ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

TEACHER BEHAVIOR, AND STUDENTS' SELF-DETERMINATION, ACADEMIC INTRINSIC MOTIVATION AND ACADEMIC ACHIEVEMENT IN GONDAR TOWN ELEMENTARY SCHOOLS: A PATH ANALYSIS

BY: WORKNEH NIGATIE

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ABSTRACT

To examine the extent and the process model relationships of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement in Gondar town elementary schools, a study was conducted in a sample of 332 purposefully selected grade 4 students of a randomly selected 5 schools. Three kinds of questionnaires, which focused on teacher behavior, and students' self-determination and academic intrinsic motivation, and an achievement test containing four academic subjects of grade 4 first semester portions were administered. The reliability of the instruments were computed and found to be ranging from .63 to .78 for teacher behavior subscales, .61 to .67 for self-determination subscales, .63 to .79 for academic intrinsic motivation subscales, and .66 to .82 for academic achievement tests. The mean results revealed that teacher behavior and students' self-determination were below half, and that of students' academic intrinsic motivation and academic achievement were a little above half. Among the components of those variables, teacher autonomy support, and students' autonomy need, intrinsic motivation for English, and academic achievement for maths and English were below half. The path analysis results indicated that teacher behavior has a significant mediated effect on students' academic intrinsic motivation via students' self-determination besides its direct effect on the same outcome variable. Teacher behavior with its components was significantly related to students' self-determination and it in turn with its components was significantly related to students' academic intrinsic motivation. However, students' self-determination and academic intrinsic motivation were not significantly related to their academic achievement. Similarly, the corresponding components of academic intrinsic motivation and academic achievement were not significantly related. Discussions and conclusions are made on the basis of these results. Finally, some recommendations are indicated for possible interventions and further study.

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CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Self- determination theory (SDT) is an approach which tells that the underlying intrinsic motivation is an attitude of self- determination to accomplish a goal (Borich & Tombari, 1995). Central to SDT is the concept of basic psychological needs- the need for competence, autonomy and relatedness, which are the components of self -determination. According to the theory, these needs must be on goingly satisfied for people to develop and function in healthy and optimal ways (Deci & Ryan, 2000). Their satisfaction also maintains intrinsic motivation and the vitality of effectiveness in performing activities (Grolnick, Deci & Ryan, 1997).

The need for competence involves learning to control the environment and experience oneself as a capable and effective as opposed to feeling helplessness or incompetence; the need for autonomy involves the experience of an internal locus of causality for one's action, i.e., feeling that one 's action originates from with in the self as opposed to being controlled or directed by external forces; and the need for relatedness involves the construction and maintenance of satisfying involvement in the world of other people as well as believing that they are about oneself (Deci &Ryan,1995, as cited in Baumeister,1998) . If an individual is to develop the feeling of self-determination, all the three psychological needs must be satisfied, i.e., being satisfied with one or the two needs does not suffice self-determination (Borich&Tombari, 1995; Deci&Ryan, 2000).

In the context of learners, competence needs refer to learners' needs of how to achieve certain goals and skills; autonomy needs refer to learns' needs of being self

initiating and self regulating of their own actions; and relatedness needs are innate requirements for secure and satisfying connections with peers, teachers and parents (Borich & Tombari, 1995).

When these psychological needs are some how thwarted, academic intrinsic motivation and performance of learners will be affected. Among the hindering factors of these needs, as research results reveal, are contingent reward (e.g., grade, money), imposed performance evaluation (e.g. test) and a host of controlling events including threats, surveillance, deadlines, and imposed goals (Ryan & Deci, 2000b). In other words, reduced feelings of autonomy, competence and relatedness demotivate learners and affect their performance.

Hence, helping learners develop the feeling of self- determination (the three basic needs) is substantial since the satisfaction of these needs is essential for learners' ongoing psychological growth, integrity and well- being (Deci& Ryan, 2000). Expressed another way, Deci & Ryan suggest that these needs specify the conditions people (e.g. learners) can most fully realize their human potentials.

The satisfaction of the three psychological needs is also directly related to the enhancement of intrinsic motivation. More specifically, Deci and Ryan (2000) show that intrinsic motivation will be more likely to flourish in contexts characterized by a sense of competence, autonomy and relatedness.

Intrinsic motivation in turn is necessary so as to be energetic, persistent and effective in academic performance (Ryan& Deci, 2000b). Grolnick and Ryan (1987) also confirm that intrinsic motivation is associated with better learning, performance and well-being. More specifically, findings (A.E. Gottfried, 1985, 1990; A.E. Gottfried, Fleming

&A.W. Gottfried, 1994, 2001) reveal that academic intrinsic motivation significantly and positively predict school performance.

Academic intrinsic motivation, which involves enjoyment of school learning and an orientation to master challenging tasks, is positively related to children's achievement and effective school functioning from the elementary through the junior high school years, and motivation in the primary grades has been shown to predict subsequent motivation (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 1994, 2001).

Bearing what have been described in mind, the current study primarily intends to overview the general existing situation of Ethiopian students' self-determination, academic intrinsic motivation and academic achievement, and teacher behavior related to these variables.

When we consider the conditions for the development of students' self-determination (the three needs), the intension of the education and training policy (Ministry of Education (MOE), 1994) and the Ethiopian culture especially child rearing practices seem paradoxical. The intension of the policy is to bring up creative, productive, socially mature, autonomous, responsible and appreciative citizens. For this purpose, according to the experience of this writer, there has been an attempt to train teachers in learner -centered approach, especially at teacher training institute level through short-term and long-term training programs.

Contrarily, child-rearing practices seem dominated by authoritarian parenting style including punishment, threat, control and the like which might diminish the development of the three psychological needs. This practice is research evidenced, even though it is obviously known, in that many parents had a strong belief in physical punishment (Seleshi,

2001) and 67 percent of children have been hit by parents (Habtamu, 1998) in Addis Ababa where relative parental civilization seem existing.

This view seems to have ground with the sayings in Amharic like:

- የማይመታ ልጅ ሲቆጡት ያለቅሳል (A child who is not beaten, cries with reprimands) ---------- a
- ለልጅ ከሳቁለት ለውሻ ከሮጡለት(Smiling to a child is like running away from a dog) ---------- b
- ልጅ ይሮጣል እንጂ አባቱን አይቀድምም (Even though a child runs very fast, he can't surpass his father) ---------- c
- ልጅ ያቦካው ለእራት አይበቃም (However a child tries to accommodate the family, it doesn't suffice)------ d
- ለልጅ ጥርስህን ለዝንብ ቁስልህን (Smiling to a child is like exposing one's wound to a fly)----------e

As can be understood easily, the above sayings discourage the development of children's self-determination, that is, their need for autonomy (a), competence(c & d) and relatedness (b & e) even though the intention of the users of these sayings (e.g., parents) is to mould the behavior of children in a proper way.

When we see teachers in particular, they seem sandwiched between two different situations – societal and governmental influences. Being part of the society, they share the cultural influences regarding how to treat children .In support of this, different research

results of Ethiopian context are available. Ayalew (1996) revealed that teachers used corporal punishment, physical exercise, and forced labour as disciplinary methods. Regarding the extent of punishment, Habtamu (1998) disclosed that 68 percent of children/adolescents had been hit by teachers in schools. Recently, Seleshi's (2001) study in some Addis Ababa schools also maintained that teachers had to keep sticks / whips with them. Regarding the reasons as to why they did so, Seleshi reported that 17 percent of teachers said for punishment; about 30 percent of them said for frightening of students, not for punishment; and 27 percent of them said that students did not obey the school regulations and teachers' orders unless they see sticks/whips in teachers' hands.

From these studies we can understand that teachers employ punishment, threats, control and the like which subject students for fear, insecurity, dependency, isolation, physical harm, etc. having subsequent negative impact on the development of their need for competence, autonomy and relatedness.

However, Seleshi's (2001) study also revealed that the magnitude of corporal punishment was reduced in experimental schools as compared to control schools. As to him, in the former schools there were various child rights promotion activities and the establishment of child rights club unlike to the later schools.

From this we can be aware that the magnitude of the culturally influenced school disciplinary methods can be reduced with proper intervention of the government and the concerned bodies in general. In fact, ministry of education had been providing training and refreshment programs for teachers regarding how to teach students with learner- centered approach through democratic leadership style giving due emphasis to elementary school level. Hence, the need of students for competence, autonomy and relatedness at elementary school levels might get some chance of establishment.

Likewise, the academic intrinsic motivation of Ethiopian students, which can have direct impact on their academic achievement (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al.,1994, 2001) seem questionable. The main reason may be societal influence and financial constraints. As we know, parents seem to have commonly up brought their children by "if you do this, I will do that for you'' style of rewarding. Accordingly, children do things for such benefits. For instance, children obey to get some appreciation or material benefit, and learn to get job in the long run.

Teachers also seem make students work hard - do class work, homework, assignments, tests etc. - to help them get good grades which envision their future recognized job opportunities.

The society in general preaches students to be of highly recognized government workers than be of what they ought to be. The reason may be of our poverty that cannot make us proceed through the line we are endowed with or can be more productive.

As a result, it seems that students are also more of extrinsic than intrinsic oriented for academic learning in Ethiopian reality.

Regarding academic achievement of primary school students (grades 1-4), it seems that there are different problems. The primary education (1-8) summative evaluation technical report (Institute for Curriculum Development and Research (ICDR), 2002) reveals that grade four students' results in mother tongue, English, maths, environmental science and aesthetics &physical education, based on expert made test items in Amhara region are 54.3%, 39.7%, 39.7%, 62.0% and 62.9% respectively. Again, the average result of those students in all subjects based on classroom teachers' assessment is 66.1%, which excels the expert made test results by 14.38%. A survey study of ICDR (2004) also reveals the weaknesses of elementary school (first Cycle) curriculum in that the contents of grade 4

English and grades 1-4 maths and environmental science are beyond the level of the students. The study further states that improper use of free promotion in grades 1-3, and difficulty of implementing continuous assessment for teachers due to insufficient training of teachers and the large number of students are also among the shortcomings of the curriculum. Improper implementation of free promotion makes students pass to the next level without getting the basic knowledge of the level resulting in detrimental effect in their future academic achievement. Insufficient training of teachers on continuous assessment also contributes for the scores of the students beyond their knowledge and skills as seen above compared to expert made tests.

In sum, the development of students' self-determination, which can have subsequent impact on their academic intrinsic motivation and achievement, is vital to function in a psychologically healthy and optimal ways in life. When we see Ethiopian teachers regarding the promotion of students' self-determination, they seem sandwiched between two conditions - a thwarting cultural influence of the society and a fostering learner-centered instructional advocacy of the education and training policy (MOE, 1994). When we consider their achievement motivational orientation in general though not research evidenced, it seems more of extrinsic oriented. Again, the aspect of academic achievent does not seem to be promising. Regarding the grade level at which the focus should be given in a country where research is scanty considering children's self-determination, and academic intrinsic motivation, the lower level is crucial since it is here where the basis for behavior development in general (Hurlock, 1980) and self-determination (e.g., Deci&Ryan, 2000), academic intrinsic motivation and achievement (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 2001) in particular are laid.

To this end, the researcher of this study was interested to investigate the extent and the process model relationships of teachers' behaviors in raising students' self-determination, students' self-determination, academic intrinsic motivation and academic achievement at elementary school level.

1.2. Statement of the Problem

The main purpose of the present study was to examine the extent and the process model relationships of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement in Gondar town elementary schools.

The current study conceptualized variables of teacher behavior as autonomy, competence and relatedness based school and classroom practices; self-determination as the need for autonomy, competence and relatedness; academic intrinsic motivation as internal motivation for academic subjects: Amharic, English, maths and environmental science; and academic achievement as school achievement for these academic subjects.

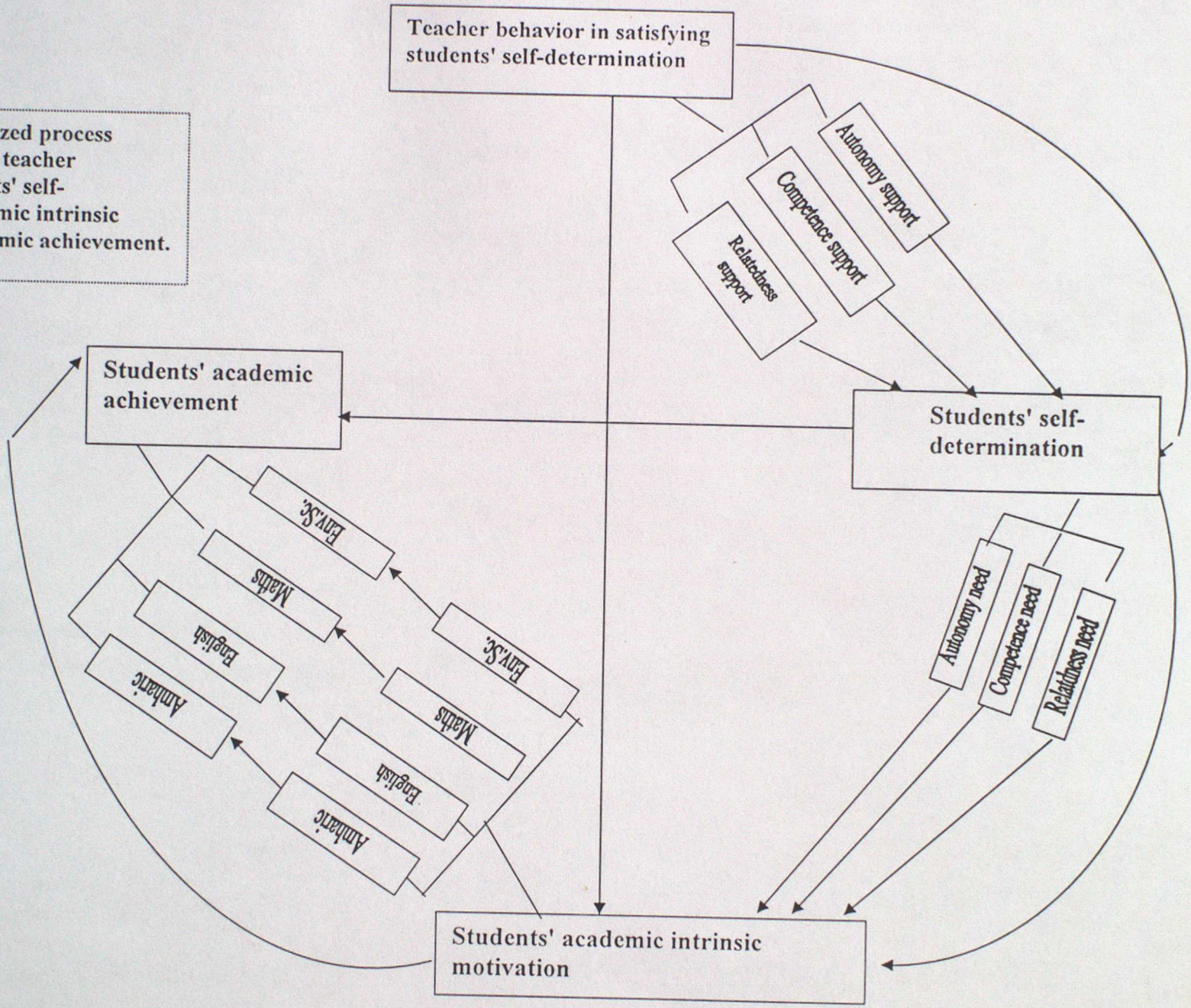
The study was designed to answers the following specific research questions.

1. To what extent do teacher behavior be employed, and students' self-determination, academic intrinsic motivation and academic achievement be exhibited?
2. How do teacher behavior and its components influence students' self-determination?
3. How do teacher behavior, and students' self-determination with its components influence students' academic intrinsic motivation?
4. How do students' self-determination and academic intrinsic motivation influence their academic achievement?

5. Can students' self-determination mediate the influence of teacher behavior on their academic intrinsic motivation? If yes, how?
6. Can students' academic intrinsic motivation mediate the influence of students' self-determination on their academic achievement? If yes, how?
7. How do students' academic intrinsic motivation relate to their academic achievement in corresponding subject areas?

To check the relationship of the variables, a theoretical model was created to ascertain the extent to which subsequent influences exist between teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement. Figure 1 next page depicts the conceptual model proposed in this study.

Figure 1. A hypothesized process model relationship of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement.



1.3. Significance of the Study

As it is aforementioned, research is scanty about the extent and process model relationships of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement in Ethiopian school situation in particular and abroad in general.

Hence, the findings of the study are expected to have the following contributions.

1. The study can help to understand the extent and the relationships of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement in the study site.
2. The study can make teachers aware of the kinds of expected teacher behaviors for promoting students' self-determination, academic intrinsic motivation and academic achievement.
3. Educational decision makers may make use of the results of this study in supporting teachers to successfully implement self-determination, academic intrinsic motivation and academic achievement raising instructional behaviors.
4. The study may also help as a basis for further research in the area.

1.4. Operational Definition of Important Terms

- Teacher behavior – teachers' school and classroom activities related to the enhancement of students' self-determination.
- Students' self-determination - students' need for autonomy, competence and relatedness at school
- Students' academic achievement – test results of students from researcher made tests of the four academic subjects (Amharic, English, maths and environmental science)
- Students' academic intrinsic motivation - students' internal (intrinsic) interest for the academic subjects
- Elementary level - grade levels 1 through 4

1.5. Limitation of the Study

1. Since the respondents were young children, some of them faced problem of understanding the basic concepts of some items. It was to minimize this limitation that sampling was purposefully made at grade four level.
2. Since the samples were restricted to one town first cycle elementary schools, the generalizability of the findings to other students is unknown.
3. All outcomes about students (i.e., students' self-determination, academic intrinsic motivation and academic achievement) were assessed via self-report. To make more objective measures, report by knowledgeable others is also required in the future studies.
4. The structural model was based on a priori specifications of directional influences although there might be reciprocal influences.

1.6. Delimitation of the Study

The study was confined to Gondar town only due to time constraint. Gondar town was chosen because it has been the researcher's place of work and hence, he could: get the cooperation of the respondents to carry out the research, follow up their work and participate in future intervention. The study was conducted at grade four level because the students in each section had been taught by one teacher starting from grade one promoting interpersonal familiarity, and the students were relatively matured as compared to the preceding grade levels. Note that from all grade four students only those students who had come with a teacher from grade one to then participated. As a result, reliable information might be obtained from the respondents.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Nature, Development and Application of Self-Determination Theory: An Over View

2.1.1. Nature of Self-Determination Theory

Self-Determination Theory (SDT) proposes that human beings have innate basic psychological needs for autonomy, competence, and relatedness (Borich&Tombari, 1995; Deci&Ryan, 2000). These needs are concerned with the deep structure of the human psyche referring to innate and lifespan tendencies toward achieving effectiveness, connectedness, and coherence (Deci&Ryan, 2000).

People are more likely to be intrinsically motivated to do an activity simply when they can freely choose to pursue the activity (autonomy), when they feel they can master the activity (competence), and when they feel connected and supported by important people, such as parent, a teacher, a manager or team-mates (Deci&Ryan, 2000; Gagne, 2003).

According to SDT, psychological needs are nutriments essential for psychological growth and well-being (Deci&Ryan, 2000; Ryan & Deci, 2000a). Specifically, the theory posits that with in any significant life domain, opportunities to experience autonomy, competence, and relatedness (each representing a basic psychological need) are essential in promoting life satisfaction and well-being (Deci&Ryan, 2000). Similarly, Csikszentmihalyi (1990) cited in Gaskins (1999) states that the degree to which we feel satisfied with the three basic needs is directly related to our happiness and contentment.

Evidence suggests that people will naturally tend toward contexts, activities, and relationships that support the satisfaction of these needs (Deci&Ryan, 2000; LaGuardia, Ryan, Couchman & Deci, 2000; Sheldon & Elliot, 1999). Thus, on any given day, satisfaction of any of these basic needs is a necessary condition for well-being and effective functioning (Levesque, Stanck, Zuchllke &Ryan, 2004).

At every educational level, students who experience greater need satisfaction appear to be better adjusted in the classroom and in life, demonstrate greater internalization of school related regulations, exhibit enhanced performance and report more intrinsic motivation than those who find these needs thwarted in school (Miserandino, 1996;Ryan& Deci, 2000b).

In SDT frame work, the need for autonomy is the need to have a choice in the initiation, maintenance and regulation of an activity; the need for competence is the need for being effective in one's interaction with the environment; and the need for relatedness is the need to securely and affectionately connected with others (Connell &Wellborn, 1991, as cited in Miserandino, 1996).

According to STD, basic psychological needs are universal and thus must be satisfied in all cultures for people to be optimally healthy (Deci&Ryan, 2000; Ryan & Deci, 2000b; Deci, Ryan, Gagne, Leone, Usunove&Kornazheva, 2001; Reis, Sheldon, Gable & Ryan, 2000). The three needs are cross culturally salient needs in schools (Ryan& Deci, 2000a). Although there may be culture and institutional variations on how the needs for autonomy, competence, and relatedness are supported, satisfied and expressed, the importance of experiencing satisfaction of these needs appears to be crucial to the experience of well-being (Levesque et al., 2004).

Similarly, researchers (Deci&Ryan, 2000; Ryan & Deci, 2000a) also assert that optimally healthy development will not be attained when a need for autonomy, competence, or relatedness is neglected since the three needs are interrelated. For instance, contexts that are described as autonomy supportive are characterized as giving people choice and engagement for personal initiative and also support people's competence in a climate of relatedness (Deci et al., 2001). Hence, psychological health requires satisfaction of all three needs; one or two are not enough (Deci&Ryan, 2000; Ryan & Deci, 2000a).

In the classroom context, meeting learners needs for autonomy and competence while at the same time ignoring need for relationship will fail to enhance self-determination (Deci, 1991, as cited in Borich&Tombari, 1995). Thus, SDT tells that learners will develop self-determination only in a social context that supports competence and autonomy (Borich&Tombari, 1995).

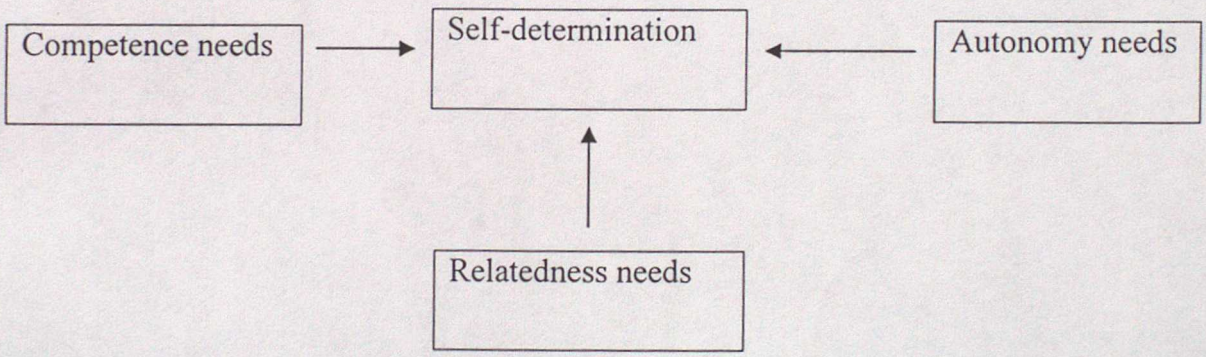
The presence or absence of environmental conditions that allow satisfaction of these basic needs is thus a key predictor of whether or not people will display optimal engagement and psychological well being. If the social world provides no reliable path that allow fulfillment of these critical needs, and if people have to stay in situations that consistently block need satisfaction, psychological health will diminish (Cherikove, Kim, Ryan & Kaplan, 2003; Deci&Ryan, 2000; Miserandino, 1996).

In social contexts such as family, school, or work which support the satisfaction of these basic needs, engagement of an individual will be in energized behavior (e.g., initiation, effort, concentrated attention, persistence, and continued attempts in the face of difficulty or failure), positive emotion (enthusiasm, happiness, curiosity, interest), and orientation toward the goal of the enterprise (Connell& Wellborn 1991, cited in Miserandino, 1996). To the extent that the social context undermines these needs, an

individual will show dissatisfaction. Dissatisfaction will be manifested by enervated behavior (e.g., avoidance, passivity, resistance, giving up, fleeing) negative emotion (e.g., boredom, anger, anxiety, fear), and an orientation away from the goal of the enterprise (Miserandino, 1996).

▪ Aspects of Self- Determination

Self- Determination is an attitude of determination to feel and believe competent, to relate to other people, and to be autonomous (Borich &Tombari, 1995; Gronlick, Deci &Ryan, 1997). Borich and Tombari (1995,p. 245) present the components of self-determination, also called as basic psychological needs (Deci&Ryan, 2000; Deci et al., 2001; Gronlick et al., 1997; Reis et al., 2000) in the form of a model as follows.



. The Need for Autonomy

The term autonomy refers not to freedom from others (e.g., parents), but freedom to carry out actions on one's own behalf while maintaining appropriate connections to significant others (Hill& Holmbeck, 1996, as cited in Collins, Gleason &Sesma, 1997).

Autonomy does not refer to independence, freewill, individualism or selfishness (Deci&Ryan, 2000); it rather refers to the feelings that one's behavior is self-chosen and meaningful as opposed to being coerced or pressured (Sheldon& Elliot, 1999). A recent definition holds that autonomy comprises capacities for taking responsibility for ones own behavior, making decisions regarding one's own life, and maintaining supportive relationships (Crittendon, 1990, as cited in Collins et al., 1997).

The need for autonomy (autonomy needs) involves the feeling that one's own action originates from within the self as opposed to being controlled or directed by the external forces (Deci&Ryan, 1991, as cited in Baumeister, 1998; Grolnick et al., 1997) and it operates at all ages across the life span (Deci, Driver, Hotchkiss, Robbins & Wilson, 1993).

For the fulfillment of autonomy needs, autonomy supportive environment is required. Autonomy supportive contexts are those that provide choice and opportunity for self-direction and a minimal amount of pressured evaluations, imposed goals and demands. An autonomy supportive environment also offers greater positive non-demeaning informational feedback and a context in which the other person's perspective is considered (Deci&Ryan, 2000; Reeve, Bolt & Cai, 1999; Ryan& Deci, 2000b; Winfield & Bolingbroke, 2002).

In a similar vein, researchers (William, Gagne, Ryan &Deci, 2000, as cited in Gagne, 2003) describe that an autonomy supportive person (or a work environment) would typically provide a good rational for asking someone to engage in an activity, give some choice to the person, acknowledge the person's feelings toward the activity, and encourage the person to take initiative and convey confidence in the person's abilities.

Autonomy supportive teachers were also found to enhance autonomous motivation in their students (Levesque et al., 2004), and the importance of an autonomy supportive

social context to enhance feelings of autonomy has been supported at all levels of schooling from elementary education (Grolnick et al., 1997) to college (Black&Deci, 2000) and to post graduate education (Williams &Deci, 1996, as cited in Levesque et al., 2004).

▪ The Need for Competence

The need for competence (competence needs) is a desire to have an effect on or to cope successfully with the environment and the people within it (Elliot, Kratochwill, Cook, &Traverse, 2000; White, 1959, as cited in Shaffer, 1994). In other words, it involves the need to control the environment and experience oneself as a capable and effective as opposed to feeling helpless or incompetent (Deci&Ryan, 1995, as cited in Baumeister, 1998). Specifically, it refers to the innate needs of human beings that energize people to master tasks and skills or to have sufficient knowledge and skills for tasks (Borich &Tombari, 1995). It allows the individual to take charge of his or her own life, in fact, be the author of his or her own fate (N. Sprintal, R. Sprintal &S. Oja, 1994) and thus must be satisfied for long-term psychological health (Ryan & Deci, 2000b).

The social context can facilitate or thwart the satisfaction of competence needs. Competence is enhanced by the provision of structure: the communication of realistic expectations, consistent consequences and competence related feedback (Connell, 1991; Skinner 1991, as both cited in Miserandino, 1996). The social context can also block the development of competence by providing competence inconsistence or chaos (Skinner& Wellborn, 1991, as cited in Miserandino, 1996), negative feedback like conveying incompetence and statement of failure (Deci&Ryan, 2000; Ryan, Connell & Deci, 1985), and minimum or maximum challenges, that is, non-optimal challenges (Reeve et al., 1999).

If a task is optimally challenging, it would generally enhance the sense of competence but if it is too easy, it will not because the activity is already well mastered, and boredom is the likely outcome. If a task exceeds optimal challenges, it will promote feeling of incompetence, anxiety, and frustration (Ryan et al., 1985).

. The Need for Relatedness

The need for relatedness (relationship needs) is the need to feel securely connected to others and the need to experience oneself as capable and worthy of love and respect (Connell& Wellborn 1991, as cited in Miserandino, 1996; Grolnick et al., 1997). In other words, it refers to the desire to feel connected to others – to love and care, and to be loved and cared rather than alienated or marginalized (Deci&Ryan, 2000; Reis et al., 2000).

The need for relatedness involves the construction and maintenance of satisfying involvement in the world of other people, including knowing and caring for other people as well as believing that they care about oneself (Deci&Ryan, 1991, as cited in Baumeister 1998). More over, it refers to the need for prosocial behaviors such as sharing, cooperation, helping others when they have a problem (Wentzel, 1993). The people who are better integrated in social net works and who feel satisfyingly connected with others tend to live longer and posses better physical and mental health (Berschied & Reis, 1998; Ruff, 1995, both cited in Reis et al., 2000). Furthermore, studies suggest that of all factors that influence happiness, relatedness is at or near the top of the list (Argyle, 1987; Mayers, 1999, as both cited in Ryan&Deci, 2001)

However, the social context plays vital role for the enhancement or attenuation of the need for relatedness. The need for relatedness requires a sense of mutual respect, caring

and reliance with others (Baumeister &Leary, 1995; Harlow, 1958, as both cited in Deci et al., 2001). It develops from the involvement of others through their communication of interest and enjoyment of the individual (Connell, 1991; Connell& Wellborn 1991, as both cited in Miserandino, 1996).

More comprehensively, Reis et al. (2000) reviewed the following seven major types of social activities that may plausibly contribute for a general sense of relatedness:

1. Communicating personally relevant matters,
2. Participating in shared activities,
3. Having a group of friends with whom one can spend informal social time,
4. Feeling understood and appreciated,
5. Participating in pleasant or enjoyable activities,
6. Avoiding arguments and conflicts that create distance and feelings of disengagement with significant others, and
7. Avoiding self-conscious or insecure feelings that direct attention toward the self and away from others.

2.1.2. The Development of Self- Determination Theory

The starting point of SDT is the postulate that humans are active, growth oriented organisms that are naturally inclined toward integration of their psychic elements in to a unified sense of self and integration of themselves in to larger social structures. In other words, SDT suggests that it is part of the adaptive design of the human organism to engage in interesting activities to exercise capacities, to pursue connectedness in social groups and to integrate intrapsychic and interpersonal experiences in to relative unity (Deci & Ryan, 2000).

The root of SDT lies in Deci's pioneering works in intrinsic motivation (e.g., Deci, 1971, as cited in Baumeister, 1998). Deci (1991) (as cited in Borich &Tombari, 1995) contends that SDT reintroduces a component of motivation -human psychological needs – that has long been neglected by most cognitive theories (e.g., self- efficacy and attribution). SDT tells us that the underlying intrinsic motivation is an attitude of self-determination to accomplish a goal. This attitude is more than just a belief in self-efficacy and attribution. Rather it focuses on three innate human needs: autonomy, competence and relatedness.

Deci and Ryan (1991) (as cited in Reis et. al., 2000) see the three basic psychological needs analogically with basic nutriments (needs) of plants in that needs are nutriments essential to a living entity's growth, integration, and health. Deci and Ryan derive this definition of needs from biological evolutionary approaches that determine organismic needs using functional criteria. For instance, a plant can be said to need water, sunlight, and specific minerals for growth, health, and integrity. When any one of these nutriments is withheld or is unavailable, growth, health, and integrity will be thwarted. Extending these reasonings to psychological systems, Deci and Ryan argued that in humans at least three types of nutriments (the need for autonomy, competence and relatedness) are functionally essential to ongoing personal growth, integrity and well-being.

2.1.3. Application of Self- Determination Theory

SDT proposes fundamental needs to engage in optimal challenges and experience mastery or effectance in the physical or social world; to seek attachments and experience feelings of security, belongingness and intimacy with others; and to self organize and

regulate one's own behavior which includes the tendency to work toward inner coherence and integration among regulatory demands and goals (Deci& Ryan, 2000).

SDT (Deci & Ryan, 1985b; Ryan& Deci, 2000, as both cited in Deci et al., 2001) suggests that humans will be motivated and display well-being in the organizations to the extent that they experience psychological needs satisfaction with those organizations. Deci et al. (2001) further describe that work climates which allow satisfaction of these needs facilitate both work engagement and psychological well-being. In other words, their satisfaction predicted work involvement and mental health; and also need satisfaction on the job predicted the workers' performance (Baard, Deci & Ryan, 2000, as cited in Deci et al., 2001).

When we come to the educational organizations – schools – which are the target areas of the current study, learners' satisfaction of these basic psychological needs has a predictive effect on their academic intrinsic motivation (Borich &Tombari, 1995; Ryan& Deci, 2000b), which in turn will have direct effect on their academic achievement (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 1994, 2001).

Hence, its application with respect to the school situation will be seen.

▲ Teacher Behavior and Students' Self-determination

Although parents, peers, and teachers can have their own shares for the development of students' self- determination, the researcher's current focus is on how teacher behavior is related to students' self-determination.

A. Teacher Behavior: An Overview

Teacher behavior refers to the actual classroom practices that influence students' attitudes and beliefs (Skinner&Belmont, 1993). Good teacher behaviors are causally related to desirable student outcomes, such as good grades on classroom tests and higher standardized test scores, better attitudes about school and subject, and improved problem solving skills (Borich, 1988).

The major teacher behaviors, according to Borich (1988), include clarity, variety, task orientation, and engagement in the learning process, and a moderate to high rate of success. As to Borich, without the knowledge and skills to present lessons that are clear, that incorporates variety, that are task oriented, and that actually engage students in the learning process at moderate to high success rate, no teacher could be truly effective in producing desirable patterns of student achievement and attitudes.

Hence, successful teachers are those who know their students and their stuff, encourage time on task, teach imaginatively, focus on their class activities, hold high expectations, adapt, use intrinsic control, match objectives, contents and tests, are good classroom managers, well organized and supportive (Clark&Starr, 1991).

Such teachers also tend to be warm, understanding, friendly, responsible, systematic, imaginative, and enthusiastic, but that the importances of these qualities seem to decrease with the age of the children being taught. In other words, secondary school children seem able to accommodate better to teachers low in these qualities than do those in primary schools. This makes sense because older children are better able to take responsibility for their own work and are more resilient in relationships with adults (Fontana, 1995). As a

result, good teacher behaviors are determinant for the overall desirable development of students, particularly at the grass root level of schooling.

In sum, findings indicate that teacher is the single most important factor outside the home in affecting student learning and development. Teachers, who have clear goals, actively strive for learning, and use effective methods produce results (Eggen& Kauchak, 1996, 1997). From this we can understand that teachers (teacher behaviors) are among the decisive factors for the development of students' self-determination.

B. Teacher Behaviors Enhancing Students' Self–determination

According to SDT, learners have innate needs to feel competent, to relate to other people, and be autonomous. As a result, they come to school with built in energy and desire to achieve them (Borich &Tombari, 1995).

The source of motivation is internal to the child, so that when the social surround provides for children's basic psychological needs, self-determination will flourish (Connell, 1990; Connell& Wellborn, 1991; Deci&Ryan, 1985 as all cited in Skinner and Belmont, 1993). When perceived support from parents, peers and teachers is considered jointly, perceived support from teachers has the most direct link to students' interest in schools (Wentzel, 1996,as cited in Wentzel, 1997).

The power of specific teacher behaviors would be seen from their effectiveness in providing for students' basic needs because the extent to which children's basic psychological needs are met or ignored in the school context is reflected in the self system process of each child (attitudes and beliefs about the self) (Connell, 1990; Connell& wellborn 1991; Deci&Ryan, 1985, as all cited in Skinner and Belmont, 1993).

For the development of student self-determination, teachers are expected to motivate their students. In line with this, Brophy (1986, 1987, cited in McCromick, & Pressley, 1997) suggested that so as to motivate students, teachers should model interest in learning, communicate to students reasons for being enthusiastic about school, create low anxiety classrooms, induce curiosity and suspense, make abstract material more personal and familiar, provide students with informative feedback, such as contingent praise, and design tasks so that there is opportunity for activity.

The questions teachers should ask themselves as they scan the eager face of their learners on the first day of the school are "What can I do to meet their needs for competence, relationship, and autonomy? What is the best way to focus and give directions to this energy?" (Borich &Tombari, 1995, p.245).

SDT holds that the answer to these questions lies in designing the classroom that "places a premium on skill development, allows learners to feel that they control this development, and encourages relationships that support the development of competence and autonomy" (Borich &Tombari, 1995, p.245).

The quality of a student's motivation for the basic psychological needs depends in part on the quality of teacher's instructional styles. For this, different writers give related ideas. Reeve et al. (1999) suggest that relatedness can be nurtured by teacher provided involvement (e.g., care, acceptance); competence can be enhanced by teacher provided structure (e.g., optimal challenge, performance feedback); and autonomy can be promoted by teacher provided autonomy support (e.g., choice, shared decision making).

In a detailed manner, Skinner and Belmont (1993) describe that teachers can promote learners needs for competence by providing structure through clearly communicating their expectations by responding consistently, predictably and contingently,

by offering instructional help and support, and by adjusting teaching strategies to the level of the child. Teachers can support autonomy by allowing children's latitude in their learning activities and by providing conditions between school activities and children's interest. Especially important in fostering autonomy is the absence of external rewards, controls and pressures. Teachers can enhance learners' need for relatedness in that they involve with their students to the extent that they take time for, express affection toward, enjoy interactions with, are attuned to and dictate resources to their students.

Still similarly and specifically, Borich &Tombari (1995, p.245) recommend that teachers can meet learners' needs for

Autonomy by:

- Minimizing the use of contingent rewards,
- Allowing learners more choices,
- Acknowledging learners' feelings about being forced to do things they don't like or in ways they don't prefer.

Competence by:

- Giving feedback rather than corrections and criticisms after learning,
- Congratulating learners for doing well, but only for self-initiated tasks,
- Focusing on pre-requisite skills and emphasizing errorless learning

Relatedness by:

- Stressing on cooperative over competitive learning
- Involving parents in the educational process,
- Encouraging vertical and horizontal relationships

2.2. An Overview of Achievement Motivation

Although it can have several meanings, the word motivation generally refers to whatever it is inside people that accounts for three features of how they behave:

1. What they choose to do;
2. Qualities of how they do it, such as how much energy they put in to it or how carefully they proceed; and
3. How persistent they are about doing it, including how long they keep at and how readily they return to do it (Marx&Winne, 1991).

People, in our case students, may be motivated to do different things. Of these, the one is motivation for academic achievement.

Achievement motivation is defined as an individual's desire to accomplish difficult tasks, attaining high standards and excel oneself (Murray, 1938, cited in Maya, n.d.). It is a stable, learned characteristic in which satisfaction is obtained by striving for and attaining a level of excellence (McClelland et al., 1953, cited in Feldman, 1997).

Achievement motivated students take the middle ground, preferring a moderate degree of risk because they feel their efforts and abilities will probably influence the outcome (Feldman, 1997; Klein, 1982; McClelland, 1985; McClelland, n.d.; Seifert, 1991). For instance, first graders can be motivated to read short stories if the stories are moderately difficult for them and if they feel that learning depends on their personal efforts. Twelfth graders can be motivated by the need to achieve when mastering a difficult course, again provided the same conditions are met (Seifert, 1991).

2.2.1. Achievement Motivational Orientations

When a person engages in an activity, he or she may take either an intrinsic or extrinsic motivational orientations (Ames &Archer, 1988; Dembo, 1994; Elliot, McGregor & Gable1999; Newman, 1990). This distinction concerns whether the reason for engaging in an activity is seen to be inherent in the activity or instead is seen to be mediated by the activity (Pittman, 1998).

When a person adopts an intrinsic motivational orientation for achievement, the primary focus is on rewards inherent in engagement with the activity; the activity is approached as an end in itself, but when he/she adopts an extrinsic motivational orientation, the primary focus is on rewards that are mediated by but not part of the target activity. The activity serves as a means to an end, either motivated or a step along the way to something else (Ames &Archer, 1988; Elliot, et al., 1999; Pittman, 1998).

According to Harter 's conceptualization of motivational orientation, children with an intrinsic motivational orientation to classroom learning prefer academic challenge, show curiosity and interest in their schoolwork, and strive for independent mastery. In contrast, children with an extrinsic motivational orientation prefer relatively easy assignment, do their class work to please the teacher and get good grades, and are dependent on the teacher's assistance for completing assignments (Harter, 1981, as cited in A.E. Gottfried, 1985).

Furthermore, when students adopt an intrinsic motivational orientation, they are more likely to have a positive attitude toward the task (even outside the classroom), to monitor their own comprehension, to use elaboration and organizational cognitive strategies, and to relate newly learned material with previously learned material. In contrast

students who adopt an extrinsic motivational orientation tend to focus on memorization and rehearsal strategies and often do not engage in problem solving and critical thinking. In general, they do not think about what they learn, but rather look for shortcuts and quick payoffs (Maehr&Anderson, 1993, as cited in Dembo, 1994).

2.2.2. Nature of Academic Intrinsic Motivation

Intrinsic motivation concerns the performance of activities for their own sake in which pressure is inherent in the activity itself (Berlyne, 1971; Hunt, 1971; Johnson&Johnson; 1985; Mayers, 1989; Ryan&Deci, 2000b). For instance, learning for the joy of it, to benefit others, and as a result of personally meaningful feedback are intrinsic to activities (Johnson&Johnson, 1985). Intrinsically motivated behaviors do not depend on reinforcement, that is, they do not require operationally separable consequences because the doing of an activity is itself intrinsically rewarding (Deci&Ryan, 2000).

Academic intrinsic motivation also involves enjoyment of school learning characterized by a mastery orientation, curiosity, persistence, task endogeny and the learning of challenging, difficult and novel task (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 1994, 2001).

Classroom and home environment can facilitate or forestall academic intrinsic motivation. It will occur only for activities that hold intrinsic interest for an individual, that is, for activities that have an appeal of novelty, optimal challenge or aesthetic value, and in interpersonal events and structures (e.g., reward, communications and feedback) that conduce feelings of competence during action, effectance promoting feedback, and freedom demanding evaluation (Ryan&Deci, 2000b).

Teachers and parents implementation of practices and supportive environment would be efficacious to promote intrinsic motivation for school learning. Teachers should enthusiastically introduce new materials and design tasks that are of optimal or moderate difficulty, utility, incongruity, novelty surprise, and complexity relate to students' interest and are meaningful to students (Covinton, 2000; A.E. Gottfried, 1983; Grolnick &Ryan, 1989; Ryan & stiller, 1991, as all cited in A.E. Gottfried et al., 1994, 2001).

However, controlling events such as contingent/tangible/ rewards, deadlines /completion pressure/, and imposed performance evaluation (R.Koester, M.Zuckerman & J.Koester, 1987; Ryan& Deci, 2000b;Wild, Enzle, Nix &Deci, 1997) surveillance (Wild et al., 1997), threats and directives (Ryan &Deci, 2000b) can diminish intrinsic motivation because people (e.g., learners) experience them as controllers of their behavior.

When we see academic intrinsic motivation in relation to achievement and grade levels, it is positively related to children's achievement and effective school functioning from elementary through the junior high school years, and motivation in the elementary grades has been shown to predict subsequent motivation (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 1994, 2001). It appears to end its descent by age 16, as there was no future deterioration after that period, and in some instances there was a slight increase (A.E. Gottfried et al., 2001).

Hence, intervention designed to promote the development of children's academic intrinsic motivation starting from the lower grade level is determinant.

2.3. Relationship of Students' Self-Determination, Academic Intrinsic Motivation and Academic Achievement

2.3.1. Self-Determination and Academic Intrinsic Motivation

Events that enhance the feeling of competence, autonomy and relatedness will tend to enhance intrinsic motivation (Ryan et al., 1985). Similarly, Ryan and Deci (2000b) and Reis et al. (2000) suggest that the social context supportive of the basic psychological needs maintain or enhance intrinsic motivation. Hence, for high level of intrinsic motivation, people must experience satisfaction of the need for competence, autonomy and relatedness (Ryan& Deci, 2000b).

From this, we can understand that the fulfillment of learners' basic psychological needs /self-determination/ has a predictive effect on their intrinsic motivation for academic works.

To maximize clarity, over viewing the relationship of each component of self-determination with the academic intrinsic motivation is essential.

. The Need for Autonomy and Academic Intrinsic Motivation

Any event that facilitates the perception of an internal locus of causality (autonomy) for an activity will tend to enhance intrinsic motivation for that activity (Ames &Ames, 1985; Ryan et al., 1985). As Deci and Ryan (2000) reviewed in their literature, field studies in work organizations and in schools revealed that provision of autonomy support enhances greater intrinsic motivation. In school context, if teachers are more oriented towards supporting of autonomy, it will promote students' intrinsic motivation for academic works (Deci, Sheiman , Schwartz & Ryan, 1981; Pelletier, Legault & Seguin-Levesque,

Reeve et al., 1999), and hence, teachers' provision of students' autonomy support is likely to create intrinsically motivating conditions for their academic tasks (Deci&Ryan, 1992;A.E.Gottfried, 1983; Grolnick & Ryan, 1989; Ryan & Stiller, 1991, as all cited in A.E. Gottfried et al., 2001).

. The Need for Competence and Academic Intrinsic Motivation

Perceived competence is fundamentally related to intrinsic motivation. For instance, if children perceive themselves to be competent in relation to the material covered in their classes, they are more likely to be intrinsically motivated to learn the material (Deci et al., 1981). Children having high perception of competence have greater academic intrinsic motivation, and hence, they seek to master rather than withdraw from challenging learning tasks (Butler & Nisan, 1986; A.E. Gottfried, 1990; Harackiewicz, Sansone &Manderlink, 1985).

Thus, when the environment (e.g., teachers) provides positive effectance relevant feedback concerning one's performance at an activity (e.g., academic works of students) intrinsic motivation will tend to be enhanced. However, negative feedback in the form of critical messages, statements of failure, and communication conveying incompetence will tend to undermine intrinsic motivation (Ryan et al., 1985).

From this discussion, we can easily see the predictive effect of students' need for competence on their intrinsic motivation for academic tasks.

. The Need for Relatedness and Academic Intrinsic Motivation

Although autonomy and competence have been found to be the most powerful influences on intrinsic motivation, relatedness also plays a role in the maintenance of intrinsic motivation (Deci & Ryan, 2000). For example, when children work on an interesting activity (e.g., certain academic work) in the presence of a person who ignores their attempts to interact, the children will display low level of intrinsic motivation for that activity (Anderson, Manoogian, &Reznick, 1976).

Intrinsic motivation will be more likely to flourish in contexts characterized by a sense of secured relatedness across the lifespan (Ryan & La Guardi, 2000, as cited in Deci&Ryan, 2000). Deci &Ryan (2000) reviewed that students who experience their teachers as warm and caring showed greater intrinsic motivation for the subject (e.g., academic) they learn. Similar studies (Fox, 1993; Roester, Midgly & Urdan, 1996; Wentzel, 1997, 1998) have shown that perceptions of positive teacher-student relationships and feelings of school belonging both relate to positive academic motivation and achievement.

Nonetheless, Deci &Ryan (2000) contend their belief in that there are situations in which relatedness is less central to intrinsic motivation than autonomy and competence. People often engage in intrinsically motivated behaviors (e.g., play solitaire, hiking) in isolation, suggesting that relational supports may be necessary as proximal factor in maintaining intrinsic motivation.

2.3.2. Self-determination and Academic Achievement

The degree of basic psychological needs /self-determination/ satisfaction influences the development, performance and well-being of individuals. In other words, needs specify

the conditions under which people can most fully realize their human potentials (Deci &Ryan, 2000). However, the non fulfillment of basic psychological needs is associated with negative affect and avoidance behavior which in turn show a decline in performance (Deci&Ryan, 1985; Connell & Wellborn, 1991, as both cited in Miserandino, 1996).

When we see the above descriptions from the students' side, it may imply that students who are satisfied with the basic psychological needs are more likely to achieve better in academic tasks. This view is supported by findings in that those students who have high level of feeling for competence (e.g., Grolnick & Ryan, 1987; Newman, 1990), autonomy (e.g., Miserandino, 1996; Ryan&Deci, 2000b) and relatedness (e.g., Wentzel, 1993), as all these authors agree, tend to display high academic achievement. To provide relatively wider ideas, the relationships of each basic psychological need of students with their academic achievement are presented below.

. The Need for Autonomy and Academic Achievement

More autonomous motivation is associated with greater engagement, better performance, less drop out, higher quality learning and greater psychological well-being (Ryan&Deci, 2000b). Specifically, there is a positive relationship between children's autonomous motivation for learning and their achievement (Deci&Ryan, 2000; Grolnick & Ryan, 1987). In line with this, Miserandino (1996) found that autonomy of grade three and grade four students predicted their school performance in course grades and standardized test scores. Similarly, Black and Deci (2000) showed that college students who were more autonomously motivated for organic chemistry enjoy the course more and get higher grades than students who were more controlled in their motivation.

· The Need for Competence and Academic achievement

Perceived academic competence is a determinant of school achievement (Guay, Boivin&Hoges, 1999). Children who perceive themselves as academically competent tend to display high level of task engagement and have high achievement (Newman, 1990). The predictive effect of perceived competence to achievement holds true from the beginning to the end of the school year (Miserandino, 1996).

· The Need for Relatedness and Academic achievement

Although behaving in a socially appropriate and responsible way is valued in its own, these aspects of social competence are also powerful predictors of academic performance (Wentzel, 1993, 1999). In other words, prosocial behaviors can contribute to academic achievement because they promote academic exchange among peers (Wentzel, 1993). For example, being cooperative and helpful can result in positive academically relevant interactions with teachers and peers (Seiber, 1979, as cited in Wentzel, 1993). Conversely, non-compliant behaviors can be highly detrimental to classroom learning and instruction by distracting students from engaging in academic activities (Doyle, 1986, as cited in Wentzel, 1993, 1997).

Having supportive relationships with parents, teachers and peers has been associated with academic success (Wentzel, 1998). The most important factor associated with children's school adjustment and academic achievement is teacher-student relationships. However, security of the school and parent and school relationship contribute to the children's achievement (Goodnew, 1993, as cited in Maya, n.d.) A sense of belonging and support was strongly associated with motivation and achievement. Lack of

attachment may lead to a sense of isolation in school and could eventually result in school failure (Mount & Hawkins, 1996, as cited in Maya, n.d.)

Hence, interventions designed to promote the development of socially responsible behavior at school often results in higher level of academic performance (Wentzel, 1993).

2.3.3. Academic Intrinsic Motivation and Academic Achievement

Intrinsic motivation remains an important construct reflecting the natural propensity to learn and assimilate (Butler, 1987; Deci&Ryan, 2000). Similarly, researchers confirm that intrinsic motivation is associated with better learning, performance and well-being (Valas & Sovick, 1993, as cited in Deci&Ryan, 2000).

Academic intrinsic motivation is positively related to school achievement since children who experience a great deal of academic intrinsic motivation should enjoy learning, and show task persistence and a mastery orientation (A.E. Gottfried, 1985). It has substantial validity and significance for effective school functioning in that children with higher academic intrinsic motivation have higher achievement, more favorable perception of their academic competence, and lower academic anxiety (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 1994, 2001).

According to these writers, academic intrinsic motivation is positively related to school achievement from childhood through adolescence and students who begin this sequence with lower academic intrinsic motivation may also be at risk with regard to their academic performance (A.E. Gottfried et al., 2001).

However, academic intrinsic motivation is not the only means for better academic achievement in that academic achievement is a result of internal and/or external factors. Deci&Ryan (2000) corroborate this idea through examples in that a student can be highly

motivated to do homework out of curiosity or interest, or alternatively because he/she wants to procure an approval of a teacher or a parent. Similarly, a student could be motivated to learn new set of skills because he/she understands their potential utility or value, or because learning the skills will yield a good grade and the privileges a good grade affords. Further more, Connell and Ryan (1984) (as cited in A.E. Gottfried, 1985) point out that motives other than intrinsic motivation may play a role in school learning in that high emphasis on extrinsic incentives may be the route of achievement.

In a similar vein, A.E. Gottfried et al. (1994) show that task extrinsic events such as provision of rewards, encouragement to do better, discussion of the usefulness of school achievement, punishment and parental display of anger all pressure children to meet specific standards - school achievement. As a result, children internalize extrinsic reward systems to self-regulate their achievement activities (Connell & Ryan, 1984, as cited in A.E. Gottfried, 1985).

Moreover, although motivation is a necessary condition for learning, there are other factors such as ability, time spent on instruction, quality of instruction, classroom climate and home situations that are necessary as well for learning to occur (Parkerson, Schiller, Lomax & Walberg, 1984; Walberg & Uguroglu, 1980 as cited in A.E. Gottfried, 1985; Wlodkowski, 1985).

To sum up, although academic intrinsic motivation is related to academic achievement, factors other than intrinsic motivation also play great role for academic achievement.

2.3.4. Teacher Behavior, and Students' Self-determination, Academic Intrinsic Motivation and Academic Achievement

To put the reviewed literature pertinent to the research questions in a nutshell, teacher behaviors which enhance students' self-determination have direct effect on students' self-determination (e.g., Borich &Tombari, 1995; Skinner & Belmont, 1993), which in turn has direct effect on students' academic intrinsic motivation (e.g., Deci & Ryan, 2000; Reis et al., 2000; Ryan et al., 1985; Ryan & Deci, 2000b) and academic achievement (e.g., Deci & Ryan, 2000; Miserandino, 1996). The activities (e.g., teacher behaviors) which facilitate students' self-determination (Borich & Tombari, 1995; Reeve et al., 1999; Ryan & Deci, 2000b; Skinner &Belmont, 1993) are also described as they do a facilitating effect on students' academic intrinsic motivation (Koester et al., 1997; Deci & Ryan, 2000; Ryan & Deci, 2000b; Wild et al., 1997).Hence, teacher behaviors promoting students' self-determination also directly enhance their academic intrinsic motivation. Students' academic intrinsic motivation also is positively related to their academic achievement (A.E. Gottfried, 1985, 1990; A.E. Gottfried et al., 1994, 2001). This may imply that teacher behavior can have long-range effect on students' academic intrinsic motivation and academic achievement.

From this, we can understand that there can be a process model relationship between teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement.

CHAPTER THREE

METHODS OF THE STUDY

3.1. Respondents

The study was conducted on a sample of 360 students (M=172, F=188) selected from five schools out of fifteen ones. Out of 360 students, 28 of them did not provide complete data, and as a result, the samples of the study were 332 students (M= 164, F=168).

3.2. Sampling

Out of fifteen elementary schools of Gondar town, five schools (Chechela, Felege Abyot, Hibret, Meseret, and Tsadiku Yohannes) were selected randomly. From the five schools, ten sections (two sections from each school since the number of sections in each school is nearly equal, 3-4) were taken by random sampling. Here, a section was chosen if a teacher had taught in that section for the last three years. This might help students to suggest valid information about their teachers' behaviors due to familiarity.

From each section, nearly half of the students, that is, 36 students, were taken. The top twelve, the medium twelve and the lower twelve achievers based on their first semester results were taken purposefully as the samples of the study to accommodate varied levels of achievers.

3. Instruments

The instruments are two in kind: questionnaires, and achievement tests.

3.3.1. Types of Instruments

A. Questionnaires

Three kinds of questionnaires were used. After items had been adapted (measures of self-determination and academic intrinsic motivation) and newly prepared (measures of teacher behavior), they were translated in to their Amharic versions to help the respondents understand the items easily. Translation was made contextually by the researcher and other two English language post graduate students of Addis Ababa University.

After comparing the three translations, the three individuals discussed on their discrepancies to clarify exactly what was included in English language and what was the best way to capture that in Amharic. Items from the original translation, as modified in the subsequent discussion, were used for the data collection.

Measures of Teacher Behavior on Satisfying Students' Self-Determination

Since the researcher of this study had never found a conventional instrument concerning teachers' behaviors which promote students' self-determination, he developed items on autonomy, competence, and relatedness by adapting the Basic Psychological Needs Satisfaction Scale at Work (Deci&Ryan, n.d.) to teacher behaviors and by devising new ones on the basis of the review literature.

Items were designed to measure the extent to which teachers apply self-determination promoting behaviors in the school and in the classroom.

The scale has 15 items concerning the need for autonomy, competence, and relatedness containing five items for each. They are on the basis of a 4-point Likert scale including *very true (4), true (3), somewhat true (2), and not at all true (1)* (See Appendix A for the items)

Measures of Self-Determination at School

The items were designed to measure the extent of grade four students' satisfaction with the three psychological needs (self-determination) at school. The original scale is a family of scales: one that addresses need satisfaction in general in one's life and another that addresses need satisfaction in specific domains (Deci&Ryan, n.d). For the current study, the second one was used by adapting to the level of grade four students.

The original scale, that is, Basic Psychological Needs Satisfaction Scale at Work has 15 items concerning the need for autonomy, competence, and relatedness containing five items for each. Items are on the basis of a 7 point Likert scale ranging from *not at all true (1) to very true (7)*. However, it was adapted to a four point Likert scale including *very true (4), true (3), somewhat true (2), and not at all true (1)* for the present study to help younger children provide the required information easily (See Appendix A for the items).

Academic Intrinsic Motivation Scale

The original scale, Children's Academic Intrinsic Motivation Inventory (CAIMI) is designed to measure Children's (age 9 and above) intrinsic motivation for school learning (A.E. Gottfried, 1985). It contains five sub scales four of which measure intrinsic motivation in subject areas of reading, mathematics, social studies and science with the fifth measuring intrinsic motivation as a general orientation towards school learning. Items

in all subject areas (26 for each) are identical except for the reference to the particular subject. Items in the general sub scale (18) are also similar in content to those in subject area sub scales.

A.E. Gottfried (1990) in her study for young children, as she described, has simplified the CAIMI by reducing the number of items to 10 for each subject area and by simplifying the response format and the expressions used, even if the researcher of this study is unable to get the simplified version.

Likewise, this writer adapted 10 items for each subject area from CAIMI to accommodate all respondents since they were grade four students with the age range of 8 through 11 as the researcher had assessed. Items contained school subject areas: Amharic, English, mathematics and environmental science. With regard to the response format, the scale had a 4- point Likert scale including *very true (4), true (3), somewhat true (2), and not at all true (1)* (See Appendix A for items).

B. Achievement Tests

As the researcher had observed in the study site and the research results of ICDR (2004) reveal, as indicated earlier, the scores of students filed in the record office seemed exaggerated. As a result, the researcher preferred to prepare achievement tests for academic subjects and did so.

After a through analysis of the academic subjects' curriculum materials - syllabi, teacher's guides, and text books of first semester portions, objectives were formulated and a table of specification was prepared for each subject (Amharic, English, mathematics and environmental science). Then after, items were constructed accordingly (See Appendix B for test items of each subject).

3.3.2. Pilot Study

A pilot study, the very objective of which is to test and improve instruments, was conducted on selected samples of the study site. Since the instruments were either adapted or newly prepared, it was mandatory to check their reliabilities.

Pilot study was carried out twice since the obtained reliability coefficients of the instruments in the first pilot testing were generally low ranging from .25 to .73, being the top result was only for Amharic achievement test (Refer to Appendix C for the reliabilities).

The reason behind for such extent of reliabilities might be:

1. Some of the questionnaire items were reversely phrased requiring indirect interpretations which might be difficult for young children;
2. The test items, especially for English and maths were difficult as the item analysis results revealed,
3. All the instruments were administered in one session with quarter an hour gap between the questionnaires and the achievement test, which might have forward and/backward effects on students' responses, that is, students might get tired to do the test, and being eager to take the achievement test, they might not complete the questionnaire properly.
4. The scale for questionnaire items was a three- point Likert scale which might give less freedom to provide proper responses and;
5. The number of samples was small (45) out of which 20 of them failed to provide complete data.

After writing all questionnaire items (except 2 items) positively with a four- point Likert scale and making necessary modifications in both the questionnaire and the achievement test items, the second pilot study was conducted.

The pilot study (the second) of the instruments was conducted on 102 (M= 60 and F= 42) respondents of grade four students of two elementary schools (Atse Bekafa and Kebele 16) in Gondar town. Out of 102 respondents, 14 of them failed to provide complete data. Hence, the pilot study samples were 88 students.

The reliabilities of the questionnaire data were computed and found to be from .63 to .78 for teacher behavior subscales, .61 to .67 for self-determination subscales, and .63 to .79 for academic intrinsic motivation subscales using Crombach alpha. As a whole the reliability of teacher behavior, students' self-determination and academic intrinsic motivation scales were .71, .72 and .73 respectively (See Appendix C for reliabilities and inter item correlations).

Regarding achievement tests, item analysis was carried out as was done for the first pilot study. Specifically, item difficulty and discrimination indices, and the relative worth of each distractor were analyzed on the upper (27%) and the lower (27%) scores (Mehrense & Lehman, 1991). The reliabilities of the pilot tests were computed and became ranging from .66 to .82 using Crombach alpha (See Appendix C for the reliabilities and the item analyses of the test items).

Based on the item analyses, some items which have discrimination indices of .19 and below were modified as needed.

Finally, for the main study 15 items for each subject (course) were used (See Appendix B for the test items).

3.4. Data Collection Procedures

In the pilot study (i.e., the second), all the three instruments were administered to the students in their free time (on Saturdays) so as to give them sufficient time to respond to all items. Of the two types of instruments, the questionnaires – measures of teacher

behavior, students' self-determination and students' academic intrinsic motivation – were administered consecutively .The achievement tests, on the other hand were administered a week later after students were informed to prepare themselves for the tests.

In the main study, the refined questionnaires and the achievement tests were administered to the students in their respective schools by the researcher and his assistants in the same way done for pilot testing .In both administrations, children were told not to discuss the items or their answers with their colleagues and they were supervised so that they worked independently. For uncertainty, the supervisors provide clarifications.

3.5. Methods of Data Analysis

The collected data were analyzed using descriptive statistics, bivariate correlations, regression analysis and path analysis using the Statistical Program for the Social Sciences (SPSS) for most of the works.

Mean results were used to check the extent of teacher behavior implementations, and of students' self-determination, academic intrinsic motivation and academic achievement; and bivariate correlations were used to see the general pattern of relationships of the study variables.

To examine the separate and the cumulative effects of independent variables on the dependent variables presented in the path model (Figure 1), a diagram relating independent, intermediary and dependent variables, path analysis was used. Path analysis is an extension of regression analysis which is used to test the assumed causal effects of the independent variables on the dependent variables using path coefficients (beta weights)(Path analysis, n.d.). Since path coefficients are standardized regression coefficients (Kenny, 2003; McKinnon, n.d.; Path analysis, n.d.), partial regression analysis technique was employed

using SPSS to compute the path coefficients. For this purpose, the raw data were transformed in to standardized scores (z scores).

Path analysis was employed to test the direct effect of: (1) teacher behavior and its components (autonomy, competence and relatedness supports) on students' self-determination, (2) teacher behavior, and students' self-determination with its components (the need for autonomy, competence and relatedness) on students' academic intrinsic motivation, (3) students' self-determination and their academic intrinsic motivation on their academic achievement, and (4) students' intrinsic motivation on their academic achievement for corresponding academic subject. (5) It was also used to test the indirect effect of teacher behavior on students' academic intrinsic motivation via students' self-determination, and the indirect effect of students' self-determination on their academic achievement via their academic intrinsic motivation. On the way through, regression analysis was used to see the contributions of the independent variables on the dependent variables in the path model. In all cases, gender was controlled to identify the separate effects of the predictors on the outcome variables.

To test the mediating effect of the students' self-determination and their academic intrinsic motivation in the path model (Figure1), criteria of mediation (Baron & Kenny, 1986) was used (refer to 4.2.2. for the detail). And to calculate the indirect effect of teacher behavior on students' self-determination, Sobel Product of Coefficient Alpha (Sobel, 1982, as cited in McKinnon, n.d.) was employed (See the detail in Appendix D).

Finally, all the differences were tested for the statistical significance at the .05 level. Since, testing the indirect effect for significance is different from the usual way, it was computed manually with a technique given by Kenny (2003) (See Appendix D for the detail).

CHAPTER FOUR

RESULTS

The results of the study are presented in summarized forms of descriptive statistics, inter-correlations, regression analysis and path analysis.

4.1. Descriptive Statistics and Bivariate Correlations of the Study variables

In order to answer the first question of the study and to see the relationships between related variables, mean, standard deviation and bivariate correlation results are presented in Table 1 on page 49.

When we see the extents (mean results) of teacher behavior implementations in promoting students' self-determination (M= 2.39) and students' self-determination (M= 2.48), they were below half, i.e., expected mean (2.5). From the components of teacher behavior and students' self-determination, autonomy support from the former and autonomy need from the later were below half.

The magnitude of students' academic intrinsic motivation (2.57) and their academic achievement (8.30) were a little above the expected means (2.5 and 7.5 respectively). From the dimensions of academic intrinsic motivation, English (M=2.48) was below half and maths is almost at the middle (M=2.51). Similarly, students' academic achievements were below half for English (M=7.39) and maths (M=7.44).

It is also checked that the unknown population means were in between 2.14&2.64, 2.25&2.71, 2.14&3.04, and 8.08&8.52 for teacher behavior, students' self-determination,

students' academic intrinsic motivation and students' academic achievement respectively at .05 level. Hence, it could be generalized about the population using the sample means.

Regarding the inter correlation, results in general showed positive and significant relationships among the major variables - teacher behavior, students' self-determination and academic intrinsic motivation except with students' academic achievement. Similarly, the components of the former three major variables also revealed positive and significant relationships among themselves and among these major variables.

Contrarily, the relationship of students' intrinsic motivation and achievement for each corresponding academic subject (Amharic, English, mathematics, and environmental science) were not significant for all subjects. However, the inter-correlations of academic achievement variables were positive and significant.

Table 1: Descriptive Statistics and Bivariate Correlations of the Study Variables (N= 332)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
[a]Teacher Behavior (1)	2.39	.38																			
Autonomy Support (2)	2.01	.41	.555*																		
Competence Support (3)	2.53	.74	.796*	.109*																	
Relatedness support (4)	2.62	.47	.719*	.346*	.295*																
[a]Students' Self-determination (5)	2.48	.36	.428*	.306*	.223*	.435*															
Autonomy needs (6)	2.24	.44	.327*	.232*	.175*	.326*	.744*														
Competence needs (7)	2.60	.48	.335*	.223*	.217*	.287*	.783*	.369*													
Relatedness needs (8)	2.59	.48	.333*	.255*	.126*	.397*	.795*	.397*	.430*												
[a] Students' Academic Intrinsic Motivation (9)	2.57	.35	.234*	.202*	.175*	.316*	.549*	.423*	.495*	.358*											
Amharic (10)	2.66	.35	.314*	.195*	.171*	.332*	.514*	.377*	.460*	.357*	.853*										
English (11)	2.48	.41	.293*	.208*	.158*	.290*	.489*	.393*	.433*	.313*	.883*	.716*									
Maths (12)	2.51	.40	.254*	.153*	.155*	.247*	.466*	.364*	.431*	.288*	.907*	.689*	.700*								
Environmental science (13)	2.63	.40	.224*	.159*	.135*	.248*	.476*	.365*	.431*	.311*	.893*	.646*	.697*	.811*							
[a]Students' Academic Achievement (14)	8.30	2.07	-.052	-.097	-.020	-.012	.031	-.024	.058	.033	.003	-.020	.031	.033	-.039						
Amharic (15)	9.81	2.43	-.100	-.039	-.006	.021	.022	.007	.029	.015	.037	.006	.039	.088	-.009	.823*					
English (16)	7.36	2.79	-.019	-.121*	.027	.017	.057	-.010	.111*	.027	.012	-.049	.092	.005	-.017	.806*	.554*				
Maths (17)	7.44	2.26	-.025	-.097	.009	.008	.069	.047	.036	.077	.030	.031	.027	.049	-.003	.753*	.529*	.549*			
Environmental Science (18)	8.57	2.89	-.103	-.051	-.086	-.074	-.040	-.101	.007	-.005	-.057	-.040	-.054	-.023	-.083	.808*	.572*	.495*	.458*		
Gender (19)			-.024	-.045	.024	-.058	-.074	-.108*	-.051	-.019	-.129*	-.085	-.091	-.126*	-.148*	-.020	.004	-.020	-.033	-.015	

Note. N = 332. Gender is Code 0= females, 1= Males. *a = Average result of the components* **p<05*

4.2. Direct and Mediated Relationships of the Variables

To examine the direct and mediated relationships of the variables specified in Figure 1, partial regression analyses were employed for obtaining beta weights. The direct effects are presented in Table 2 through 5 and as a summary in Figure 2. The contributions of the independent variables on the dependent variables in the path model were computed using the same technique.

4.2.1. Direct Relationships

This part includes the direct relationships of: (1) teacher behavior and its components on students' self-determination, (2) teacher behavior, and students' self-determination with its components on students' academic intrinsic motivation, (3) students' self-determination and their academic intrinsic motivation on their academic achievement, and (4) students' intrinsic motivation on their academic achievement for corresponding academic subjects.

4.2.1.1. Teacher Behavior to Students' Self-determination

To examine the direct effects of teacher behavior and its components on students' self-determination at school, the outcome variable was regressed on teacher behavior, and again on autonomy, competence and relatedness based teacher behaviors controlling the two for the one. Results displayed in Table 2 next page revealed that teacher behavior in general, (ß =. 427) and autonomy (ß=. 176), competence (ß =. 107) and relatedness (ß =. 340) based teacher behaviors in particular were significant predictors of students' self-determination as hypothesized. When we see the proportion of the variance of students' self-determination accounted for by the teacher behavior, it was about 18.8%. In addition,

autonomy, competence and relatedness based teacher behaviors each accounted for approximately 3.4%, 1.4% and 10.8% respectively of the variance in students' self-determination. Furthermore, the relationship of teacher behavior components - supports of autonomy (ß = .249), competence (ß = .140) and relatedness (ß = .407) – were significantly related with the corresponding dimensions of students' self-determination (the need for autonomy, competence and relatedness).

Table 2

Teacher Behavior and Its Components as Predictors of Students' self-determination

Predictors	Students' self-determination	
	R^2	ß
Teacher Behavior	.188	.427*
Model	.229	
Autonomy support	.034	.176*
Competence Support	.014	.107*
Relatedness Support	.108	.340*

Note. N=332 ß= standardized regression coefficient * P =. 05

4.2.1.2. Teacher Behavior and Students' Self-determination to Students' Academic intrinsic Motivation

The second set of analyses regressed students' academic intrinsic motivation on teacher behavior and on students' self-determination together, and separately for the former, and then on the components of self-determination. As summarized in Table 3 next page, the analyses yielded significant relationships of teacher behavior (ß =. 309), students'

self- determination controlling for teacher behavior (ß=. 501), and the need for autonomy (ß=. 240), competence (ß=. 356) and relatedness (ß=. 108) controlling the two components for the one on the outcome variable.

When we see the proportion of the variance(s) of students' academic intrinsic motivation accounted for by students' self-determination, it was about 22.9%, and by both teacher behavior and students' self-determination was about 31.6%. As to the contribution of each basic psychological need by controlling the two for the one, the proportion of the variances of students' academic intrinsic motivation accounted for by the need for autonomy, competence, and relatedness were about 6.7%, 12.6% and 1.3%.

Table 3

Teacher Behavior, and Students' Self-Determination with Its Components as Predictors of Students' Academic Intrinsic Motivation

Predictors	Students' Academic Intrinsic Motivation	
	R^2	ß
Teacher Behavior	.097	.309*
Model	.316	
Teacher Behavior	.011	.096
Students' Self-determination	.229	.501*
Model	.327	
Autonomy Needs	.067	.240*
Competence Needs	.126	.356*
Relatedness Needs	.013	.108*

Note. N=332 ß= standardized regression coefficient * P =.05

4.2.1.3. Students' Self-determination and Academic Intrinsic Motivation to Their Academic Achievement

Regressing students' academic achievement on their self-determination and academic intrinsic motivation, controlling one for another, revealed non significant relationships of the predictor variables on the outcome variable. Similarly, regressing students' academic achievements on their academic intrinsic motivation for corresponding subjects (Amharic, English, mathematics, and environmental sciences) yielded non significant relationships. Yet, in all cases, the relationships were positive except for academic intrinsic motivation and academic achievement in general and of environmental science in particular (See Table 4 next page for the summary of results). Similarly, the needs for autonomy (ß =. 063), competence (ß = .068) and relatedness (ß =. 028) had non significant positive relationships with the average academic achievement of students.

Being suspicious of the data collected regarding academic achievement due to the obtained inconsistence of the relationship of academic achievement with the other study variables unlike the previous studies, correlations between the students' results collected from the record office and the researcher made test scores were done for each academic subject. The result revealed that correlation coefficients for Amharic, English, maths and Environmental science were .67, .53, .57 and .65 respectively. Thus, these results may add validity information on the collected data of researcher made achievements tests.

Table 4

Students' Self-determination and Academic Intrinsic Motivation with Its Components as Predictors of Their Academic Achievement

Predictors	Academic Achievement									
	Amharic		English		Maths		Env.Science		Average	
	R^2	ß	R^2	ß	R^2	ß	R^2	ß	R^2	ß
Model									.002	
Self-determination									.001	.042
Academic intrinsic motivation									.000	-.022
Amharic intrinsic motivation	.000	.007								
English intrinsic motivation			.008	.091						
Maths intrinsic motivation					.002	.046				
Environmental Science intrinsic motivation							.008	-.089		

Note. N=332 ß= standardized regression coefficient

4.2.2. Mediational Relationships

Mediation is a hypothesized chain in which one variable affects a second variable that, in turn, affects a third variable. The intervening variable is the mediator. It mediates the relationship between a predictor and an outcome (McKinnon, n.d.).

According to Baron and Kenny (1986), to conclude that there is evidence of mediated relationships, three requirements must be met: (1) there must be a significant relation between the predictor and the outcome;(2) there must be a significant relation between the predictor and the mediator; and (3) there must be a significant relation between the mediator and the outcome when all of the variables are entered in to the same equation, and the relationship between the predictor and the outcome variables should be reduced.

When students' self-determination was tested as a mediator between teacher behavior and student' academic intrinsic motivation, a significant positive relationship was obtained between teacher behavior and students' academic intrinsic motivation (ß =. 309) and between teacher behavior and students' self-determination (ß =. 427). Further more, in the presence of the predictor, the relationship of the mediator to the outcome variable was significant (ß=. 501) and that of the predictor to the outcome variable was non significant (ß =. 096) (See Table 3). Together, these results satisfied the three criteria of mediation. Hence, the indirect effect of teacher behavior on student' academic intrinsic motivation via students' self-determination was significant (ß=. 214).

Testing student' academic intrinsic motivation as a mediator of the relationship between students' self-determination and their academic achievement revealed that the hypothesized mediator did not have a mediating role. In other words, except criterion two, the rest criteria of mediation described earlier were not satisfied.

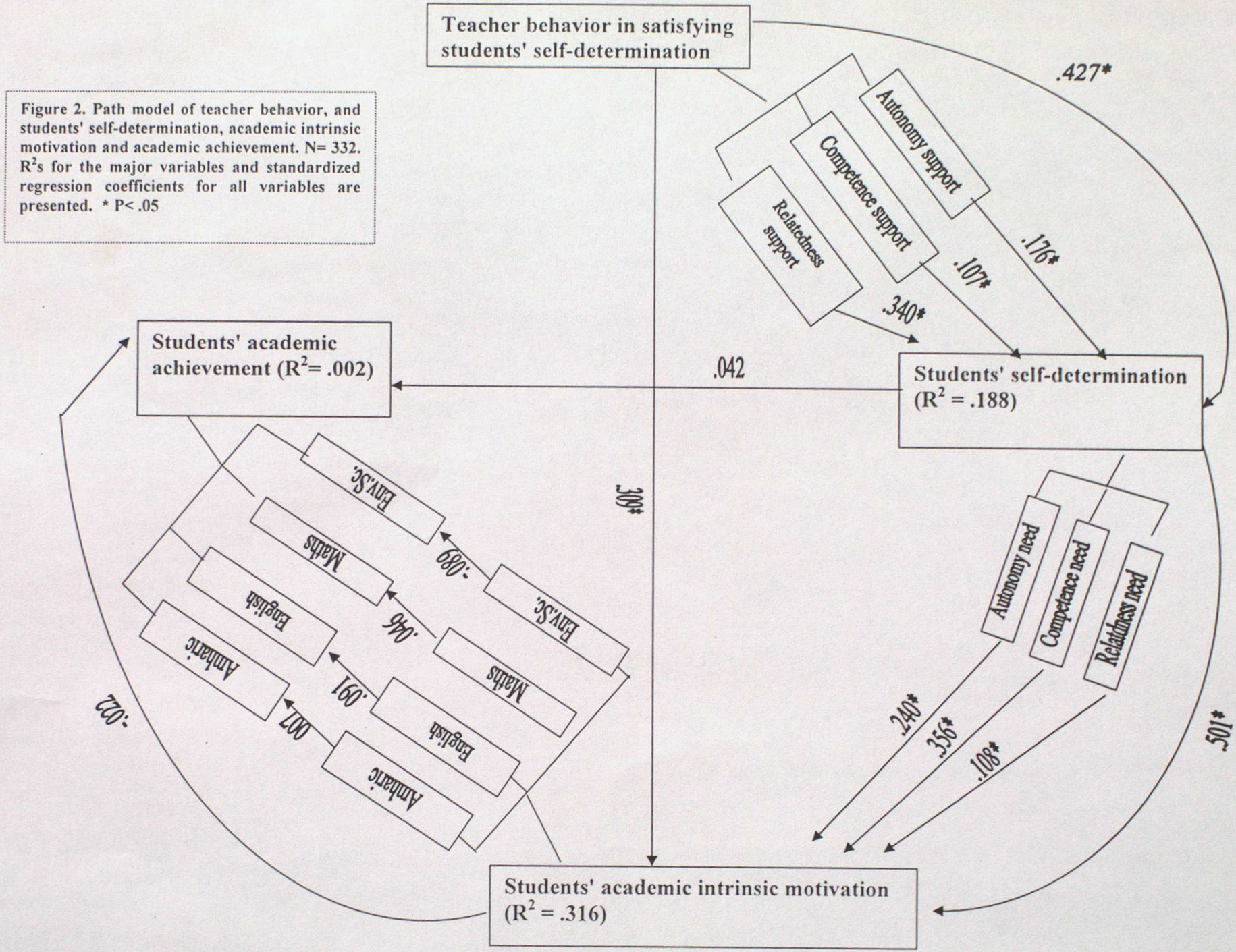


Figure 2. Path model of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement. N= 332. R^2s for the major variables and standardized regression coefficients for all variables are presented. * P< .05

CHAPTER FIVE

DISCUSSION

The findings concerning the extent and interrelationships of the study variables, and the process by which these variables relate to each other based on the hypothesized model are discussed below.

5.1. The Magnitudes of Teacher Behavior, and Students' Self-Determination, Academic Intrinsic Motivation and Academic Achievement

The results of the current study revealed that the extent of teacher behavior implementation for the enhancement of students' self-determination (teacher behavior shortly) was low. Regarding the reasons, it seems that cultural influences of child rearing practices out weigh the intension of the education and training policy (MOE, 1994), which advocate democratic teacher- student interaction through learner-centered approach.

From the components of teacher behavior, autonomy support took the least mean result. This also may imply that teachers employed controlling events which diminish autonomy feeling such as threats, punishment, surveillance, and completion pressure (dead lines) (Koester et al., 1987; Deci & Ryan, 2000; Ryan & Deci, 2000b; Wild et al., 1997) as disciplinary methods.

Referring to disciplinary methods, the researcher of the study practically observed in the study site besides the obtained results that unit leaders commonly held stick in the school compound and teachers did so as they entered to the classroom. This idea is substantiated by research results in other study sites of the country that teachers employed

physical punishment (Ayalew, 1996; Habtamu, 1998; Seleshi, 2001) and physical exercise and forced labor (Ayalew, 1996) as disciplinary methods.

Similar to teacher behavior, the extent of students' self-determination at school was low. As to why, the reasons given to teacher behavior also apply because teacher behavior has a direct predictive effect on students' self-determination (e.g., Borich & Tombari, 1995; Skinner & Belmont, 1993). Furthermore, the influence of the school society such as unit leaders and their peers directly and the home situation indirectly might have their own share for the low development of students' self-determination.

Academic intrinsic motivation became a little above fifty percent as a whole, and below it for English subject. Regarding the reasons why it is not high, the explanation given for students' self-determination holds true because self-determination has a determinant effect on academic intrinsic motivation (e.g., Deci & Ryan, 2000; Reis et al., 2000; Ryan et al., 1985; Ryan & Deci, 2000b).

This can also be explained in terms of the use of extrinsic motivation (rewards) which undermine intrinsic motivation. Researchers (Koester et al., 1987; Ryan & Deci, 2000b) showed that tangible rewards can decrease children's intrinsic motivation or interest. In Ethiopian context, what is frequently used at home and in schools is extrinsic aspect of motivation. The society as a whole and parents in particular (even the literate) commonly advise and encourage children to be strong in academic works so as to get high salary and prestigious jobs. Similarly, teachers teach students, besides doing what the society do, to help them get high grades which envision their recognized job opportunities. Thus, getting such extent of intrinsic motivation with in this society does not seem discouraging. However, students' low level of intrinsic motivation especially for English language, which is a medium of instruction at high school level, needs due attention.

When we consider the extent of students' academic achievement, it was generally about average though below half for English and maths. This result is also substantiated with a local research (ICDR, 2002) in that students' academic achievement in the Amhara region in the end of grade four was below fifty percent (48.9%) as a whole and for maths (39.7%) and English (39.7%) in particular. Among the reasons for such level of achievement, a survey study conducted by ICDR (2004) found that contents included in Grade 4 English, and in grades 1 through 4 maths and environmental science are beyond the level of the students.

The study of ICDR (2004) also describes that improper use of free promotion technique in grades 1 through 3 is one of the reasons for achievement failure of students, that is, some students have passed from grade to grade with out getting the basic behavioral changes expected in the level. As a result, such students failed to understand what would be taught in the next level resulting in hopelessness for academic learning. This reason may also work for observed level of students' academic achievement in the present study. When we see maths and English, which are compulsory through out schooling, the results of this study may imply that their future success in academic learning is less likely unless proper intervention is made.

5.2. The Influence of Teacher Behavior on Students' Self-Determination and Academic Intrinsic Motivation

According to the results of the present study, the relationships of teacher behavior and its components with students' self-determination were in the expected directions. Teacher behavior and its components- autonomy, competence and relatedness supports- were positively and significantly related to students' self-determinations. Thus, the results

of this study are consistent with that of Borich and Tombari (1995) and the literature reviewed by McCromick and Pressely (1997), and Skinner and Belmont (1993) in that teacher behaviors are among the determinant factors for the development of students' self-determination in general and of its components in particular.

When we see the relationship of teacher behavior components with the corresponding dimensions of students' self-determination, there were also positive significant relationships in all cases. Hence, the results are also in line with the suggestions given by Borich and Tombari (1995), and Reeve et al. (1999) on what teachers are expected to carryout so as to enhance the development of students' need for autonomy, competence and relatedness as clearly described in chapter two. This implies that when teachers employed the required classroom behaviors, which facilitate students' self-determination, students' need for autonomy, competence and relatedness would flourish.

However, when we see the variance of students' self-determination accounted for by teacher behavior, it was about 19%, and yet from its components, relatedness support contributed much more than others. This may imply that there are other factors, which more importantly contributed for the actual students' self-determination at school than teacher behavior. In other words, as the mean results of teacher behavior also revealed, it may be suggested that the required teacher behaviors, which promote students' self-determination at school, had not been employed well.

As to the contribution of relatedness support to students' self-determination, which was relatively good in the study site, it may not be surprising because Ethiopian culture is dominated by social life. Moreover, almost all teachers in the study site elementary schools were females, perhaps mothers. For instance, from the sample sections selected, nine

teachers out of ten were females. Hence, those teachers might treat students in a motherly approach facilitating students' relatedness needs.

With respect to the influence of teacher behavior on students' academic intrinsic motivation, the current study results showed that there were significant direct and indirect effects of teacher behavior on students' academic intrinsic motivation as hypothesized. This result also further revealed that students' self determination has a mediating role for the relationship between teacher behavior and students' academic intrinsic motivation.

When we see the direct effect of teacher behavior on students' academic intrinsic motivation, previous studies indicated that classrooms and home environment can facilitate academic intrinsic motivation (Ryan & Deci, 2000b). Specifically, when perceived support from parents, peers and teachers are considered jointly, perceived support from teachers has the most direct link to students interest in school learning (Wentzel, 1996, cited in Wentzel, 1997). The activities (e.g., teacher behaviors) which facilitate or hinder students' self-determination (Borich & Tombari, 1995; Deci & Ryan, 2000; Reeve et al., 1999; Ryan & Deci, 2000b; Skinner& Belmont, 1993) are also described as they do a facilitating or thwarting effect on academic intrinsic motivation (Koester et al., 1987; Deci & Ryan, 2000; Ryan & Deci, 2000b; Wild et al., 1997). Hence, teacher behaviors promoting students self-determination also directly enhance their academic intrinsic motivation. Similarly, as indicated above, the current study revealed that teacher behavior had a direct significant effect on students' self-determination.

Concerning the indirect effect of teacher behavior on students' academic intrinsic motivation via students' self-determination, literature indicate that teacher behavior has a direct predictive effect on students' self-determination (e.g., Borich & Tombari, 1995; Deci & Ryan, 2000), which in turn has direct effect on students' academic intrinsic motivation.

This implies that teacher behavior has a mediated effect on students' academic intrinsic motivation through students' self-determination. Thus, the present study result is in line with the hypothesis and this may add information to the existing literature.

However, the proportion of the variance of students' academic intrinsic motivation accounted for by teacher behavior was about 9.7%. This result implies that although teachers' support is expected to be the highest (Wentzel, 1997), there are other more important factors contributing for students' academic intrinsic motivation. This idea may also imply that teachers might not employ classroom behaviors, which promote students intrinsic motivation as required.

5.3. The Impact of Students' Self-Determination on their Academic Intrinsic Motivation and Academic Achievement

The results of the current study revealed that students' self-determination with its components- the need for autonomy, competence and relatedness- were directly associated with students' intrinsic motivation for academic subjects. In other words, these predictor variables had positive and significant effect on predicting students' academic intrinsic motivation as described in chapter four. Thus, the results of this study are consistent with previous studies (Deci &Ryan, 2000; Reis et al., 2000; Ryan et al., 1985) in that the satisfaction of students' with the basic psychological needs has a predictive effect on their academic intrinsic motivation.

When we see each basic need with respect to academic intrinsic motivation, they were directly associated with academic intrinsic motivation of students. Of these, the need for competence became the best predictor followed by the need for autonomy and

relatedness consecutively. These results are in line with that of Deci and Ryan (2000). These results also corroborate with previous studies in that the need for relatedness (e.g., Anderson et al, 1976; Deci & Ryan, 2000), autonomy (e.g., Deci & Ryan, 2000; Pelletier et al., 2000; Reeve et al., 1999; Ryan & Deci, 2000b), and competence (e.g., Bulter & Nisan, 1986; Deci et al., 1981; A.E. Gottfried, 1990) are likely to predict academic intrinsic motivation.

With reference to the influence of students' self-determination on their academic achievement, the results of the present study revealed that students' self-determination and its components were not significantly associated with students' academic achievement, and the proportion of the variance of students' academic achievement accounted for by their self-determination is negligible. Thus, this result is inconsistent with the previous research results. Earlier studies reviewed by Miserandino (1996) suggest that there is significant relationship between the fulfillment of basic psychological needs (self-determination) and academic achievement.

Regarding the components of self-determination with respect to academic achievement, the present study results showed non-significant relationships in all cases. When we see the previous research results concerning autonomy, they are not in the same direction with the current study results in that students' autonomy at grade three and four predicted their course grades and standardized test scores (Miseradino, 1996), and college students who are more autonomously motivated in organic chemistry enjoy the course more and got higher grades than students who were more controlled in their motivation.

For competence need, previous studies (e.g., Miserandino, 1996; Newman, 1990) forward that students' perceived competence has a determinant effect on their academic

achievement. Similarly, relatedness need also is strongly associated with academic achievement (e.g., Wentzel, 1993, 1997, 1998).

As the regression analysis of the present study revealed, the variance of students' academic achievement accounted for by their self-determination is negligible. This implies that almost the whole obtained academic achievement was the result of factors others than self-determination. In line with this, studies indicate that academic achievement can also be obtained as a result of extrinsic events such as reward, and punishment (Connell & Ryan, 1984 cited in A.E. Gottfried, 1985; A.E. Gottfried et al., 1994). Moreover, another study also suggest that although motivation is a necessary condition for learning, there are other factors such as ability, quality of instruction, classroom climate and home situation (Welberg &Uguroglue, 1980, cited in A.E. Gottfried, 1985). Hence, students' academic achievement can be attributed to those factors for the current study.

Concerning the mediating role of students' academic intrinsic motivation for the relationship between their self-determination and academic achievement, the obtained results did not satisfy the criteria of mediation (Baron & Kenny, 1986). Thus, there was no indirect significant relationship between the predictor and the outcome variable via the assumed meditating variables besides the direct non-significant relationships indicated earlier.

5.4. The Influence of Students' Academic Intrinsic Motivation on their Academic Achievement

The results of this study reveal that students' academic intrinsic motivation was not associated with their academic achievement. When we see the same relationship for each

subject area considered- Amharic, English, maths and environmental science- the same held true.

As to the proportion of the variance of students' academic achievement accounted for by their academic intrinsic motivation as presented in Table 4 of chapter four, it is nil.

Hence, the results of the current study are inconsistent with the previous research results conducted on young elementary school students (A.E. Gottfried, 1990), on elementary and junior high school students (A.E. Gottfried, 1985) and on middle elementary through high school students (A.E. Gottfried et al., 2001).

From these contrasting results, we can understand that academic achievement is a result of internal and/or external factors. As Deci and Ryan (2000) exemplified, a student could be motivated to learn a new set of skills because he/she understands their potential utility or value or because learning the skills will yield a good grade and the privileges a good grade affords.

When we come to the current study result, it is clear that students' academic achievement was the result of factors other than intrinsic motivation. In line with this, studies (Connell & Ryan, 1984 cited in A.E. Gottfried, 1985; A.E. Gottfried et al., 1994) reveal that task extrinsic events such as provision of rewards, encouragement to do better, discussion of the usefulness of school achievement, punishment and parental display of anger may be the means of achievement helping children internalize extrinsic reward systems to self-regulate their achievement activities.

Hence, although academic intrinsic motivation is clearly related to achievement, the present study indicated that factors other than intrinsic motivation also play great role for academic achievement although identifying the causes is beyond the scope of the study.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1. Summary

The central purpose of the study was to examine the extent and the process model relationships of teacher behavior, and students' self-determination, academic intrinsic motivation and academic achievement in Gondar town elementary schools. With this main objective in view, the following specific research questions were formulated:

1. To what extent do teacher behaviors be implemented, and students' self-determination, academic intrinsic motivation and academic achievement be exhibited?
2. How do teacher behavior and its components influence students' self-determination?
3. How do teacher behavior, and students' self-determination with its components influence students' academic intrinsic motivation?
4. How do students' self-determination and academic intrinsic motivation influence their academic achievement?
5. Can students' self-determination mediate the influence of teacher behavior on students' academic intrinsic motivation and academic achievement? If yes, how?
6. Can students' academic intrinsic motivation mediate the influence of students' self-determination on their academic achievement? If yes, how?
7. How does students' academic intrinsic motivation relate to their academic achievement in corresponding subject areas?

To conduct the research, 5 schools out of 15 were selected randomly. From these sample schools, 10 sections (2 from each) at which a teacher had taught in that section for

the last three years were taken at random. From each section, the top 12, the middle 12, and the lower 12 achievers (nearly half of the total) were selected to accommodate varied levels of achievers based on their first semester results. Thus, excluding those who did not provide complete responses (28), the samples of the study were 332 students.

Instruments used in the study were three types of questionnaire and an achievement test containing four subjects (Amharic, English, maths and environmental science). To assess teachers' behaviors in satisfying students' self-determination, items were prepared by the researcher based on Basic Psychological Needs Scale at Work (Deci & Ryan, n.d) and the literature review. For students' self-determination at school, Basic Psychological Needs Scale at Work (Deci & Ryan, n.d) was adapted to the study samples. Academic intrinsic motivation scale was also adapted from CAIMI (Gottfried, 1985) to assess students' intrinsic motivation for academic subjects. Finally, achievement tests in four subjects were prepared by the researcher. For the ease of understanding, all the questionnaires were administered in their Amharic versions.

The instruments were pilot tested first in a sample of 45 students resulting in low reliability. After improvement, they were also pilot tested in a sample of 88 students and reliabilities for all types of instruments and item analyses for achievement test items were computed and found improved.

Regarding data analysis, mean results were used to cheek the extent of teacher behavior implementations, and students' self-determination, academic intrinsic motivation and academic achievement. To see the general pattern of relationships among the study variables, bivariate correlation was used. To examine the relation ships of (1) teacher behavior with its components to students' self-determination, (2) teacher behavior and students' self-determination with its components to students' academic intrinsic motivation,

(3) students' self-determination and academic intrinsic motivation to their academic achievement, and (4) academic intrinsic motivation and academic achievement for the corresponding subjects in the path model, regression analysis and path analysis were employed.

The mean results revealed that the magnitude of teacher behavior in enhancing students' self-determination, (M= 2.39) and that of students' self- determination (M= 2.48) were below the expected mean result (M= 2.50) where as, the extent of students' academic intrinsic motivation (M= 2.59) and academic achievement (M= 8.30) were about the expected mean values (2.5 for the former and 7.5 for the later), infact, above.

The intercorrelation results indicated positive and significant relationships between teacher behavior, students' self-determination and students' academic intrinsic motivation in general and, of their respective components in particular. Moreover, the inter relationships of academic achievement components were positive and significant. However, academic achievement in general and for different academic subjects in particular had non-significant relationship with the remaining study variables.

The regression analyses revealed that teacher behavior in general (β= .427) and its components- autonomy (β= .176), competence (β= .107) and relatedness (β=.340) based teacher behaviors- in particular were significant predictors of students' self-determination. The proportion of the variance of students' self-determination accounted for by teacher behavior in general and its components-autonomy, competence and relatedness supports in particular were approximately, 18.8%, 3.4%, 1.4% and 10.8% respectively.

Regressing students' academic intrinsic motivation on teacher behavior and students' self determination revealed that teacher behavior (β= .309), students' self-

determination (β= .501) and its components- autonomy (β= .240), competence (β=. 356) and relatedness (β=.108) needs were significant predictors of academic intrinsic motivation. The proportion of the variances accounted for by these variables were about 9.7%, 22.9%, 6.7%, 12.6% and 1.3% respectively.

The last regression analysis results indicated that students' self-determination and students' academic intrinsic motivation, together and separately, did not have significant relationships with their academic achievement. Moreover, academic intrinsic motivation and academic achievement of the corresponding subjects had non-significant relations.

The mediational analysis results reveals that teacher behavior had an indirect significant effect on students' academic intrinsic motivation (B= .214) via students' self-determination. For the rest relationships of the study variables, significant mediated effects were not obtained.

In general, from the results of the present study, what is new as compared to the previous studies is the relationships of self-determination and academic intrinsic motivation to academic achievement.

6.2. **Conclusion**

Based on the findings, the following conclusions are drawn:

1. The extents of teacher behavior implementations and students' self-determination were low where as that of students' academic intrinsic motivation and academic achievement were about the middle value (above half). When seen specifically, teacher autonomy support, and students' autonomy need, intrinsic motivation for English, and academic achievement for maths and English were low.

2. Teacher behavior in general and its components in particular were significant predictors of students' self-determination, which in turn with its components had significant predictive effect on students' academic intrinsic motivation. Teacher behavior had also significant direct effect, and indirect effect via students' self-determination on their academic intrinsic motivation. Thus, it appears that teacher behavior implementations enhancing self-determination, students' self-determination at school and students' academic intrinsic motivation are interrelated.
3. The relationships of students' self-determination to their academic achievement, and that of students' academic intrinsic motivation to their academic achievement in general, and in the corresponding subjects in particular were non-significant. The proportion of the variances of the predictors to the outcome variables ranged from negligible to nil. Therefore, it appears that academic achievement has non-significant relationships with self-determination and academic intrinsic motivation. Again, it seems that there are other factors most importantly contribute for the development of learners' academic achievement than these two in the study site.

6.3. **Recommendations**

Finally, based on the present results, the following recommendations are forwarded.

Firstly, elementary school (first cycle) is a foundation stage for the development of students' behaviors in general (Hurlock, 1980) and school learning in particular (e.g., A.E. Gottfried, 1985, 1990). Thus, teachers should focus on facilitating more self-determination; academic intrinsic motivation and academic achievement by providing school and classroom conditions that allow satisfaction of these constructs.

Specifically, since teacher autonomy support and students' need for autonomy at school are low, teachers and the school community are expected to minimize the use of controlling events such as threats and punishment as disciplinary methods. Similarly, students' intrinsic motivation for English, which is a medium of instruction at high school level, is low. Hence, teachers and responsible authorities are expected to find remedial mechanisms for its enhancement. Moreover, students' academic achievements for maths and English are low. Yet, these subjects are compulsory from primary to territory levels of education. Thus, proper interventions of responsible bodies (e.g., curriculum revision of the level, providing on job training about free promotion and continuous assessment for teachers, and providing necessary inputs for the teaching learning process) and devotion of teachers are expected.

Secondly, previous researchers, Deci and Ryan (2000) on self-determination, and A.E. Gottfried (1985, 1990) regarding intrinsic motivation recommend that school learning environment should foster these important motives since they are significant constructs for children's education. Taking their view for granted with the current finding, it is note worthy to say that teachers should focus not only on cognitive aspects(cognitive domain) but also on non-cognitive aspects such as the need for competence, autonomy and relatedness, and that of intrinsic motivation for the subjects they teach to enhance students' academic success.

Finally, to verify the present study as a whole, and the inconsistence of previous and present studies regarding the relationship of academic achievement with other study variables, future research is required. For this, improving the inadequacy of the present instruments, employing other additional measures and including the reports of knowledgeable others are essential.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

Addis Ababa University

Faculty of Education

School of Graduate Studies

Department of Educational Psychology

Questionnaire

Dear Students

This questionnaire is designed to measure:

(1) the extent to which grade four teachers apply instructional behaviors which promotes students' self-determination i.e., the need for competence, autonomy and relatedness,

(2) the extent of grade four students self-determination at school and

(3) of their academic intrinsic motivation for the subjects of Amharic, English, mathematics and environmental science.

The information to be collected is valuable for the researcher and it will in turn have high contribution for the improvement of instruction. Hence, you are kindly requested to give genuine response for each item. I hope you will give it due attention.

There is no need to write your name.

Thank you for your cooperation.

Part-1: Measures of Teacher Behavior on Satisfying of Students' Self-Determination

Please read each of he following questions carefully, and then indicate how true each item is about the behavior of your academic subject teachers using a tick mark (√) under the given categories in front of each item.

Use the following scale to respond:

very true 4 | true 3 | somewhat true 2 | not at all true 1

	Our teacher	Very True 4	True 3	Some what true 2	Not at all true 1
1	Gives me the chance to express my ideas and opinions				
2	Tells me that I am good at learning				
3	Likes me				
4	Does not punish me if I misbehave				
5	Gives me the chance to ask and answer questions				
6	Cares about me				
7	Involves me in decision making of my matters				
8	Teaches me clearly				
9	Calls me by name				
10	Does not bring stick to the class				
11	Gives us medium difficulty level exercises				
12	Gives us group work				
13	Warns us to do what we are told				
14	Gives clear guide lines and directions for tasks				
15	Is friendly to us				

N.B. Distribution of Items (for users): Autonomy support - 1, 4, 7, 10, 13(R)
Competence support - 2, 5, 8, 11, 14
Relatedness support - 3, 6, 9, 12, 15

Part-2: Measures of Self-Determination at School

Please read each of he following statements carefully, and then indicate how true each item is for you by using a tick mark (√) under the given categories in front of each item.

Use the following scale to respond:

very true 4 | true 3 | somewhat true 2 | not at all true 1

		Very true 4	True 3	Some What true 2	Not at all true 1
1	I feel like I am free to decide for my school learning				
2	I really like the students and the teacher in the school				
3	I feel very competent when I am at school				
4	Students and the teacher tell me that I am good at learning				
5	I do not feel pressured at school				
6	I get along with the students and the teacher				
7	I don't fell loneliness when I am at school				
8	I am free to express my ideas and opinions at school				
9	I consider the students and the teacher to be my friends				
10	I have been able to learn interesting new skills in the school				
11	When I am at school, I have to do what I am told				
12	Most of the time, I feel a sense of accomplishment from what I learn				
13	My feelings are taken in to consideration at school				
14	At school, I get much of a chance to show how capable I am				
15	People at school care about me				

N.B. Distribution of Items (for users): Autonomy needs - 1, 5, 8, 11(R), 13
Competence needs - 3, 4,10,12,14
Relatedness needs - 2, 6, 7,9,15

Part –3: Academic Intrinsic Motivation Scale

Please read each of the following items carefully, and then indicate how true is your academic intrinsic motivation for the subjects Amharic, English, mathematics and environmental science independently by putting a tick mark (√) under the given categories in front of each item.

Use the following scale to respond:

very true	true	somewhat true	not at all true
4	3	2	1

AMHARIC

		Very true 4	True 3	Some what true 2	Not at all true 1
1	I enjoy learning new things in…				
2	I like to answer questions in …				
3	I enjoy understanding my work in …				
4	I like to do as much as I can in…				
5	I would like to learn more about…				
6	When I get bored, I look for new things to learn				
7	I don't give up an assignment until I understand it…				
8	I think it is interesting to do work in…				
9	I enjoy doing hard assignments in…				
10	I feel good inside when I know I have learned something new in…				

ENGLISH

		Very true 4	True 3	Some what true 2	Not at all true 1
1	I enjoy learning new things in…				
2	I like to answer questions in …				
3	I enjoy understanding my work in …				
4	I like to do as much as I can in…				
5	I would like to learn more about…				
6	When I get bored, I look for new things to learn				
7	I don't give up an assignment until I understand it…				
8	I think it is interesting to do work in…				
9	I enjoy doing hard assignments in…				
10	I feel good inside when I know I have learned something new in…				

MATHEMATICS

		Very true 4	True 3	Some what true 2	Not at all true 1
1	I enjoy learning new things in…				
2	I like to answer questions in …				
3	I enjoy understanding my work in …				
4	I like to do as much as I can in…				
5	I would like to learn more about…				
6	When I get bored, I look for new things to learn				
7	I don't give up an assignment until I understand it…				
8	I think it is interesting to do work in…				
9	I enjoy doing hard assignments in…				
10	I feel good inside when I know I have learned something new in…				

ENVIRONMENTAL SCIENCE

		Very true 4	True 3	Some what true 2	Not at all true 1
1	I enjoy learning new things in…				
2	I like to answer questions in …				
3	I enjoy understanding my work in …				
4	I like to do as much as I can in…				
5	I would like to learn more about…				
6	When I get bored, I look for new things to learn				
7	I don't give up an assignment until I understand it…				
8	I think it is interesting to do work in…				
9	I enjoy doing hard assignments in…				
10	I feel good inside when I know I have learned something new in…				

AMHARIC VERSION OF THE QUESTIONNAIRE

አዲስ አበባ ዩኒቨርሲቲ

ትምህርት ፋኩሊቲ

የትምህርት ሳይኮሎጅ ክፍል

መጠይቅ

ውድ ተማሪዎች

ይህ መጠይቅ

1ኛ. የ4ኛ ክፍል መምህራን በመማር ማስተማሩ ሂደት የተማሪዎችን በራስ የመተማመን ፍላጎት ማለትም የብቁነት፣የግንኙነትና በራስ የመገዛት ፍላጎቶችን የሚያጎለብቱ ተግባራትን ምን ያህል እንደሚጠቀሙ፣

2ኛ. የ4ኛ ክፍል ተማሪዎች በራስ የመተማመን ፍላጎት ደረጃ እና

3ኛ. የእነዚሁ ተማሪዎች ለአማርኛ ፣እንግሊዝኛ፣ ሂሳብና አካባቢ ሳይንስ ትምህርቶች ያላቸውን ዉስጣዊ መነሳሳት ለመረዳት የሚያስችል ነዉ።

ለእያንዳንዱ ጥያቄ የምትሰጡት እዉነተኛ መልስ ጥናቱን ለሚያካሂደዉ ሰዉ ተገቢዉን መረጃ እንዲያገኝ ይረዳዋል። ይህም ለመማር ማስተማሩ ሂደት መሻሻል ከፍተኛ አስተዋጽኦ ያደርጋል። በመሆኑም ለእያንዳንዱ ጥያቄ ትክክለኛ ምላሽ ትሰጡ ዘንድ በትህትና እጠይቃለሁ። ብዙ ትኩረት እንደምትሰጡትም ተስፋ አለኝ።

በመጠይቁ ላይ ስማችሁን መጻፍ አስፈላጊ አይደለም።

ስለ ትብብራችሁ አመሰግናለሁ።

ክፍል-1 <u>የተማሪዎችን በራስ የመተማመን ፍላጎት ለማጎልበት የሚረዱ ባህሪያትን መምህራን ምን ያህል እንደሚተገብሯቸው ለማወቅ የተዘጋጀ መጠይቅ ነዉ</u>

<u>መመሪያ</u> ከዚህ በታች የተዘረዘሩትን ጥያቄዎች በጥሞና ካነበብክ/ሽ በኋላ እያንዳንዱ ተግባር ስለ የቀለም ትምህርት መምህራችሁ «በጣም እውነት» ፣ «እውነት» ፣«በመጠኑ እውነት» ወይም «ፈጽሞ ውሸት» መሆኑን በመወሰን ከእያንዳንዱ ዐረፍተ ነገር ፊትለፊት በተሰጠው ሰንጠረዥ የ « √ » ምልክት በማድረግ መልስ/ሽ::

	መምህራችን	በጣም እውነት 4	እውነት 3	በመጠኑ እውነት 2	ፈጽሞ ውሸት 1
1	ያለኝን ሀሳብ እንድገልጽ እድል ይሰጡኛል				
2	በትምህርቴ ጎበዝ እነደሆንኩ ይነግሩኛል				
3	ይወዱኛል				
4	ባጠፋም እንኳ አይቀጡኝም				
5	እንድጠይቅና እንድመልስ እድል ይሰጡኛል				
6	እንክብካቤ ያደርጉልኛል/ይጨነቁልኛል/				
7	ዉሳኔ በሚያስፈልጋቸዉ የራሴ ጉዳዮች ያሳትፉኛል				
8	እንዲገባኝ አድርገዉ በግልጽ ያስተምሩኛል				
9	በስሜ ይጠሩኛል				
10	ክፍል ሲገቡ ጨንገር አይዙም				
11	በጣም ከባድ ያልሆኑ የመልመጃ ጥያቄዎች ይሰጡናል				
12	የቡድን ሥራ ይሰጡናል				
13	የሚነግሩንን ሰርተን መምጣት እንዳለብን ማሰጠንቀቂያ ይሰጡናል				
14	ስለምንሠራዉ ሥራ ግልጽ መመሪያ ይሰጡናል				
15	እንደ ጓደኛ አድርገው ያቀርቡናል				

ክፍል- 2 <u>የተማሪዎች በራስ የመተማመን ፍላጎት በትምህርት ቤት ምንያህል እንደተሟላ ለማወቅ የሚረዳ መጠይቅ</u>

<u>መመሪያ</u> ከዚህ በታች የተዘረዘሩትን ጥያቄዎች በጥሞና ካነበባችሁ በኋላ እያንዳንዱ ሃሳብ ከእናንተ ትምህርት ቤት አንፃር ስለ አንተ/አንች «በጣም እውነት»፣ «እውነት»፣ «በመጠኑ እውነት» ወይም «ፈጽሞ ዉሸት» መሆኑን በመወሰን ከእያንዳንዱ ዐረፍተ ነገር ፊትለፊት በተሰጠዉ ሰንጠረዥ የ«√» ምልክት በማድረግ መልስ/ሽ።

		በጣም እዉነት 4	እዉነት 3	በመጠኑ እዉነት 2	ፈጽሞ ዉሸት 1
1	በትምህርት ሥራየ (ለምሳሌ የቤትሥራ መስራት፣ የፈለግኩትን ክበብ መምረጥ ወዘተ.) በራሴ ዉሳኔ እንደምሰራ ይሰማኛል				
2	ተማሪዎችን ፣መምህራችንን እና ዩኒት መሪው/ዋ ን እወዳቸዋለሁ				
3	ትምህርት ቤት ስሆን በጣም ጎበዝ እንደሆንኩ ይሰማኛል				
4	በትምህርቴ ጎበዝ እንደሆንኩ ተማሪዎችና መምህራችን ይነግሩኛል				
5	የተማሪዎች፣ የመምህራችንና የዩኒት መሪ ተጽዕኖ(ጫና) እንደሌለብኝ ይሰማኛል				
6	ከተማሪዎችና ከመምህራችን ጋር ስምምንት አለኝ				
7	ትምህርት ቤት ስሆን ብቸኝነት አይሰማኝም				
8	በት/ቤት ሀሳቤን የመግለጽ ነጻነት አለኝ				
9	ተማሪዎችንና መምህራቸንን እንደ ጓደኞቼ አያቸዋለሁ				
10	አስደሳች የሆኑ አዳዲስ ክህሎቶችን እየተማርኩ ነዉ				
11	በት/ቤት ዉስጥ ከሆንኩ የተነገረኝን ነገር መፈጸም ግዴታዬ ነዉ				
12	ብዙዉን ጊዜ የተማርኩትን ትምህርት እንደተገነዘብኩት ይሰማኛል				
13	ተማሪዎች፣ መምህራችን ና ዩኒት መሪው/ዋ ስሜቴን ይጠብቁልኛል				
14	በት/ቤትያለኝን ጉብዝና የማሳይበት ብዙ እድል አግኝቻለሁ				
15	የትምህርት ቤቱ ማህበረሰብ (ተማሪዎች፣ መምህራችንና ዩኒት መሪ ው/ዋ) ይንከባከቡኛል/ይደነቁልኛል/				

ክፍል -3 ተማሪዎች ለቀለም ትምህርቶች (አማርኛ ፣እንግሊዝኛ፣ ሂሳብ ና አካባቢ ሳይንስ)
ያላቸዉን ዉስጣዊ መነሳሳት ለማወቅ የተዘጋጀ መጠይቅ

መመሪያ ከዚህ በታች የተዘረዘሩት ትያቄዎች በጥሞና ካነበብክ/ሽ በ□ላ አንተ/ች ለትምህርት ዓይነቱ ያለህ/ሽ ዉስጣዊ መነሳሳት «በጣም እውነት» ፣ « እውነት» ፣ « በመጠኑ እውነት» ወይም «ፈጽሞ ውሸት» መሆኑን በመወሰን ከእያንዳንዱ ዐ.ነገር ፊትለፊት በተሰጠው ሰንጠረዥ የ «√» ምልክት በማድረግ መልስ/ሽ።

አማርኛ ትምህርት

		በጣም እውነት 4	እውነት 3	በመጠኑ እውነት 2	ፈጽሞ ውሸት 1
1	አዳዲስ ነገሮችን መማር ያስደስተኛል				
2	ለጥያቄዎች መልስ መፈለግ እወዳለሁ				
3	የተማርኩት ሲገባኝ እደሰታለሁ				
4	የምችለውን ያክል ብዙ ብሰራ እወዳለሁ				
5	ከዚህ በላይ ብዙ መማር እፈልጋለሁ				
6	የምሰራው ሲሰለቸኝ ሌላ አዲስ ነገር ለመማር እጥራለሁ				
7	እስካልገባኝ ድረስ የቤት ሥራየን ከመስራት አላ□ርጥም				
8	ሥራ መሥራት(ምሳሌ ማስተማር) ያስደስታል ብየ አምናለሁ				
9	የሚከብድ የቤት ሥራ መሥራት ያስደስተኛል				
10	አዲስ ነገር እንደተማርኩ ከተረዳሁ እደሰታለሁ				

እንግሊዘኛ ትምህርት

		በጣም እውነት 4	እውነት 3	በመጠኑ እውነት 2	ፈጽሞ ውሸት 1
1	አዳዲስ ነገሮችን መማር ያስደስተኛል				
2	ለጥያቄዎች መልስ መፈለግ እወዳለሁ				
3	የተማርኩት ሲገባኝ እደሰታለሁ				
4	የምችለውን ያክል ብዙ ብሰራ እወዳለሁ				
5	ከዚህ በላይ ብዙ መማር እፈልጋለሁ				
6	የምሰራው ሲሰለቸኝ ሌላ አዲስ ነገር ለመማር እጥራለሁ				
7	እስካልገባኝ ድረስ የቤት ሥራየን ከመስራት አላ□ርጥም				
8	ሥራ መሥራት(ምሳሌ ማስተማር) ያስደስታል ብየ አምናለሁ				
9	የሚከብድ የቤት ሥራ መሥራት ያስደስተኛል				
10	አዲስ ነገር እንደተማርኩ ከተረዳሁ እደሰታለሁ				

ሂሳብ ትምህርት

		በጣም እውነት 4	እውነት 3	በመጠኑ እውነት 2	ፈጽሞ ውሸት 1
1	አዳዲስ ነገሮችን መማር ያስደስተኛል				
2	ለጥያቄዎች መልስ መፈለግ እወዳለሁ				
3	የተማርኩት ሲገባኝ እደሰታለሁ				
4	የምችለውን ያክል ብዙ ብሰራ እወዳለሁ				
5	ከዚህ በላይ ብዙ መማር እፈልጋለሁ				
6	የምሰራው ሲሰለቸኝ ሌላ አዲስ ነገር ለመማር እጥራለሁ				
7	እስካልገባኝ ድረስ የቤት ሥራየን ከመስራት አላቋርጥም				
8	ሥራ መሥራት(ምሳሌ ማስተማር) ያስደስታል ብየ አምናለሁ				
9	የሚከብድ የቤት ሥራ መሥራት ያስደስተኛል				
10	አዲስ ነገር እንደተማርኩ ከተረዳሁ እደሰታለሁ				

አካባቢ ሳይንስ ትምህርት

		በጣም እውነት 4	እውነት 3	በመጠኑ እውነት 2	ፈጽሞ ውሸት 1
1	አዳዲስ ነገሮችን መማር ያስደስተኛል				
2	ለጥያቄዎች መልስ መፈለግ እወዳለሁ				
3	የተማርኩት ሲገባኝ እደሰታለሁ				
4	የምችለውን ያክል ብዙ ብሰራ እወዳለሁ				
5	ከዚህ በላይ ብዙ መማር እፈልጋለሁ				
6	የምሰራው ሲሰለቸኝ ሌላ አዲስ ነገር ለመማር እጥራለሁ				
7	እስካልገባኝ ድረስ የቤት ሥራየን ከመስራት አላቋርጥም				
8	ሥራ መሥራት(ምሳሌ ማስተማር) ያስደስታል ብየ አምናለሁ				
9	የሚከብድ የቤት ሥራ መሥራት ያስደስተኛል				
10	አዲስ ነገር እንደተማርኩ ከተረዳሁ እደሰታለሁ				

Appendix B

Achievement Tests

የ4ኛ ክፍል የአማርኛ ትምህርት ፈተና

መመሪያ 1- ትክክለኛውን መልስ የያዘውን ሆሄ አክብቡ

1. ላልቶና ጠብቆ ሲነበብ የተለያየ ትርጉም የሚሰጥ ቃል የትኛው ነው?

   ሀ. ሰባ ለ.ሰማኒያ መ.ዘጠና

2. ከሚከተሉት አንዱ ሀረግ ነው?

   ሀ. ወንድሜ ለ.ወንድሜ ስለመጣ መ. ወንድሜ ስለመጣ ተደሰትኩ

3. "መጣ" ለሚለዉ ቃል ባለቤቱ ማን ነዉ?

   ሀ. እሱ ለ.እሷ መ.እኛ

4. በተከታታይ የሚደረደሩ አቻ ቃላትን ለመለየት የሚያገለግል የሥርዓተ ነጥብ ዓይነት _____ ነው::

   ሀ. አራትነጥብ ለ. ሁለት ነጥብ መ. ነጠላ ሰረዝ

5. "መጽሐፎቻችሁን በጥንቃቄ ያዙ" የሚለዉ ዓረፍተ ነገር _____ ነው::

   ሀ.ጥያቄያዊ ለ. ትዕዛዛዊ መ. ምፀታዊ

6. በመዝገበ ቃላት አጻጻፍ መሰረት በቅደም ተከተል የተቀመጡት ቃላት የትኞቹ ናቸው?

   ሀ. ቀመረ÷መረጠ÷ቀጠፈ ለ.መረጠ÷ቀመረ÷ቀጠፈ መ.ቀጠፈ÷ ቀመረ÷መረጠ

7. መ·ቅ ብሎ ቀዝቃዛ ካለ ኮረዳ ብሎ_____ ይላል::

   ሀ.ተባት ለ.እንስት መ.ጎረምሳ

8. "ከበላሁ" የሚለው ቃል መድረሻ ቅጥያ የቱ ነው?

   ሀ. ከ ለ. ሁ መ. ላሁ

9. "መረጣቸዉ" ከሚለው ቃል ስንት ባለ ሁለት ሆሄ ቃላት መመስረት ይቻላል?

   ሀ. 3 ለ.4 መ. 5

10. ጎበዙ ልጅ መጣ:: የተሰመረበት ቃል የምን ገላጭ ነው?

    ሀ. የግብር ለ. የዓይነት መ.የመጠን

መመሪያ 2- በምንባቡ መሰረት ትክክለኛውን መልስ አክብቡ

ሰው ያሰበውንና የፈለገውን በንግግር ለመግለጽ የሚችል ፍጡር ነው። ሆኖም እያንዳንዱ ሰው በአነጋገር ችሎታው ይለያያል ። በዚህ የተነሳ የሁሉም ሰው ንግግር የሚማርክ ላይሆን ይችላል። ለምሳሌ አንዳንዶቹ ድምጻችው ባለመሰማቱ አድማጮችን አይስብም። ሌሎች ደግሞ ስለሚፈሩ ሀሳባቸውን በአግባቡ መግለጽ አይችሉም።

ይሁን እንጅ የንግግር ችሎታን ለማሻሻል ይቻላል። ከእነዚህም አንዱ ከልጅነት ጀምሮ ልምምድ ማድረግ ነው። ለምሳሌ በትምህርት ቤት ውስጥ ጥያቄ መጠየቅ÷ የተጠየቁትን በድፍረት መመለስና ከጓደኞቹ ጋር በየጊዜው መነጋገር የንግግር ችሎታን ያሻሽላል።ከዚህም በተጨማሪ የሰዎችን ንግግር በጥሞና እያዳመጡና መጽሐፍትን አንብቦ ፍሬ ሀሳባቸውን እየያዙ ለሌሎች መናገር ለጥሩ ተናጋሪነት ከሚያበቁ ነገሮች ውስጥ ጥቂቶቹ ናቸው።

አንድ ሰው ንግግር ከማድረጉ በፊት ስለሚናገረው ጉዳይ መረጃ ከሰበሰበ በኋላ ለንግግሩ ማስተዋሻ ማዘጋጀት ይጠበቅበታል። ከዚያም በማስተዋሻው ቅደም ተከተል መሰረት ንግግሩን ማቅረብ ይኖርበታል። አድማጭም በበኩሉ ተናጋሪው ስለሚያቀርበው መልዕክት ÷በንግግሩ ጊዜ ስለሚነሱ ጥያቄዎች ÷ስለሚነሱ አስተያየቶችና መልሶች ማስተዋሻ መያዝ ይጠበቅበታል።

ምንጭ በአዲስ አበባ አስተዳደር ትምህርት ቢሮ ከተዘጋጀ የ4ኛ ክፍለ የአማርኛ የተማሪዎች መጽሐፍ መጠነኛ ማሻሻያ ተደርጎ የተወሰደ

11. ምንባቡ ስንት አንቀጾች አሉት? ሀ. 3 ለ. 5 መ. 8

12. አይስብም ለሚለዉ ቃል በትርጉም የሚቀርበዉ ቃል የትኛዉ ነው?

ሀ.አይጎትትም ለ.አይማርክም መ.አያቀርብም

13. አድማጭ ለሚለዉ ቃል በትርጉም የሚቀርበዉ ቃል የትኛዉ ነዉ?

ሀ. ሰሚ ለ. ተመልካች መ. ተቀማጭ

14. አንድ ሰው ንግግር ከማድረጉ በፊት በመጀመሪያ ደረጃ ማድረግ ያለበት ምንድን ነው?

ሀ. ማስተዋሻ ማዘጋጀት ለ.ማስተዋሻውን በቅደም ተከተል ማቀነባበር

መ.መረጃ መሰብሰብ

15. አንድ ተናጋሪ ንግግር በሚያደርግበት ጊዜ አድማጭ ምን ማድረግ አለበት?

ሀ.ማስተዋሻ መያዝ ለ.ተናጋሪውን አስመስሎ መለማመድ

መ.ተናጋሪው ልምድ ያለው መሆኑን መግለጽ

ENGLISH TEST FOR GRADE FOUR

Part I: Encircle the Correct Answer

1 .How old are you? A. I'm 12 B. In May C. I'm 1 metre

2. The opposite of rich is _____. A. thin B. poor C. weak

3. _____grand father is older? A. What B. Whose C. Who

4. A teacher is _____on the blackboard. A. writes B. writing C. wrote

5. Students enter _____the classroom. A. along B. out of C. in to

6. A_____ sells meat. A. butcher B. farmer C. tailor

7. All students go to the field. _____ is in the classroom.

A. Nobody B. Anybody C. Somebody

8. The new chairs are in _____classroom. A. we B. us C. our

9. _____ Aster an intelligent student? A. Can B. Is C. Has

10. I haven't _____water in the bottle. A. some B. any C. a lot of

11. Aster is a clever student. She _____ does her homework.

A. often B. sometimes C. never

Part Two: Encircle the correct answer according to the following paragraph

Ato Getachew is a farmer. He has two daughters and two sons. His daughters are Tigist and Hana. His sons are Addisu and Dessie. Tigist is 1.65 m tall and Hana is 1.52 m tall. Adisu is 12 years old and Dessie is 23 years old.

12. Who is a farmer? A. Addisu B. Dessie C. Ato Getachew

13. Tigist is _____ than Hana. A. taller B. younger C. shorter

14. Ato Getachew has _____children. A. two B. four C. five

15. Addisu is _____than Dessie. A. younger B. shorter C. older

የ4ኛ ክፍል ሂሳብ ትምህርት ፈተና

መመሪያ 1- ትክክለኛውን መልስ የያዘውን ሆሄ አክብቡ

1. 8000+ሸ= 100000 የ "ሸ" ዋጋ ስንት ነው?

   ሀ. 20000 ለ. 92000 መ.1080000

2. ከ4763 ውስጥ 6 ቁጥር የሚያመለክተው የስንት ቤትን ነው?

   ሀ. አንድ ለ. አስር መ. መቶ

3. ለማንኛውም ሙሉ ቁጥር ምን ጊዜም እውነት የሆነው የትኛው ነው?

   ሀ. መ-ለ = ለ-መ ለ. ሀ-ለ-መ = ሀ-(ለ+መ) መ. (ሀ-ለ)xመ =(ሀxመ)-(ለxመ)

4. 425 በ 10 ርቢ ብዜቶች ሲተነተን _____ ነው::

   ሀ .400+20+5 ለ. 4x100+2x10+5x1 መ. $4x10^2+2x10+5$

5. አስር ሺ ሰማንያ በአሀዝ ሲጻፍ _____ነው:: ሀ. 1080 ለ. 10080 መ. 100080

6. አንድ ኩንታል ስንት ግራም ይሆናል? ሀ. 1000 ለ.10000 መ. 100000

7. 3412 ወደ መቶ ቤት ሲጠጋጋ ስንት ይሆናል? ሀ. 3000 ለ. 3400 መ. 3410

8. 7x100000+5x100+6x1 በአሀዝ ሲጻፍ _____ነው::

   ሀ. 7561 ለ. 70561 መ .700561

9. (35000+1100)x5= _____ ሀ. 175000 ለ.255000 መ.230000

10. 720 ሴኮንድ ስንት ሰዓት ይሆናል? ሀ. 2 ለ. 3 መ. 4

11. በቁጥር ጨረር ላይ በሁለት ተከታታይ ሙሉ ቁጥሮች መካከል ያለው ርቀት_____ይባላል::

    ሀ. ጠለል ለ. ምድብ መ. ጨረር

12. 10000 _____10^5 በባዶ ቦታው ላይ ሊቀመጥ የሚችለው ምልክት የቱ ነው?

    ሀ. > ለ. < መ. =

13. ለማንኛውም ሙሉ ቁጥሮች (ሀxለ)xመ = ሀx(ለxመ) የሆነው የማባዛት ባህሪ____ይባላል::

    ሀ. ቅይይር ለ. ተጣማጅ መ. ስርጭት

14. አቶ ሀይሉ በአንድ ቀን 1000 ብር የሚያወጣ ልብስ ቢሰፋ በ15 ቀናት ስንት ብር የሚያወጣ ልብስ ይሰፋል? ሀ. 1500 ለ. 15000 መ.150000

15. 4 ኪሎ ሜትር የሆነ የጥርጊያ መንገድ ለመስራት ተጀምሮ በሳምንት 200 ሜትር ቢሰራ ቀሪውን ሥራ ለማከናወን ስንት ሳምንት የፈጀል?

    ሀ .10 ለ.20 መ.30

የ4ኛ ክፍል አካባቢ ሳይንስ ትምህርት ፈተና

መመሪያ 1- ትክክለኛውን መልስ የያዘውን ሆሄ አክብቡ

1.ጠዋት ተነስታችሁ ፊታችሁን ወደ ፀሀይ መውጫ በማድረግ ቀኝ እጃችሁን ወደ ቀኝ ብትዘረጉ የትኛውን አቅጣጫ መጠቆማችሁ ነው?

ሀ. ምዕራብ ለ. ሰሜን መ. ደቡብ

2. አካባቢያዊ ክስተቶችንና ችግሮችን በትክክልና በዕርግጠኝነት ለመግለጽ የሚያስችለን መሰረታዊ ክሂል_____ ነው። ሀ. ማስተዋል ለ. ማወዳደር መ. መለካት

3. ለሰውነታችን ጉልበት በመስጠት 1ኛ ደረጃ ይዞ የሚገኘው ንጥረ ምግብ _____ነው። ሀ. ፕሮቲን ለ. ቅባት መ. ካረቦሃይድሬት

4. የምግብ እንሽርሽሪት የሚጠናቀቀው በየትኛው የትቦ አካል ነው?

ሀ. ከርስ ለ. ቀጭን አንጀት መ. ወፍራም አንጀት

5. በአካላችን ውስጥ ሂሞግሎቢን ለመስራት የሚጠቅም ማዕድን የትኛው ነው?

ሀ. ካልሲየም ለ. ብረት/ አይረን/ መ. ክሎሪን

6. ደምን ከሰውነት ክፍሎች ወደ ልብ የሚወስደው የደም ቧንቧ _____ ነው።

ሀ. ርቂት ለ. ደም መልስ መ.ደም ወሳጅ

7. አክስጅን በሰውነታችን በማዘዋወር የሚጠቅመን የደም ህዋስ _____ ነው።

ሀ. ፕሌትሌትስ ለ. ነጭ የደም ህዋስ መ. ቀይ የደም ህዋስ

8. የጤነኛ ሰው ልብ በደቂቃ ስንት ጊዜ ይመታል? ሀ. 62-65 ለ. 72-75 መ. 82-85

9. የዳፍንት በሽታን ለመከላከል የሚረዳ የቫይታሚን ዓይነት ቫይታሚን_____ነው።

ሀ. ዲ ለ. ሲ መ. ኤ

10. በሽታን መከላከል የሚቻለው

ሀ. ንፅህናን በመጠበቅ ለ. ሥጋን አዘውትሮ በመመገብ መ.የጉልበት ሥራ በመሥራት

11. ለጤና መታወክ መንስዔ ከሆኑ ጥገኛ ዘአካላት ውስጥ አንዱ _____ ነው።

ሀ. አሜባ ለ. የመንጠቆ ትል መ. ጀርሞች

12. የወባ በሽታን በንክሻ የምታስተላልፍ የትኛዋ ነች?

ሀ. ቅማል ለ. ዝንብ መ. ትንኝ

13. የግብርና ሙያ ዘርፍ የሆነው የትኛው ነው?

ሀ. ልብስ ስፌት ለ. እንስሳት እርባታ መ. የሽክላ ሥራ

14. ለሁሉም ሰው ያለመድሎ እኩል የተሰጠው የትኛው ነው?

ሀ. ጊዜ ለ. ገንዘብ መ. ጉልበት

15. የሞራል ዕሴት የሆነው የትኛው ነው?

ሀ. ጉቦኝነት ለ. ሰብአዊነት መ. ሥራ ወዳድነት

APPENDIX C

RESULTS OF THE PILOT STUDY

A. Correlations and Summary Statistics for the Subscales of the Questionnaires

1. For Teacher Behavior Subscales

▲Autonomy Support

Items	1	2	3	4	5
1					
4	.514**				
7	.414**	.331*			
10	.356*	.099	.174		
13	.139	.230*	.271*	-.011	
M	2.386	2.580	2.593	2.386	2.739
SD	1.085	.762	.663	.734	.678

* α =.05 ** α = .01

▲Competence Support

Items	1	2	3	4	5
2					
5	.556**				
8	.535**	.450**			
11	.675**	.427**	.394**		
14	-.015	.142	.329**	.063	
M	2.386	2.352	2.682	2.432	2.455
SD	.739	.578	.492	.657	.477

* α =.05 ** α = .01

▲Relatedness Support

Items	1	2	3	4	5
3					
6	.642**				
9	.489**	.494**			
12	.329**	.175	..54		
15	.638**	.571**	.670**	.101	
M	2.487	2.375	2.487	2.239	2.693
SD	.686	.675	.616	.597	.451

* α =.05 ** α = .01

2. For Self-determination at School Subscale

▲Autonomy Need

Items	1	2	3	4	5
1					
5	.151				
8	.056	.083			
11	.321**	.046	..433**		
13	.162	.302*	.236*	.330**	
M	2.554	2.313	2.742	2.965	2.443
SD	.822	1.016	.959	.726	.975

* α =.05 ** α = .01

▲Competence Need

Items	1	2	3	4	5
3					
4	.193				
10	.405**	.109*			
12	.161	.314**	.547**		
14	.329**	.300**	.304**	.242*	
M	2.546	2.318	2.784	2.489	2.273
SD	.677	.766	.624	.851	.769

* α =.05 ** α = .01

▲ Relatedness Need

Items	1	2	3	4	5
2					
6	.164				
7	.387**	-.017			
9	.395**	.144	.541**		
15	.111	.101	.388**	.350**	
M	2.432	2.614	2.465	2.496	2.546
SD	.785	.596	.750	.734	.677

* α =.05 ** α = .01

3. For academic Intrinsic Motivation Subscales

▲Amharic

Items	1	2	3	4	5	6	7	8	9	10
1										
2	.541*									
3	.388**	.350**								
4	.289**	.193	.193							
5	.242*	.398**	.405**	.109						
6	.522**	.533**	.161	.314**	.547**					
7	.166	.312**	.329**	.300**	.304**	.242*				
8	.247*	.486**	.313**	-.059	.500**	.454**	.212			
9	.307**	.201	.068	.324**	.114	.160	.056	.269*		
10	-.017	.114	.101	.021	.314**	.252*	.057	.280*	.136	
M	2.466	2.466	2.546	2.318	2.784	2.489	2.273	2.727	2.489	2.613
SD	.750	.734	.677	.766	.624	.851	.769	.601	1.011	.596

* α =.05 ** α = .01

▲ English

Items	1	2	3	4	5	6	7	8	9	10
1										
2	.208									
3	.164	.024								
4	.457**	.128	.435**							
5	.130	.274**	.331**	.342**						
6	.250*	.324**	.050	.299**	.070					
7	.203	.166	.243*	.366**	.084	.447**				
8	.110	-.168	.177	.240*	.256*	.117	.230*			
9	.106	.108	.121	.252*	.163	.119	.351**	.276*		
10	-.060	.260*	.032	.018	.385**	.216*	.098	.006	.065	
M	2.409	2.239	2.705	2.841	2.443	2.693	2.886	2.739	2.557	2.193
SD	.839	.926	.886	.771	.901	.908	.749	.858	.963	1.010

* α =.05 ** α = .01

▲ **Mathematics**

Items	1	2	3	4	5	6	7	8	9	10
1										
2	.226*									
3	-.028	.185								
4	.376**	.096	.424**							
5	.173	.231*	.199	.302**						
6	.361**	.200	.011	.253*	.010					
7	.287**	.074	.117	.424**	.103	.332**				
8	.188	-.132	-.018	.196	.286**	.166	.286**			
9	.087	.054	.193	.102	.026	.037	.166	.362**		
10	.021	.020	.002	.116	.347**	.153	.153	.064	-.084	
M	2.477	2.296	2.659	2.800	2.807	2.796	2.534	2.477	2.205	2.312
SD	.773	.961	.896	.739	.857	.807	.860	1.033	1.017	1.020

* α =.05 ** α = .01

▲ **Environmental Science**

Items	1	2	3	4	5	6	7	8	9	10
1										
2	.242*									
3	.458**	.209								
4	.309**	.050	.376**							
5	.252*	.057	.319**	.164						
6	.522**	.166	.248*	.387**	-.017					
7	.533**	.312**	.464**	.395**	.114	.541**				
8	.161	.329**	.289**	.114	.101	.388**	.355**			
9	.314**	.300**	-.089	.304**	.021	.289*	.193	.193		
10	.547**	.304**	.513**	.181	.314**	.242*	.398**	.405**	.109	
M	2.489	2.273	2.626	2.432	2.614	2.466	2.465	2.546	2.318	2.784
SD										

* α =.05 ** α = .01

B. Reliabilities of the Instruments

Crombach Alpha Coefficients for the Scales and the Achievement Tests of the First and the Second Pilot Tests

Measure	Number of items	Alpha	
		First pilot study(N=25)	Second pilot study(N=88)
Teacher Behavior	15	.37	.71
Autonomy Support	5	.25	.63
Competence support	5	.45	.75
Relatedness Support	5	.41	.78
Self-Determination at School	15	.58	.72
Autonomy Need	5	.32	.61
Competence Need	5	.36	.67
Relatedness Need	5	.37	.64
Academic Intrinsic Motivation	40	.70	.73
Amharic	10	.26	.77
English	10	.47	.69
Mathematics	10	.27	.63
Environmental Science	10	.29	.79
Academic Achievement	60	.62	.77
Amharic	15	.73	.74
English	15	.40	.76
Mathematics	15	.48	.82
Environmental Science	15	.52	.66

For Scales

$$\alpha = \frac{K}{K-1}\left(1 - \frac{\sum Si^2}{St^2}\right)$$

For Test Items

$$\alpha = \frac{K}{K-1}\left(1 - \frac{\sum pq}{St^2}\right)$$

Where, α = Crombach Alpha
k= Number of items
Si^2 = Variance of each item
St^2 = Variance of total scores
p = Item difficulty index
q = 1-p
$\sum$ = Summation sign

C. Item Analysis for Achievement Tests

Item Difficulty and Discrimination Indices for Each Subject (Course)

Items	Amharic		English		Mathematics		Environmental Science	
	P_i	D_i	P_i	D_i	P_i	D_i	P_i	D_i
1	.73	.31	.83	.27	.60	.63	.44	.29
2	.67	.50	.58	.25	.73	.38	.26	.14
3	.56	.54	.56	.21	.63	.14	.38	.25
4	.56	.54	.50	.33	.52	.21	.60	.21
5	.88	.18	.52	..29	.65	.29	.54	.25
6	.52	.38	.69	.42	.40	.46	.35	.38
7	.79	.23	.38	.25	.58	.25	.38	.29
8	.56	.54	.50	.33	.69	.29	.33	.18
9	.38	.15	.54	.17	.63	.50	.38	.13
10	.63	.42	.42	.25	.44	.13	.79	.21
11	.67	.32	.42	.33	.42	.33	.29	.18
12	.44	.38	.60	.54	.40	.63	.77	.21
13	.77	.29	.58	.42	.63	.18	.79	.17
14	.31	.46	.42	.17	.73	.29	.75	.17
15	.75	.27	.44	.16	.46	.17	.67	.17

$$P_i = \frac{UR+LR}{T} \qquad D_i = \frac{UR-LR}{1/2\ T}$$

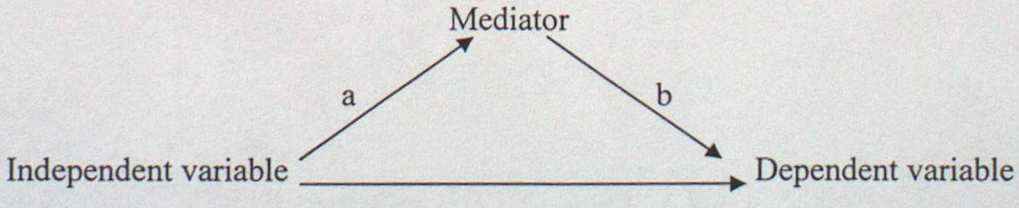
Where,
P_i = Item difficulty index
D_i = Item discrimination index
UR = Number of individuals who got the item right from the upper group
LR = Number of individuals who got the item right from the lower group
T = Total number of individuals who took the test

Appendix D

How to calculate the Indirect Effect and Test It for Significance

To calculate the indirect effect of the independent variable on the dependent variable via the mediator, Sobel product of Coefficient Alpha (Kenny, 2003; Mckinnon, n.d.) was employed. This approach involves multiplying two coefficients together, the partial regression coefficient for the mediator predicting the dependent variable and simple regression coefficient for the independent variable on the dependent variable. To calculate the indirect effect, standardized coefficients were used.

For testing the significance of indirect effects, significance tables need to be calculated by hand (Baron & Kenny, 1986; Kenny, 2003; Mckinnon, n.d.). As shown in the model below, the path from the independent variable to the mediator is denoted as a and the path from the mediator to the dependent variable controlling for the independent variable is denoted as b. Testing the indirect effect, then requires the standard error of a or Sa (which equals $a/t_{a \text{ where } t_a}$ is the t test of the coefficient a) and the standard error of b or Sb. The standard error of the indirect effect or ab is the square root of: $b^2S^2a+a^2S^2b-S^2a\ S^2b$ (Kenny, 2003). The test of the indirect effect is gained by dividing ab by the standard error of ab, and treating the ratio as a z test (i.e., larger than 1.96 in absolute value is significant at the .05 level).



Mediational Model

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university and that all sources of materials used for the thesis has been dully acknowledged.

Workneh Nigatie

This thesis has been submitted for examination with my approval as university adviser

Ato Tamrie Andualem(Ass.prof.)