière importante. Si c'est une matière non importante, je me fie à ma bonne étoile et je lis une peu le soir.

28 L/AC

Ich bin eigentlich eine sehr ehrgeizige Person und möchte eine gute Prüfung erhalten. Ich sage mir, dass ich diese “interessanten Sachen” auch noch später erledigen kann, und mich erst vorbereiten muss. Ich lebe nach dem Motto, erst die Arbeit, dann das Vergnügen.

29 L/AD
Ich setze mir eine bestimmte Zeit (z B. eine Stunde) und genau so lange lerne ich dann auch konzentriert. Dann mache ich das, was ich eben machen wollte. Zwischendurch schaue ich immer wieder 5 min. in meine Aufzeichnungen. Nach einiger Zeit sage ich mir alles auf. Falls ich irgendwas noch nicht kann, lerne ich das noch. Aber normalerweise kann ich alles, ich habe kein Problem damit, mich auf eine Prüfung vorzubereiten.

30 L/AE
Man kann eigentlich für die Deutschprüfungen nicht so viel lernen. Wenn man den Stoff während des Unterrichts nicht verstanden hat, schafft man es auch nicht mehr an einem Abend. Ich denke, ich lese mir meine Notizen und Buchausschnitte noch ein paar Mal durch, bevor ich zu Bett gehe und das reicht auch meistens. Bei anderen Fächern ist es etwas anderes.

31 L/AE
Wenn ich am nächsten Tag eine Prüfung habe, für die ich besonders viel lernen muss, versuche ich, mich in einem entspannten Zustand zu befinden. Ich ziehe gemütlichere Kleidung an und gehe an einen Ort, an dem ich nicht von meiner Familie gestört werde und wo ich mich entspannen kann. Ich esse auch eine Kleinigkeit, denn wenn ich hungrig bin, kann ich nicht arbeiten.
32 L/AG
Für Deutschtests lerne ich grundsätzlich nichts ! Fachausdrücke, die ich wissen muss, lese ich mir durch, aber Aufsätze, Textanalysen und was es sonst noch gibt, machen mir eigentlich nie Probleme.

33 L/AH
Ich mache mir klar, wie wichtig die Prüfung ist und versuche, mir meine Zeit einzuteilen.

34 L/AI
Ich fange an zu lernen, weil ich weiss, dass die Prüfung wichtiger ist. Ich sage mir, dass ich auch später lesen kann und dass es die interessanten Sachen auch noch später gibt.

35 L/AJ
Ich setze mich einfach hin und sage mir, dass es keinen Weg gibt, der an der Prüfung vorbeiführt und dass ich eine gute Note haben will, dass klappt meistens. Ausserdem kann ich fast nur unter Durch lernen, so dass ich eigentlich immer erst am Abend vor einer Prüfung anfange zu lernen, egal wie wichtig sie ist.

36 L/AK
Ich lerne so lange ich es durchhalte. Wenn ich keine Lust mehr habe, überlege ich, wie wichtig mir die Prüfung ist: Meistens ist mir das Resultat egal (es wird sowieso nicht besonders schlecht) oder ich kann den Stoff schon, weil ich in der Stunde aufgepasst habe. Wenn es allerdings mal schwierig ist, dann überzeuge ich mich selbst, dass ich es nötig habe, zu lernen.

37 L/AL
Meistens hilft es schon, wenn ich mir überlege, welche Folgen es hätte, falls ich nicht arbeiten würde. Ansonsten versuche ich, mit den interessanten und wichtigen Sachen anzufangen und mich so durch den ganzen Stoff zu arbeiten.

38 L/AM
Ich zwinge mich, mich hinzusetzen und zu lernen. Wenn ich einmal angefangen habe zu lernen, vertiefe ich mich in das Fach und kann gut lernen .Wenn ich den ganzen Stoff durch habe, mache ich eine Pause und fange danach wieder von vorne an.

39 L/AN
Falls die Prüfung sehr wichtig ist, brauche ich mich nicht zu motivieren. Falls sie nicht so wichtig ist, lerne ich nur, wenn ich mich konzentrieren kann.

40 L/AO
Ich weiss, dass ich lernen muss. Ich habe meine 2. Chance. Ich lerne, denn andere Dinge kann ich nach der Prüfung noch immer tun. Wenn es um einen Film geht, den ich unbedingt sehen will, nehme ich ihn auf. Die Bücher liegen am nächsten Tag auch noch da. Wenn ich unbedingt jeden Tag Freizeit brauche, muss ich mir die Arbeit eben besser einteilen, was aber eher selten gemacht wird.
Ich sage mir immer, dass ich mich dann später über die gute Note freue. Wenn es trotz dem Lernen eine schlechte wird, kann ich mir nicht vorwerfen, nicht gelernt zu haben.

41 L/AP
Manchmal geht es nicht und ich mache interessante Sachen. Wenn genügend oder zuviel Druck vorhanden ist, lerne ich aus Angst.

42 L/AQ
Die beste Methode ist, sich einen Ruck zu geben und zu lernen. Man muss sich immer wieder sagen, heute lernst du, erreichst eine gute Note und morgen hast du Vergnügen.

43 L/AR
Für Deutsch lernen???

44 L/AS
Wenn z. B. ein guter Film im Fernsehen läuft, dann sage ich mir meistens :“Erst die Arbeit, dann das Vergnügen !“ Ich versuche, mich an diesem Spruch zu orientieren, doch manchmal ist überhaupt keine Motivation da und ich mache garnichts mehr. Es kommt bei mir auch darauf an, ob mir das Fach Spaß macht oder nicht, ob viel oder wenig zu lernen ist, ob es eine sehr wichtige Prüfung ist oder eine weniger wichtigere.

45 L/AT
Ich mache lieber andere Sachen und verschiebe alles auf später.

46 L/AU
Ich lerne schnell und gründlich, damit ich noch was anderes machen kann.

47L/AV
Für Mathe fange ich früher an als erst am Abend zuvor. Meistens drei Tage vorher. Verstehe ich etwas beim Lernen nicht, habe ich dann noch Zeit, den Lehrer zu fragen. Erst einmal versuche ich, alles zu verstehen. Danach mache ich soviel Übungsaufgaben, bis ich das Gefühl habe, alles zu können und die Aufgaben schnell lösen zu können. Anschauen und durchlesen hilft mir nicht viel. Oft aber habe ich Motivationsprobleme und fange zu spät an, zu lernen.

48 L/AW
Ich lege mich auf mein Bett und setze mir ein Limit, bis zu dem ich alles durchgelesen haben wollte (normalerweise eine ¾ Stunde). Bin ich in der gestellten Zeit fertig geworden, so wende ich mich den interessanteren Sachen zu. Bin ich mit dem Lernen noch nicht fertig, mache ich eine kleine Pause und beginne dann wieder von vorne.

49 L/AX
Wenn ich für die Prüfung gelernt habe, kann ich die anderen Sachen machen. Also lerne ich so gut wie möglich, um fertig zu werden.

50 L/AY
/

51 L/AZ
/

52 L/BA
Habe ich zuviel Zeit, geht nichts, veil kein Druck da ist. Ich denke, dass ich noch soviel Zeit habe und komme zu garnichts, sondern sitze nichts tuend am Schreibtisch. Fange ich abends an, so bin ich schon unter Druck, weil ich früh ins Bett will und nicht viel Zeit habe und arbeite sehr konzentriert schnell und effektif. Lieber kurz und konzentriert als lang und unkonzentriert arbeiten. Mich für die Arbeit zu motivieren, misslingt mir immer. Ein paar Tage vor der Prüfung anzufangen zu lernen, wäre bei mir unmöglich.

53 L/BB
Ich sage mir, dass wenn ich konzentriert bin, dann verbrauche ich nicht soviel Zeit damit und kann die interessanteren Sachen nachher tun. Die Prüfung ist nur einmal, interessante Sachen gibt’s immer zu tun.

54 L/BC
Die Prüfung ist nur ein Test. Interessante Sachen gibt‘s immer zu tun.
Je konzentrierter ich arbeite, desto schneller bin ich fertig.

55 L/BD
Ich setze mich in mein Zimmer, schließe das Buch und fange an, zu lernen.

56 L/BE
Ich setze mich irgendwo mit Kerzen ruhig hin und lese mir alles konzentriert durch. Dazwischen mache ich Pausen.

57 L/BF
Ich setze mich an einen Ort, an dem ich alleine bin, und wo keine Ablenkungen möglich sind. Ich nehme mir Kekse mit dorthin und fange an, alles konzentriert durchzulesen. Nach jeder Stunde oder Dreiviertelstunde höre ich auf und mache eine kleine Pause. Ich unterstreiche die wichtigen Sachen im Text oder mache mir Notizen.

58 L/AG
Wenn ich für eine Prüfung lernen muss,dann lerne ich. Meistens geht das Lernen sogar schneller, wenn ich nachher noch was anderes zu tun habe.

59 L/AH
Wenn ich für eine Prüfung lernen muss, lerne ich. Meistens geht das Lernen sogar schneller, wenn ich nachher noch was anderes vorhabe.

60 L/BI
Ich sage mir, dass ich arbeiten muss, um die Prüfung zu absolvieren. Ich sage mir innerlich, daß ich nicht sitzen bleiben will.

61 L/BJ
Ich versuche, mich einfach auf meine Arbeit zu konzentrieren.
62 B
Yritän unohtaa kaiken muun paitsi kokeen ja keskityn lukemaan. Mahdollisesti kuuntelen musiikkia.

63 C
Huoneen ovet kiinni, radio tms. päälle. Yritän vain keskittyä siihen mitä pitäisi lukea. En lue paljoakaan teoriaa, vaan yritän tehdä kirjan tehtäviä ja katsoa vastauksista olenko ymmärtänyt asian.

64 D
Menen hiljaiseen huoneeseen missä voin keskittyä hyvin. Siellä voin lukea rauhassa. Tuon kaikki kurssin aikana jaetut paperit mukaan ja tietysti kurssikirjat. Ehkä jotain lisämateriaalia voi olla myöskin mukana. Kirjoitan esseitä (en tiedä toteutuisiko tuo). Yritän parhaani.

65 E
Ennen aloittamistani syön ja juon hyvin, teen lukemispaikan mahdollisimman miellyttäväksi, laitan rauhallista musiikkia ns. « lukumusiikkia » soimaan, suljen oven, säännöstelen lukemiseni esim. 45 min ja 40 sivua, jonka jälkeen 5 min tauko, jonka aikana avaan ikkunan ja liikun paikasta toiseen. Lopuksi luen vielä tunnilla kirjoittamani muistiinpanot (=lyhennelmä koealueesta). Yöllä juuri ennen nukahtamista, koeala pyörii päässä ja teen kysymyksiä itselleni. Matikan kokeisiin valmistautumisessa lukemisen korvaa tehtävien teko.

66 F
Strategia 1. Rentoudun ensin katselemalla TV:tä tai tekemällä jotain ennen lukemista, ja lopulta huomaan, että kello on 10 ja pitäisi myös nukkua ja näin tuntien lukeminen pakkautuu 45 min. kertaukseksi aamulla bussissa. Strategia2. Vedän puhelimen seinästä, lukitsen itseni huoneeseen, pistän musiikin päälle ja otan kirjat ja muuta tavarat esille ja pakotan itseni lukemaan vähintään 4 tuntia, jonka jälkeen voin pitää pienen tauon ennen kertausta.

67 G
Sanon itselleni että voin tehdä muut asiat myöhemmin ja että nyt pitää lukea. Välillä menen muualle, missä ei ole muuta tekemistä esimerkiksi kirjastoon.

68 H
-
69 I
Päätän tekeväni itselleni koko oppimateriaalista muistiinpanot, en voi lopettaa ennen kuin ne ovat valmiit. Sitten voin tehdä jotain muuta.

70 J
Minä yksinkertaisesti luen. Mielenkiintoisemman voi tehdä huomennakin.

71 K
-

72 L

Tiedän, että ”lukutaitoni” ja keskittymiskykyni on aika huono, joten yritän kaikkeni ja luen oppikirjaa ja muistiinpanojani. Alleviivaan ja teen lisää merkintöjä lukemastani tekstistä. Ajattelen: ”Jos/kun nyt luen kunnolla, voin saada kohtaisen numeron kokeesta.”

73 M
Järjestän jotain hyvää syötävää, kasaan kaiken tarvittavan oppimateriaalin ja teen kaikesta muistiinpanot kirjoittamalla tärkeimmät asiat ylös. Sitten luen kaiken läpi ja kertaan muistiinpanojen avulla, sitten teen jotain mielenkiintoisempaa, ja ennenkö menen nukkumaan kertaan vielä muistiinpanoja.

74 N
Jos nyt luen olen kiitollinen itselleni huomenna.

75 O
Rentoudun kylvyssä ja luen samalla

76 P
Otan kasan ruokaa tai juotavaa, asetun rauhalliseen nojatuoliin kirjojen kanssa, ja aluen ja luen jne. Ajattelen joskus että pakko päästä läpi. Palkitsen itseäni joskus lukemisen jälkeen.

77 Q
Pakotan itseni lukemaan tietyn ajan, esim puoli tuntia teholla, sitten tauko, sitten tunti. tauko 45 min. tauko ja 30 min. Joskus venyy klo kahteen aaamulla, mutta alueen luen aina ainakin kerran poikkeuksetta.

78 R
Päätän että jaksan lukea. Päätös pitää!

79 S
Mielenkiintoiset asiat saavat jäädä myöhempään. Ehkä mahdollisesti ”palkitsen” lukemisen jollain ”mielenkiintoisella tekemisellä”.

80 T
Juon teetä ja alan lukea koealuetta läpi. Samalla kirjoitan erilliselle paperille kurssin pääasioita. Sitten tauko (ruokaa!). Alue vielä kerran läpi. Jos olen ottanut kurssin se on selvitettävä, vaikka olisikin pakollinen.

81 U
Suljen mieleni siltä muulta mielenkiintoiselta ja yksinkertaisesti pakotan itseni lukemaan kokeeseen. Sehän on välttämätön pakko, mutta toisaalta yhden illanhan se vain kirpaisee. Koeviikon loputtua lupaan itselleni tehdä jotain kivaa. Kun luettavaa on paljon, luen kerran tai kaksi läpi alueen ja muistiinpanoni, sitten vain tiivistelemään ja muistelemaan luettua.

82 V
Pakotan vain itseni siihen, tai syön jotain hyvää opiskelun ohessa. Voin vaihtaa huonetta tai muuttaa asentoni täydellisesti . Järjestän niin, että voin tehdä kaiken haluamani kivan huomenna (esim. videon).

83 W
-

84 X
Eliminoin ensin kaikki mahdolliset häirötekijät: suljen television ja radion, siivoan työpöydän kaikesta turhasta ja pukeudun mukaviin vaatteisiin. Ajattelen, että lukeminen on juuri nyt tärkeintä, hyödyllistä. Yritän kiinnostua aiheesta silmäilemällä ensin sisällysluettelon ja muistelemalla otsikoihin liittyviä asioita. Luen asian ja lasken laskut mikäli kyseessä on matematiikan koe. Jos ongelmia ilmenee, kysyn perheenjäseniltäni tai soitan kavereilleni.

85 Y
Katson telkkaria. Olen lukenut jo ennen viimeistä iltaa. Minulla on tapana vain hieman kerrata.

86 Z
En minä jaksa lukea kaikke sitä luettavaa... Teen kaikkea muuta mitä pitäisi ja luen koealueen ehkä kerran läpi n. klo 1-3 yöllä.

87 AA
Luen kappaleen kerrallaan, jonka jälkeen teen siitä lyhennelmän. Pidän usein pieniä taukoja, jolloin syön, katson TV:tä yms saadakseni ajatukset pois opiskelusta hetkeksi. Menen nukkumaan vasta kun olen saanut kaikki kappaleet käsiteltyä ja luettuani muistiinpanoni ainakin vielä kerran läpi.

88 AB
Pakotan itseni lukemaan ja siirrän muita tekemisiä myöhemmäksi.

89 AC
Kuuntelen musiikkia, ajattelen kaikenlaista ja PÄÄTÄN lukea kokeisiin, jotta voisin saada mahdollisimman hyvän numeron.

90 AD
Jos nukuttaa – menen nukkumaan. Jos telkusta tulee hyvä pätkä – katson sen. Koulun on jäänyt vähän taka-alalle minun elämässäni.

91 AE
Pakko opiskella jotta pääsisin kurssista läpi tyylillä. Lupaan hyvästä suorituksesta itselleni palkinnon.

92 AF
Lukuaineiden oppimateriaalista selviytyäkseni alleviivaan mielestäni tärkeimmät asiat. Tällä tavoin se jää paremmin muistiin ja keskityn asiaan paremmin. Jos motivaatio hiipuu ajattelen tulevaisuutta ja sitä miten tärkeää hyvä peruskoulutus on.

93 AG
Ottamalla kirjan käteeni ja luen. Luen vaikeat kohdat uudelleen ja lasken esimerkkitehtäviä. Motivoin itseni ajatuksella, että päästäänpähän siitäkin eroon.

94 AH
Sulkeudun huoneeseeni, poistan kaikki häiriötekijät ja keitän kahvia pysyäkseni virkeänä. Luultavasti jätän jonkun vähemmän tärkeän asian lukematta ja yritän synventyä tärkeimpiin asioihin.

95 AI
Ajattelen, että nyt pitää ehdottomasti lukea ja sitten luen jonkun aikaa jonka jälkeen teen jotain muuta hetken aikaa ja sitten taas luen. On hauskempi lukea, kun kuuntelee samalla musiikkia. Luen ensin tuntimuistiinpanot vihosta, sitten kirjan, ja sitten taas vihon. Se auttaa, kun vihossa asiat on tiivistetympänä.

96 AJ
Tahdonvoima pitää kurissa. Motivoin itseäni pakkokeinoin.

97 AK
Mukavat vaatteet, hyvää syötävää. Jaan koealueen osioihin, kappaleisiin tai aihepiireihin, jotta tiedän koko ajan missä olen menossa. Paljon lujaa tahtoa.

98 AL
Kerään tarvittavan materiaalin ja alan lukea – motivaatiota ei puutu, mutta ylijäävää aikaa (harrastuksia – ei TV:n katsomista) sitäkin enemmän tavallisesti. Tentit ovat varjopuolia opiskelussa, sillä hermoilen kovasti, mutta toisaalta jo kerrasta ohi. En tarvitse minkäänlaista opiskelustrategioita, luen aina sitä kun hyvältä tuntuu ja ihan hyvin on sujunut tähän asti.

99 AM
Pidän asiat tärkeysjärjestyksessä, eli päätän varmastikin lukea. Jos luettavaa on liikaa ja tiedän että aika tulee loppumaan kesken, valikoin mielestäni tärkeimmät kurssin asiat ja opettelen niitä. Usein herään myös aikaisemmin aamulla vielä kertaamaan.

100 AN
Sanon itselleni, että nyt on aika pinnistelllä ja venyä hyviin suorituksiin. Koeviikon jälkeen voi rentoutua.

101 AO
Ensin vaihdetaan lukemispaikka vierashuoneeseen, jossa ei ole mitään mielenkiintoista. Motivoin itseäni, sillä että jos en pääse kokeesta läpi, joudun lukemaan ehkä koko kurssin uudelleen.

102 AP
Sanon itselleni, että enää muutama koeviikko edessä ja sitten tää kaikki on ohi. Ajattelen, että jos en nyt tee mitään, niin siitä koituu vain hankaluuksia myöhemmin.

103 AQ
Rauhallinen lukupaikka on välttämätön, muuten en voi keskittyä. Esim biologian koe: luen aihetta jaksoissa, aina yhden jakson jälkeen yritän mielessäni kerrata asian. Usein luen jakson vielä uudestaan. Alleviivaan ja kirjoitan

tukilauseita kyseisistä asioista. En ikinä lue yli kahteentoista yöllä, sillä muuten olen aamulla äärimmäisen väsynyt, enkä pysty silloin ainakaan keskittymään kokeeseen.

104 AR
Ajattelen että nyt on todellakin pakko lukea ja ne muut hommat voi tehdä myöhemminkin. Opiskelen tietyn aikaa (esim. 45 min) ja sitten pidän taukoa, jolloin teen kaikkea aivan muuta. Vaikka motivaatio olisi nollassa, ajattelemalla että huomenna on koe, pystyn lukemaan, koska haluan läpäistä kaikki kokeeni.

105 AS
Otan vain itseäni niskasta kiinni ja alan lukea. Luen ehkä n. tunnin, pidän taukoa ja luen taas. Jos en ymmärrä lukemaani kertaan sen esim. muistiinpanoista. Oppiakseni tehokkaasti luen esim. kappaleen sen jälkeen tunnitlla tehdyt muistiinpanot ja sitten vielä pohdin itsekseni ja teen itselleni kysymyksiä. Opiskelen koska haluan oppia ja sivistää itseäni.

106 AT
Sanon itselleni että ne muut asiat voin tehdä myöhemminkin kuten ottaa jonkun elokuvan videolle, sillä kokeeseen ei voi valmistautua myöhemmin. Jos on paljon luettavaa ja tiedän että en ehdi lukea kaikkea, niin luen mielestäni tärkeimmät asiat, joissa minulla on ollut vaikeuksia ja silmäilen asioita jotka osaan kohtuullisen hyvin.

107 AU
Mietin, että opiskelu kannattaa, sillä haluan hyvään yliopistoon. Minun täytyy lukea tulevaisuuteni takia, vaikka aihe olisi tylsä. Ajattelen että kohta se on ohi, enää yksi ilta lukemista, sitten siihen asiaan ei tarvitse palata. Yritän myös litkiä kahvia etten nukahda.

108 AV
Selaan koealueen läpi ja paina muistiini pääasiat. Luen kohdat, jotka mielestäni luultavammin tuleva kokeeseen. En edes vilkaise yksityiskohtia, vaan koetan muistaa alueen pääpiirteet, mahdolliset kaavat yms. Opettajan tunteminen auttaa välttämään mahdolliset pirulliset tehtävät.

109 AW
Luen koealueen läpi pariin kertaan, ensin yksityiskohtaisesti ja sen jälkeen suurpiirteisemmin, kun olen jo ymmärtänyt asian. Motivoin itseni opiskelemaan vetoamalla velvollisuudentunteeseeni. Yleensä luen mieluummin vähän aikaa intensiivisesti (luen nopeasti) kuin valvon koko illan. Koetta edeltävänä iltana menen itse asiassa nukkumaan tavallista aikaisemmin ja yritän ajatella jotain muuta ja rentoutua jo hyvissä ajoin ennen nukkumaanmenoa.

110 AX
Olen huono motivoimaan itseäni työskentelemään ja lähes aina jätän kaiken viime tippaan. En kuitenkaan jätä valmistautumista kokonaan pois, koska haluan suoriutua kokeesta hyvin.

111 AY
Eri kielissä pyrin opiskelemaan sanaston hyvin. Reaaliaineissa katson pääkohdat, mietin mitä mistäkin kohdasta tiedän. Tarvittaessa yritän täydentää tietojani lukemalla alakäsitteet sun muut. Matematiikasssa katson vain teoriat.
112 AZ
Yritän löytää jonkun rauhallisen paikan jossa ei ole asioita jotka minua kiinnostaisi. Lupaan palkkioita itselleni (esim. taukoja, syötävää). Yritän keskittyä ja poistaa kaikki muut asiat mielestäni. Jotten nukahtaisi käyn kävelemässä koiran kanssa tai muuten vain jossakin.

113 BA
Teen kirjan tehtäviä. Luen esimerkkejä. Syön jotain hyvää samalla, lukeminen tuntuu mukavammalta. Yritän hahmottaa tehtäviä piirtämällä ja käyttämällä logiikkaa.

114 BB
Opiskelen lyhyissä jaksoissa käsiteltävät asiat, välillä voin keskittyä muihin asioihin. Teen muistiinpanot ja lopuksi palkitsen itseni ns. muilla tekemisillä. Tiedän, että koe on huomenna, eikä opiskelun pitkittämisessä ole järkeä. Ennenkuin aloitan työskentelyn, syön hyvin ja kuuntelen musiikkia. Varaan opiskelua varten viihtyisän ympäristön, jotteivat muut ”houkutukset” käy ylitsepääsemättömäksi. Olen yleisesti ottaeen nopea ja tehokas opiskelija, kun vain pääsen alkuun.

115 BC
Jos aihe on kiinnostava niinkuin se äidinkielessä useimmiten on, mitään keinoja ei tarvita. Mutta jos aihe on tylsä, motivoin itseni ajattelemalla, että epäonnistuminen kokeessa on anteeksiantamatonta.

116 BD

Yritän vain keskittyä lukemiseen, vaikka se ei aina onnistuisikaan. Alleviivailen ja kirjoitan muistiinpanoja oppiakseni tehokkaammin.
En oikeastaan motivoi millään. Jos en kertakaikkiaan jaksa, en lue, koska silloin siitä ei olisi hyötyäkään.

117 BE
Opiskelen kurinalaisesti tekemällä mind-mäppejä. Motivoin itseni ajattelemalla, että tekemällä/opiskelemalla asian kerralla hyvin, minun ei enää tarvitse palata siihen myöhemmin.

118 BF
Käytän raakaa TAHDONVOIMAA ja totean että sitten kun luku urakka on tehty, se on tehty. Alan puurtaa ja odotan sitä hetkeä, kun pääsen hauskempiin puuhiin. Yritän kuitenkin keskittyä lukemaani, sillä sitä nopeammin urakka on takana, mitä tiiviimmin sen tekee. En mielelläni tingi lopputuloksesta, joten en nopeuta urakkaa säheltämällä koealuetta läpi.

119 BG
-

120 BH
Joskus yritän vain pakottaa itseni lukemaan. Jos se ei onnistu, menen yleensä noin tuntia aikaisemmin koetta koululle kertaamaan pääasioita ja kyselemään muilta vastauksia ongelmiini. Muuten menen vaan kokeeseen ja teen sen parhaani mukaan.

121 BI
Sanon itselleni, että jos et pääse tästä kurssista läpi, niin sun pitää tehdä se uudestaan. TAI jos tämä tahti jatkuu en pääse ikinä pois koulusta. Minulla ei ole minkäälaista oppi-strategiaa.

122 BJ
Siivoan työpöytäni. Levitän sille tenttimateriaalin (kirjan, muistiinpanot, lyijykynän, kuulakärkikynän, paperia). Avaan kirjan sisällysluettelon. Poimin 3-5 kokonaisuutta (riippuen alueen luonteesta). Kirjoitan niistä muistiinpanot muistini avulla lyijykynällä. Sitten tarkistan kirjasta ja korjaan kuulakärkikynällä. Lopuksia kokoan ajatukseni, painan korjaukset mieleeni, selaan vielä kirjaa. Jos aikani ei riitä musitiinpanojen kirjoittamiseen, teen saman asian mielessäni ja kirjoitan vain asiat joissa muisti petti. Tässä on kuitenkin vaikeutena se, että ajatukseni harhailevat, jos en kirjoita. Tämä metodi sopii esim. historiaan, biologiaan ja uskontoon. Matematiikkaan ja fyksiikkaan valmistaudun laskuja laskemalla. Motivoin itseäni sillä, että saan kokeesta onnistumisen tunteen ja hyvän arvosanan, jos luen.

123 BK
Ajattelen että on parempi ”kärsiä” tämä yksi ilta tehokkaasti työskentelemällä ja saada homma pois päiväjärjestyksestä, kuin reputtaa ja joutua uusintoihin/käymään kurssi uudelleen. Jälkimmäiseen vaihtoehtoon kuluisi sentään monta iltaa!

124 BL
Suljen itseni huoneeseen, jossa on vain pöytä ja tuoli ja jotain syötävää.

125 BM
Luen tunnin kaksi tehokkaasti, käyn syömässä välipalaa, jatkan lukemista kertaillen pääkohdat (silmäillen tekstiä). Lopetan lukemisen ja menen katsomaan televisiota tai käyttämään tietokonetta ja sitten nukkumaan.

126 BN
Pakotan itseni lukemaan ajattelemalla kokeesta tulevaa numeroa, joka on suoraan verrannollinen työn määrään. Yleensä tyydyn kuitenkin vain lukemaan, enkä käytä mind-mäppejä tai muita opiskelu-tekniikoita.

127 BO
Luen pienissä osissa.

128 BP
Pakotan itseäni lukemaan vaikka en pystyisikään keskittymään, mutta jos TV:stä tulee lätkämatsi, niin minun on pakko katsoa se vaikka lukisin samalla kokeeseen.

129 BQ
Teen opiskelusta hauskaa (esim. piirrän kirjoihin), pidän useita taukoja. Näin saan kirjan selatuksi nopeasti läpi, vaikka onkin parempaa tekemistä. Jos kurssi on kiinnostava niin luen kokeeseen.

130 BR

Luen rauhallisessa paikassa ja sanon itselleni, että teen kaikkea mukavaa, vasta ja vasta luettuani kokeeseen. Luen koe-alueen aluksi läpi nopeasti.. Sitten muistelen, mitä muistan ja teen joitakin muistiinpanoja, sitten luen alueen uudelleen. Syön usein lukiessani.

131 BS
Valmistan jotain pientä purtavaa, sekä kupin kahvia, unohdan muun ja rupean lukemaan. Koska äidinkieli on kiinnostava aine, ei minulla ole yleensä ole ongelmia lukemisen kanssa. Keskityn lukemaan ja välillä mietin sen sisältöä. Motiivi on tulevaisuus – kannattaa opiskella, jotta se olisi valoisa! Haluaisin tulkiksi, joten äidinkieli on siltäkin kannalta katsottuna tärkeä aine.

132 BT
Teen sen kun jaksan, sitten teen muuta ja ennen nukkumaanmenoa kertaan ja toivon ehtiväni lukea vielä seuraavan päivän koetta ennen olevana välkkänä.

133 BU
Luen ensin jonkin aikaa kokeeseen, sitten teen välillä jotain mielenkiintoista ja sitten luen jälleen kokeeseen.

134 BV
Luen mieluummin kokeeseen ja teen sitten seuraavana päivänä jotain mielenkiintoista.

135 BW
Jos kyseessä on matematiikka lukeminen jää lyhyeen, mutta minulle tärkeämpien aineiden ollessa kyseessä (eli kaikki muut aineet). Keitän kupin kahvia, nautin siitä ja rupean töihin. Muut tekemiset saavat odottaa. Motivaationi on tulevaisuus, jos en nyt tee töitä se on kohta myöhäistä. Keskityn mahdollisimman hyvin ja alleviivaan tärkeimmät asiat. Muistiinpanojen läpikäyminen auttaa asiaa huomattavasti.

136 BX
Alleviivaan tärkeimmät asiat (luen niitä läpi). Matematiikassa yritän laskea mahd. paljon ja katson kirjan antamia esimerkkejä. Luen vain mielestäni tärkeimmät asiat. Yleensä aloitan lukemisen jo muutamaa päivää aikaisemmin.

137 BY
Menen aikaisin nukkumaan ja luen aamulla.

138 BZ
Pakotan vain itseni lukemaan. Luen ensin koealueen läpi sitten teen tärkeimmistä tiedoista muistiinpanot ja luen niitä. Lupaan itselleni tauon tai jotain hyvää.

139 CA
Teen itselleni hyvän ruokavaraston ja vetäydyn huoneeseeni opiskelemaan.

140 CB
Vetäydyn johonkin rauhalliseen paikkaa lukemaan ja laitan TV:n äänettä päälle.

141 CC
Menen omaan huoneeseeni ja luen. En anna mitään häiritä minua. En edes katso mitä muut tekevät, enkä vastaa puhelimeen. Haluan olla yksin, se on ainoa keino, että pystyisin kehittynään – rauhallisuus.

142 CD
Yritän ajatella, että on pakko lukea, jotta saisi edes kohtuullisia arvosanoja. Joskus on kyllä erittäin vaikea löytää motivaatiota.

143 CE
Haen keittiöstä syötävää ja juotavaa, sulkeudun huoneeseen ja pistän musiikin tarpeeksi kovalle, jotta en kuule muita kodin ääniä (esim. TV). Alleviivaan tärkeät asiat, luen vihkomuistiinpanot ja luen alleviivaukset. Matematiikassa lasken ensin helppoja laskuja ja sitten siirryn vaikeampiin. Aamulla bussissa luen vihkomuistiinpanot ja kiroilen.

144 CF
Yleensä mietin, että minun on suorastaan PAKKO lukea, sillä luettavaa on paljon eikä se tietenkään onnistu hetkessä. Joskus pyydän perheenjäseniä esim. kieltämään TV:n katsomisen siltä varalta, että sitä yrittäisin. Aika usein kyllä luovun lukemisesta jonkun muun asian varjolla.

145 CG

Yleensä olen selviytynyt erinomaisestikin kokeesta vaikka luen vasta edellisenä iltana. Ensinnäkin luen vihon tarkasti läpi muutamaan kertaan ja pyydän joitakin (esim. äitiä) kyselemään. Silmäilen kirjan läpi ja luen asiat joita tunneilla on käsitelty. Kirjoitan muistiinpanoja ja luen niitä sitten aamulla.

146 CH
Käytän aikaani yrittäessä keksiä jotakin ”hyödyllistä” tai tärkeää tekemistä, jotta ei tarvitsisi lukea ja jos lopulta päädyn lukemiseen, ja kello jo niin paljon, että minua väsyttää, enkä jaksa keskittyä lukemiseen. Koulumatka ja aamu menee hermoillessa ja miettiessä, miksi ihmeessä en ole lukenut enemmän. Aamuisin motivointi opiskeluun on huipussaan. Kaksi peräkkäistä nelosta aiheuttaa etenemisesteen ja todennäköisen tippumisen pitkän matikan ryhmästä.

147 CI
Menen huoneeseeni lueskelemaan kokeeseen ja otan illan rennosti.

148 CJ
Tavallisesti kun on valmistauduttava kokeeseen, eiole mitään joka voisi häiritä minua!

149 CK
Jos luettavaa on paljon, lähden pois kotiympäristöstä, esim kirjaston kahvilaan, jossa on rauhallista, eikä muuta tekemistä kuin lukea (teen oloni mukavaksi: tarpeeksi syötävää ja juotavaa). Silmäilen tekstit ensin, teen muistiinpanoja, jäsentelen tärkeimmiltä tuntuvat asiat. Motivoin itseni opiskelemaann, sillä etten halua mennä uusintakuulusteluun.

150 BL
I sit down and read my notes, books, etc… And occasionally will write notes. I will close the door to my room and will usually put on some background music. If I feel that the test will be very hard it will light insence and writing, reacting and underlining until I feel Iknow the material it procrastinate and have a very bad conscience.

151 BM
I get scared. I make sure that I feel the urgency of the situation. I find that I can work better if there is a set deadline and I‘m under pressure: Idon‘t necessary think of the consequences of getting a loy mask but moreover thing of the need for a good mark. Under these circonstances I find that not only can I concentrate more, I can also work later.

152 BN
Clear my desk of anything that could distract me, make a cup of tea, sit down and work.
153 BO
I try to divide up the time, giving myself (e. g.) ½ an hour of studying, then some rest and leisure, then some more study. I reward myself with Cadbury‘s Dairy Milk chocolate.

154 BP
Relire that if I don‘t I‘ll fail.

155 BQ
For maths, only minimal study time is needed.

156 BR
I refuse to let other activities interfere with my studyjing. I have frequent breaks to conserve „mind energy“, so that I can boost my intellectual performance.

157 BS
Sit down read what I have to lear, take break, resd again making notes, go over notes several times.

158 BT
Listen to music and go other notes make sure I am prepared.

159 BU
I find hard to control what enters my mind sometimes so I put some classical misic on which helps me to concentrate and generally puts meat ease. Then I dit and concentrate until Iam sure that my mind will not wander again. Then I get on with studying.

160 BV
Drink coffee and refuse to let myself get out of my chair. I also set my alarm clock, so after about ½ hour I can have a break. Not that it always works…

161 BW
I enjoy myself first, then it gets to really late at night, I try and get a bit of learning done, I find it much easier to concentrate when everyone is asleep and it is night.

162 BX
Study for ½ an hour periods with 10 minutes intervals for relaxation etc…

163 BY
Read all my revision notes and try to remember the ideas. Then, do something else to relax. Afterwards, come back to my notes to see what I remember, and what I must still revise.

164 BZ
Study for an hour, short break, study for an hour, short break, relax for an hour, look over notes once more bed, coffee in the morning. I forme myself in study by promising myself rewards.

165 CA
I go to my room and start to study, because if I have to learn for an (important) test I can always concentrate on what I have to do.

166 CB
Unfortunately I often succumb to the temptations of TV, music, and food. As a result I often and up trying desperetely to revise two minutes before the exam starts. This is especially time for subjects like maths, which I am forced to do but can‘t stand. For the subjects I enjoy, however, I work much harder. I suffer from a serious lack of motivation when it comes to studying the subjects I don‘t like or can‘t really understand.
167 C/C
Ijust set myself a time limit and a goal whichever I reach first. I finish. I take breaks and go and do something else for 10 minutes.

168 C/D
I go for a walk after school, sometimes learn on the way or shut myself in my room and the pages in stages, making a few notes(but not copying from the text) and then walk a bit, going through what I‘ve just learnt.

169 DS/CE
Haluan olla ahkera ja pelosta saada huonoja numeroita on „pakko“ lukea. Palkitsen itseni ruualla ja herkuilla.

170 DS/CF
Kerään kaikki kirjat ja menen hiljaiseen huoneeseen, missä ei ole muita „virikkeitä“. Aluksi pakotan itseni lukemaan, mutta „vauhtiin“ päästyäni ei ole enää vaikeuksia keskittyä ja silloin haluaa jo oppia asian ja saada kaikki luettua.

171 DS/CG
Menen jonnekin paikkaan joka vähiten minua näistä virikkeistä muistuttaa ja päätän jonkun kellonajan, jolloin lopetan.

172 DS/CH
Mietin itselleni tarkat tavoitteet, mitä aion illan aikana koealueesta oppia. Tämän tehtyäni selailen koeaineiston läpi muodostaakseni kokonaiskuvan. Nyt tiedän tarkasti mitä luen ja missä järjestyksessä, näin vältän myös paniikin liiallisen lukutaakan edessä.
Saadakseni lukuni suoritettua, en lipsahda ajattelemaan mitään „sijaistoimintoja“ vaan keskityn täysipainoiseen lukemiseen noudattaen omia hyväksihavaitsemiani lukutekniikoita muistaen pienet „palautumispaussit“ n. 40 minuutin välein.

173 DS/CI
Sallin taon, mm. Syön jotain hyvää tai lue lehtiä ym. Sitten pakotan itseni lukemaan tietyn asian kunnes osaan sen. Sitten pidän taas tauon ja juttelen vaikka kavereiden kanssa puhelimessa kuinka hirveä koe on ym. Heti on parempi mieli, jos kaverit osaavat lohduttaa ym. Ajattelen mitä mukavaa teen kokeen jälkeisenä iltana ja sitten kärsin koko kokeeseenlukuillan.

174 DS/CJ
Menen omaan huoneeseen, sammutan telkkarin ja radion, otan kaiken tarvitsemani materiaalin esille ja päätän keskittyä vain aiheeseen.

175 DS/CK
Teen kompromissin esim. Luen alueen läpi kerran, sitten saan rehtoutua hetken, kertaan pääasiat mielessäni, jos asiat ovat selviä, voin tehdä mitä huvittaa.

176 DS/CL
Hoidan pakolliset kotiaskareet alta pois. Sen jälkeen potkin vanhemmat ulos. Sammutan radiot, telvisiot ja tietokoneen.

177 DS/CM
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178 DS/CN
Pakotan itseni lukemaan...

179 DS/CO
Selailen kirjaa ja muistiinpanojani ja muuta materiaalia. Katson pääaiheet ja otsikot ja kirjoitan aiheet ylös. Syvennyn ja luen tekstin ja kaiken aineiston läpi ymmärtäen. Kirjoitan yhteenvedon, jota lueskelen vielä ennen koetta. Mietin millaisia asioita opettaja saattaisi kysyä ja painan mieleeni mielestäni koealueen tärkeät asiat.

180 DS/CP
Täytyy vaan muistuttaa itseään jokaisen kokeen merkityksestä tulevaisuudelle. Jaan luettavan koealueen tekstin jaksoihin ja pyrin lukemaan/selvittämään jakson kerrallaan.

181 DS/CQ
Ajattelen, etä siihen kokeeseen on nyt vaan luettava!

182 DS/CR
Yritän keskittyä ja motivoin itseäni lupaamalla itselleni että tunti vielä tai että huomenna ei tarvitse lukea.

183 DS/CS
Ich zwinge mich dazu mich auf meine Arbeit zu konzentrieren. Oft mache ich mir Notizen, damit erleichtere ich mir die Arbeit.

184 DS/CT
Ich zwinge mich einfach. Die intressanteren Sachen kann ich auch am nächsten Tag iledrgen.

185 DS /CV
Wartscheinlich wurde ich gehen um etwas anderes interessanteres, zu tun, Z.B. Cidre mit Freunden trinken agehen oder ins Kino gehen. „Aus die Prüfung kann ich mich nich später vorbereich“ – würde ich wir sagen, oder „Es ist janur eine Arbeit...“. Ich verlasse mmm auf meine Kartuisse viel gehe und nach etwas anderes/annuaires nich mit Freunden.

186 DS/CV
Ich besäftige mich wahrscheinlich mit etwas anderen, dann beim Bett gehen lese ich, oder ich rufe einen Freund an, des es mir erklären kann. AUUU wenn es eine wirklich schwere arbeit ist, dann gehe ich zu mein Zimmer und fange mit dem Reinen sofort an. Ich schaffes, weil ich denke, dass sonst nichs aus mir wird, und mein Traum, nach Kanada zu gehen, wurde sich nich erfäller.

187 DS/CW
Ich schlieffe mich in mein Zimmer ein, und bitte mich nicht zu hören. Denne setze ich mich an den Screibtisch und beginne mit den einfachsten Dingen. Ich motiviere mich, inlern ich mir ab und sage, das ich es mus einmal lernen muss.

188 DS/CX
Ich versuche zu lernen, damit ich später kein sclectes Gewissen habe und das ich sozusagen „stolz auf meinen Willen sein kann.“ Auβerdem denke ich an meinen vorherigen „nicht so guten“ Schulerfolg (Andere Fächer sind hiermit gemeint). Aber schlieβlich sage ich mir selber, daβ die Schule nich das wichtigste im Leben ist

189 DS/CY
Ich versuche zu lesen, weil ich weiβ das die Arbeit für mich wichtig sind. Die anderen Dinge kann ich ja verschieben und am anderen Tag machen.

190 DS /CZ
Ich arbeite das Material durch und mache mir Notizen (um am Morgen im Zug noch lernen zu kännen) Ich mache Ubungsaufgaben.

191 DS/DA
Ich sage mir, daβ die Prüfung wichtig ist. Mein wille is so stark, daβ ich dann auch lernen kann.

192 DS/PB
Ic habe mich schon einige Tage früher für diese Arbeit vorbereitet. Also findet sich schon ein Grundwissen. Den Abend verbringe ich in der Bibliothek und lese dort. Ich gehe früh schlafen und entspanne mich und verlasse mich darauf, daβ ich alles nötige kann.

193 DS/DC
Ich motiviere mich folgendenmachen:
ich habe meine möglichkeit die Prüfung zu wiederhaben
Meine noten im diesen Jahr beeinflussen schon mein Abiterzeugnis
Ca. 50 % der Zeugnisnote weden van den Arbeitsleistungen beinflusst.

DS/DD
Ich lerne, made aber awudendurch immer etwas anderes. Motivation? Da die letzte Arbeit sehr schlecht ging, zwinge ich mich, für diese Arbeit zu lernen, und hoffe, daβ sie gut geht...

195 DS/DE
Es bereites mir meistens kein Problem, wenn ich für eine Prüfung lernen muss und dieser sachverhalt, die Dringlichkeit des Lernens, mir bewusst ist. Schewieriger ist es, wenn das Lernen keine Notwendigkeit ist, die Prüfunf nich am folgen Tag stattlindet.

196 DS/DF
Ich swinge mich für die Prüfung zu lernen und sage mir, dass ich später noch Zeit für die interessanten Dingen finden werde.

197 DS/DG
Ich mag Mathematik und dafür bereitet es mir keine groβen Probleme dafür zu motivieren und ausβerdem komme ich meistens mit dem Staff klar, ohne gröβere Schwierigkeiten zu haben. Ich übe und zwischen durch lerne ich mich ab und mache etwas anderes, danach ist es wieder leichter zu lesen.

198 DS /DH
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