

**MOTIVATIONAL ORIENTATION, LEARNING
STRATEGY AND ACADEMIC ACHIEVEMENT
AMONG HIGH SCHOOL STUDENTS
IN NORTHERN SHOA**

**BY
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**SCHOOL OF GRADUATE STUDIES
ADDIS ABABA UNIVERSITY**

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ABSTRACT

The first purpose of this study was to investigate gender-related grade level differences in academic motivational and learning strategy components among 8th, 9th, 10th and 11th graders in Northern Shoa region. The second purpose was to examine the relations between these motivational and learning strategy variables and academic achievement at each grade level. An Amharic version self-report measure of student intrinsic value, self-efficacy, test anxiety, cognitive strategy use, and self-regulation was administered to a random sample of 391 boys and 366 girls from 5 randomly selected secondary schools and data on academic achievement were obtained from school records. Analysis of variance, correlation and regression analyses were employed on the data. ANOVA results indicated statistically significant grade level difference (at .05 level) only in self-efficacy between 8th and 11th graders. Statistically significant gender differences were found in self-efficacy, test anxiety, cognitive strategy use and self-regulation. All significant differences were in favor of males. There was a significant interaction between grade and sex only in cognitive strategy use. Results of correlation analyses indicated that self-efficacy and intrinsic value were positively related to cognitive engagement and academic achievement while test anxiety was related to these variables negatively at each grade level. Regression analyses revealed that self-efficacy and test anxiety were the best predictors of academic achievement at all grade levels. The motivational and learning strategy components, when combined together, revealed statistically significant relationships with academic achievement in all grades. It was concluded that the differences in students' motivational orientations and learning strategies were not only due to grade level and sex, but also due to other variables which influence students' motivational beliefs and learning strategies. Students with motivational orientations involving self-efficacy and intrinsic value use appropriate learning strategies and appear to be successful learners. Very test anxious students seem to use defective learning strategies and show poor academic performance. Practical implications of the findings are indicated.

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LIST OF ABBREVIATIONS

MSLQ - Motivated Strategy for Learning Questionnaire

SE - Self-efficacy

IV - Intrinsic Value

TA - Test Anxiety

CS - Cognitive Strategy use

SR - Self-regulation

Se - Standard error of estimate

CHAPTER ONE

INTRODUCTION

1.1 Background to the Problem

Different investigators (e.g., Ames & Archer, 1988; Meece, Blumenfeld & Hoyle, 1988) suggest that students with a motivational orientation involving goals of mastery learning, and challenge as well as beliefs that the task is interesting and important, will engage in more metacognitive activity, more cognitive strategy use and more effective effort management.

Although there are classroom situations and tasks that can foster motivation, there is also evidence to suggest that students' perceptions of the classroom as well as their individual motivational orientations and beliefs about learning are relevant to cognitive engagement and academic performance (Ames & Archer, 1988). In connection with this, Mekonen (1987) also indicated that non-cognitive factors, such as affective dispositions, feelings, attitudes, interests and motivations constitute conditions that facilitate or inhibit cognitive achievement.

Nowadays, the concern for academic work represents a relatively new emphasis in educational research. Traditionally, investigators have concentrated on general characteristics or instructional programs, such as the amount of praise, the frequency and types of questions, time spent lecturing and ways of providing feedback and reinforcement (Anderson et al., 1969; Rosenshine, 1971). Recently, however, attention has expanded to include student perceptions and behavior in classrooms as well as the cognitive operations involved in learning the curriculum (Anderson et al., 1977; Doyle, 1983; Levine & Wang, 1982; Weinstein, 1982). With this expansion has come an awareness of the need to understand the intrinsic character of academic work and how that work is experienced by students in classrooms.

Furthermore, some recent research findings (Pintrich & DeGroot, 1990) indicated that students' learning strategies were positively and strongly related to their efficacy beliefs about their capability to perform tasks and their beliefs that these classroom tasks are interesting and worth learning, but negatively associated with their emotional reactions to the tasks. Blumenfeld et al. (1982) also pointed out that students' motivational beliefs are not sufficient for successful academic performance; learning strategy components seem to be more directly implicated in performance. According to these investigators, it seems, students need to have both the "will" and the "skill" to be successful in classroom academic performance.

Doyle (1983) suggested that the focus on classroom assessments of students' performance reflects a concern for ecologically valid indicators of the actual classroom academic work that students are asked to complete different grade levels. Stiggins and Bridgeford (1985) also indicated that most students spend a great deal of classroom time on seatwork, assignments, quizzes, teacher-made tests, lab-problems, essays, and reports than on standardized achievement tests. In addition, Calfee (cited in Pintrich & DeGroot, 1990) explains that the classroom assignments of students academic performance may not be the most psychometrically sound assessments, but they are closely related to realities of instruction and learning in most classrooms. With reference to this, Doyle (1983) and Pintrich et al. (1986) proposed that if it is to develop models of students' motivation and learning strategy that are relevant to much of the academic work in classrooms, then it is important to examine student performance on these types of academic tasks. Furthermore, other studies (Weinert, 1987; Pintrich & DeGroot, 1990) indicated that it is important to examine how the components of learning strategy are linked to individual differences in student motivation to understand how personal characteristics are related to students' cognitive engagement and classroom academic performance.

The theoretical framework for conceptualizing student motivation is based on a general expectancy-value model of motivation (Eccles, 1983; Pintrich, 1988) which was adapted by Pintrich and DeGroot (1990) and re-adapted for the purpose of the present study. The model proposes that there are three motivational components that may be linked to the components of learning strategy (metacognitive, effort management and cognitive strategies): (a) an expectancy component, which includes students' beliefs about their ability to perform a task (self-efficacy) (b) a value component, which embraces students' goals and beliefs about the importance and interest of the task (intrinsic value), and (c) an affective component, which includes students' emotional reactions to the task (test anxiety).

Different research findings mentioned above explored that these motivational and learning strategy components and academic achievement are intricately intertwined so that they tune and affect each other. Therefore, it appears that they are among the current areas of research emphasis to be investigated for further refinement in order to improve the teaching-learning process.

Apart from investigating the relationships among the aforementioned variables, other studies (Benenson & Dweck, 1986; Nichols, 1976; Zimmerman & Martinez-Pons, 1990; Bandura, 1986; Shell, Colvin & Bruning, 1995; Harter, 1981; Eccles et al., 1984; Hembree, 1988; Hill, 1972, 1980) concerned with the developmental trends of the motivational components and revealed inconsistent results. For instance, the developmental pattern of students' self-efficacy was investigated by Benenson and Dweck (1986) and Nichols (1976) and concluded that it declines with advancing grade level. On the other hand, other researchers (Zimmerman & Martinez-Pons, 1990; Bandura, 1986; Shell, Colvin & Bruning, 1995) indicated that self-efficacy increases with an increase in grade level. Harter (1981) and Eccles et al. (1984) found that children's intrinsic motivation declines with increasing grade level. With respect to test anxiety, Hembree (1988) showed that it decreases or becomes stable as grade level increases.

But, other different studies (Hill, 1972, 1980) pointed out that it increases with an increase in grade level. Similar arguments were made concerning gender differences in these motivational components, and these are given in chapter two of this paper.

With regard to the developmental trends of learning strategies, previous studies (Zimmerman & Martinez - Pons, 1990; Naus, 1982; Keeney, Cannizzo, & Flavel, 1967; Johnson, 1980; Gagne, 1985) concluded that as students advance through different grade levels they show improvements in their learning strategies. However, regarding sex differences in learning strategies inconsistent results were found. For instance, Pintrich and DeGroot (1990) reported that boys are better than girls in using cognitive strategies and self-regulation. But, in contrast to this, Pokay and Blumenfeld (1990) and Zimmerman and Martinez-Pons (1990) indicated that girls make more use of cognitive strategies and self-regulation than boys do.

Other investigators (Paris & Oka, 1986; Bandura, 1986; Stipek, 1993) proposed that as children age, their motivational beliefs are more strongly related to their school achievement. But, Shell et al. (1995) found similar relationships between students motivational beliefs and their achievements in reading and writing at different grade levels.

In sum, these inconclusive or inconsistent research findings with respect to the developmental patterns of motivational and learning strongly components indicate the need for further investigations of these variables since they are closely related to school achievement.

Although different investigators mentioned above indicated that motivational and learning strategy components are strongly related to school achievement and their developmental trends are inconclusive and need further research, the explorations of relationships between these variables and the investigations of their developmental patterns among high school students of

developing countries like Ethiopia have been limited. In Ethiopian context, the issue has received little or no research attention. The present study, therefore, focuses on important and unexplored research questions which have implication to teaching-learning process, especially at high school level.

1.2 Statement of the Problem

The first purpose of this study was to examine grade level and gender differences in students' academic motivational orientations (self-efficacy, intrinsic value, test anxiety) and learning strategies (cognitive strategy use, self-regulation), and the second purpose was to investigate the relations between these motivational and learning strategy components and how they operate independently or jointly to influence students' academic performance in classroom at different high school grade levels. Apart from this, it was to compare the results found in Ethiopia using the instrument MSLQ (Motivated Strategy for Learning Questionnaire) developed by Pintrich and DeGroot (1990) with the findings in other countries and to investigate the reliability and validity of the instrument in a country with a low supportive environment, like Ethiopia. Accordingly, the study was designed to answer the following specific questions.

1. Do students of the four grade levels (grades 8,9, 10 and 11) significantly differ in their motivational orientations and learning strategies?
2. Do boys and girls in grades 8 through 11 show statistically significant differences in their motivational orientations and learning strategies?
3. How are the three motivational components related to the components of learning strategy at each grade level?
4. How are the motivational and learning strategy components related to academic achievement across grade levels?

1.3 Operational Definitions

The definitions of major terms used in the study are given below.

- (a) **Intrinsic Value:** It involves students' goals for academic tasks and their beliefs about the importance and interest of the task (Pintrich & DeGroot, 1990).
- (b) **Test Anxiety:** Students negative feelings towards a test or it is a debilitating test anxiety.
- (c) **Self-efficacy:** It is perceived competence and confidence in classroom academic work (Pintrich & DeGroot, 1990).
- (d) **Metacognitive Strategy:** It refers to students' planning, comprehension monitoring, skimming, evaluation of students' self-cognition and modifying their cognition (Dembo, 1994).
- (e) **Cognitive Strategy Use:** It is what students use to learn, remember, and understand the material (what is taught by the teacher) which includes the use of rehearsal strategies, elaboration strategies, such as summarizing and organizational strategies (Pintrich & DeGroot, 1990).

- (f) **Effort Management:** It refers to students' effort, time use, persistence at a difficult task and working diligently.
- (g) **Learning Strategy:** It refers to students' self-regulated learning which includes metacognitive strategies, effort management, and cognitive strategy use as collected through a Likert-type scale adapted by the investigator.
-
- (h) **Motivational Orientation:** Self-reported beliefs of students which include self-efficacy, intrinsic value, and test anxiety.
- (i) **Self-regulation:** It is students' learning strategy which includes metacognitive strategy and effort management (Pintrich & DeGroot, 1990).
- (j) **Academic Achievement:** It refers to the students' actual classroom academic performance which is indexed by the overall average grades on their report cards.
- (k) **High School:** It refers to junior and senior high schools (grades 8 through 11).

1.4 Significance of the Study

As it was aforementioned, little or nothing is known about the developmental patterns of motivational and learning strategy variables, and their empirical relationships with each other and academic achievement have not yet

been explored among high school students in Ethiopia. The present study is, therefore, expected to have the following theoretical and practical contributions.

1. The study would have some contributions in the sense that the results could shed some light on the problems mentioned above.
2. Additional information could be found concerning the appropriateness of the MSLQ in cross cultural studies.
3. The study may make teachers aware of the importance of students' motivational orientation and learning strategies in the teaching-learning process. In this case, it may help teachers identify instructional methods that enhance students' motivation and learning strategy.
4. It may throw light on the employment of the Motivated Strategy for Learning Questionnaire (MSLQ) for different purposes, such as prediction of academic success and guidance and counseling services.
5. Educational decision makers may make use of the results of this study in supporting the teaching-learning process.
6. Students are also the beneficiaries of the results of this studies. The outcome of the study may help students give attention to their motivational orientation and learning strategies which are important in learning.
7. The study may also help as a basis for further research in this area.

1.5 Delimitation of the Study

This study is limited to students of grades 8 through 11. Grade 12 students were not included in the study, because when the questionnaire was

distributed they had already left schools after taking the national examination (ESLCE). The main reason why only this region was chosen is to make the study manageable relative to the time constraint and to minimize the problems of some intervening variables.

Pokay and Blumenfeld (1990) pointed out, even though this is not true in Ethiopian context, that most researchers seem to recognize the empirical relationships between motivational and learning strategy variables and academic performance in elementary schools. They further indicated that particularly studies involving strategy use have generally excluded the high school years and have focused instead on early grades or college age. But, given that the developmental differences have been found in this area, it is clear, the strategies and motivational orientations used by this age group might provide a link between the ages usually studied and this age group. This is one reason, apart from time constraint and the problems pertaining to grade 12 students, why the present study is limited to grades 8 through 11. Another reason why the study was limited to these grades is in line with the aim of the study to investigate the developmental trends of motivation and learning strategy variables and the changes (if any) in the relationships between these variables and their impact on academic achievement as students proceed from junior to senior high schools.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Background of Motivational and Learning Strategy Variables: An Overview

2.1.1 The Nature and Meaning of Self-regulated Learning (Learning Strategy) in Academic Performance.

There are a variety of definitions of self-regulated learning, but three components seem especially important for classroom academic performance. First, it includes students' metacognitive strategies for planning, monitoring, and modifying their cognition (Corno 1986; Zimmerman & Pons, 1986, 1988). Students' management and control of their effort on classroom academic tasks has been proposed as another important component. . For example, capable students who persist at a difficult task or block out destructors, such as noisy classmates maintain their cognitive engagement in the task, enabling them to perform better (Corno, 1986; Corno & Rohrkemper, 1985). A third important aspect of self-regulated learning that some researchers have included in their conceptualization is the actual cognitive strategies that students use to learn, remember, and understand the material they learn (Corno & Mandinach, 1983; Zimmerman & Martinez-Pons, 1986, 1988). Different cognitive strategies such as rehearsal, elaboration, and organizational strategies have been found to foster active cognitive engagement in learning and higher levels of achievement (Pintrich & DeGroot, 1990). These three components constitute the working definition of learning strategy (self-regulated learning) in the present study.

Corno and Mandinach (1983) described how self-regulated learning arises, is sustained, and yields achievement over the course of instructional experiences. They characterized self-regulated learning at two levels: as a number of distinct, relatively small-grained cognitive components; and as two larger-grained sets of those small-grained components, acquisition and

transformation processes (see Appendix F for the details). The small-grained cognitive components of acquisition were labeled attending, rehearsing, monitoring, and strategic planning. The small-grained components of transformation were labeled selecting, connecting, and tactical planning.

By distinguishing high versus low usage of larger grained acquisition and transformation processes and, to a lesser extent, differential profiles of the various small grained components, Corno and Mandinach (1983) proposed four qualitatively different approaches, called forms of engagement, that students can adopt while learning in classrooms: recipience, resource management, task focus, and comprehensive engagement. Corno and Mandinach hypothesized that forms of engagement would predict how students cognitively engage in tasks and thus influence their achievements. They predicted that learners achieve more (a) by adopting a task focus of comprehensive form of engagement for complex tasks and (b) by shifting smoothly among all forms of engagement as their motivation and requirements of tasks dictated. Learners who were less self-regulated were theorized to adopt a more passive and less flexible approach to learning: thus they exhibit mainly recipient engagement or, if highly motivated, resource management.

Support for Corno and Mandinach's (1983) predictions has emerged in subsequent theoretical analyses (Iran-Nejad, 1990; Mc combs & Marzano, 1990; Zimmerman, 1989b); in a few empirical studies of students' approaches to learning in general (Anderson et al., 1988; Pintrich & Debroot, 1990); and in some studies of rather specific motivational, cognitive, or behavioral aspects of learning (Schunk, 1984; Zimmerman & Martinez-Pons, 1986, 1988). However, despite the seminal role that Corno and Mandinach's model has played in writings of about self-regulated learning, the model has not yet been directly validated empirically (Howard-Rose & Winne, 1993).

On the other hand, it was suggested by Dembo (1994) that successful learners use a large number of “tools” to make school work easier and increase the probability of their success and educational psychologists call these tools learning strategies. Dembo (1994, p.158) summarized a number of important learning strategies which include: cognitive strategies that help students learn, remember, and understand course material; metacognitive strategies which enable students to plan, monitor, and regulate their cognition (thinking); resource management strategies which help students persist at difficult tasks, seek help from others (See Table A on the next page).

In general, it seems that, nowadays, effective use of learning strategies has emerged as a critical variable in recent models of human learning. However, knowledge of cognitive, metacognitive and resource management strategies is usually not enough to promote student achievement; students also must be motivated to use the strategies as well as regulate their cognition and effort (Pintrich, 1988, 1989, 1990).

Table A
A Taxonomy of Learning Strategies

1.	Cognitive Strategies	Basic Tasks (e.g., Memory for lists)	Complex Tasks (e.g., text learning)
1.1	Rehearsal strategies	Reciting list	. Copying material . Verbatim note taking . Underlining text
1.2	Elaboration Strategies	Mnemonics Imagery	. Paraphrasing . Summarizing . Note taking . Creating analogies . Answering questions
1.3	Organizational Strategies	Clustering Mnemonics	. Selecting main idea . Outlining . Mapping
2.	Metacognitive Strategies		All Tasks
2.1	Planning strategies		. Setting goals . Skimming . Generating questions
2.2	Monitoring strategies		. Self-testing . Focusing attention . monitoring comprehension . Using test taking strategies
2.3	Regulating strategies		. Adjusting reading rate . Rereading . Reviewing . Using test-taking strategies
3	Resource Management Strategies		All Tasks
3.1	Time management		. Scheduling . Setting goals
3.2	Study environment management		. Finding defined area . Finding quiet area . Finding organized area
3.3	Effort management		. Attributions to effort . Dealing with mood . Using self-talk . Using self-reinforcement . Showing persistence
3.4	Support of other		. Seeking help from teacher . Seeking help from peers . Using peer/group learning

Source: Dembo (1994, p.158)

2.1.2 The Nature, Meaning, and Development of Academic Motivational Orientation

Two orientations have dominated teachers' traditional thinking about motivation. The behavioral approach view motivation in terms of intensity and duration of behavior. The student who works harder and longer on a task is perceived as more motivated than the student who fails to expend similar energy and persistence and finding appropriate incentives or reinforcers to maintain task behavior is an important aspect of this approach (Dembo, 1994).

The second orientation derives from the work by Atkinson (1964) and McClelland (1965), who view motivation as an unconscious drive or need that is socialized early in a child's life. This view closely aligns motivation with the study of personality and from this perspective, responsibility for increased academic involvement rests with students. Since motivation is strongly influenced by child-rearing experiences, teachers are limited in what they can do to change achievement motivation. In this respect, Dembo (1994) states that teachers often complain about students' family backgrounds and lament over them.

Machr (cited in Dembo, 1994) points out the inherent problem with this perspective: "If one assumes that motivational change only comes through personality change, one inevitably accepts a certain fatalistic outlook as a teacher. How many personality changes can a teacher--or even the best special education program--affect in a given year?" (P.147).

The third recently explored--the cognitive view of motivation (see, e.g., Ames & Ames, 1984,1989), in which the teacher is concerned with cognitive mediational processes - deals with the personal explanations for success and failure and information -processing that occur in instructional settings. In this

- (c) an affective component, which deals with students' emotional reaction to the task.

2.1.2.1 Self-efficacy

The expectancy component of student motivation has been conceptualized in a variety of ways in the motivational literature (e.g., perceived competence, self-efficacy, attributional style, and control beliefs), but the basic construct involves students' beliefs that they are able to perform the task and that they are responsible for their own performance (Pintrich & DeGroot, 1990). In this sense, the expectancy component involves students' answer to the question, "Can I do this task?"

Self-efficacy which is part of expectancy component is an individual's evaluation that he or she has specific performance capabilities on a particular type of work (Bandura, 1977, 1982, 1986). Even though Bandura's theory, in this case proposed that efficacy beliefs and outcome expectancies must maintain reference to specific abilities and outcomes, Riggs et al. (1994) suggest that this goal can be achieved by creating scales that instruct subjects to refer to their own job skills or work-related outcomes without specifying them.

Perceived efficacy can influence motivation. Students with a high sense of efficacy are more likely to choose difficult tasks, expend greater effort, persist longer, apply appropriate problem solving strategies on tasks, and have less fear and anxiety regarding tasks than are students with a low sense of efficacy for a task (Schunk, 1989).

What students expect of themselves is focal in self efficacy theory (Bandura, 1977a, 1982). According to Bandura, on academic and other challenging work, effort derives primarily from expectations for success or self-

efficacy. In pointing out the importance of self-efficacy writes Bandura (1982): "There are many competent people ... plagued by a sense of inefficacy, and many less competent ones who remain unperturbed by impending threats because they are self-assured of their coping capabilities" (p.136).

In line with this, however, Schunk (1989) stated:

Self-efficacy is not the only influence on behavior. High self-efficacy will not produce competent performance when requisite skills are lacking. Outcome expectations, or one's beliefs concerning the outcome of one's actions, also are important. Individuals are not motivated to behave in ways that they believe will result in negative outcomes. Another influence on behaviour is the relative value people place on perceived outcomes, or how much they desire those outcomes relative to those of other behaviours. (P.15)

According to Schunk, therefore, assuming that people possess adequate skills, believe that positive outcomes will result, and value those outcomes, self-efficacy is hypothesized to influence the choice and direction of much human behavior.

In general, it has been suggested by different scholars (Bandura, 1977, 1982, 1986; Bandura & Cervone, 1983; Bandura, Adams, & Beyer, 1977; Schunk, 1989, 1991) that it is partly on the basis of self-percepts of efficacy that people choose what to do, how much effort to mobilize for given activities, and how long to persevere at them.

2.1.2.2 Intrinsic Value

The value component of student motivation involves students' goals for the task and their beliefs about the importance of the task. Although this

component has been conceptualized in a variety of ways (e.g., learning versus performance goals, intrinsic versus extrinsic orientation, task value, and intrinsic interest), it essentially concerns students' reasons for doing a task (Pintrich & DeGroot, 1990; Dembo, 1994). Reasons given in this case refer to students' intrinsic motivation. In other words, what are students' individual answers to the question, "Why am I doing this task?"

Goal theory is one of the most recent approaches to the understanding of achievement motivation in schools (Weiner, 1990). Goal setting controls behavior by influencing future behavior. Goals motivate individuals and provide them with information about their abilities as they attain or fail to attain their goals. More important, achievement goals determine patterns of motivation that determine how learners think about different academic activities (Ames, 1992).

According to Dweck (1985), there are two important goals which can influence students' reasons for doing a task. The first one is a mastery goal which is oriented toward learning as much as possible for the purpose of self-improvement, irrespective of performance of others. The second one is a performance goal which focuses on social comparison and competition, with the main purpose of outperforming others on the task.

Using the distinction between mastery and performance goals, one can understand how students define schooling and learning in different ways. The goal orientation that students adopt influences the effort they exhibit in learning tasks and the type of learning strategies they use. Thus, when students adopt a mastery goal orientation they are more likely to have a positive attitude toward the task (Dembo, 1994).

2.1.2.3 Test Anxiety

The third motivational component concerns students' affective or emotional reactions to the task. The important issue for the students involves the question, "How do I feel about this task?" There are a variety of affective reactions that might be relevant (e.g., anger, pride, guilt), but in a school learning context one of the most important seems to be test anxiety (Wigfield & Eccles, 1989).

Dealing with anxiety in general different scholars have suggested that for some students small amount of anxiety can facilitate learning (Sieber, O'Neil, & Tobias, 1977). If one feels confident and prepared for an examination, a little anxiety can serve as motivation to excel. However, if a person has a high level of anxiety, it can be detrimental in achievement settings (Stipek, 1988).

The type and degree of anxiety differ widely among students. For some, anxiety is a generalized fear of total school situation and for others, a fear of specific aspects of the school environment such as teachers, peers, particular subject areas, or tests (Dembo, 1994).

A long time ago, Mandler and Sarason (1952) interpreted the difference in performance on the basis of learned psychological drives. In this case, two kinds of drives were said to be evoked by the test situation, namely, task-directed drives which stimulate behaviors to reduce the drive by completing the task and learned anxiety drives that stimulate two opposite and incompatible behaviors: (a) task relevant efforts to finish the task and thereby to reduce the anxiety, and (b) self-directed task-irrelevant responses, manifested by "Feelings of inadequacy, helplessness, heightened somatic reaction, anticipation of punishment or loss of status and esteem, and implicit attempts to leave the testing situation" (Mandler & Sarason, p.166). According to these theorists,

persons with strong anxiety drives are prompted to enact the task-irrelevant behaviors that impair performance and low test anxious persons are less burdened by self-centered tendencies and can attend more easily to task-directed behaviors that enhance achievement.

Theorists after Mandler and Sarason proposed some theories and their interpretation of test anxiety was based on their behavioral interpretation. For example, Alpert and Haber (1960) proposed a bidimensional theory which labeled the drives that lead to task-directed and task-irrelevant behaviors as facilitating and debilitating test anxieties, respectively. Alpert and Haber suggested that the constructs may be independent, such that "persons may possess a large amount of both anxieties, or of one but not the other, or of none of either" (p.213).

Libert and Morris (1967), other theorists, proposed that debilitating test anxiety is itself bidimensional consisting of the components worry and emotionality. Worry is "any cognitive expression of concern about one's own performance" (p.975). Emotionality, they suggest, refers to autonomic reactions to the test situation, for example, perspiration and accelerated heartbeat.

Wine (1971) proposed an attentional theory to explain how test anxiety harms performance: Test-anxious persons divide their attention between task-relevant activities and preoccupations with worry, self-criticism, and somatic concerns and thus, with less attention available for task-directed efforts their performance is depressed.

Spielberger (1972) has distinguished between two aspects of test anxiety; namely, A-state and A-Trait anxiety. A-state is "a transitory emotional state" (p.39) of nervous reaction and tension, whereas A-Trait is a chronic anxiety proneness characterized by A-state reaction in a wide range of stimulus situations. According to trait-state theory, test anxiety is a form of trait anxiety

(Spielberger, Anton, & Bedell, 1976). In this respect, they proposed, high anxious persons respond to testing with elevations in A-state and worry is then triggered by the A-state manifestation. Hence, both emotionality and worry contribute to depressed performance.

These theories all conceptualize an inference model of test anxiety, wherein test anxiety disturbs the recall of prior learning and thus degrades performance (Hembree, 1988). This model has been challenged by continuing reports (e.g., Tryon, 1980) that treatment can effectively reduce test anxiety but better performance usually fails to accompany test anxiety reduction.

An alternative deficits model of test anxiety has been proposed wherein "the lower test scores by test anxious students are attributable to inadequate study habits, or to deficient test-taking skills" (Tobias, 1985, p.185). In this model, it has been suggested that test anxiety does not cause poor performance; the reverse is true. Awareness of poor past performance causes test anxiety.

Hill and Wigfield (1984) in dealing with debilitating test anxiety stated: "Test anxiety is one of the most important aspects of negative motivation and has direct debilitating effects on school performance" (p.106). Educators are specially concerned about this type of anxiety because it increases through the elementary grades to high school and becomes more strongly (i.e., negatively) related to indexes of intellectual and academic performance (Hambree, 1988; Wigfield & Eccles, 1989).

Covington (1992) has further proposed that an interaction model of achievement anxiety where he shows the effect of anxiety at three stages - appraisal, preparation, and test taking. Covington explains that students' motivation to succeed or to avoid failure is determined in the test appraisal stage by whether they judge the upcoming test to be a challenge or a threat. In the test preparation stage students begin studying while thinking about such things as

their ability, expectation and the futility and effectiveness of their study. Students threatened by failure may become involved in avoidance behaviors such as irrational goal setting or procrastination that will further erode their study effectiveness. Finally, in the test taking stage, students attempt to retrieve what they have learned, sometimes in the face of great physical tension and worry. According to Covington, anxiety, at this stage, interferes with retrieval of information.

In sum, different theoretical analyses mentioned above on the current students' motivational orientations and learning strategies explained the meaning, development and nature of these variables and indicated that students may adopt their own motivational orientation and learning strategies in the instructional process. It has been further noted that the components of motivational orientation, considered in the present study, (self-efficacy, test anxiety, intrinsic value), the variables of learning strategy (cognitive strategy use, self-regulation) and academic achievement have direct or indirect relationships.

2.2 Relationships Among Motivational Orientation, Learning Strategy Variables and School Performance

Modern theory and research on academic motivation have done little to clarify the role played by learning processes such as mental elaboration (e.g., Weiner, 1979; Corno & Mandinach, 1983). Similarly, studies of learning strategies rarely measure student motivational processes such as expectations (O'Neil, 1978).

It has been indicated that there is research on learning, motivation, and instruction, but studies often consider either learning or motivation variables, rather than learning, motivation and some encompassing theory (Corno & Mandinach, 1983).

This problem was further explained that research on motivation suggests students who have high expectancies for success and value the task are more likely to perform well (Atkinson, 1964; Covington & Omelich, 1979; Eccles, 1983). This approach, however, does not consider whether motivated students' increased achievement is due to their use for learning strategies.

Research on cognition has detailed differences in the strategies used by successful and less successful learners but only recently has addressed how motivation influences the use of such strategies (Paris & Oka, 1986).

It is, therefore, due to the aforementioned problems, not surprising, then, that the literature reviewed for the present study seems to provide little information about an integrated cycle of "motivated learning" in classrooms.

In this part of the paper the reviews and previous research findings, even though they are not exhaustive, focus on the following questions.

- (1) How are the three motivational components related to the components of learning strategy?
- (2) How are the motivational and learning strategy components related to students classroom academic achievement?

Some comprehensive review of literature on motivational and self-regulated learning components of classroom academic achievement concluded that knowledge of cognitive and metacognitive strategies is usually not enough to promote students' academic achievement; students also must be motivated to use the strategies as well as their cognition and effort (Paris, Lipson, & Wixson, 1983; Pintrich, 1988, 1989; Blumenfeld et al., 1982; Pintrich, Cross, Kozma, & McKeachie, 1986). In other words, students need to have both the

“will” and the “skill” to be successful in classroom academic performance (Pintrich, 1989; Paris et al., 1983).

Although there are classroom situations that can foster motivation (Corno & Rohrkemper, 1985; Malone, 1981), there also is evidence to suggest that students’ perceptions of the classroom as well as their individual motivational orientations and beliefs about learning are relevant to cognitive engagement and classroom performance (Ames & Archer, 1988; Nolen, 1988; Dembo, 1994; Pintrich & DeGroot, 1990).

More specifically reviews concluded that students who believe they are capable engage in more metacognition, use more cognitive strategy, and are more likely to persist at a task than students who do not believe they can perform the task (Finchman & Cain, 1986; Paris & Oka, 1986; Schunk, 1985; Dembo, 1994; Pintrich & DeGroot, 1990).

Regarding the value component of motivational orientation it has been concluded that, based on the previous findings, students with a motivational orientation involving goals of mastery learning, and challenge, as well as beliefs that the task is interesting and important, will engage in more metacognitive activity, more cognitive strategy use, and more effective effort management (Ames & Archer, 1988; Eccles, 1983; Meece, Blumenfeld, & Hoyle, 1988; Nolen, 1988; Paris & Oka, 1986).

Researches on test anxiety suggest that it is linked to students’ metacognition, cognitive strategy use and effort management (Benjamin, McKeachie, Lin, & Holinger, 1981; Culler & Holahan, 1980; Tobias, 1985). It has been found that although the other two motivational components generally show simple, positive and linear relations with the components of learning strategy, the results for test anxiety are not as straightforward. For instance, Benjamin et al. (1981) found that even though high anxious students seemed to be as effortful

and persistent as low anxious students, they appeared to be very ineffective and inefficient learners who often did not use appropriate cognitive strategies for achievement. On the other pole, another research (Hill & Wigfield) has explored that high anxious students are not persistent or avoid difficult tasks. This indicates that test anxiety may be related to the three components of self-regulated learning in different ways.

To investigate relationships among motivational orientation, learning strategy variables and school achievement, Pintrich and DeGroot (1990) conducted a correlational study on randomly selected grade seven students (N=173). The investigators administrated a self-report measure of student self-efficacy, intrinsic value, test anxiety, self-regulation, and cognitive strategy use and students' overall GPA was obtained from their report cards.

The results indicated that self-efficacy and intrinsic value were positively related to cognitive strategy use and performance. Higher levels of self-efficacy and intrinsic value correlated significantly with higher levels of self-regulation. But, test anxiety was not associated with cognitive strategy use. It correlated negatively with intrinsic value, self-efficacy, self-regulation and school performance. Regression analyses revealed that, depending on the outcome measure, self-regulation, self-efficacy and test anxiety emerged as the best predictors of academic performance. Intrinsic value did not have a direct influence on performance but was strongly related to self-regulation and cognitive strategy use.

In this study, the investigators also employed multi-variate analysis of variance (MANOVA) and analysis of variance (ANOVA) considering the motivational variables as independent variables after dichotomizing them by median splits as high-low and the two self-regulated variables were used as dependent variables. The multi-variate and univariate test for self-efficacy were significant. Students high in self-efficacy were more likely to report use of

cognitive strategies and self-regulatory strategies than students low in self-efficacy. The same results have been found regarding intrinsic value using both multi variate and univariate tests. Students high in intrinsic value were more likely to use cognitive strategies and self-regulation than students low in intrinsic value. However, it has been reported that the main effect for test anxiety was not significant at the multivaiaate and univariate levels.

Very recently, another study was undertaken by Pintrich, Smith, Garcia and McKeachie (1993) to investigate the internal consistency, reliability and predictive validity of the motivational Strategy for Learning Questionnaire (MslQ) among college students (N=356) who were randomly selected. In this case, however, the items of the MSLQ have been increased by adding some relevant variables to each of the five motivational and learning strategy variables which makes it different from the one which was employed by Pintrich and DeGroot (1990).

The internal consistency analysis in the study of Pintrich et al. (1993) included coefficient alphas, and the predictive validity analyses include correlations of the MSQ with later academic performance in terms of course grade. The results indicated that alphas for the motivational and learning strategy variables are greater than or equal to .70. In terms of the predictive validity of the scales, the motivational and learning strategy subscales showed significant correlations with students' final grade. They were in the expected directions. It has been also reported by the investigators that the correlations among the MSLQ scales are valid measures of the motivational and cognitive constructs.

The results of the above study are consistent with the findings of Pintrich and DeGroot (1990) on the relationships among motivational and self-regulated learning variables and school performance even though the target populations of their studies are different and the instruments they used were not identical.

However, intrinsic value was not directly related to school performance in the former study, but it was strongly related to strategy use whereas in the latter study it was directly related to both strategy use and academic achievement.

Using a somewhat similar questionnaire, Pokay and Blumengeld (1990) examined the relations between students' motivation and their use of general and content specific learning strategies. They also investigated how both motivation and strategy use affect achievement among high school students (grades 9 through 12). Subjects were randomly selected (N=283). Correlations were used to investigate the relations among motivational and learning strategy variable and academic achievement. Results indicated that both expectancies and value predicted the use of strategies; expectancies and use of effort strategies influenced academic achievement.

The instruments employed in Pokay and Blumenfeld's study are not identical to the ones used by Pintrich and DeGroot (1990) and Pintrich et al. (1993). Because, test anxiety was not included in the motivational variables in the latter study (Pokay & Blumenfeld, 1990) and self-concept was included instead. However, the study seems to confirm that, despite the differences in the target population and the instruments for measuring the relations between the variables and academic achievement, there is no discrepancy in the findings considering similar variables in each of the motivational and learning strategy subscales. Nevertheless, in the study conducted by Pintrich et al. (1993), intrinsic value was related directly to both strategies and school performance whereas in the latter study undertaken by Pokay and Blumenfeld (1990), value was not directly related to achievement but directly related to strategies which, in turn, may enhance academic achievement. This result is consistent with the results found in the studies conducted by Pintrich and DeGroot (1990, 1988) among junior high school students.

Using a similar instrument to that of Pintrich and DeGroot (1990), Pintrich et al. (1994) recently examined the relations among classroom performance, individual differences in motivational beliefs and self-regulated learning variables among grade 7 students (n=100). In this correlational study, it was indicated that higher levels of motivational beliefs such as intrinsic value and self-efficacy were positively related to higher levels of learning strategy variables whereas the relationship of test anxiety with these variables has been observed in a reverse way, as expected. It has been further noted that intrinsic value, self-efficacy, cognitive strategy use and self-regulation were directly related to classroom performance positively and the relationship between test anxiety and classroom performance was direct but negative. The results of the study are consistent with the findings of Pintrich et al. (1993) even though the target populations, the instruments used, and the sample sizes are not the same.

Another study which was conducted by Meece and Holt (1993) among elementary school students suggested that the use of effortful and effective learning strategies is associated with goals that emphasize the importance of learning and mastery. Consistent results appear in both correlational studies (Ames & Archer, 1988; Meece et al. 1988; Wentzel, 1989) and experimental studies (Elliot & Dweck, 1988; Graham & Golan, 1991; Stipek & Kowalski, 1989).

2.3 Motivational and Learning Strategy Components: Related to Grade Level and Sex

This section deals with grade level and gender-related differences in motivational and learning strategy components.

2.3.1 Strategy Use Versus Grade Level (age)

Researchers taking an information processing approach (e.g., Yussen & Berman, 1981; Yussen & Levy, 1975) have illuminated the changes that occur

in the child's attentional and perceptual systems, memory, problem solving ability, cognitive monitoring and metacognitive knowledge. They indicated that the general developmental trend across these domains is for the child to become a more sophisticated and flexible information processor or as a result of maturity. Simple strategies the child employs are elaborated or replaced with more effective as the child develops.

Another research (Flavel, Beach, & Chinsky 1966) has shown that there is a clear increase with age in the spontaneous use of verbal rehearsal as a memory strategy. That is, in contrast to older children, young children tend not to rehearse unless explicitly told to do so. Moreover, young children are less efficient than older children when they do spontaneously rehearse. Thus, they will repeat the items to be remembered only once or twice where more repetition is needed and they are also less likely to repeat earlier items (Naus, 1982). However, even young children can employ and benefit from rehearsal strategies if instructed to use them (Keeney, Cannizzo, & Flavel, 1967).

In a study recently conducted by Zimmerman and Martinez-Pons (1990) among students of grades 5,8 and 11 (N=270), it has been confirmed that the use of a number of self-regulated learning strategies was related to students grade levels. In other words, students in the upper grades are better in using learning strategies than the students at the lower grades. Thus, the results of the study indicated that 11th grade students surpassed 8th graders, who, in turn, surpassed 5th graders on the measures of self-regulated learning, in general. The subjects used in study were gifted and average student and the results indicated that gifted students made greater use for certain learning strategies than average students.

Johnson (1980), on the other hand, stated that in the middle school or junior high school years, students begin to develop the capacity for formal operational thought, that is, the ability to think abstractly and use general

strategies to analyze and solve problems. Clearly, according to Johnson, school work becomes more technical and more demanding over the years, and this, in turn, may enhance the development of improved learning strategy as students proceed from one grade level to the next higher grade levels.

Bjorklund (1987) further stated that young children possess few cognitive strategies for learning new information. However, skills such as repeated verbalizing, labeling, and sorting begin to emerge during the preschool years as children develop the ability to “learn to learn” (Salates & Flavell, 1976).

2.3.2 Gender Difference in Strategy Use

In the study conducted by Pintrich and DeGroot (1990) to examine relationships between motivational orientation, self-regulated learning and classroom academic performance for 173 seventh graders it has been indicated that there is no sex difference on the two learning strategy variables (cognitive strategy use and self-regulation). The investigators used t-test to examine the difference between males and females on the two learning strategy variables.

In contrast to the above finding, in the study undertaken by Pokay and Blumenfeld (1990) among gifted and average students of grades 5,8, and 11 (N=270) to investigate their use of learning strategies as related to their self-efficacy it has been found that girls use more self-regulating strategies than boys and gifted students tend to use these strategies more than average students. However, because of special character of this students cohort, the generalizability of these findings needs further investigation (Ainley, 1993).

In a similar study conducted by Pokay and Blumenfeld (1990) among students of grades 9 through 11 (N=283) to examine the relations between motivation, learning strategy and academic achievement it has been explored

that the pattern of relationships between motivation, strategy use, and achievement was the same for boys and girls. However, the results of the study provide some evidence that girls report greater use of some type of strategies than boys do. When strategy use is viewed as a type of effort these findings are consistent with previous investigations (Eccles, 1983) in which girls reported trying harder in mathematics than did boys even when the actual report put forth was similar. Because both expectancies and strategy use predict achievement, it is possible that motivation may be more facilitative for boys achievement, whereas strategy use may be more facilitative for girls achievement (Pokay & Blumenfeld, 1990).

2.3.3 Gender Difference in Motivational Orientation

In regard to expectancy for success, females as compared to males, enter learning situations with lower expectations of success and with a lack of self-confidence in their ability to achieve. The consequence of these perceptions is that males are more likely to develop a sense of mastery and control over their fate, experience greater self-confidence, and persist longer on difficult academic tasks (Sadker, Sadker, & Klein, 1991).

In the study conducted by Pintrich and DeGroot (1990) among grade seven students (N=173) to clarify the relations among motivation, self-regulated learning and academic achievement it has been found that there is gender difference in self-efficacy; boys rated themselves more efficacious than did girls and boys felt less test anxious than girls. However, there was no sex difference in intrinsic value. The investigators in the study, however, did not compare whether there is a difference between boys and girls in making use of learning strategy and their motivation as a function of grade level.

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Pokay and Blumenfeld (1990) investigated relations among motivation, learning strategy use and academic achievement among high school students (N=283). In the study the results of an ANOVA revealed that boys' grades were more affected by their motivational orientations than were girls' grades. It has been observed that boys with higher motivational orientations were more likely than girls to do well, whereas boys with a low motivation were less likely to do well than were girls with somewhat similar motivational orientations although the pattern of relationships between motivation, strategy use, and achievement was the same for boys and girls.

3.3.4 Motivation Versus Age-Grade Level

Recently, there has been considerable interest in the effects of the transition from elementary to middle or junior high school on early adolescent development (Eccles & Midgley, 1989). Some investigators have suggested that the transition may be causally related to changes in young adolescents' motives, beliefs, values, and behaviors (Blyth, Simmons, & Carlton-Ford, 1983; Eccles, Midgley, & Adler, 1984; Simmons & Blyth, 1987).

Both Higgins and Parsons (cited in Ames & Ames, 1989) and Eccles et al. (1984) argued that changes in children's motivation and their achievement beliefs and cognitions could be explained, in part, by systematic changes in the social environment which they are exposed to. Eccles et al. (1984) reviewed the nature of the changes in children's beliefs and concluded that : (1) children's attitudes toward school and toward their own academic competence decline with age until the late high school years; (2) The decline is most marked when children first enter school and again when they move into junior high school; and (3) the decline varies across subject areas and activity domains.

Findings regarding self-perceptions are both more interesting, and less consistent. Simmons, Rosenberg and Rosenberg (1973), in their studies, found that young adolescents, compared to children in grades three to six, exhibited instability of self-images, lower confidence in their academic ability, and more frequent depressive affect. They further explained that the 12-year-olds in a seventh grade junior high school evidenced greater disturbance in self-image and confidence than the 12-year-olds in a sixth grade elementary school, suggesting that the developmental differences are influenced by the educational environments experienced by the young adolescents, independent of, or at least in addition to, age.

Some subsequent studies assessing changes in self-perceptions have yielded a mixed pattern of results (See Table B on the next page).

Very recently, Harter, Whitese, and Kowalski (1992) examined the effects of changing educational environments on children's academic motivation. Study I (N=463) examined longitudinally 4 groups of students as they made the transition to a new grade some changing schools and some remaining in the same school: (1) 5th to 6th grade same school; (2) 5th to 6th new school; (3) 6th to 7th new school; and (4) 6th to 7th same school. The results indicated that changes in perceived competence across the transition were found to be related to changes in motivation and to school related affect and anxiety after the transitions. In the second study (N=338) among middle school students, it was examined whether the hypothesized grade related changes in the educational environment were actually experienced by the students. The results indicated that the large majority of the students reported an increasingly emphasis on grades, competition, and performance evaluation with each new grade, fostering greater focus on their own competence.

Zimmerman and Martinez -Pons (1990) examined relations between self-efficacy and strategy use among grades 5,8 and 11 (N=270). In this study it has

been reported that high school students' academic efficacy surpassed that of junior high school youngsters, and the efficacy of junior high school students, in turn, surpassed that of elementary school children.

Table B
Summary of Studies Related to School Transitions
During Early Adolescence VS Motivation

Authors	Measures	Subjects	Developmental Patterns
AGE-GRADE COMPARISONS			
Buhrmester (1980)	School fears and anxieties	Grades 3-9, school transition at grade 7	Increase from grade 6 to 7
Connel (1980)	Perceptions of control over out-comes	Grades 3-9, school transition at grade 7	Increase until grade 6; dramatic decrease at grade 7; subsequent increase
Epstein & McPartland (1976)	Commitment to school work	Grades 5-12, school transition at grade 6	Decline in commitment over the grades
Gottfried (1981)	Academic intrinsic motivation	Grades 4-7, no school transition	Decline in intrinsic motivation at grade 7
Harter (1980,1981)	Classroom motivational orientation	Grades 1-8, school transition at grade 7	General decline from grades 6 to 7
Pramat, Grissom & Parish (1979)	Achievement motivation	Grades 3-12 Grades 6-8 in middle school	Drop in achievement motivation only during middle school years

Source: Adapted from Eccles and Midgley (1989, pp.145-156)

The research outcomes reported by Zimmerman and Martinez-Pons (1990) are interesting theoretically, because different investigators (Benenson & Dweck, 1986; Nicholls, 1979; Stipek, 1981) indicated that children's self-perceptions of competence decline from the time they enter school through high school, with the most dramatic drop occurring during junior high school.

Furthermore, Eccles (cited in Dembo, 1994) suggested that when sixth-grade students move to a junior high school building, they tend to show a decline in general interest in school, decreased intrinsic motivation and a decline in self-esteem and confidence in some academic disciplines. Thus, it appears that, according to Eccles, for many students the early adolescent period marks the beginning of negative educational experiences that often lead to academic failure and dropouts.

Hill (1972) examined the developmental pattern of test anxiety, which is one of the components of students' motivation. The results indicated that test anxiety seems to appear at about second grade and then to increase grade by grade, with consistently higher levels for girls than for boys. It has been also pointed out in the study across the elementary (years) the construct seemed increasingly related to poor performance, marks in school, and grade repetition.

On the other pole, dealing with intrinsic motivation, Harter (cited in Skinner & Belmont, 1993) suggested that although motivated students are easy to recognize, they are difficult to find. Harter further explains that research shows across the preschool to high school years, children's intrinsic motivation decreases and they feel increasingly alienated from learning .

2.4 Summary of the Review of Related Literature

In general, most of the aforementioned theories, reviews and research findings revealed or concluded the following:

- Students who become involved in a task with the purpose of mastering it, who find it interesting and who like academic challenges are more likely to engage in more cognitive strategy use and self-regulation and show better academic achievement.
 - Students who believe that they are capable of completing a task engage in more cognitive strategy use and self-regulations and seem to be effective learners.
-
- Students who have test anxiety and/or feelings of disgust or shame because of their inability to complete a task successfully tend to be ineffective learners and often do not use appropriate learning strategies.
 - The developmental pattern of students' motivational orientations and learning strategies varies with their ages, grade level, and sex.

The relationships between the components of students' motivational orientation, learning strategy and academic achievement, as observed in different research findings, seem to be inconsistent and controversial. In addition, the studies on the relations between motivational and learning strategy components and academic achievement were not exhaustive. It has been found that the developmental pattern of students' motivation and learning strategy is also not consistent or inconclusive among males and females. These problems, therefore, indicate the need for further investigations in this area.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This section describes the subjects included in the study, sampling procedure, the instrument used, the procedure followed for data collection, and data analysis.

3.1 Subjects

A pilot study, the objectives of which were to test and improve the instrument and to create a conducive working relationship with the concerned persons in the study site, was carried out on 160 students from four grade levels (grades 8 through 11). From each grade level, 20 males and 20 females were randomly selected, using a random number table, from one junior and one senior secondary schools in Debre Berhan. Out of the 160 subjects, 9 failed to respond appropriately to the questionnaire and they were rejected from the sample. Thus, the pilot study was conducted on 151 students. The average age of the students was 14 for grade 8, 15 for grade 9, 16 for grade 10 and 18 for grade 11.

The main study was conducted on a random sample of 800 students selected from five, out of the 11, senior secondary government schools in Northern Shoa region. Out of these 800 randomly selected subjects, 43 subjects failed to provide a complete data. 191 grade 8 students (97 males and 94 females), 191 grade 9 students (98 males and 93 females), 193 grade 10 students (98 males and 95 females), and 182 grade 11 students (98 males and 84 females) responded to the MSLQ and the supplementary questionnaire appropriately. Thus, the main study sample comprised 757 subjects. Of these, 366 (48%) were females and 391 (52%) were males. The average age of the subjects was 14 for grade 8, 16 for grade 9, 17 for grade 10, and 18 for grade 11. Regarding the educational levels of the fathers or guardians, the subjects reported that 36% of the fathers had no education, 26% had basic education, 16% had elementary education (1-6), 20% had secondary education (7-12), and

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3.1 Subjects

A pilot study, the objectives of which were to test and improve the instrument and to create a conducive working relationship with the concerned persons in the study site, was carried out on 160 students from four grade levels (grades 8 through 11). From each grade level, 20 males and 20 females were randomly selected, using a random number table, from one junior and one senior secondary schools in Debre Berhan. Out of the 160 subjects, 9 failed to respond appropriately to the questionnaire and they were rejected from the sample. Thus, the pilot study was conducted on 151 students. The average age of the students was 14 for grade 8, 15 for grade 9, 16 for grade 10 and 18 for grade 11.

The main study was conducted on a random sample of 800 students selected from five, out of the 11, senior secondary government schools in Northern Shoa region. Out of these 800 randomly selected subjects, 43 subjects failed to provide a complete data. 191 grade 8 students (97 males and 94 females), 191 grade 9 students (98 males and 93 females), 193 grade 10 students (98 males and 95 females), and 182 grade 11 students (98 males and 84 females) responded to the MSLQ and the supplementary questionnaire appropriately. Thus, the main study sample comprised 757 subjects. Of these, 366 (48%) were females and 391 (52%) were males. The average age of the subjects was 14 for grade 8, 16 for grade 9, 17 for grade 10, and 18 for grade 11. Regarding the educational levels of the fathers or guardians, the subjects reported that 36% of the fathers had no education, 26% had basic education, 16% had elementary education (1-6), 20% had secondary education (7-12), and

only 2% had tertiary level education. Concerning the occupational types of the fathers or guardians, the subjects reported that 60% of their fathers were farmers, 15% were government employees and 25% were engaged in other activities.

3.2 Sampling Procedure

Before selecting the sample schools, the school which was used for the pilot testing in the study site was excluded from the 11 senior secondary schools in the region, and then the rest 10 senior secondary schools were put into an alphabetical list and were assigned consecutive numbers 1 to 10. Using a random number table, five schools were selected (see Appendix A).

Subjects were also selected in the same way after listing males and females separately. 20 males and 20 females were selected from each grade level and from each school selected. As a result, out of the total population from the selected schools, 20% of the females and 19% of the males from grade 8, 18% of the females and 14% of the males from grade 9, 33% of the females and 21% of the males from grade 10, and 51% of the females and 24% of the males from grade 11, were selected. In general, 22% of the total population (800 out of 3666 students) were selected randomly, but 21% (757 subjects) were used in the main study (see Appendix B for the details).

3.3. Instruments

To investigate students' academic motivational orientations and learning strategies, a Likert-type five point scale ranging from

Not at all true of me (1) to

Very true of me (5), which was developed by Pintrich and DeGroot (1990) for secondary school students was adapted and used.

The scale has 44 items and five subscales. 22 of the items are items of motivational orientation and 22 of them are items of learning strategy. The motivational orientation scale has three subscales which include self-efficacy, intrinsic value, and test anxiety with coefficient alphas .89, .87, and .75, respectively. The learning strategy scale includes cognitive strategy use and self-regulation with Coefficient alphas .83 and .74, respectively in the original vernacular and in the environment for which it was used.

The scale was chosen for different reasons. First, most of the statements in each subscale are not ambiguous and do not appear to be culture bound. Second, the subscales of the instrument are very reliable in their original forms. Third, the instrument was designed for secondary school students and the number of its items is moderate so that it can be easily administered to high school students.

Some of the statements of the scale were slightly reworded so that they could be used for the purpose of the present study. Then, the items taken with and without modifications were distributed for comments to five senior graduate students of educational psychology department in the Addis Ababa University. The feedback from these students was used to shorten long statements, to improve those with double meanings or to clarify ambiguity. The items were then put in a random order to reduce response bias and translated (from English) into Amharic so that they could be easily understood by the students of all grade levels (see Appendix C - for the statements of MSLQ).

The Amharic version of MSLQ was administered to the pilot sample and was found to be reliable. Internal consistency reliability of each subscale was estimated with coefficient alpha and it was from moderate to high at each grade level. For most of the subscales, (coefficient alpha) $\geq$.70 at each grade level. The discrimination power of each of the items was tested using t-test after taking the upper and the lower 27% of the subjects in the pilot study. Each item of

every subscale significantly discriminated between the highest and the lowest scorers (the upper and the lower 27%) at all grade levels. The items of the lowest t-values (but significant) were improved and used in the study and no item was discarded.

The split-half reliability was also computed for the total scale and Spearman Brown corrected reliability is $\geq .80$ at each grade level.

Correlations among the subscales were computed and most of the subscales were significantly correlated with the other subscales at each grade level. The variables were also significantly correlated with school performance which evidenced their predictive validity (see Appendix D for the details).

In addition to the above scale, a short supplementary questionnaire was also used to obtain demographic data (including age, sex, educational level, and occupation of parents or guardians).

3.4 Data Collection Procedure

In the pilot study, the translated instrument (MSLQ) was administered in two sessions, that is, it was administered to grade 8 and 9 students in the morning and to grade 10 and 11 students in the afternoon. The students completed the questionnaire during their free time. This was done before the end of first semester and the sampled students' average grades were gathered from school records. On the basis of pilot testing the instrument was improved and became ready for the main study.

In the main study, the instrument and the supplementary questionnaire were administered at the same time, but in different sessions between the first and the second semester of the academic year 1994/1995. The sessions were

conducted either in the morning or in the afternoon when the students were free. This was done on purpose so as to give the students enough time to respond to all the items after careful reading.

The scale was administered by the investigator and a teacher (any free teacher during the administration of the scale) and students were supervised so that they worked independently. During the administration of the questionnaire, the students were told to read the instructions before starting responding to the statements. Students who needed explanations about the questions, instructions, or the way they should mark their answers were given clarifications. Such requests were few in each grade and in each school.

Data on the students' ages, and classroom academic achievement for the 1994/95 academic year were obtained from school records. Students' first semester overall grades were collected, MSLQ was administered, and then second semester overall grades were collected.

The grades collected were converted to T-scores to control for teachers' grading differences before data analysis at each grade level. The grading system in effect for all classrooms in each school selected assigned points on a 100-point scale for correct and accurate performance on tests and examinations. Marks were not given for attendance and classroom participation in all sampled schools.

3.5 Data Analysis

3.5.1 Variables included in the Study

- A) Self-efficacy (X_1)
- B) Intrinsic value (X_2)
- C) Test Anxiety (X_3)

- D) Cognitive Strategy Use (X_4)
- E) Self-regulation (X_5)
- F) Sex (X_6)
- G) Grade Level (X_7)
- H) Students' Overall average scores
(GPA) at the end of a year (Y)

Self-efficacy, intrinsic value, test anxiety, cognitive strategy use and self-regulation were used both as dependent and independent variables in the study. Sex and grade level were used as independent variables while students' overall average grade (GPA) was used as dependent variable.

3.5.2 Methods of Analysis

The completed MSLQ was marked for self-efficacy, intrinsic value, test anxiety, cognitive strategy use and self-regulation following the procedure adopted by Pintrich and DeGroot (1990) except that raw scores are computed for each subscale in this study whereas Pintrich and DeGroot computed the scores by taking the mean of the items that make up each subscale.

- After assigning scores on motivational and learning strategy variables,
- a) a 2x4 (sex x grade level) factorial analysis of variance (ANOVA) was computed to determine whether there is a statistically significance difference among the students of the four grades (grades 8,9, 10 and 11) on the mean score of each motivational and learning strategy variable.
 - b) intercorrelations among the motivational and learning strategy variables were computed to examine the degree of relationships between the variables at each grade level.

- c) product moment correlations were computed between the variables and overall students' average grade (GPA) at each grade level to investigate their relationships. Partial correlations were also computed to examine the relation between academic achievement and each motivational and learning strategy component by holding the remaining variables constant.
- d) multiple regression analysis was used to examine the overall relationship of academic achievement with the independent variables (motivational and learning strategy variables) and to investigate the relative contribution of each of the independent variables to the variance in the dependent variable at each grade level.

The equation of the multiple regression analysis used in this study is given below.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

where, Y = academic achievement (GPA)

B's= regression coefficients

a = Constant

X_1 = Self-efficacy

X_2 = Intrinsic value

X_3 = Test anxiety

X_4 = Cognitive strategy use

X_5 = Self-regulation

Using Bartlett's test of homogeneity of variance (Walpole, 1974), the assumption of homogeneity of variance was tenable and the use of ANOVA was justified for the two-way ANOVA's. The assumptions underlying the use of multiple regression (linearity, normality, homoscedasticity) were scanned.

Alpha value of .05 was used for all significance tests.

CHAPTER FOUR

RESULTS

The results of the main study are presented in the following sequence: the scores of males and females on the motivational and learning strategy components, the relations between motivational and learning strategy components, and the relationships between motivation, learning strategy and academic achievement.

4.1 Scores on Motivational and Learning Strategy Variables

This section deals with the results concerning self-efficacy, intrinsic value, test anxiety, cognitive strategy use and self-regulation. The research question handled in this section is sex-related difference in each of the motivational and learning strategy components as related to grade levels. The dependent variables are motivational and learning strategy components, and ANOVA was performed for each motivational and learning strategy variable using sex and grade level as independent variables.

4.1.1 Motivational Components

4.1.1.1 Self-efficacy

Table 1 shows the number of observations, means and standard deviations of self-efficacy scores at each grade level arranged by sex.

Table 1
Number of Observations, Means, and Standard Deviations for Self-efficacy
Scores* at each Grade Level Arranged by Sex.

Grade Level	Male			Female			
	N	Mean	Sd	N	Mean	Sd	Total mean
8	97	33.08	4.72	94	32.04	5.19	32.58
9	98	32.90	5.72	93	30.38	4.65	31.68
10	98	31.96	6.31	95	30.49	4.75	31.24
11	98	32.62	5.28	84	28.96	5.60	30.93

* The maximum possible raw score in self-efficacy was 45.

Table 1 indicates that, at each grade level, males have higher average self-efficacy scores than females. The variability of females' scores in grades 8 and 11 is greater than that of males, but in grades 9 and 10 the reverse is true.

Table 2 presents the result of analysis of variance.

Table 2
ANOVA Summary Table for Self-efficacy Scores

Source of variation	SS	df	MS	F	W ²
Grade (G)	288.82	3	96.27	3.41*	.01
Sex (S)	874.64	1	874.64	30.98*	.04
G x S	191.45	3	63.82	2.26	.005
Residual	21144.68	749	28.23		
Total	22499.59	756			

* P<.05

Table 2 shows that the gender difference in self-efficacy scores was statistically significant. Closer examination indicates that males (mean=32.64) scored better than females (mean=30.47). In the table, it is also indicated that the grade main effect is statistically significant. Employing Scheffe's multiple comparison test (Ferguson, 1981), 8th graders (mean = 32.58) were found to score significantly higher on self-efficacy than 11th graders (mean = 30.93). No other pairwise comparison was significant. The results indicated above suggest that there is a decrease in self-efficacy between the 8th grade and 11th grade.

The sex-by-grade interaction was not statistically significant at the determined level of significance which indicates that there is little joint effect of grade level and sex on students' self-efficacy.

The proportion of variances accounted for by grade level, sex, and interaction are 0.013, 0.039, and 0.009, respectively. The proportion of total variance explained by the variables included in the study is only 6%, which suggests that there are other variables, probably more important than grade and sex, which contribute to the differences in self-efficacy. The statistic Omega square (ω^2) given in Table 2, above, is a measure of the strength of association between the independent and dependent variables. It also gives us the proportion of total variability in a set of scores that can be accounted for by the independent variables. In Table 2, therefore, approximately 1% of the variance in the dependent variable is accounted for by grade level and 4% is accounted for by sex. In other words there are weak relationships between grade level, sex and student's self-efficacy scores.

4.1.1.2 Students' Academic Intrinsic Value

A similar ANOVA was computed on intrinsic value scores and the number of observations, means and standard deviations for intrinsic value at each grade level arranged by sex are given in Table 3.

Table 3

Number of Observations, Means, and Standard Deviations for Intrinsic Value Scores* at each Grade Level Arranged by Sex.

Grade Level	Male			Female			
	N	Mean	Sd	N	Mean	Sd	Total mean
8	97	38.43	4.68	94	39.27	4.53	38.83
9	98	39.76	4.65	93	39.30	4.81	39.53
10	98	38.76	4.61	95	38.14	4.85	38.45
11	98	38.73	4.32	84	38.13	4.80	38.46

* The highest possible intrinsic value score was 45.

As can be observed in Table 3, the means and standard deviations of both males and females seem similar at each grade level on intrinsic value scores. The ANOVA Summary is given below (Table 4):

Table 4

ANOVA Summary Table for intrinsic Value Scores

Source of variation	SS	df	MS	F*	W ²
Grade (G)	147.85	3	49.28	2.26	.005
Sex (S)	7.93	1	7.93	0.36	.003
G x S	70.52	3	23.51	1.08	.0004
Residual	16337.98	749	21.81		
Total	16564.28	756			

* P> .05 in all cases

The data summarized above in Table 4 suggest that there is no statistically significant difference among grades 8,9,10 and 11 students with respect to their ratings about how interesting, useful, and important what they learn in classroom is to them. The sex main effect is also statistically not significant. In general, it seems that there is no increase in intrinsic value between the 8th and 11th grades. The proportion of variances accounted for by grade level, sex, and interaction is .009, .0005, and .004, respectively. The proportion of total variances accounted for by variables in the study is very small (1.35%).

4.1.1.3 Test Anxiety

A summary of data concerning test anxiety is given in Table 5, below.

Table 5

Number of observations, Means, and standard Deviations for Test Anxiety Scores* at Each Grade Level Arranged by Sex.

Grade Level	Male			Female			
	N	Mean	Sd	N	Mean	Sd	Total mean
8	97	10.62	4.02	94	12.25	4.33	11.41
9	98	10.38	4.84	93	13.94	3.73	12.11
10	98	10.51	4.23	95	12.25	4.52	11.36
11	98	11.14	4.14	84	13.64	4.12	12.29

* The maximum possible test anxiety score was 20.

Table 5 depicts that, at each grade level, females have higher average test anxiety scores than males.

The data summarized above in Table 4 suggest that there is no statistically significant difference among grades 8,9,10 and 11 students with respect to their ratings about how interesting, useful, and important what they learn in classroom is to them. The sex main effect is also statistically not significant. In general, it seems that there is no increase in intrinsic value between the 8th and 11th grades. The proportion of variances accounted for by grade level, sex, and interaction is .009, .0005, and .004, respectively. The proportion of total variances accounted for by variables in the study is very small (1.35%).

4.1.1.3 Test Anxiety

A summary of data concerning test anxiety is given in Table 5, below.

Table 5

Number of observations, Means, and standard Deviations for Test Anxiety Scores* at Each Grade Level Arranged by Sex.

Grade Level	Male			Female			
	N	Mean	Sd	N	Mean	Sd	Total mean
8	97	10.62	4.02	94	12.25	4.33	11.41
9	98	10.38	4.84	93	13.94	3.73	12.11
10	98	10.51	4.23	95	12.25	4.52	11.36
11	98	11.14	4.14	84	13.64	4.12	12.29

* The maximum possible test anxiety score was 20.

Table 5 depicts that, at each grade level, females have higher average test anxiety scores than males.

Table 6
ANOVA Summary Table for Test Anxiety Scores

Source of variation	SS	df	MS	F	W ²
Grade (G)	127.73	3	42.58	2.34	.005
Sex (S)	1045.64	1	1045.64	57.40*	.07
G x S	113.54	3	37.85	2.08	.004
Residual	13644.70	749	18.22		
Total	14931.60	756			

*P <.05

As Table 6 shows, the gender difference in test anxiety scores was statistically significant. Females (mean=13.64) scored higher than males (mean = 10.66) in test anxiety. The grade-by-sex interaction, as depicted in the table, is not statistically significant. Grade levels did not affect males and females differentially on test anxiety scores. Females have higher test anxiety mean scores consistently across the four grade levels than males. The grade main effect was not statistically significant. It appears that there is no difference among grades 8,9,10 and 11 students in their test anxiety scores. Regarding the explained variance, the independent variables accounted for 9% of the total variance in test anxiety while sex by itself accounted for 7% of the total variance.

4.1.2 Learning Strategy Components

4.1.2.1 Cognitive Strategy Use

Table 7 presents number of cases, means, and standard deviations for cognitive strategy use scores at each grade level arranged by sex.

Table 7

Number of Observations, Means, and Standard Deviations to cognitive Strategy Use Scores* at Each Grade Level Arranged by Sex.

Grade Level	Male			Female			
	N	Mean	Sd	N	Mean	Sd	Total mean
8	97	48.71	6.67	94	49.55	6.80	49.12
9	98	49.56	8.17	93	47.15	7.66	48.38
10	98	50.93	7.98	95	46.79	7.82	48.89
11	98	50.50	6.91	84	47.12	7.91	48.94

* The maximum possible raw score for cognitive strategy use was 65.

As can be seen in Table 7, at grade 8 level females have higher cognitive strategy use mean scores than males, but after grade 8 the reverse is observed in the table. A summary of analysis of variance for cognitive strategy use score is given in Table 8, below:

Table 8

ANOVA Summary Table for Cognitive Strategy Use

Source of variation	SS	df	MS	F	W ²
Grade (G)	56.42	3	18.81	0.33	.003
Sex (S)	968.89	1	968.89	17.22*	.021
G x S	685.06	3	228.35	4.06*	.01
Residual	42154.66	749	56.28		
Total	43865.03	756			

* P<.05

Table 8 indicates that the grade main effect is not statistically significant. It appears that there is no difference among the students of grades 8 through 11 in making use of cognitive strategy use. As can be observed in Table 8, the gender difference in cognitive strategy use was statistically significant. Closer examination indicates that males (mean = 49.93) scored higher than females (mean = 47.66) in cognitive strategy use.

Furthermore, the sex-by-grade interaction was statistically significant and Figure 1 shows this interaction.

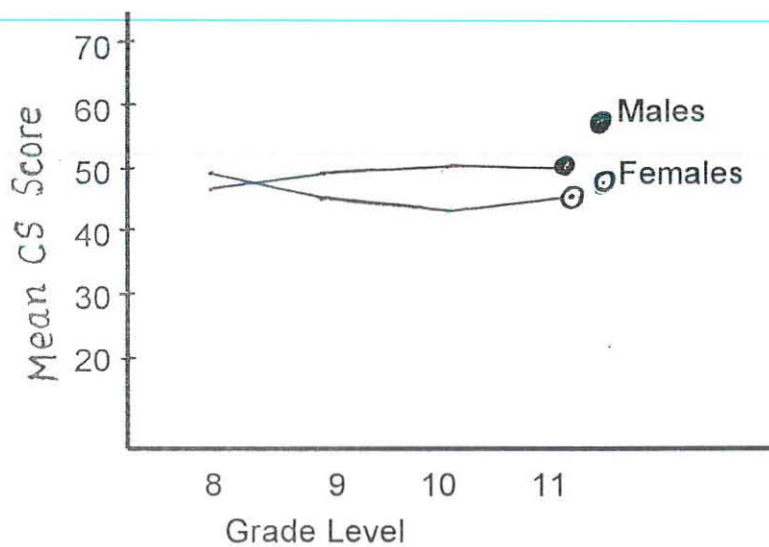


Figure 1 - Sex-by-grade interaction

The sex-by-grade interaction, as shown in Figure 1, above, indicates that in grades 9 through 11, males had higher cognitive strategy use scores than females. Nevertheless, the magnitude of the difference in cognitive strategy use scores varied from one grade level to another. The difference was higher among 10th and 11th graders than among 8th and 9th graders. In general, the disordinal interaction in Figure 1 suggests that the effect of grade level is different for males and females in their cognitive strategy use. The total explained variance accounted for by all independent variables was 4%. The explained variance accounted for by sex is 2.2% while grade level accounted for a small portion of the total variance.

4.1.2.2 Self-regulation

A summary of scores pertaining to self-regulation is given below, Table 9.

Table 9
Number of Observations, Means and Standard Deviations for Self-regulation
Scores* at Each Grade Level Arranged by Sex.

Grade	Male			Female			
Level	N	Mean	Sd	N	Mean	Sd	Total mean
8	97	34.00	4.83	94	33.77	5.92	33.89
9	98	34.28	5.74	93	33.01	4.88	33.66
10	98	34.92	6.01	95	33.44	5.37	34.19
11	98	35.24	5.32	84	32.77	5.82	34.10

* The maximum possible raw score for self-regulation was 45.

As can be seen in Table 9, males have higher overall average self-regulation scores at each grade level than females. The ANOVA summary table is given below (Table 10).

Table 10
ANOVA Summary Table for Self-regulation Scores

Source of variation	SS	df	MS	F	W ²
Grade (G)	32.32	3	10.77	0.39	.002
Sex (S)	341.82	1	341.82	12.29*	.02
G x S	118.26	3	39.42	1.42	.002
Residual	20832.41	749	27.81		
Total	21324.83	756			

* P<.05

Table 10 shows that the grade main effect is not statistically significant. The data summarized in the table, therefore, suggest that there is no difference among students of grades 8 through 11 in their self-regulation. It appears that there is no increase in students' self-regulation between grad 8 and 11. The table shows that the gender difference in self-regulation was statistically significant. Closer examination indicates that males (mean = 34.61) scored higher than females (mean=33.26). The proportion of variance accounted for by grade level, sex, and the interaction is .002, .016, and .006, respectively. All the independent variables accounted for 2.4% of the total explained variance.

4.2 Relations Between Motivational and Learning Strategy Variables

The third question of the study concerned with the relations between the motivational and learning strategy components. Table 11 below displays the intercorrelations and summary statistics for the motivational and learning strategy variables.

Table 11

Correlations Among Motivational and learning Strategy variables (N = 757)

Variables	1	2	3	4	5
1. Self-efficacy	-				
2. Intrinsic value	.46*	-			
3. Test anxiety	-.30*	-.12	-		
4. Strategy use	.57*	.50*	-.33*	-	
5. Self-regulation	.49*	.39*	-.36*	.60*	-
Mean	31.61	38.82	11.76	48.83	33.96
SD	5.43	4.67	4.43	7.59	5.33

* $P < .05$

Table 11 shows that the relations among motivational and learning-strategy variables are in the expected direction among the students of the four grade levels ($N = 757$). Higher levels of self-efficacy ($r=.57$) and intrinsic value ($r=.50$) were related with higher levels of cognitive strategy use. In the same way, self-efficacy ($r=.49$) intrinsic value ($r=.39$) were correlated with self-regulation. Test anxiety was negatively correlated with cognitive strategy use ($r=-.33$) and self-regulation ($r=-.36$), as expected.

Similar intercorrelations were computed at each grade level in order to control for age (grade level). Table 12, displays the correlations among motivational and learning strategy variables at grade 8 level.

Table 12
Correlations Among Motivational and Learning Strategy Variables at Grade 8
Level (N=191)

Variables	1	2	3	4	5
1. Self-efficacy	-				
2. Intrinsic value	.41*	-			
3. Test anxiety	-.15*	-.01	-		
4. Strategy use	.50*	.47*	-.19*	-	
5. Self-regulation	.42*	.32*	-.25*	.52*	-
Mean	32.58	38.83	11.41	49.12	33.89
SD	4.97	4.67	4.24	6.71	4.90

* $P < .05$

The results in Table 12 are generally as expected. As predicted, higher levels of self-efficacy ($r=.50$) and intrinsic value ($r=.47$) were correlated with higher levels of cognitive strategy use. In other words, students high in self-

efficacy and intrinsic value, were more likely to report good use of cognitive strategies. Test anxiety was negatively correlated with cognitive strategy use ($r=-.19$). Paralleling these findings for cognitive strategy use, higher levels of self-efficacy ($r=.42$) and intrinsic value ($r=.32$) were correlated with higher levels of self-regulation to a statistically significant extent. Test anxiety was negatively correlated with self-regulation ($r=-.25$).

Table 13
Correlations Among Motivational and Learning Strategy Variables at Grade 9
Level (N=191).

Variables	1	2	3	4	5
1. Self-efficacy	-				
2. Intrinsic value	.38*	-			
3. Test anxiety	-.36*	-.12	-		
4. Strategy use	.56*	.54*	-.38*	-	
5. Self-regulation	.52*	.39*	-.42*	.58*	-
Mean	31.68	39.53	12.10	48.40	33.66
SD	5.40	4.71	4.68	7.90	5.37

* $P < .05$

As can be seen in Table 13, the motivational and learning strategy variables were significantly correlated in the expected directions. The positive motivational beliefs of self-efficacy and intrinsic value were positively associated with the use of cognitive and self regulatory strategies. At the same time, test anxiety was negatively related to the use of cognitive and self-regulatory strategies. Self-efficacy was positively and significantly related to cognitive strategy ($r=.56$) and self-regulation ($r=.52$). The correlations between intrinsic value and cognitive strategy use ($r=.54$) and self-regulation ($r=.39$) were statistically significant at the determined level of significance. At this grade level,

the magnitude of the correlation coefficients between motivational and learning strategy variables is greater than the ones observed in grade 8.

Table 14
Correlations Among Motivational and Learning Strategy Components:
Grade 10 (N=193)

Variables	1	2	3	4	5
1. Self-efficacy	-				
2. Intrinsic value	.50*	-			
3. Test anxiety	-.33*	-.12	-		
4. Strategy use	.62*	.49*	-.39*	-	
5. Self-regulation	.53*	.43*	-.41*	.65*	-
Mean	31.24	38.45	11.37	48.89	34.19
SD	5.63	4.74	4.49	8.15	5.26

* $P < .05$

Table 15
Correlation Matrix Among Motivational and Learning Strategy Variables:
Grade 11 (N=182)

Variables	1	2	3	4	5
1. Self-efficacy	-				
2. Intrinsic value	.55*	-			
3. Test anxiety	-.32*	-.24*	-		
4. Strategy use	.58*	.52*	-.33*	-	
5. Self-regulation	.51*	.45*	-.35*	.65*	-
Mean	30.93	38.46	12.29	48.94	34.10
SD	5.75	4.56	4.32	7.56	5.73

* $P < .05$

As indicated in Tables 14 and 15, the relations between motivational and learning strategy components were as expected. In grade 10 (Table 14) higher levels of self-efficacy ($r=.62$) and intrinsic value ($r=.49$) were significantly correlated with higher levels of cognitive strategy use but test anxiety was negatively correlated with cognitive strategy ($r=-.39$). The relations between self-efficacy and intrinsic value and self-regulation are also as predicted. Higher levels of self-efficacy ($r=.53$) and intrinsic value ($r=.43$) were related to higher levels of self-regulation. Test anxiety was negatively correlated ($r=-.41$) with self-regulation.

Table 15 also depicts that, at grade 11 level, the relations among motivational and learning strategy variables are in the expected directions. Self-efficacy was positively correlated with cognitive strategy use ($r=.58$) and self-regulation ($r=.51$). Intrinsic value was also positively correlated with cognitive strategy use ($r=.52$) and self-regulation ($r=.45$). Test anxiety was negatively related to cognitive strategy use ($r=-.33$) and self-regulation ($r=-.35$).

In general, the correlations between motivational and learning strategy components are as expected at each grade level though the magnitude of the relationship between the variables vary from grade to grade. Further examination, using Fisher's Zr-transformation (Ferguson, 1981), indicated that the correlations between test anxiety and cognitive strategy use in grades 8 and 9 differ significantly ($Z=2.02$, $P<.05$) and the correlations between test anxiety and self-regulation in these grades also differ to a statistically significant extent ($Z=2.17$, $P<.05$). The correlations between test anxiety and cognitive strategy use and test anxiety and self-regulation in grade 8 and 10 also differ significantly ($Z=2.14$, $P<.05$) and ($Z=2.05$, $P<.05$), respectively. All the correlation coefficients between motivational and learning strategy variables were tested in the same way in all grades, but they did not differ significantly.

4.3 Relations Between Motivational and Learning Strategy Components and Academic Achievement

4.3.1 Simple Correlations Between Motivational and Learning Strategy Variables and Academic Performance

The fourth research question concerned with how motivational and learning strategy variables were related to academic achievement at each grade level. Table 16, below, displays the zero-order correlations for the motivational and learning strategy variables and academic achievement at each grade level.

Table 16
Zero-order Correlations Between Motivational and Learning Strategy Variables and Academic Achievement at Each Grade Level.

	r with overall average grade at each grade level			
	Grade Level			
Variables	8	9	10	11
Self-efficacy	.51*	.45*	.48*	.48*
Intrinsic value	.19*	.24*	.28*	.37*
Test anxiety	-.56*	-.62*	-.60*	-.64*
Strategy use	.32*	.36*	.34*	.38*
Self-regulation	.40*	.36*	.37*	.40*

*P<.05

Note: N=191, 191,193,182 for grades 8,9,10 and 11, respectively

It is depicted in Table 16, as predicted, that higher levels of self-efficacy and intrinsic value were significantly associated with higher levels of student academic achievement across all grade levels. With respect to test anxiety,

higher level of test anxiety were significantly related to lower levels of academic performance at all grade levels. It is also seen in the table that higher levels of cognitive strategy use and self-regulation were correlated with higher levels of academic performance at each grade level. The correlations given in Table 16 were in the expected directions, students who approached their course work with an intrinsic goal for learning, who believe that what they learn was interesting and important, and who had self-efficacy beliefs for accomplishing the tasks were more likely to do well in terms of academic performance. At the same time, students who reported being anxious about test overall were less likely to be successful in their academic achievement.

The learning strategy variables also showed the expected correlations with academic performance. Students who relied on elaboration strategies, organizational strategies, rehearsal strategies, and metacognitive self-regulation strategies were more likely to receive higher grades in their academic work.

With respect to the controlled contribution of the independent variable, partial correlation coefficients were computed at each grade level. Table 17 presents partial correlation coefficients computed in each grade. The table shows, except for self-efficacy and test anxiety, the correlations between other variables and academic performance were low, but they were in the expected directions. Test for the significance of each partial correlation was done using the following statistic (Glass & Hopkins, 1984).

$$T = \frac{r_{yx_1 \cdot X_2 X_3 \dots X_p} \sqrt{N-2-v}}{\sqrt{1-r_{yx_1 \cdot X_2 X_3 \dots X_p}^2}}$$

Where, $r_{yx_1 \cdot X_2 X_3 \dots X_p}$ = partial correlation coefficient of X_1 .

N = sample size

V = number of independent variables partialled out

Table 17.

Partial Correlation Coefficients Between Academic Performance and Motivational and Learning Strategy variables at Each Grade Level.

Grade Level	Variables	Partial r	t
8 N=191	Self-efficacy	.44	6.66*
	Intrinsic value	.23	3.49*
	Test anxiety	-.53	8.50*
	Strategy use	.10	1.37
	Self-regulation	.16	2.20*
9 N=191	Self-efficacy	.28	3.97*
	Intrinsic value	.25	3.51*
	Test anxiety	-.55	8.77*
	Strategy use	.19	2.63*
	Self-regulation	.13	1.78
10 N=193	Self-efficacy	.35	5.11*
	Intrinsic value	.05	.68
	Test anxiety	-.53	8.55*
	Strategy use	.12	1.65
	Self-regulation	.17	2.36*
11 N=182	Self-efficacy	.26	3.57*
	Intrinsic value	.15	2.01*
	Test anxiety	-.55	8.74*
	Strategy use	.07	.93
	Self-regulation	.14	1.88

* $P < .05$

Partialling out the effect of other independent variables self-efficacy and test anxiety were significantly correlated with academic performance at all grade

levels. The proportion of variance accounted for by self-efficacy to academic performance with other independent variables controlled is $r^2_{y \cdot x_1 \cdot X_2 X_3 X_4 X_5} = .1936, .0784, .1225$, and $.0784$, for grade 8, 9, 10, and 11, respectively. In the same way, the proportion of variance accounted for by test anxiety to academic performance is $r^2_{y \cdot x_3 \cdot X_1 X_2 X_4 X_5} = .2809, .3025, .2809$, and $.3025$, for grade 8, 9, 10 and 11, respectively. Intrinsic value was not correlated significantly with academic performance in grade 10. The proportion of variance accounted for by intrinsic value to academic achievement is $r^2_{y \cdot X_2 \cdot X_1 X_3 X_4 X_5} = .0529, .0625$, and $.0225$, for grade 8, 9, and 11, respectively. Cognitive strategy use was significantly correlated with academic performance only at grade 9 level. The proportion of variance it contributed to the total variance at this grade level is $r^2_{y \cdot X_4 \cdot X_1 X_2 X_3 X_5} = .036$. Finally, self-regulation was significantly related to academic performance after removing the influence of other four variables only in grades 8 and 10. The proportion of variance accounted for by self-regulation is $r^2_{Y \cdot X_5 \cdot X_1 X_2 X_3 X_4} = .0258$, and $.0289$ in grades 8 and 10, respectively (see Table 17).

4.3.2 The Overall Relationship of Academic Achievement with the Independent Variables

In this section, the proportion of academic achievement variance accounted for by the independent variables taken together was examined. Accordingly, a summary of the regression of academic performance on all the independent variables taken together was given below at each grade level.

Table 18

The Proportion of Academic Achievement variance Accounted for by the independent Variables: Grade 8 (N=191)

Source of variation	SS	df	MS	F	R ²
Regression	9809.2484	5	1961.850	44.66*	.5469
Residual	8126.0146	185	43.9244		
Total	17935.263	190			

* $P < .05$

Adjusted $R^2 = .5347$

Standard error of estimate = 6.6275

As depicted in Table 18, when academic achievement was regressed on all the five independent variables (self-efficacy, intrinsic value, test anxiety, cognitive strategy use, and self-regulation), the obtained multiple coefficient of determination was .5469 (i.e. $R^2_{y,12345} = .5469$). This means the proportion of academic achievement variance accounted for by the independent variables combined together is 54.69% at this grade level. F-test revealed that this proportion of variance is statistically significant at the determined level of significance, ($F(5,185) = 44.66, P < .05$). The "adjusted R^2 " which represents the unbiased estimate of R^2 was .5347, which indicates that there is overall strong relationship.

A similar analysis was made for each of the next three grade levels. Table 19 provides the results of the similar analysis made at grade 9 level.

Table 20 shows results which are similar to the results which have been depicted in Tables 18 and 19 above. Regressing academic achievement score, at this grade level on all the independent variables, the resulting multiple coefficient of determination was .5271 (i.e. $R^2_{y.12345} = .5271$). This proportion of variance is statistically significant ($F(5,187) = 41.6866, P < .05$).

Finally, a summary of regression of academic performance on all the independent variables in the study at grade 11 level is given below (Table 21).

Table 21
The Proportion of Academic Achievement Variance Accounted for by the Independent Variables: Grade 11 (N=182)

Source of variation	SS	df	MS	F	R ²
Regression	9891.163	5	1978.2326	43.9723*	.5554
Residual	7917.917	176	44.9882		
Total	17809.08	181			

* $P < .05$

Adjusted $R^2 = .5428$
Standard error of estimate = 6.7073

In Table 21, the coefficient of determination obtained suggests that about 56% of the variation in the dependent variable is explained by the combined effect of all independent variables at grade 11 level. F-test revealed that the combined effect of the five independent variables is statistically significant ($F(5,176) = 43.9723, P < .05$).

The data presented above (Tables 18-21) suggest that at each grade level (grades 8 through 11), self-efficacy, intrinsic value, test anxiety, cognitive strategy use, and self-regulation, when combined together have a significant relationship with academic performance.

The two-sided t-test was used to test the regression weights given in Table 22. The independent t-test given in the table for each variable suggests that among the independent variables test anxiety and self-efficacy are found to be relatively more important predictors of academic achievement than the remaining variables at each grade level. Intrinsic value has relatively good relation with the dependent variable in grades 8 and 9 while self-regulation has got good relationship with the dependent variable in grades 10 and 11 next to test anxiety and self-efficacy. Negative regression coefficient, and beta wights are seen only for test anxiety indicating that students who are very test anxious seem less likely to perform well their academic work. Self-efficacy and test anxiety each accounted for substantial portions of the variance in academic achievement at each grade level (See Appendix E).

Table 22

Summary of Regression Weights (bi's), Standard Error of Estimate (Se), Beta Coefficients (B's), and t-values

Variables	Grade level															
	8(N=191)				9 (N=191)				10 (N=193)				11 (N=182)			
	b	Se	B	t	b	Se	B	t	b	Se	B	t	b	Se	B	t
SE(x1)	.92	.30	.4239	3.0799*	.6441	.3837	.2912	1.6785	.7074	.3327	.3562	2.1259*	.4446	.3148	.2646	1.4123
IV(x2)	.4584	.3119	.2028	1.47	.6512	.4159	.2399	1.5659	.106	.3889	.0443	.2725	.2938	.3606	.1332	.8147
TA(X3)	-1.0839	.3201	-.4549	3.3859*	-1.4332	.3745	-.5428	3.800*	-1.374	.360	-.5324	3.7278*	-1.2479	.3404	-.523	3.666*
Cs(x4)	.1386	.2496	.0954	.5554	.3194	.2732	.2092	1.1691	.1696	.2659	.1302	.6378	.0997	.2539	.0766	.3926
SR(X5)	.3228	.3197	.1475	1.0099	.2908	.4001	.1209	0.7268	.3757	.3795	.1699	.9899	.2684	.3189	.1507	.8417

*P<0.5

Note: SE = Self-efficacy; IV = Intrinsic Value; TA=Test anxiety; CS=Cognitive strategy use; SR = Self- regulation

CHAPTER FIVE

DISCUSSION

This section presents discussions of the results pertaining to motivational and learning strategy components among the students of the four grade levels, the relations between the components of motivation and learning strategy as related to academic performance. Some practical implications and the limitations of the study will also be provided in the last part of the discussion.

5.1 Grade Level and sex Difference in Motivational Beliefs (orientations)

As given in chapter four, students' motivational beliefs, such as self-efficacy, intrinsic value and test anxiety have been investigated among the students of grades 8, 9, 10 and 11. The results indicated that, except self-efficacy, intrinsic value (motivation) and test anxiety do not seem a function of grade level.

According to this study, self-efficacy does not seem to increase with increasing grade level. As mentioned in chapter four, 8th graders (mean=32.58) were found to score significantly higher on self-efficacy than did 11th graders (mean=30.93); $F(3,749) = 3.41, p < .05$. The mean scores of students on self-efficacy after grade 8 seem to decrease or to be stable. This is because there was no statistically significant difference between the mean scores of 9th, 10th, and 11th graders after applying pair-wise comparisons. The proportion of variance explained by grade level is only 1.3%. This indicates that there are probably other more important variables than grade level which contribute to the variances in self-efficacy.

Other related prior studies (e.g., Benenson & Dweck, 1986; Nicholls, 1979; Stipek, 1981) have found a general similar result which concluded that children

self-perceptions of competence decline from the time they enter school through high schools, with the most dramatic drop occurring during junior high school. Very recently, Eccles (cited in Dembo, 1994) pointed out that when 6th grade students move to a junior high school building they tend to show a decline in self-esteem and confidence in some academic disciplines. So, the outcome of the present study is not surprising.

The above conclusions and the result of the present study are, nevertheless, inconsistent with the findings of Zimmerman and Martinez-Pons (1990) which explored that high school students' academic efficacy surpassed that of junior high school youngsters, and the academic efficacy of junior high schools, in turn, surpassed that of elementary school children. Bandura (1986) has also proposed that the development of self-efficacy is directly associated with the improvement of actual cognitive and behavioral skills and, therefore, can be expected to continue to develop as long as these skills are developing.

In a very recent research (Shell, Colvin & Bruning, 1995) it has been indicated that task self-efficacy for reading and writing was significantly higher at each successive grade level (grades 4, 7, 10). This finding supports Bandura's claim which was aforementioned, but not consistent with the results of the present study. This indicates that the issue is still controversial or inconclusive.

One possible explanation for the inconsistencies between the present study and the previous studies may refer to the aspect of self-efficacy that develops across grade levels. This aspect of self-efficacy is a belief in the capability of successfully performing various types of academic tasks in developed countries whereas this is unthinkable in Ethiopian context. In Ethiopia, particularly in Northern Shoa, it is obvious that high school students are challenged by increasing difficulty of subjects they learn and their academic performance may decrease as they proceed from one grade level to the next higher grade level. This poor academic performance may arise due to the difficulty of the subject

matter because of poor availability of libraries, laboratories, and the necessary learning aids in general, which in turn, leads to low self-efficacy. In this respect, Shunk (1989) indicated that individuals acquire information about their self-efficacy for performing tasks from performance accomplishments or vicarious experiences, and successes in previous performances raises self-efficacy and failures lower it.

Another possible explanation for the discrepancy between the present study and the other studies just mentioned above is that in the present study, self-efficacy was not used for one particular subject nor specific tasks whereas in other studies (e.g., Shell, Colvin & Bruning, 1995) it was used for specific activities, such as reading and writing. In the present study, however, it was used for general classroom academic tasks and this may have created discrepancies between this study and some of the studies aforementioned.

A difference in the grade level of the subjects also does seem partly to be an explanation, because this study included only junior and senior high schools whereas the prior studies mentioned above covered elementary to senior high schools. Hence, it is not possible, in the present study, to analyze the development trend of self-efficacy as students move from elementary to junior and senior high schools.

Yet, another alternative explanation may refer to the child rearing practices and educational system in the developed social contexts (U.S.A.), in which all the studies cited above were conducted, that probably enhance academic self-efficacy as grade level increases. In the U.S.A., the environment is, in general, conducive so that children's motivational beliefs like self-efficacy may not decline with increasing grade level. More often than not, parents are educationally capable of giving supplementary instruction to their children at home. They can organize activities directly or indirectly related to school learning in which children can participate and make their own decisions. Parents can also reward appropriately

their children's efforts and accomplishments, they know how to evaluate children's performance at home, and in such kind of educationally oriented homes children spend more time reading than doing household chores.

The child rearing practice in this high supportive environment seems to be marked by pressures for independence and praise for successful performance (Schell & Hall, 1979). Despite the ubiquitous competition which may become increasingly tense with advancing age or grade level, the conducive academic environment may help students to have confidence in their capability for organizing and implementing skills necessary for successful performance of a task.

One should not, therefore, expect the same results in the present study as the ones that were found in the U.S.A. The reason may be the community in which the present study was conducted is more or less agrarian with very little or no exposure to modern education. In this community, the students cannot get the necessary guidance and educational facilities both at home and school. So, it is unlikely to expect students' good academic progress; increasing motivation with advancing grade level in such kind of unfavorable academic environment.

In the present study, intrinsic value belief exhibited partly a different pattern of grade level differences from self-efficacy. Unlike self-efficacy, the grade main effect was not statistically significant for intrinsic value. Self-efficacy differed significantly between 8th and 11th grades; however, like intrinsic value, it does not differ significantly between grades 9 and 11. The present study therefore, does not seem to reveal a significant change from grades 8 through 11 in intrinsic value scores. In other words, it appears that there is no statistically significant difference among the students of the four grade levels with respect to their beliefs about how interesting, useful, and important what they learn is to them.

The outcome of the present study regarding intrinsic value is consonant with the previous findings obtained in educationally conducive environment. Harter (1981), for example, found, as students move from third through ninth grades, a declining intrinsic motivation. Similarly, Eccles et al. (1984) reviewed related literature in the nature of changes in children's beliefs and concluded that children's interest, attitudes toward school and academic activities decline with age. Harter (cited in Skinner & Belmont, 1993) further explains that, across preschool to high school years, children's intrinsic value decreases. Yet, Eccles (cited by Dembo, 1994) and Harter (1982) pointed out that when students move to a junior high school building, they tend to show a decline in intrinsic motivation. So, it seems that the result of the present study is not anomalous or it does not appear to stand in contrast to the developmental trends of intrinsic motivation so far observed in different research findings.

Even though the results of the present study and of those conducted in developed countries seem to be similar with respect to the developmental pattern of students' intrinsic motivation, the conditions under which these results were obtained, however, appear to be generally different. First, most of the parents of students in America had an exposure to modern education whereas most of the parents of the students in Northern Shoa do not have that kind of experience. According to the reports of the students included in the present study, only 2% of their parents had tertiary level education. Secondly, while the studies conducted on this area were in urban areas of the U.S.A., the present study was undertaken in rural area. Despite these different conditions, similar developmental trends of intrinsic value have been observed in the present and previous studies.

The above conclusion may make sense considering the educational environments students experience as they move from one grade level to the next higher grade level. In line with this, research (Eccles & Midgley, 1989) suggests that as students move from elementary to junior high school, the size of the school and the student body, the extent of departmentalization, use of competitive

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The above conclusion may make sense considering the educational environments students experience as they move from one grade level to the next higher grade level. In line with this, research (Eccles & Midgley, 1989) suggests that as students move from elementary to junior high school, the size of the school and the student body, the extent of departmentalization, use of competitive

motivational strategies, rigor in grading, increased teacher control... affect students' motives, beliefs, value and behaviors. Prior to the above suggestion, other investigators (e.g., Fraser & Fisher, 1983; Hunt, 1975) indicated that environmental changes coupled with normal course of individual development, result in a developmental mismatch in which the fit between the young adolescent and the classroom environment is particularly poor, which in turn, increase negative motivational outcomes.

It can also be explained in terms of the use of superfluous extrinsic motivation (rewards) which can undermine intrinsic motivation. Different researchers (Deci., 1971; Kruglanski, Friedman, & Zeevi, 1971; Lepper, Greene & Nisbett, 1973) showed that superfluous or inappropriate use of extrinsic rewards could decrease children's intrinsic motivation or interest. In Ethiopian context, what is most frequently used in the teaching - learning process is extrinsic motivation. At high school level, in Ethiopia, it is unlikely to observe activities which lead the students to develop interest in different subjects they learn. This may, therefore, be one of the factors for the declining pattern of students' intrinsic motivation in the present study. With respect to this, Malone and Lepper (1987) suggest that unless the activities in the teaching-learning process provide the students with an appropriate level of challenge, present: clear and meaningful goal, provide students with information or ideas that are surprising, increase: learners' sense of control, students intrinsic motivation will decline with the passage of time.

Concerning test anxiety, the present study showed no significant change from grades 8 to 11. This study supports the previous research findings. For example, Hembree (1988) synthesized and reviewed 562 reports of research on test anxiety and concluded that pupils in the early grades have little test anxiety, but its prevalence rises sharply in grades 3 to 5 and stays fairly constant through high schools, and is lower in college. So, the present study is not surprising. But in one cross-sectional study of upper elementary and junior high school age

children, older children reported higher levels of test anxiety and more extreme worries about their performance (Hill, 1980). Prior to this, Hill (1972) examined the developmental pattern of test anxiety and showed that test anxiety seems to appear at about second grade and then to increase grade by grade.

The result of the present study is not consistent with the latter research findings. Test anxiety in the present study seems to decrease or to stay constant between grades 8 and 11. One possible explanation for this is probably test anxiety is more related to school transition than grade levels. For example, when students come from different elementary schools and enter junior high schools or when they come from different junior high schools and join senior high schools, high test anxiety may arise due to different educational environment. But, this is not the case in Northern shoa where this study was conducted. Schools used for this study were senior high schools (from grades 1-12). Thus, most of the students move from elementary to junior high schools or from junior to senior high schools in the same environment. This may be, therefore, one of the possible explanations for little plasticity or stability of test anxiety. Referring to the effects of school transition on test anxiety Harter and his colleagues (cited in Eccles & Midgley, 1989) suggested that transitions, rather than grade level changes, may be responsible for increases in worry and anxiety, as well as a decline in young adolescents' positive response to their academic performance.

Yet, another possible explanation is the developmental pattern of test anxiety may be determined by the type of subject taught and its corresponding method of teaching. In this connection, Wigfield and Meece (cited in Eccles & Midgley, 1989) suggested that studies looking at mathematics anxiety do not report a consistent developmental decline across the early adolescents' years and the developmental changes in test anxiety seem more sensitive to the specific instructional environments the children move into. In Northern Shoa, therefore, the reason why a declining developmental pattern of test anxiety was abserved may

be due to either the teachers' method of instruction or evaluative system as the students proceed from one grade level to the next higher grade level.

Parents' expectation is probably another possible explanation for the decline of the students' test anxiety in this study. It has already been mentioned elsewhere in this paper that most of the parents of the students in this study are farmers and the value they give to the academic success of their children may be low. So, students may not be worried about failing in examinations because of their parents' low expectation. Personal communications with some teachers supported the latter argument.

With reference to the relationship between self-efficacy and sex, as mentioned earlier in chapter four, boys had higher self-efficacy scores (mean= 32.64) than girls did (mean= 30.47); $F(1,749) = 30.98$; $P < .05$. This result gives an answer to the second question of the study, which asks as to whether or not there is statistically significant difference between boys and girls in motivational beliefs which include self-efficacy. The explained variance accounted for by the sex factor to the variance in self-efficacy in the present study is only 3.9% indicating that there are other variables perhaps more important than sex in contributing to the differences in self-efficacy. In this study, grade level did not differentially affect boys and girls.

This result of the present study, in connection with this, is in agreement with what Pintrich and DeGroot (1990) found among grade seven students in which boys rated themselves more efficacious than girls did. In that study, however, the investigators did not consider grade levels which makes it different from the present study. In the present study boys had higher self-efficacy scores consistently across the four grade levels (grades 8 through 11).

With respect to expectancy for success, some studies (Sadker, Sadker & Klein, 1991) suggest that females as compared to males enter learning situations

with lower expectations of success and with a lack of confidence in their ability to achieve and the consequence of these perceptions is that males are more likely to develop a sense of mastery and control over their fate, experience greater self-confidence, and persist longer on difficult academic tasks. So, the result of this study couldn't be surprising since it seems to confirm what was found and suggested in previous studies.

Why are girls less self-efficacious than boys? Some researchers (e.g., Nottelmann, 1987; Larson, 1982, 1983), even though they did not specifically refer to self-efficacy, dealing with students' self-perception, indicated that girls, especially early maturers (Showing sign of pubertal development and initial interest in dating), evidence a decline in their self-esteem or confidence in what they are supposed to accomplish when they move into a junior high school.

The aforementioned idea is not irrelevant to the girls in Northern Shoa, because most of the girls, as observed by the researcher, in high schools are matured enough to date and this may interfere in their academic performance which, in turn, makes them have low self-efficacy due to, may be, poor academic achievement, as a result. However, boys in this community do not appear to be affected by this problem. Because, boys are usually later than girls, even if they are at the same age, to think of opposite sex or to have girl friends, they probably focus on their academic activities more wholeheartedly than girls do which may raise their academic self-efficacy because of good academic achievement.

Another possible alternative explanation for gender difference in self-efficacy in the present study is pertaining to the general attitude of the community which tends to favor the education of the boys more than the education of the girls. In this community, parents, it seems, usually expect better academic achievement from their sons. Teachers also may differentially treat students in classrooms by expecting better academic performance from boys in different subjects. In connection with the latter, Eccles and Wigfield (1985) suggest that as

one source of influence, the expectation of teachers has been found to be a critical variable in the development of children's motivational orientation. Therefore, taken together, the parents' and the teachers' expectations seem to affect the students' self-efficacy in the present study.

Concerning intrinsic motivation it was indicated in chapter four that there was no statistically significant sex difference among the students of the four grade levels. The result of the present study is in agreement with what was found by Pintrich and DeGroot (1990) which indicated that there was no significant gender difference between grade 7 boys and girls in their intrinsic value scores. In that study, only students of one grade level were used whereas in this study, students of different grade levels were included. The instruments used in both studies were similar. So, the finding of the present study does not seem new.

In the present study, though not statistically significant, girls had higher intrinsic motivation scores than boys did in grade 8, but after grade 8, boys had slightly higher intrinsic motivation scores than girls. However, it appears that the intrinsic motivation scores for both boys and girls decreases between grades 8 and 11. The reason may be many of the academic activities students are asked to undertake at high school level in Northern Shoa involve a fairly repetitive and often boring drill-and-practice or study-and-test format and may not include curiosity, creativity, and challenge at the appropriate level. In this respect, it has been suggested by different investigators that intrinsic enjoyment of learning appears to be associated with greater creativity (Amabile, 1985) and higher school achievement (Gottfried, 1985). With reference to the latter idea, as observed by the investigator in the present study, the students' academic achievement seems to decrease with advancing grade level, which in turn, decreases students' intrinsic motivation.

Still, another alternative explanation is, as mentioned in this paper elsewhere, most of the students in this study are from rural areas and about 60%

of their parents are farmers and may not be interested in sending their children to school. Students who are attending high schools are few in number and they are those who are intrinsically motivated to learn. So, one should not expect a significant difference between boys and girls since both of them may be intrinsically motivated to learn.

With regard to test anxiety and sex, as can be seen in chapter four (Table 6), the sex main-effect is statistically significant. Females (mean= 13.64) scored higher than males (men = 10.66); $F(1,749) = 30.64$, $P < .05$. The explained variance accounted for by sex itself to the difference in test anxiety scores is 7%. In this study grade level does not differentially affect males and females.

A similar result was found in a research conducted by Hill (1972) which examined the developmental pattern of test anxiety and indicated that test anxiety seems to appear at about second grade and then to increase grade by grade, with consistently higher levels for girls than for boys. In a recent research (Pintrich & DeGroot, 1990) among grade 7 students, it was also confirmed that females were more test anxious than males. In addition, a synthesis of findings from 562 research reports on test anxiety indicated that females consistently showed higher levels of test anxiety than males (Hembree, 1988). So, the result of the present study is not surprising.

One possible reason why females scored higher on test anxiety scales is probably males are more reluctant than females to express their anxieties as suggested by Hembree (1988) and this may be the case in the present study. Another possible explanation refers to teachers' expectation. It's clear that in the community the present study was conducted, teachers treat males and females differentially in classroom academic performance. In other words, teachers expect high performance from boys than from female students. Thus, this may create unfavorable educational environment for girls so that they can be high test anxious students. In addition to this, parents may not give attention to the academic

successes of their daughters and as a result female students in this community may spend most of their time on household chores instead of studying what they learn at school. Therefore, all these conditions may raise females' test anxiety as they proceed from grade to grade.

5.2 Grade Level and Sex Differences in Learning Strategies

Regarding the cognitive strategy use, as mentioned earlier in chapter four, the grade main-effect is not statistically significant at the predetermined level of significance. This suggests that there is no significant difference among the students of the four grade levels in using cognitive strategies, such as rehearsal, elaboration and organization.

The result of the present study is not consonant with the previous studies (Zimmerman & Martinez - Pons, 1990; Naus, 1982; Keeney, Cannizzo, & Flavel, 1967; Johnson, 1980; Bjorklund, 1987; Flavel, Beach, & Chinsky 1966) which generally concluded that as students proceed from one grade level to the next higher grade level they make more use of learning strategies than the younger students at lower grade levels. This is because of school work which becomes more technical and more demanding over the years, and this, in turn, may enhance the development of improved learning strategies (Johnson, 1980). The result of the present study is, therefore, surprising since it stands in contrast to the expected developmental trends of cognitive strategy use.

One possible explanation for the discrepancy between the present study and the previous studies may refer to the condition under which this study and the previous studies were conducted. The previous studies, it is clear, were undertaken in educationally conducive environment where the number of students were less in one classroom and where different activities could be organized in which each student could participate and make his/her own decision. The type of

classroom tasks and tests (examinations) given in such kind of environment may be challenging and interesting as grade level increases so that students could develop their own method of remembering what they learn for tests or examinations, such as rehearsal, organization, and elaboration and then develop their own learning strategies.

In the present study, however, as it was observed by the researcher, the number of students in each classroom was large so that very few students could participate in what they learn. Students are simply sitting and listening to their teachers. Apart from this, students are usually not given subjective type questions during examination periods which demand elaboration, organization and rehearsal when they study. Teachers often prepare objective (multiple choice) type of questions and the students prepare themselves for examinations according to the type of questions. In this case, students are confident enough to choose one of the alternatives for each examination question even if they do not study hard either by guessing or copying from their friends. So, this obviously leads to poor development of study habit or learning strategy. In general, it seems, students do not have a conducive or facilitative educational environment both at home and school and this could contribute to the anomalous result of the present study.

Another explanation may refer to the teachers' ignorance of the role of non-cognitive variables, such as motivational beliefs and learning strategies, in the instructional process. Teachers are simply presenting (teaching) the content of the subject-matter without considering its corresponding method of understanding it. In other words, students are hardly helped by their teachers in getting information about study methods. The above argument was supported by some teachers and students through personal communication during data collection for this study. Taken together, the aforementioned problems seem to debilitate the development of students' cognitive strategy use with advancing grade level.

Regarding the relationship between cognitive strategy use and sex, the difference between males and females was statistically significant. Males had higher cognitive strategy use scores (mean=49.93) than females (mean = 47.66); $F(1,749) = 17.22, P < .05$. The explained variance accounted for by the sex factor was very small (2.2%) suggesting that there are other factors, perhaps more important than sex, in contributing to the variance in cognitive strategy use.

The result of the present study is not new. A consistent result was found by Pintrich and DeGroot (1990) among grade 7 students ($N=173$) in which boys reported more use of cognitive strategy use. In that study, t-test was used to examine the difference between males and females on the use of cognitive strategy whereas in the present study analysis of variance was employed for this purpose among students of different ages (grade levels).

In contrast to the above findings, Pokay and Blumenfeld (1990) indicated that girls reported using more cognitive strategies than boys did. Prior to the above findings it was found by Eccles (1983) that girls reported using more strategies than boys in mathematics. These discrepancies suggest that the issue is still controversial. One possible explanation for these discrepancies may refer to the instruments used in this study and the previous studies since they were not identical.

In the present study, in spite of the fact that boys had significantly higher cognitive strategy scores, they did not have higher scores than girls consistently across all grade levels. It seems that boys make more use of cognitive strategies than girls between grades 9 and 11 whereas in grade 8 girls are better than boys in using cognitive strategies. According to the result of the present study, it appears, therefore, that at lower grade levels girls can make more use of cognitive strategies than boys, but with advancing grade level it may favor boys. The reason may be due to the difference in their motivational orientations. In this study, boys had consistently higher self-efficacy scores and less test anxiety

scores than girls across all grade levels. But, girls are better than boys in giving value to what they learn in grade 8. This may be one of the factors which contributed to the differences between boys and girls in cognitive strategy use across grade level since the components of motivational orientation and learning strategy tune and affect each other.

With respect to self-regulation, the grade main effect was not statistically significant at the predetermined level of significance. This suggests that there is no significant difference among students of grades 8 through 11 in their self-regulation, that is, in setting goals, generating questions, focusing attention, monitoring comprehension, reviewing, adjusting reading rate and persisting at difficult tasks. The variance explained by grade level is very small (.02%). This indicates that there are other factors which were not included in this study, which may be more important than grade level in contributing to the differences in self-regulation.

Regarding the developmental trends of self-regulation some previous studies (Yussen & Berman, 1981; Yussen & Levy, 1975) suggested that, as the child develops, there is an increase in attentional and perceptual systems, problem solving ability, cognitive monitoring and meta cognitive knowledge. Similarly, other scholars (Gagne, 1985; Woodfolk & McCune-Nicolich, 1984) indicated that as students advance through different grade levels they show improvement in meta cognitive ability, which is part of self regulation in the present study.

The result of the present study is, however, not as expected. In other words, it is inconsistent with what have been suggested by different scholars above. One possible reason for this discrepancy may be the condition under which these studies have been carried out. The previous studies, it goes without saying, were conducted in advanced countries where the educational environment was very conducive both at home and at school. Apart from this, most of the

previous studies were conducted in urban areas and the parents of the subjects of the studies had good exposure to modern education. The present study, however, was conducted in rural area using the subjects of the study mostly from agrarian families. So, one cannot expect a conducive or supportive educational environment from the condition of the present study. Therefore, the aforementioned problem may be one of the factors to contribute to the inconsistencies between the previous studies and this study.

Still, another possible explanation may refer to the instruments used in this study and the prior studies. First, they were not identical. Second, most of the previous studies investigated the components of self-regulation separately whereas these components were combined and examined in the present study. This approach may have created differences between this study and the previous ones.

On the other hand, Zimmerman and Martinez-Pons (1990) examined how grade 5, 8, and 11 students review their tests and their own notes. The results indicated that students displayed an increase in their review of notes but a decline in reviewing texts. So, it appears that the issue is still controversial even when the components of self-regulation are investigated separately. However, Zimmerman and Martinez-Pons used only gifted and average students in their study. Thus, the result of the former study should not be generalized to the normal population.

Regarding the relationship between sex and self-regulation, as it was already mentioned in chapter four, males (mean=34.61) scored significantly higher than females (mean=33.26); $F(1,749) = 12.29, P < .05$. The proportion of variance explained by sex is very small (1.6%) suggesting that the sex factor has a small contribution to the differences in students self-regulation among other factors which could probably contribute more to the differences in self-regulation.

Pintrich and DeGroot (1990) found the same result among grade 7 students using a similar instruments. However, students of different ages (grade levels) were used in this study whereas in Pintrich and DeGroot's study only children of the same age (grade level) were used.

According to the results of the present study, it seems that male students are better than female students in setting goals, comprehension monitoring, having attention in classroom, persisting at difficult academic tasks, reviewing their notes ... at high school level.

In contrast to the above conclusions other studies (e.g, Pokay & Blumenfeld, 1990; Zimmerman & Martinez-Pons, 1990) revealed that girls had more self-regulatory learning strategies than boys did. So, it appears that the issue is still inconclusive. However, Zimmerman and Martinez - Pons (1990) used only gifted and average students in their study, as already mentioned elsewhere in this paper, and the generalization of their results seems hardly possible. Pokay and Blumenfeld (1990), on the other pole, examined students' self-regulation in geometry whereas in the present study general self-regulatory learning strategy is in focus. The discrepancy between the present study and the latter studies is, therefore, probably due to the subjects of the studies and the purposes of the instruments used in addition to the different conditions under which this study and the previous studies were conducted.

5.3 Relations Between Motivational and Learning Strategy Components

According to the results of the present study, the relationships between motivational and learning strategy components were in the expected directions across all grade levels included in this study. The motivational variables were significantly correlated with students' cognitive engagement and self-regulation

as expected. Therefore, the results of this study seem to provide additional evidence for the specification and elaboration of the theoretical linkages between individual differences in students' motivational orientation and their cognitive engagement and self-regulation in classroom settings (Eccles, 1983; Pintrich, 1988, 1989; Corno & Mandinach, 1983; Weinert, 1987).

In this study, self-efficacy was positively and significantly related to cognitive strategy use, that is, students who believed they were capable were more likely to report use of cognitive strategies, such as rehearsal, organization and elaboration. Similarly, the relationship between self-efficacy and self-regulation was also significant and in the expected direction indicating that students who rated themselves self-efficacious were more likely to report use of meta cognitive strategies, and to persist more often at difficult tasks or uninteresting academic tasks.

The result of the present study is consistent with the previous studies (Pintrich & DeGroot, 1990; Pintrich et al., 1993) which revealed that self-efficacy was positively and significantly related to cognitive strategy use and self-regulation at junior high school and college levels. The instruments used in the present study and aforementioned studies were similar and this might have brought similar results despite the different conditions under which the studies were conducted. In the present study, it appears that self-efficacy is positively and strongly related to cognitive strategy use and self-regulation with advancing grade levels.

With regard to intrinsic value, it was also positively and strongly related to the use of cognitive strategies and self-regulation as grade level increases. The result of this study is consonant with prior studies (Pintrich & DeGroot, 1990; Pokay & Blumenfeld, 1990; Pintrich et al., 1993) which explored similar relationships between intrinsic value and the components of learning strategy.

The results of the present study, with respect to intrinsic value as related to learning strategy variables, indicate that students who were motivated to learn what were taught in their classrooms (not just to get good grades) and believed that their school work was interesting and important were more cognitively engaged in classroom academic tasks. Apart from this, these students were more likely to be self-regulating. In other words, they seem to use meta-cognitive strategies and effort management for planning, comprehension monitoring, paying attention in class, reviewing notes and persisting at difficult academic tasks.

It is important to note that the correlation data in this study do not address causality, but it appears that the students who choose to become cognitively engaged and self-regulating are those who are interested in and value the tasks they work on in their classrooms. In this connection, some investigators (e.g., Meece et al., 1988; Nolen, 1988) suggested that students' intrinsic value (motivation) to learn is an important component to be considered in the model of how students come to use different cognitive strategies and become self-regulating learners.

Although the scores of self-efficacy, intrinsic value, cognitive strategy use and self-regulation do not seem to increase with increasing grade level, they appear to be related more strongly to each other as grade level increases. However, the correlations between these variables at higher and lower grade levels do not significantly differ. This indicates that the patterns of relationships between the components of motivation (self-efficacy and intrinsic value) and learning strategy variables are similar at all grade levels (grades 8 through 11).

With reference to test anxiety, as shown in chapter four, it was negatively and significantly related to use of cognitive strategies and self-regulation at all grade levels. The result of the present study is not new in this respect. Similar relationships were found between test anxiety and learning strategy variables in prior studies (Pintrich & DeGroot, 1990; Hill & Wigfield, 1984; Pintrich et al., 1993;

Benjamin et al., 1981; Pintrich et al., 1994) which reported that test anxiety was negatively related to cognitive strategy use and self-regulation. But these previous studies did not consider grade levels in their investigations and identical instruments were not used in the present study and the previous studies.

In this study, as it has been mentioned earlier (Chapter four) the correlations between test anxiety and learning strategy variables (cognitive strategy and self-regulation) in grades 9 and 10 significantly differed from the correlations between these variables in grade 8. So, it appears that the degree of relationships between test anxiety and learning strategy variables is less at lower grade levels than at higher grade levels according to the result of the present study. However, the interpretation of the difference between the correlations of these variables at lower and higher grade levels is difficult since the previous studies mentioned above did not include grade level differences in the relations between the components of motivational orientation and learning strategy.

In sum, the three motivational subscales (components) and the two learning strategy variables seem to represent a coherent conceptual and empirically validated framework for assessing students motivation and use of learning strategies at high school level.

5.4 Relationships Between Motivational and Learning Strategy Components and Academic Performance

According to the result of the present study, the correlations between the components of motivation and learning strategy and academic achievement were in the expected directions. For example, self-efficacy and intrinsic value were positively and significantly related to students' academic achievement at all grade levels whereas test anxiety was negatively correlated with students' academic

performance across all grade levels included in this study. In other words, students who approached their academic work with an intrinsic value for learning, who believed that what they learn was interesting and important, and who had self-efficacy beliefs for accomplishing academic tasks were more likely to do well in terms of academic performance. With respect to test anxiety, and academic achievement, students who reported being test anxious were less likely to be successful in their academic performance at all grade levels.

The learning strategy components were also correlated significantly with students' academic performance in the expected directions. This suggests that students who relied on elaboration strategies (paraphrasing, summarizing, note taking), organizational strategies (selecting main ideas, outlining), rehearsal strategies (underlining important ideas, repeating, copying...), meta cognitive strategies (planning, reviewing, setting goals), and effort management strategies (persistence at difficult or uninteresting tasks), were likely to receive higher grades in their academic work.

The results of the present study were consonant with the prior studies (e.g., Pintrich & DeGroot, 1990; Pokay & Blumenfeld, 1990; Pintrich et al., 1993, 1994) which concluded that self-efficacy intrinsic value, cognitive strategy use and self-regulation were positively correlated with students' academic performance and test anxiety was negatively related to school achievement. The aforementioned studies, however, did not consider grade level changes in the relations between motivational and learning strategy components and academic performance which were considered in the present study.

With reference to the simple correlations given in chapter four, self-efficacy was more strongly related (considering the magnitude of the correlation coefficients), especially after grade 8, to learning strategy variables than to academic performance, and the learning strategy variables were directly and strongly related to academic performance. This suggests that self efficacy plays

a facilitative role in relation to cognitive engagement as suggested by Schunk (1985). This implies that improving students' self-efficacy beliefs may lead to more use of learning strategies which, in turn, influences students' academic achievement.

It is also important to note that intrinsic value was more strongly and significantly related to cognitive strategy use and self-regulation than to academic performance at all grade levels. The learning strategy variables, in turn, show more strong and significant relationship with academic performance. This result seems to support what was found by Pintrich and DeGroot (1990) which indicated that intrinsic value did not have a direct influence on academic performance but was strongly related to self-regulation and strategy use.

After partialling out the influence of self-efficacy, intrinsic value and test anxiety, the learning strategy variables were not strongly and significantly related to academic performance at all grade levels whereas self-efficacy and test anxiety were more strongly and significantly related to academic performance at each grade level. This, again, seems to confirm the facilitative role of motivational variables in relation to cognitive engagement. In other words, cognitive strategy use and self regulation without the concomitant use of motivational variables do not seem to be conducive to academic performance.

In this connection, referring particularly to intrinsic value once again, the present finding also parallels the work of Eccles (1983), who found that value components did not have a direct influence on student achievement in mathematics but were closely tied to students' choice of future mathematics courses. Similarly, the finding of the present study suggests that intrinsic value is an important component of students' "choice" about becoming cognitively engaged in their classroom academic work.

Regarding test anxiety, it was more strongly related to academic performance in the expected direction than to cognitive strategy use and self-regulation at all grade levels. This may suggest, in this study, that the effects of test anxiety are related to retrieval problems at the time of testing rather than lack of effective cognitive strategies for encoding or organizing what they study. This interpretation is in line with cognitive models of anxiety (e.g., Benjamin, McKeachie, & Lin, 1987; Tobias, 1985) that propose that for some test anxious students who actually have adequate cognitive skills, test anxiety during exams engenders worry about their capabilities that interferes with effective performance.

Concerning the relations between learning strategy variables and academic performance the results seem to provide ecologically valid data on actual classroom academic performance which is in support of a general model of self-regulated learning. The model proposes that students who are more cognitively engaged in trying to learn by memorizing, organizing, rehearsing, and elaborating, perform better than students who tend not to use these strategies (Corno & Mandinach, 1983; Weinstein & Mayer, 1986). Similarly, the positive and significant correlations between self-regulation and academic performance at all grade levels suggest that the use of self-regulating strategies such as comprehension monitoring, goal setting, planning and effort management, is essential for actual classroom academic performance (Corno, 1986; Zimmerman & Martinez-Pons, 1988). The aforementioned research findings and theories, however, did not consider grade level differences in the relations between motivational and learning strategy components and academic achievement. In connection with the developmental changes in the relations between motivational beliefs, learning strategies and academic achievement, some previous investigators (e.g., Paris & Oka, 1986; Bandura, 1986; Stipek, 1993) propose that as children age motivational and cognitive variables are more highly related to school achievement.

Unlike the aforesaid studies, the results of the present study indicated that the strength of the relationships between motivational and learning strategy components and academic performance are similar at all grade levels. In other words, the magnitude of the correlation coefficients between motivational and learning strategy components and academic performance do not substantially differ across grades. However, at all grade levels significant relationships were obtained in the expected directions.

The results of the multiple regression analysis showed that all the motivational and learning strategy variables, taken together, accounted for similar amounts of variance (which ranged between .51 and .55) in academic achievement at all grade levels. The proportion of academic achievement accounted for by the independent variables at each grade level is reasonably good, given the many other factors that are related to high school students academic performance which are not measured by MSLQ.

The difference between the findings in the present study and those of previous studies appear to be due to, as mentioned in chapter four, the discrepancy between the present study and prior studies with respect to the developmental patterns of motivational and learning strategy variables. In other words, given the finding that the motivational and learning strategy variables remain stable across grades, one is not likely to detect an increasing significant relationship between these variables and academic achievement. Another possible explanation is because of increased task difficulty, the difference in achievement with increasing grade level may be more related to actual capability than to motivational beliefs and learning strategies.

According to the results of multiple regression analysis in this study, self-efficacy and test anxiety seem to be the best predictors of academic achievement among the remaining variables at all grade levels. The present finding is partly in consonant with what Pintrich and DeGroot (1990) detected among grade seven

students which indicated that self-regulation, test anxiety and self-efficacy emerged as the best predictors of academic achievement. In the present study, self-regulation was not found to be the best predictor of academic achievement consistently as self-efficacy and test anxiety across grade levels. However, it is relatively important, next to self-efficacy and test anxiety, in predicting academic performance in grades 10 and 11. Intrinsic value is also the third important variable in predicting academic performance in grades 8 and 9. So, the discrepancy between this study and the previous study may be due to grade level differences.

The findings that test anxiety and self-efficacy were the best predictors of academic achievement at all grade levels suggest that students' perceived competence and confidence are essential for effective performance of academic tasks (Eccles, 1983; Schunk, 1981) while students' affective and emotional reaction to tests debilitates school achievement across grades. In this case, it is important to note the role that could be played by self-efficacy in enhancing male students' academic performance and use of learning strategies since boys appear to be more self-efficacious than girls consistency across grade levels and the role that could be played by test anxiety in debilitating female students' academic performance since they seem more test anxious than boys.

Generally, most of the present findings are not new. What is relatively new is the developmental patterns of learning strategies in the present study which are different from the developmental trends observed in advanced countries. The developmental trend of both cognitive strategy use and self-regulation (which is a decrease with grade level) in this study, seems to be the opposite of the findings obtained in other countries and this difference is not common in the literature. On the other hand, the present data support some of the previous research findings which explored different developmental patterns for self-efficacy and test anxiety and disagree with some of them. With regard to the developmental trend of intrinsic value and the relations between the components of motivation and

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learning strategy and their combined effects on academic achievement, there was no discrepancy between the present study and the previous research findings except the grade level changes in the relations between motivational and learning strategy variables and academic performance.

The present findings have practical implication to the teaching-learning process and further research. With respect to the practical implication, high school teachers should not only focus on the cognitive aspects of the subjects they teach, but should equally consider non-cognitive variables (e.g. improvement of students' motivational orientations and learning strategies) in the instructional process. Many techniques have been used to improve students' motivational orientations and learning strategies in advanced countries (see Dembo, 1994). However, only some of them may be applicable in the present context. For instance, in order to improve students' motivational orientation the following techniques are likely to be applicable in the instructional process.

- Provoking curiosity. In other words, arousing surprise and a feeling of contradiction in students by presenting a phenomenon that violates their expectations at the beginning of a lesson.
- Maintaining attention and interest through variety and change (not to start a class the same way day after day).
- Enhancing students' involvement in learning through games, classroom discussions and group activities.
- Informing students clearly the objectives of a lesson at the beginning of each class.
- Encouraging students to have confidence in what they learn.

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- Enhancing students' involvement in learning through games, classroom discussions and group activities.
- Informing students clearly the objectives of a lesson at the beginning of each class.
- Encouraging students to have confidence in what they learn.

- Reducing anxiety by giving sufficient or appropriate time for academic tasks to be accomplished and treating girls and boys equally in the classroom. Anxiety can also be reduced through clear presentation of the lesson using diagrams, outlines and other methods for organizing information or rendering guidance counseling service.

With respect to the improvement of students' learning strategies, apart from the indirect approach mentioned above, Dembo (1994) and Costa (1984) proposed different techniques. But, some of them which are given below, seem to be applicable in the present context.

- Telling students the important points in a lesson.
- Having the learners list the important new terms in the subject they learn.
- Encouraging students to take notes and underline important ideas.
- Having students summarize teacher's lecture.
- Providing time at the end of each class for asking and answering questions.
- Encouraging students to plan and outline the tasks they are supposed to accomplish (e.g. assignments)
- Telling students to generate questions and ask themselves while they study.

In addition to the practical implication of the findings given above, this study also suggests various areas for future investigation. Among these are repeating the same research by improving the adequacy of the present instrument (MSLQ) including some other relevant factors, such as socio-economic status, parental and teacher expectations in different schools and grade levels in Ethiopia. In additions, observations and interviews should also be included. Designing some mechanisms to control response sets, such as social desirability may be some of the measures that could help to increase the adequacy of the instrument.

There are some limitations to the findings of the present study, however. First, all the student motivation and learning strategy components were measured by self-report instrument and the items may be susceptible to response set, such as social desirability. Self-report can be used effectively to measure student perceptions of motivation and cognitive engagement (Ames & Archer, 1988; Meece et al., 1988), but the results need to be replicated with other measures, such as structured interviews or behavioral measures (Zimmerman & Martinez-Pons, 1986).

The other limitation pertains to the scope of the study. Due to its limited scope (only Northern Shoa Administrative Zone) the generalizability of the study may be limited to the population studied.

CHAPTER SIX

SUMMARY AND CONCLUSION

The first purpose of the present study was to examine grade level and gender differences in students' academic motivational orientations (self-efficacy, intrinsic value and test anxiety) and learning strategies (cognitive strategy use and self-regulation), and the second purpose was to investigate how these motivational and learning strategy components are related to each other and academic achievement among high school students in Northern Shoa region. Accordingly, the following specific questions were stated:

1. Do students of the four grade levels (grades 8,9,10 and 11) significantly differ in their
 - a) motivational orientations?
 - b) learning strategies?
2. Do boys and girls in grades 8 through 11 show statistically significant difference in their
 - a) motivational orientations?
 - b) learning strategies?
3. How are the three motivational components related to the components of learning strategy at each grade level?
4. How are the motivational and learning strategy components related to academic achievement across grade levels?

There were 11 secondary schools in Northern Shoa. Out of these, 5 schools were selected at random. From these sampled schools, 757 subjects (males = 391 and Females = 366) were randomly selected from the four grade levels.

The instrument used in this study (MSLQ), to assess high school students' motivational orientations and learning strategies, was adapted from the instrument reported by Pintrich and DeGroot(1990) that was used with a junior high school population. The instrument was administered to a pilot sample (N=151), and based on this, item analysis was carried out and it was improved.

Analysis of variance was employed to examine grade level and gender differences in students' motivational orientations and learning strategies using grade level and sex as independent variables and the five motivational and learning strategy components as separate dependent variables. Simple correlations were used to investigate the relations between the components of motivation and learning strategy at each grade level. To examine the relationships between motivational and learning strategy components and academic achievement, simple correlations, partial correlations and multiple regression analysis were employed at all grade levels.

The results of ANOVA's indicated that the grade main-effect was statistically significant only for self-efficacy scores. With respect to this, pair-wise comparisons were used and these detected that 8th graders scored significantly higher than 11th graders in self-efficacy scores. No other pair-wise comparison was significant. The proportions of variances accounted for by grade level to the variances in self-efficacy, intrinsic value, test anxiety, cognitive strategy use, and self-regulation were .013, .009, .009, .001, and .002, respectively.

The sex main-effect was statistically significant for self-efficacy, test anxiety, cognitive strategy use, and self-regulation. Males scored significantly higher than females in self-efficacy, cognitive strategy use and self-regulation whereas females had higher scores than males in test anxiety. Between grade 8 and 11, males had consistently higher scores than females in self-efficacy, cognitive strategy use, and self- regulation. Concerning test anxiety, females

scored consistently higher than males at all grade levels. There was no statistically significant difference in intrinsic value scores between males and females. The proportions of variances accounted for by sex to the differences in self-efficacy, intrinsic value, test anxiety, cognitive strategy use, and self-regulation were .039, .001, 0.07, 0.022, and .02, respectively.

The sex-by-grade interaction was statistically significant only for cognitive strategy use at the predetermined level of significance. The effect of grade level was different for males and females for cognitive strategy use.

With respect to the relations between the components of motivation and learning strategy, they were related significantly to each other in the expected directions. That is, self-efficacy and intrinsic value were positively related to cognitive strategy use and self-regulation to a statistically significant extent whereas test anxiety was negatively and significantly related to the learning strategy components at each grade level.

Concerning the relationships between motivational and learning strategy components and academic achievement, the simple correlations revealed that the relations between motivational and learning strategy components and academic achievement were in the expected directions. In other words, higher levels of self-efficacy, intrinsic value, cognitive strategy use, and self-regulation were associated with higher levels of academic performance whereas higher levels of test anxiety were significantly related to lower levels of academic performance at all grade levels. The partial correlations indicated that self-efficacy and test anxiety were more strongly and significantly related to academic performance than the remaining variables at each grade level.

Finally, the results of multiple regression analysis showed that, when academic achievement was regressed on all the independent variables (self-efficacy, intrinsic value, test anxiety, cognitive strategy use, and self-regulation),

the obtained multiple coefficients of determination were .5469, .5092, .5272, and .5554 for grade 8, 9, 10 and 11, respectively. The results suggest that the independent variables, when combined together, have a significant relationship with academic achievement at each grade level. The regression analysis also revealed that self-efficacy and test anxiety were relatively more important in predicting academic achievement than the other variables in the study at all grade levels.

In general, most of the results of the present study were not new. What is relatively new is the developmental patterns of learning strategies in this study which are different from the developmental trends of learning strategies observed in advanced countries.

From the above findings one may arrive at the following conclusions:

1. Compared to the variances accounted for by sex, the variances in motivational orientation and learning strategy scores that were accounted for by grade level were lower. It appears, therefore, that the sex of the student is more important than his/her grade level in contributing to the variances in motivational and learning strategy components. And again, considering the small amount of variances accounted for by both grade level and sex, it seems that there are other variables that are more important than grade level and sex in contributing to the differences in students' motivational orientations and learning strategies. Socio-economic status, school curricula, parental and teachers' expectations are probably some of them.
2. Although students' motivational orientations and learning strategies slightly decline among all the students with increasing grade level, the decline appears to be more remarkable in the case of female students. With reference to test anxiety, however, it seems that females are more test anxious with advancing grade level.

3. Students with a motivational orientation involving self-efficacy and intrinsic value seem to engage in more cognitive strategy use, metacognitive activity, and effective effort management. But, students who are more test anxious are likely to have poor learning strategies.
4. Students' motivational orientations and learning strategies are important factors that are strongly related to academic achievement. Students with the motivational orientations which include self-efficacy and intrinsic value and who use appropriate learning strategies, such as cognitive strategy use and self-regulation appear to be successful learners. Very test anxious students, however, seem to be weak in academic performance.

Finally, the present findings seem to have practical implication to the teaching-learning process and further research. The practical implication was discussed in detail in chapter five. In short, it focused on the need to improve students' motivational orientations and learning strategies in the teaching-learning process. With regard to further research, the need to repeat the same research in different grades and schools in Ethiopia by improving the instrument used in this study and including other relevant variables was discussed in the preceding chapter (chapter five).

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APPENDICES

APPENDIX A

A List of Secondary Schools in the Area of the Study: (Northern Shoa)

1. Arbegnoch Secondary School
2. Arerti Secondary School
3. Ataye Secondary School
4. Debresina Secondary School
5. Enwari Secondary school
6. Gishe Rabel Secondary School
7. Haile Mariam Mamo Comprehensive Secondary School
8. Mehale Meda Secondary School
9. Mida Secondary School
10. Molale Secondary School
11. Shoa Robit secondary School

Note: Schools numbered 3,4,5,8 and 11 were the sample schools.

APPENDIX B

Distribution of Students in each grade of Schools selected and sample Size Included in the Study from each Grade and School, 1995 (Semester II)

Schools	Number of SS in each School				Sample size included in the study		
	Grade	Male	Female	Total	Male	Female	Total
Mehal	8	81	61	142	20	20	40
Meda	9	162	103	265	20	20	40
	10	68	57	125	20	20	40
	11	114	43	157	20	17	37
Debresina	8	137	123	260	18	20	38
	9	153	144	297	20	14	34
	10	115	78	193	20	16	36
	11	89	48	137	18	17	35
Ataye	8	89	91	180	20	20	40
	9	121	94	215	20	19	39
	10	133	80	213	20	19	39
	11	63	25	88	20	15	35
Shoa Robit	8	101	91	192	19	19	38
	9	147	122	269	20	20	40
	10	71	29	100	20	20	40
	11	57	18	75	20	20	40
Enwari	8	126	124	250	20	15	35
	9	115	95	210	18	20	38
	10	86	59	145	18	20	38
	11	91	62	153	20	15	35
Total		2119	1547	3666	391	366	757

Note: Total number of students who did not appropriately respond to the questionnaire was 43.

Appendix C

Motivated Strategy for Learning Questionnaire (MSLQ)

Addis Ababa University

Department of Educational Psychology

Motivation and Learning Strategy Scale (to be rated by students)

The objective of this scale is to examine students' academic motivational orientations and learning strategies in grades 8 through 11. The findings will be used for educational purpose. The data will be kept confidential and do not harm the respondents and other related persons. There is no right or wrong answer. After reading each question, please answer it based on your general experience. Since the success of this study highly depends on your honesty in rating the scale, you are kindly requested to respond accordingly. There is no need of writing your name.

Thank you

PART ONE

1.1 Autobiographic Information (Please fill in)

1.1.1 School _____

1.1.2 Grade level _____

1.1.3 Sex _____

1.1.4 Age _____

1.1.5 Roll number _____

1.2 Biographic Information

Questions related to your parents or guardians are given below.

Please indicate the alternative that you think refers to your parents

or guardians by circling its corresponding letter or filling in blank space.

1.2.1 What is your father's (male guardian's) level of education?

- a) No education
- b) Basic education
- c) Elementary school education
- d) Junior high school education
- e) senior high school education
- f) Junior college education
- g) Professional degree
- h) Other (specify _____)

1.2.2 What is your mother's (female guardian's) level of education?

- a) No education
- b) Basic education
- c) Elementary school
- d) Junior high school
- e) Senior high school
- f) Junior college education
- g) Professional degree
- h) Other (specify _____)

1.2.3 What is your parents' job?

- a) Father's _____
- b) Mother's _____

PART TWO

Directions: Following is a list of statements about your academic motivational orientations and learning strategies. Put (✓) in the appropriate box given after each statement to indicate the degree to which what the statement expresses is true of you. There is no right or wrong answer, and your score will not affect your grade in any subject.

No	Items	No at all true of me	Somewhat true of me	Moderately true of me	True of me	very true of me
1	Compared with other students in my class I expect to do will.					
2	When reading I try to connect the things I am reading about with what I already know.					
3	I am so nervous during a test that I cannot remember facts I have learned					
4	when I study for a test, I try to put together the information from class and from the book.					
5	I ask myself ques -tions to make sure I know the material I have been studying.					

No	Items	No at all true of me	Somewhat true of me	Moderately true of me	True of me	very true of me
6	I am certain I can understand the ideas taught in class.					
7	It is important for me to learn what is being taught in class.					
8	When I am studying a topic, I try to make everything fit together.					
9	When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly.					
10	When work is hard I either give up or study only the easy parts.					
11	When I read material for class, I say the words over and over to myself to help me remember.					
12	I like what I am learning in class.					
13	I worry a great deal about tests.					

No	Items	No at all true of me	Somewhat true of me	Moderately true of me	True of me	very true of me
14	It is hard for me to decide what the main ideas are in what I read.					
15	I work on practice exercises and answer end of chapter questions even when I don't have to.					
16	Compared with other students in my class, I think I am a good student.					
17	I think I will be able to use what I learn in my class in other classes.					
18	when I take a test I think about how poorly I am doing.					
19	When I study I put important ideas in my own words.					
20	Even when study materials are dull and uninteresting, I keep working until I finish.					
21	I am sure I can do an excellent job on the problems and tasks assigned for my class.					

No	Items	No at all true of me	Somewhat true of me	Moderately true of me	True of me	very true of me
22	I often choose paper topics I will learn something from even if they require more work.					
23	I always try to understand what the teacher is saying even if it does not make sense.					
24	Before I begin studying I think about the things I will need to do to learn.					
25	I think I will receive a good grade in my class.					
26	Even when I do poorly in a test I try to learn from my mistakes.					
27	When I study for a test I try to remember as many facts as I can.					
28	I often find that I have been reading for class but don't know what it is all about.					

No	Items	No at all true of me	Somewhat true of me	Moderately true of me	True of me	very true of me
29	My study skills are excellent compared with other students in my class.					
30	I think that what I am learning in class is useful for me to know.					
31	When studying, I copy my notes over to help me remember material.					
32	I find that when the teacher is talking I think of other things and don't really listen to what is being said.					
33	Compared with other students in my class I think I know a great deal about the subject I learn.					
34	I think that what we are learning in our class is interesting.					
35	When I study for a test, I practice saying the important facts over and over to myself.					

No	Items	No at all true of me	Somewhat true of me	Moderately true of me	True of me	very true of me
36	When I am reading I stop once in a while and go over what I have read.					
37	I know that I will be able to learn the material for my class.					
38	Understanding the subject I learn is important to me.					
39	I use what I have learned from old homework assignments and the textbook to do new assignments.					
41	I have an uneasy, upset feeling when I take a test.					
42	I expect to do very well in my class.					
43	I outline the chapters in my book to help me study.					
44	I prefer class work that is challenging so I can learn new things.					

Distribution of Items in the Scale to minimize Response Bias**1. Motivational Orientation Components**

Self- efficacy - 1, 6, 16, 21, 25, 29,33, 37, 42

Intrinsic Value - 7, 12, 17, 22,26, 30, 34, 38, 44

Test Anxiety - 3, 13, 18, 41

2. Learning Strategy Variables

Cognitive Strategy use - 2, 4, 8, 9, 11, 14, 19, 23, 27 31, 35, 43,39

Self-regulation - 5, 10, 15, 20, 24, 28, 32, 36, 40.

APPENDIX D

Results of the Pilot Study

A. Correlations and Summary Statistics for MSLQ Subscales

- (1) Summary Statistics and Zero-order Correlations for Motivation and Learning Strategy variables: Grade 8

(No=38)

Variables	1	2	3	4	5
1. Intrinsic value	-				
2. Self-efficacy	.20	-			
3. Test anxiety	-.33*	-.11	-		
4. Strategy use	.35*	.44**	-.58*	-	
5. Self-regulation	.37*	.20	-.68**	.59**	-
Mean	36	41.20	11.65	52.30	34.65
Maximum score	45	45	20	65	45
SD	5.16	3.86	4.52	8.5	5.45

*p<.05. **P<.01.

2. Summary Statistics and intercorrelations for Motivational and Learning Strategy Components: Grade 9

(N = 39)

Variables	1	2	3	4	5
1. Intrinsic value	-				
2. Self-efficacy	.23	-			
3. Test anxiety	-.54**	-.10	-		
4. Strategy use	.47**	.33*	-.33*	-	
5. Self-regulation	.65**	.25	-.46*	.82**	-
Mean	32.25	39.65	13.30	51.85	35.70
Maximum score	45	45	20	65	45
SD	5.60	4.20	4.55	8.15	4.22

*p<.05. **P<.01.

(3) Zero-order Correlations and Summary Statistics for Motivational and Learning Strategy Variables: Grade 10.

(N= 37)

Variables	1	2	3	4	5
1. Intrinsic value	-				
2. Self-efficacy	.69**	-			
3. Test anxiety	-.58**	-.51**	-		
4. Strategy use	.82**	.64**	-.44**	-	
5. Self-regulation	.80**	.77**	-.63**	.75**	-
Mean	31.74	39.26	11.21	49.84	35.16
Maximum score	45	45	20	65	45
SD	6.66	4.07	4.80	8.14	6.75

**p<.01.

(4) Intercorrelations and Summary Statistics for Motivational and learning Strategy Components: Grade 11.

(N=37)

Variables	1	2	3	4	5
1. Intrinsic value	-				
2. Self-efficacy	.52**	-			
3. Test anxiety	-.28	-.08	-		
4. Strategy use	.74**	.34*	-.36*	-	
5. Self-regulation	.74**	.28	-.43**	.80**	-
Mean	29.65	38.45	13.25	52.30	33.30
Maximum score	45	45	20	65	45
SD	5.14	4.49	3.68	7.91	6.20

*P<.05. **P<.01

2. Internal Reliability Coefficients (Coefficient alphas for MSLQ subscales at each Grade Level

Grade Level	Variables				
	SE	IV	TA	CS	SR
8	.72	.61	.89	.98	.74
9	.79	.71	.90	.86	.72
10	.87	.64	.93	.92	.88
11	.73	.70	.77	.84	.87

Note. SE= Self-efficacy

IV= Intrinsic Value

TA= Test anxiety

CS= Cognitive Strategy use

SR= Self-regulation

$$\text{Coefficient alpha } (\alpha) = \frac{K}{K-1} \left[1 - \frac{\sum S_i^2}{S_t^2} \right]$$

When K = Number of items

S_i^2 = Variance of each item

S_t^2 = Variance of the total score

Appendix E

Summary of the Relative contribution of each Independent Variable to the Variance in the Dependent Variable at each Grade Level

Variables entered	Grade Level							
	8		9		10		11	
	R ²	R ² Change	R ²	R ² Change	R ²	R ² Change	R ²	R ² Change
Self-efficacy	.2408	.2408*	.1988	.1988*	.2432	.2432*	.2662	.2662*
Intrinsic Value	.2845	.0437	.2214	.0226	.2704	.0272	.3008	.0346
Test anxiety	.5147	.2302*	.4714	.250*	.4996	.2292*	.5344	.2336*
Strategy use	.5261	.0114	.4960	.0246	.512	.0124	.5414	.007
Self-regulation	.5469	.0158	.5092	.0132	.5271	.0151	.5554	.014

*P<.01

APPENDIX - F

Classification of Cognitive Processes in Corno and Mandinach's (1983) self-regulated Learning Model as adapted by Howard- Rose Winne (1993, P. 604).

Acquisition Processes	Transformation processes
Attending ● Receiving or tracking stimuli ● Attending	Selecting ● Discriminating among stimuli ● Distinguishing relevant from irrelevant information
Rehearsing ● Repeating information to oneself	Connecting ● Searching for familiar knowledge ● Linking prior knowledge to incoming information ● Making connections or drawing inferences within task material
Monitoring ● Self-checking general level of understanding continuous tracking of stimuli and transformations ● Self-checking specific transformations such as inferences within task material, relationships among items of information.	Tactical planning ● Organizing a task or performance routing
Strategic planning ● overviewing task ● Assessing goals, constraints, and resources needed to complete a task ● Representing information systematically ● Seeking outside resources as need.	

APPENDIX G

Contents of Chapters on Motivation in the Encyclopedia of Educational Research, 1941-1990.

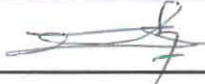
Descriptor	1941&1950	1960	1969	1982	1990
Author	P.T. Young	M.Marx	B.Weiner	S.Ball	B.Weiner
	- Need and activity level - Appetite and aversion	- Theories - Techniques	- Theories - Associative - Drive - psychoanalytic	- Attribution theory - Achievement Motivation	- Cognition causal attribution - Self-efficacy - learner helplessness
Content	- Equilibrium and homeostasis - Chemical controls - neural structures - Incentives - Defense mechanism - Degree of motivation - Educational applications . Praise and reproof . Success and failure . Knowledge of results . Cooperation and competition . Reward and punishment	- Drive and learning - Drive and frustration - Activation of drives and motives - Reward - Knowledge of results - Fear and anxiety - Arousal	- Topics . Curiosity . Affiliation . Dissonance . Frustration . Aggression - Relation to processes . Learning . Perception . Memory	- Anxiety - Self-esteem - Curiosity - Minor areas - Level of aspiration - Affiliation - Biochemical correlates - Reinforcement theory	- Individual differences - Need for achievement - Anxiety about failure - Locus of control - Attributional style - Environmental determinants - Cooperation VS competition - Interrinic VS extrinsic reward. - Praise

Adapted from Weiner, (1990, p.617.)

DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university and that all sources of material used for this thesis have been duly acknowledged.

Name: TOLA GEMEDA

Signature: 

Place: A. A. UNIVERSITY

Date of Submission: JUNE 3, 1996