Students' Affective Factors that Affect Mathematics Achievement in Lideta Sub-City Governmental secondary schools

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This is to certify the thesis prepared by Belete Abebaw entitled: *students' affective factors that affect mathematics achievement* and submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education in Mathematics complies with the regulations of the University and meets the accepted standards with respect to originality and quality

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List of Abbreviations

DBANSPS	Dejazmach Balcha Abanefso Secondary and Preparatory School
ELS	Education Longitudinal Study
E.C	Ethiopian Calendar
EGSECE	Ethiopian General Secondary Education Certificate Examination
ICDR	Institute of Curriculum Development Research
MOE	Ministry Of Education
NOE	National Organization for Examination
NGO	None Governmental Organization
TIMAS	Trends in International Mathematics and Science Study
UNICF	United Nations International Church Fellowship
WAEC	West African Examination Council

ABSTRACT

This study investigates the extent to which studennts‟ affective factors influence students‟ achievment in mathematics. This study was conducted on Governmental secondary school of Lideta Sub- City which contains three secondary schools.157 students from the three schools were participated to give a data on the study. Students achievement test was analyzed to the corresponding students‟ affective factors namely perceive usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics using descriptive statistics, independent sample t test, Pearson correlation, regression and one-way ANOVA. On achievement of mathematics males were significantly perform better than female. There is no significance difference on student‟s affective factors and their achievement result with respect to grade level, family income and parent‟s education level. Student‟s affective factors have a positive significant correlation to mathematics achievement. On the other hand this study shows that each affective factor has contributed to mathematics achievement even if there is not significant impact. There is no significance impact of the affective factors together on student‟s mathematics achievement.

CHAPTER ONE

Introduction

1.1 Background of the study

With the rapid growth of science and technology a strong background in mathematics is very important. The knowledge of mathematics is essential in our daily life and in most human activities .to cope up with newly emerging technology and computerized world we need to have a strong background in mathematics. This idea is emphasized by Benbow and Arjmand(1990), that the development of science shows a tendency to become more mathematical methods and mathematical styles are penetrating everywhere.

Most people associate problem solving with mathematics than other school subjects. Mathematics has a wider application in natural and social sciences. Mathematical techniques are consistently being developed to meet the changing requirements of physics, chemistry, biology, and engineering and computer science. This shows that no other subjects form a strong binding force among other branches of science as mathematics.

In Ethiopia, students poor academic performance and the rise of repetition rate in a class was repeatedly reported by researcher (Tekeste,1990)in the area of education. Different factors like environmental factors and psychological factors are the root of the problem (Zenawi,1997).

There are numerous factors that influence achievement in mathematics. Among other factors pupil-teacher relationship and school disciplinary climate teacher competence , classroom atmosphere assessment methods .

Affective factors such as pupils‟ values, beliefs, attitudes and emotions are said to play significant roles in learner achievement in mathematics (Grootenboer & Hemmings, 2007). One factor that is highly associated with pupil achievement is the pupils‟ attitudes towards mathematics.

Yayan.et.al (2004) indicated that three factors, students‟ affective measures, home-family background characteristics and what teachers do in the classroom are the most important variables to explain achievement in mathematics. According to Yayan, what might be

required from educational policy makers in Turkey is to consider these three factors together to enhance the quality of educational practices.

Reseachers such as Compblle and others provides factors which could have an impact on students mathematics learning and their achievment on the subject such as gender,family stracture,parents educational level, socio-economic status , parent and students attitude towardes school ,and parent involvement (Campbell.,2000;Epstein,1991; ;Fluty1997 . These factors could be seen in catagories : Demographic factors (gender, socio-economic status parentes educational levels, instructional factors (teacher competency, instructional strategies and techniques curriculum, school context and facilities and Individual (affective) factors (self -concept,anxity percive usefulness of the subject matter, motivation in learning mathematics and confidence in mathematics).

In an effert to understand the school-level and students-level factors associated with students achievment in mathematics, researchers revealed that instructional strategies and methods, teacher competency in mathematics education , the motivation ,mathematics anxiety self-concept in learning mathematics and interest of the student are the influential factors that should be considered in the design decision (Beaton&Dwyer,2002;Kellaghan &Madaus,2002). According to Shin, Lee, & Kim .(2009,520) there is a relations between students related factor and mathematic achievment.

Ibrahim Demir, Serpil Kılıç, Özer Depren (2009) conclude on their study that self-related cognitions in mathematics factor have positive effect on the students‟ achievement. But mathematics anxiety variable in self-related cognitions in mathematics factor has strongly negative effect. This finding is in line with other research studies (Byrne & Shavelson, 1987; Hansford & Hattie, 1982; Leonardson, 1982). The summative evaluation condacted by Institute of Curriculum Development end Research ICDR(2001) also pointed out that ths secondary school students achievments in mathematics were the least compered to other subjects.

Based on this fact this study will be attempted to investiget students affective factors that may affect their mathematics acheivment in Lideta Sub-city governmental secondary

schools and ultimately tries to forwad possible solutions that would improve their acheivment in mathematics.

1.2 Statement of the proplem

In Ethiopia , the government has forced and, programmed, on quality of education to produce knowledgeable, skilled and the filter graduates by setting a policy of 70% of sceince and 30% of social sceince, to promote technology for betterment of the country and its people. In other words the government is committed to expand its higher education base and focus on expanding sceince,technology and engineering fields(MOE,2007).

To achieve this goal, I believes that mathematics and sceince are key subjects there is no sceince untouched by mathematics, as there is no technology without sceince, too.

Despite that the Ethiopian governmentset and facilitates a program to achieve this goal, I have observed that many students in Lideta Sub-City secondary schools donot perform properly to wards mathematics.

For exampleit is possible to see one of the biggest secondary school Dejazmach Balcha Abanefso Secondary school"s mathematics achievment analysis of 2005 E.C of EGSECE (grade 10) results of the Dejazmach Balcha Abanefso secondary schools which is analysied by NOE showed that mathematics achievment is less than to the other subjects as shown below. As indicated in mathematics the number of students getting B and above B is lessthan from other subjects

Table -1

SUBJECT	No of student getting A	No of student getting B	No of student getting C	No of student getting D	No of student getting F
AMHARIC	236	327	309	47	1
ENGLISH	152	243	391	222	10
MATHS	32	112	484	282	13
PHYSICS	3	200	424	189	109
CHEMISTRY	33	142	436	293	16
BIOLOGY	67	165	467	206	16
GEOGRAPHY	70	212	392	225	23
HISTORY	29	230	445	198	22
CIVICS	116	206	306	283	11

Sourc :National Organization for Examonation (2005

Many attempets have been made by various scholars to identify factors that affect students achievment in mathematics. An increased body of resaerch findings indicated that demoraphic (sex parent socio-economic status) , affective and instractional factors have an impact on students achievment in mathematics (Campbell et al 2000,Epstein,1991 and others)

Therefore, examining impacts of affective factors that influence the students acheivment of mathematics such as self-concept in learnin mathematics ,mathematics anxity ,perceives usefulness of mathematics and motivation in learning mathematics ;ones is very important to the attainment of the expected out comes. It gives direction in educating effectivly the new generation and provides instractional designer better imput for their design decision.

The present researcher as teacher in the study area, observed that the practical treatment of the respective factors in the school society (the study area) are not yet fully understood and as aresult students mathematics achievment of the Sub-City is very poor comperd to other subjects.

Therefore, examining impacts of affective factors that influence the students acheivment of mathematics such as self-concept in learning mathematics ,mathematics anxity ,perceives usefulness of mathematics and motivation in learning mathematics ;ones is very important to the attainment of the expected out comes. It gives direction in educating effectivly the new generation and provides instractional designer better imput for their design decision

Thus the purpose of this study is to investigate the various students affective factors on mathematics achievment in the secondary school of LidetaSub-City.therby to design intervantion strategies that could reduce the factors if exist.

1.3 Objective of the study

The general objectives of the study is to investigate the. extent to which studennts‟ affective factors influenceing students‟ achievment in mathematics in Lideta Sub-City secondary schools.The specific objectives are to:

1. To examine the students affective factors in mathematics in LidetaSub-City secondary school
2. To examine the mathematics achievment of students in LidetaSub-City secondary school
3. To examine whether there is a significant difference in students affective factors and mathematics achievment with respect to sex , and family background.
4. To examine whether there is a significant difference in students mathematics achievment with respect to sex , and family background
5. To investigate the impact of students affective factors on mathematics achievment

1.4 Basic Research Questions

Based on the objectves stated ,the study will attempted to answer the following research questions:

1. What are the levels of the students‟ affective factors?
2. What is the mathematics achievment of students ?
3. Is there a segnificance difference in students affective factors and mathematics achievment with respect to sex , family income and parents educational background ?
4. Is there a segnificance difference in students mathematics achievment with respect to sex ,family income and parents educational background
5. Is there a segnificance impact of students affective factors on students mathematics achievment?

1.5 Significance of the study

The finding of this study are expected to have particular utility in the effective teaching and learning processes in the subject mathematics. It helps the academic and

adminstrative staff in being aware of the affective factors which can have a posetive and negative effects on the learning of mathematics to students. Educational experts, policy makers and others concerned stakeholders may use the result of this study in implementing educational policies strategies and programs.

1.6 Delimitation of the study

The scope of this study is delimited in the secondary schools of Lideta Sub-City in Adiss Ababa, Ethiopia. The participants are both grade ninth and tenth students. Eventhough there are many factors which affects students achievment in mathematics such as school reltaed factors(like availability of school library,pedagogical center, teachers experience and qualification, interaction of teachers with pupils the effect of oranized school instructional leadership,out of school related factos (like home environment ,parents socio economic status). This study was focused on students affective factors like self-concept in learning mathematics ,mathematics anxity, perceived usefulness of mathematics, confidence in mathematics and motivaation in learning matimathics and their impact on mathematics achievments of student on the study area.

1.7 Limitation of the Study

In conducting this study, the researcher has faced the following problems, which contribute to the limitation of the study.

1. The study focused on the current achievment scores of students to substain relationship of affective factors and their mathematics achievment
2. Difficalt to controle some possible lie responses of the participant

1.8 Definetion of Key terms

According to their usage in this study the following terms are defined as follows.

Affective factors : refers to factors which are emaneted from the individuals (the learners) which are linked to students feeling.

Mathematics achievment: it refers to students mathematics performance on a test which was constracted by researcher on the basis of text book and syllabus for grade 9 and 10

Mathematics Self-concept: it refers to how students view themselves concerning mathematics

Perceives usefulness of mathematics : it refers to students perception of the utility, value or importance of mathematics for day to day life, for future career and achievment of life goals.

Mathematics anxity: it indicates a state where a students experience un pleasunt disturbing feeling associated to mathematics

Motivating in learning mathematics: the personal energy directed to wards the learning of mathematics that leads to the achievment of mathematics.

Confidence in learning mathematics: is an evidence by students _who believe they obtain value for effort, do not worry about learning hard topics, expect to get good results, and feel good about mathematics as a subject

Chapter two

Review of Related Litrature

2.1 Mathematics Achievment

Research in the area of mathematics achievement has examined a number of explanations as to why some students will test proficient and many will not (e.g., Hyde, Fennema, & Lamon, 1990).Achieving proficiency in mathematics appears to be a particular area of challenge for students in the United States. The Trends in International Mathematics and Science Study (TIMSS) recently released results for 2003 testing, and revealed that eighth graders in the United States rank 15th among 46 participating countries (Snell, 2005).

2.1.1 Overview of Major Factors That Affect Students Mathematics Achievement

In an effert to understand the school-level and students-level factors associated with students achievment in mathematics, researchers revealed that instructional strategies and methods, teacher competency in mathematics education , the motivation ,mathematics anxiety self-concept in learning mathematics and interest of the student are the influential factors that should be considered in thedesign decision (Beaton&Dwyer,2002;Kellaghan &Madaus,2002) as cited by Abaynesh E(2013). According to Shin et al.(2009,520) as cited by Abaynesh. E(2013) there is a relations between students related factor and mathematic achievment.

The summative evaluation condacted by Institute of Curriculum Development end Research ICDR(2001) also pointed out that the secondary school students achievments in mathematics were the least compered to other subjects. It supports argument of Aiken (1970) as cited by kebede tefera which indicated that the cause of more school failer was by arithemetic than any other subject.

Nyala, JI. (2008); The mean numerical value for all categories (male or female) of respondents was above three, then there is a positive attitude On Usefulness of

Mathematics, Confidence in Learning Mathematics and Motivation in learning mathematics.

Personal factors play a significance role in addition to in school factors and out school factors on mathematics achievement. The students motivation in learning mathematics, mathematics self-concept, mathematics anxiety and perceived the usefulness of mathematics has an effect on mathematics achievement.

2.1.2 Effect of Gender and Family Background on Mathematics Achievement

Some research findings that are deals with gender difference in mathematics achievement show male superior; and this is more pronounced between the upper elementary school years and the last year of high school (Benbow , and Stanley, 1980,1983).Marshal (1984) as cited by Kebede Tefera (2007) showed that there is no significance gender difference in achievement. On the other hand through some studies have failed to find significant gender difference , some investigator(E.g. Hilton and Bergland 1974,Akie1976) as cited by Kebede Tefera (2007) have concluded that difference in both attitude and achievement in mathematics are frequently found between boys and girls in favor boys at the junior, high school level and beyond. The gender difference in mathematics was found in different countries (Badger, 1981).

As for gender difference in learning mathematics, evidence shows that females are not likely to believe that mathematics has utility in their lives (Fennema and Sherman, 1978)). they see mathematics as unconnected to relationship model of thinking. Even if females continue to take mathematical courses, they are apt to find that they themselves do not like these courses.

Some researches on immigrants‟ school performance suggest that their performance is above averages (e.g., Rumbaut, 19961; Viadero, 1997; Lapin, 1998). While there is also evidence that immigrant children, especially Hispanics and others with impoverished background, suffer poor academic achievement and lower educational attainment (e.g., McPartland, 19982; Vernez and Abrahamse, 1996). Also, more recent studies of

immigrant children‟s academic achievement provide some insights for understanding the variation among immigrant children‟s academic achievement. For example, Hao et al. (1998) as cited by Pekka Kurpari and Kari Nissinen, the concept social capital explain immigrant children‟s academic performance.

Research about the effects of parental involvement on students‟ mathematics achievement have revealed that parent‟s SES and parent‟s education level play an important role on their children‟s early and later mathematics achievement (Crosnoe & Cooper, 2010; Clements & Sarama, 2007; Jordan, Kaplan, Locuniak, & Ramineni, 2007). Davis-Kean (2005) noted, however, that the effects of parents‟ educational level and SES background have not been investigated in a coherent manner because previous studies have found that the effects of these variables on children‟s mathematical achievement can possibly be explained by other parental variables.

For example, Smith, Brooks-Gunn, and Klebanov (1997) found that the correlation between children‟s mathematics achievement and parental background (namely parent‟s SES and education level) was mediated by the educational environment at home. Additionally, the mediation effects were higher on parent‟s educational level than parent‟s SES. Halle et al. (1997) sampled from parents with low-SES backgrounds, and reported that children‟s mathematics success was related to parents‟ educational level. The reason for this relationship was because highly educated parents held more positive feelings towards mathematics and set higher success expectations from school than less educated parents (Halle, Brooks-Gunn, & Klebanov, 1997). Alexander, Entwistle and Bedinger (1994) demonstrated that although parents with low-SES backgrounds set high expectations, there was no correlation between their children‟s mathematics achievement and their high-expectations; however, there was a correlation between parents with high-SES backgrounds and their children‟s mathematics achievement. This does not mean that low-income and less educated parents are not concerned about their children‟s mathematics achievement, but the reason is that they themselves do not feel ready to assist their children because of their own limited educational and financial resources (Clements & Sarama, 2007).

Padavick (2009) found that children‟s mathematics achievement can be increased even when parents read books to their children at an early age, and this early active involvement develops not only. The Online Journal of New Horizons in Education Volume 3, Issue 4 students‟ mathematical understanding but also their later social interaction. Therefore, research is needed with specific attention to parent-child communication and parental expectations because these two variables can be changed in a way that can help to develop children‟s mathematical achievement.

At first glance, it appears that schools and teachers might be incapable of changing parental attitudes, but thanks to the efforts of educators through educational research‟s implementations, it is possible to increase parental expectations, beliefs and parent-student relationships (Yan & Lin, 2005). Therefore, the aim of the present study was to determine how parent-child communication and parental expectations play a role in explaining children‟s mathematics achievement regardless of their parents SES and educational background level.

The influence of family background and socioeconomic status in particular on student achievement has been of great interest for a long time. The results from various studies have shown that the home background of students in schools is correlated to their mathematics achievement in school (Bos & Kuiper, 1999. The study of Brese & Mirazchiyski (2008) focused on the TIMSS 2007 and PISA 2006 studies and covered five aspects of home background: home possessions, immigration status of students and their parents, language use at home, parents‟ education and parents‟ employment situation. Their results revealed that there were quite a few variables which showed strong or moderate association with mathematics achievement, and they were parents‟ education, number of books at home, number of students‟ own books and computer at home.

Parents‟ educational level has been shown to be a factor in academic achievement. Parents serve as a role model and a guide in encouraging their children to pursue high educational goals and desires by establishing the educational resources on hand in the home and holding particular attitudes and values towards their children‟s learning. In this case, the educational attainment of parents serve as an indicator of attitudes and values

which parents use to create a home environment that can affect children‟s learning and achievement.

A number of studies indicated that student achievement is correlated highly with the educational attainment of parents (Coleman, 1966). For instance, students whose parents had less than high school education obtained lower grades in mathematics than those whose parents had higher levels of education (Campbell, Hombo, & Mazzeo, 2000). Research has shown that parents‟ educational level not only impact student attitudes toward learning but also impact their math achievement scores.

Qihui Chen(2009) says that although both father‟s education and mother‟s education have significant impacts on child math achievement, the effects of father‟s education and mother‟s education differ. Other things being equal, an additional year of father‟s education is associated with about 0.4 point increase in math achievement, for both boys and girls. In contrast, mother‟s education matters only for girls, and the effect of mother‟s education is slightly higher than that of father‟s education.

2.2 Self-Concept in learning mathematics

2.2.1 Definition of self-concept

Many scholars do not have common up on the definition of self-concept. In this regared, Shavelson, et. al (1976) noted that a researcher in the area of self-concept suffers from lack of an agreed up on definition of self-concept and lack of standardized measur ofinstrument. But this does not mean that they did not try to define the term self-concept , rather they tried to explain it in different approaches. Some of them are mentioned as follow:

Shavelson. et. al (1976) define the term self-concept as a person‟s perception about him/herself. In support of this idea, Rosenberg M. and Kaplan(1982) define self-concept is the totalitry of the individual‟s thought and feeling wiyh referance to himself/herself as an object.

According to Gardon (1968) self-concept is defineas what an individual takes him/herself to be a person since he/she acts in light of what he/she knows about him/herself makes a difference what he/she does. This means that an individual unique from the others. i.e one acts on the bases of the perception he/she has.

Demouline‟s idea up on self-concept shared with others researchers. According to Shavelson et.al.(1976). viewed self-concept as the sum total of all experience we are exposed to overtime and the negative or the posetive wight we are assigned to those experience , on support of this, most scholars, define self-concept as an individual perception of himself/herself in ability formed through experience with his/her environment.

In general,self-concept is the resualt of all the beliefs and evaluation one has about his/herself and it include his/her behavior tendencies. In short ,self-concept is one‟s perception of her/himself;it is one‟s attitude, feelings and knowledge about his/her ability,skill,appearance and social relation.

2.2.2 The function of one's self concept

Self –concept helps to guide one‟s behavior. That is ,it assists as perceptual filter and guide the direction of an individual behavior. It is the base for all behaviors and gives rise to possible selves,and it is the possible self that creats the motivation for all behaviors. Purkey and Novale(1984) noted that self cocept serves to guide behavior and to enableeach individual to assume particular roles in life, besides initiating activities.

Marsh and Governet (1989) suggest that the improvement of an individual‟sself-concept is widely valued as adesirable outcome and frequently posited as an intervening construct that facilitate other desirable outcomes such as academic acheivment. It is known that,if an individual possess a high self-concept he/she will be expected to be more successful in different activities than those who have low self-concept. This implies that one‟s self-concept determine his/her behavior.

On the other hand, Slavin(1997) suggested that, self-concept is an important aspect of personal and social development of elementary school children. This aspect of their

development will be strongly influenced by experiences at home, with peer and at school. An individual social interaction may influence his /her self concept posetively or neatively. This will in turn chages his /her thoughts, feelings and attitude beliefs. In general an individual self –concept direct his/her behavior.

2.2.3 Acadamic Self- Concept and Its Relation with Academic Achievment

Academic self-concept refers to how one indicates to oneself his/her ablity to achieve in acadenic tasks as compered with otrhers engaged in the same task (Bilby,Brookover and Erickson,1972)

Related research has radualy revealed that self-concept is multidimentional hierarchical (Coppersmith,1967,Marsh, Smith and Bornes;Marsh,1992,Marsh and Shavelson (1985) conclude that the relation ship between self- concept and other constraints cannot be adequately understood if this multidimensionality is ignored. The clam was supported by the particularity strong relation between academicself-concept with academic achievment (Byrne,1984;).

Researchers indicate that academic self-concept is clearly differntaited from general self concept and that academic self –concept is more highly correlated with academic achievment and other academic behaviors than general self-concept. Marsh et al. ,(1988), for example, found that non of the general self-concept scales from three different instruments were significantly correlated with school grades in English, Mathematics, or all school subjects,where as academic self-concept scales were substantial correlated with academic achievment. This pattern of relationship attracted the attention of educationa researchers to academic self-concept instead of relying on general self- concept scales.

Brookover, Paterson and Thomas (1962) found academic self concept relate with academic achievment. Other study conducted by Kifer(1975) indicates that academic achievment influences self-concept. i.e , if a student has a good academic achievment , then he/ she will develop a positive self-concept to wards the subject matter and vice verse. This shows that academic self-concept and academic achievment has reciprocal

effect. Hoever , there is there is a disagrement among researchers in the direction of the causal relation ship between academic self-concept and academic achievment.

Byrne (1984) noted that much of the interest in the relation between self-concept and achievment stems frome the belief that academic self-concept has motivational properties such that change in academic self-concept willlead to change in subsquent academic achievment. Moreover ,on longitudinalpanel studies of grade 10,11,and 12 Marsh (1990)found that reported graded average in grade 11 and 12 were significantly affected by academic self-concept where as prior reported grades had effect on subsequent measures of academic self-concept. Shavelson and Bolus (1982) also concluded that casual predominance of self-concept over academic achievment.

In contrast, with in the school domain, studies have suggeted that prior acvademic achievment may be an important influence on adolescent‟s academic self-concept. For example, Marsh and Young (1997) found that not only adolescent‟s level of academic self- concept affect their later performance in school; their self- concept is also influenced by their prior academic achievment as indicated by their grades and test scores. Supporting this, Calsyn and Kenny (1977) in their investigation of high school students found that the casual direction to flow academic achievment to self- concept. Hence, the relationship between academic self-concept and academic achuievment seems to be reciprocal in nature, with one affecting the other.

In Ethiopian context ,Garuma‟s(2005) study on the sample of 188 male and 192 female students of high school. He indicated that there was a posetive and significant relation ship between academic self-concept and academic achievment of studsents. Moreover , his study of multiple and stepwise reression analysis of variance result shoed that academic self-concept is a segnificance predictor of achievment and accounted fot about 14.7% of the variance in academic achievment.

2.2.4 Self-concept in learning Mathematics and its relation with mathematics achievment

The theoretical model of self concept- which was proposed by Shavelson, Hubner and Stanton(1976) noted that general self concept is divided in to academic and non academic self- concept. In turn academic self –concept is categorized in to self concepts in particular subject areas.

Many researches (e.g, Chan, 1997;Byrne and Gavin, 1996; Marsh and Yeong, 1997a, Epestin, 1973) as cited in Garuma (2005) supported the multi-faceted strucrure of self-concept and suggest that self-concept cannot be adequately understood if its multidimensionality is ignored. With regared to specific subject areas, Marshh and O'Neill (1984) found that mathematics achievment correlated 0.27 with academic self-concept, where as Enlish achievment correlated 0.24 with academic self concept. In another study , response by Canadian high school students to four self –describtios questionnare II scale. Mathematicas and verbal academic and general self-concept was related to grade in mathematics and English accordinly;mathematics achievment correlated 0.55 and 0.34 with mathematics self- concept and academic self-concept, where as English achievment correlated 0.47and 0.24 with verbal self-concept and academic self- concept respectivly,(Marsh, Byrne & Shavelson,1988) as cited by Ngai-ying W (*1992*) .

Many researchers obtained a posetive sinificant relationship between mathematic self-concept and mathematics achievment (Marsh, et al 1985;Marsh,et al.,1988;Marsh,1994; Marsh and Young, 1994; Bachman,1990;Byrne and Gavin,1994;House;1975)as cited in Pajares and Miller1994). Particularly the resaerch conducted by Byrne and avin (1994) at grade three, seven and eleven students noted that mayhematics achievmentwas posetivly related with their mathematics self concept.thier correlation coefficient was 0.26,0.96 and0.73 at grade three,seven and eleven respectivly. Similarly, Bachman as cited in fennema (1974) reported coefficient of correlation (0.45 or greater) between self concept score and mathematics achievments of students of grade seven. Beside , at grade ten the effect of mathematics achievment on mathematics seilf concept and their correlation was

0.46(Marsh,1994). Moreover Marsh,Simith&Barner (1985)revealed that at grade 5th mathematics self-concept was posetivly related with mathematics achievment.

In Ethiopia stuation ,Tadesse (2006) conducted a study on a sample of 174 boys and 179 girls in grade 5,6,7 and 8. The study revaeled that mathematics self concept was statisticaly significant predictor of mathematics achievment. Further, he found that students with high mathematics self concept performed substentially better than those with low mathematics self concepton the mathematics test

The above resaerches result show that , mathematics self –concept of students are highly related to their mathematics achievment and it is a more significant predictor of mathematics achievment than their academic self-concept related with mathematics achievment.

2.2.5 The effect of gender and family background on self-concept of mathemaatics

Researches investigated that gender is weakly related to overall or totally self concept. This lack of relation , how ever , reflects well defined gender differences in specific areas of self-concept, some favoring women and some favoring men that cancel each other in the formation of total scores (Marsh,1989). For example correlation between sex, achievment scores and the multiple dimensions of self-concept have been found that girls had significantly lower self –concept than did boys in mathematics.

Jordan (1981) found that the relation of academic self-concept with academic achievment was 0.45 and 0.41 for male and femal students respectivly. By counting, he pointed out that the unique proportion of variance in academic achievment accounted for global self-concept faild to achieve segnificance in both femal and male students

Besides the linkage between family background and self-concept (Orr & Dinur, 1995), it has been generally reported that “better-educated parents have children who score higher on tests” (Bracey, 1998). Thus, parental education is a profound factor influencing development of student self-concept and academic achievement (Eccles & Harold, 1993; Nakagawa, 2000; Pena, 2000) as cited by Jianjun Wang(2007).

Many studies have found a positive relation between school achievement and parents educational level. Profession of parents have also been found to be important predictors of school achievement. The most unsuccessful students come from large families and from those with lower educational level of parents (Deliba_ic, 1970, Krneta et al., 1973, Cloward, 1974, Comelius and Cockvurn, 1978, Jovovic«, 1981, Bozùic and Bosùic , 1985, Jelavic«, 1985, Nikolic«, 1998) as cited by Dragan Janjetovic and Dusica Malinic (2003) .

According to Dragan Janjetovic and Dusica Malinic (2003) Parental expectation alone or drilling of exercises do not seem to be of much help in promoting mathematics achievement if self – expectation lacking. High self- expectation may lead to better atitudes towards mathematics and a higher self-concept. This in turn might promote mathematics achievement.

2.3 Percived Usefulness of Mathematics

2.3.1 Defination of percived usefulness of mathematics

Literature indicates that mathematics with real world connections makes learning mathematics more effective (e.g. Gainsburg, 2008, Heibert & Carpenter, 1992, Mason & Spence cited in Even & Tirosh, 2008, Goldin, 2008). Other studies show that the perception of students about the learning of mathematics is important for success (e.g. Dossey, 1992, Even & Tirosh, 2008, Moreno-Armela & Santos-Trigo, 2008, Mulat and Arcavi, 2009)

The definition for perception in Merriam Webster"s dictionary is, "a result of perceiving" where to perceive means "to attain awareness or understanding of … to regard as being such" (Merriam Webster). Since the study seeks to expose the meaning the student attaches or her/his understanding of the relevance of mathematics the student is learning, the term that fits the purpose here is perception.

Mulat and Arcavi (2009) also studied the perception of high achieving students about what fosters "their mathematics and academic trajectory" (p.77). In their study „perception referred to the students understanding of the factors that enable or constrain

learning and achievement of mathematics. Perception of the relevance of mathematics with respect to their learning goals as well as about the relevance of mathematics to the society and their real life situation, which we believe exposes the perception in a peculiar context and help to improve the learning of mathematics in Ethiopia. The principal research question addressed in this paper is what are Ethiopian students perceptions of the relevance of mathematics and how are they characterized.

Values related to school mathematics education may be defined as representing an individual‟s internalization, „cognitisation‟ and contextualization of affective constructs (such as beliefs and attitudes) in his/her socio-cultural context. Values related to mathematics education are inculcated through the nature of mathematics, through the individual‟s experience in the socio-cultural environment and in the mathematics classroom. These values form part of the individual‟s personal value system, which equips him/her with cognitive and affective lenses to shape and modify his/her way of perceiving and interpreting the world, and to guide his/her choice of course of action. They also influence the development of other affective constructs related to mathematics education and to life. (Seah, 2003b)

2.3.2 percived usefulness of mathematics and relation with mathematics achievment

Perceived importance of mathematics is one of the importanct dimention of attitudes towards mathemaatics. The dgree to which students‟ percieve mathematics as important, valuable or relevant has been shown to sinificantly predict mathematics failur (Chisholm,1980) as cited by Seifu and it relate to mathematics achievment (sherman and Fennema ,1977)as cited in chan(2007). However ,it remain ambigous whether percieved importance is a cause of achievment or whether the revers is true. On the other hand it is possible that those students who perceive mathematics as being less relevance may invest less effert in to their mathematics classwork and resulting in lower achievment.

Chan (2007), in his research work analysis indicated that grade 11mathematics result had an effect on grade 12 perception of the important of mathematics and grade 11 perceive importance of mathematics also had a modest effect on grade 12 achievment. So the

above resaerch results show that percived importance of mathematics and mathematics acheivment has their own effect one to the other. That is if a student scores a good grade in his /her previous grade, this will help to increase his/her perception towards the importance of mathematics ,and this leads to the success for the next grade. This shows that perceived mathematics as important subject has posetive impact on mathematics achievment.

There has been very little research to address the relationshipe between perceived importance of mathematics with mathematics acheivment. Pricken'(1989) longitudinal study of undergraduate calculus students found while self –report or mathematics self efficeincy did not significantly predict carerchioce, perception of the value of mathematics did.

This suggests that perceiving the usefulness of mathematics can predict student‟s career , in related fields and for day to day life ,he/she will invest more time to understand the subject matter. So that he/she will be more successful in the area and as a consequence he/she prefers to study field related to mathematics in their future career.

According to the articles taken from mathematics in daily life free on the line directly) as Seifu. A (2005 “mathematics helps to participate in day today activities like visiting bank,shopping mats, in post office,in business transaction import and export trade andcommerce ,help to activly involved in vedio games computer game puzzles ,and so on…. Generaly ,for unless we well equippied in language of numbers mathematics , we would find it difficult to reach at important decision and to perform every day life(p 3).

Seleshi (1995) stated that perceived utility of mathematiccs for future career,and education can be a factor that affect mathematics achievment. This shows that knowing the usefulness of mathematics for their future career helpes students to invest sufficeint time towards the subject matter;this will inturn help to achieve better in the area. Similarly Yalew(1997) found that boys seemed to percieved physics as important subject for their future career goals and every day life activities than girles ;as result ,boys perform better in tha subject area than females.

Generaly the above local and foreign researches sugests that, giving values or worth to the subject matter or knowing its important for day to day life ,helpe to have a good achievment in mathematics.

2.3.3 The effect of gender and family background on percieved usefulness of mathemaatics

A study done by Jayaratne (1993) looked at parents' math ability, parents' perceptions of their children's math ability, and general sex-stereotyping. Results indicated that parents' perceptions of their own math abilities influenced their beliefs about how well their child would do in math. In other words, if a parent felt that s/he was not good at math, s/he would expect her/his child not to do well in math. Children can easily pick up on their parents' attitudes and since children are greatly influenced by their parents, parental attitude maybe have a greater impact on children. In regards to sex-stereotyping, it was found that mothers were more likely to hold sexist views than fathers (Jayaratne, 1993). This is intriguing because young children gravitate toward same-sex role models. If young girls are experiencing such direct math gender-stereotypes from their mothers it is no wonder that they may feel that math is not their domain.

The other study, conducted by Tocci and Englehard (1991) as cited by Abaynesh .E (2012), found a direct correlation between parental mathematic attitude and students' mathematic achievement. This research was a two-fold study. The authors looked first to see if there was indeed a different attitude toward math based on gender. After the researchers found this to be true, they examined possible causes for this difference. In a portion of this study, students were asked to fill out a Parental Support for Mathematics questionnaire. The questionnaire looked at students perceptions of parental math enjoyment, parental interest and ability to help with math homework, and parental encouragement. Results indicated that perceived parental math attitude was impacting students' attitudes.

In their socialization model of parental influences on achievement attitudes and beliefs, Eccles (Parsons), Adler, and Kaczala (1982) propose that parents‟ values and ability beliefs shape students‟ own values and performance. Based on these theoretical

assumptions, Harackiewicz, Rozek, Hulleman, and Hyde (2012) conducted a theory-based intervention aiming to help parents convey the importance of mathematics and science to their secondary school children. Results showed that the intervention had an indirect effect on students‟ perceived value of mathematics and science through mothers‟ perceived utility value and conversations.

Although longitudinal studies reveal relations between parents‟ value of mathematics and students‟ mathematics interest (Frenzel et al., 2010), it has been suggested that parents‟ domain-specific value motivates students mostly extrinsically (Wild & Lorenz, 2009). Self-Determination Theory suggests that intrinsic motivational aspects such as interest are facilitated by supportive behaviors that enhance students‟ internal needs for competence, autonomy, and relatedness in learning situations (Deci & Ryan, 1985).

2.4 Motivation in learning mathematics

2.4.1 Defination of Motivation

According to Micheal Rost (2006) as cited by Amine B.(2012) define motivation as an orientation towards a goal.(this orientaton may be posetive ,negative or ambivalent). Motivaation provides a source of energy that is responsible for why learners decide to make an effort how long they willing to sustain an activity, how hard they are going to pursue it, and how concerned they feel to the activity.

Motivation is a potential to direct behaviour that is built into the system that controls emotion. This potential may be manifested in cognition, emotion and/or behaviour. (Hannula, 2004, p. 3) as cited by Amine B.(2012). Simply stated, motivations are reasons individuals have for behaving in a given manner in a given situation. They exist as part of one's goal structures, one's beliefs about what is important, and they determine whether or not one will engage in a given pursuit (Ames, 1992) as cited by Amine B.(2012).

Two distinct types of academic motivation interrelate in most academic settings-intrinsic and extrinsic motivation. Intrinsic motivation is defined as motivation to engage in a task for the sake of interest in the task itself and the inherent pleasure and satisfaction derived

from the task, whereas extrinsic motivation is defined as motivation to engage in a task for external reasons (Deci & Ryan, 1985).

Harmony with Kleinginna and Kleinginna, Geen (1995) as cited by Abaynesh .E (2012) indicated that motivation is a word used to refer to the direction, intensity, initiation and persistence of human behaviors. It is believed that motivation is an individual‟s internal status toward something. It has power to enhance the strength of the relationship between the input and the output of human behavior. Motivation refers to the reasons for directing behavior towards a particular goal, engaging in a certain activity, or increasing energy and effort to achieve the goal.

2.4.2 Students' Motivation in Mathematics

Learning mathematics requires highly motivated students because it requires reasoning, making interpritation and solving problems in mathematical issue and concepts. The challenges of mathematics learning for today‟s education are that it requires disciplined study, concentration and motivation. To met these challenges learners must be focused and motivated to progress. Broussard and Garrison(2004)as cited by Abaynesh(2013) examined the relationship between classrom motivation and academic achievment in elementary school aged students (122-first grade and 129 third grade participants). They added that for higher level of mastery motivation was related to higher mathematics grades.

The teachers role in students motivation to learn should not be understimated. In helping students become motivated learners and produce of mathematics knowledge successful,the teacher maintain in the structural task is to creat a learning environment where students can engage in mathematical thinking activities and see mathematics as some thing requiring exploration, conjactor,representation ,generalization ,verification and reflaction (Carr,1996)

Ninth grade students interest in learning mathematics was founed by Reed (1968) as cited by Abaynesh .E (2012) to increase with teachers who utilized students intersenic motivations. Researche show that competition from rewared can stimulate students to learn. Asian countries such as Korea , Japan and Hong Kong which have showen high

performance in international comparision studies, are characterized by a competative academic atmosphere when comperd with western countries.

2.4.3 Motivation and Mathematics Achievment

According to Klein (1982) as cited by Abaynesh .E (2012), people with high motivation are highly achievable . More likely to prefer tasks of intermidate difficulties, responed to events at more efficient level and persist longer in the face of failure as compered to people with low achievment motivation.

The motive to achieve may alter the tendency to success in two different ways first it may influence the value a person place on successful task performance and secondly it may influence the extent to which a person feels, confident of being able to master a challenging task (Kukla, 1978), Schmitt & Brunstein (2004) as cited by Abaynesh .E (2012) explain this point further that individuals high in motivation anticipate greator achievment than individual in low motivation. Nyagura and Chivoru (1997) and Hadded (1997) as cited by Niftalem Diane (2011) said that the un motivated students are low achiever for instance FEMEb(1996) claim that 80% or 90% of girls in east Africa countries failed in mathematics .

2.4.4 The effect of gender and family background on motivation of students on mathematics

Regardless of motivation Fox and others (1994) as cited by Niftalem Diane (2011), concluded that girls have lower motivation than boys do at properly. They further state that lack of confident has been cited as areason inhibiting the presence of many females in education.

A number of reasons are suggested for girls lack of motivation to learn these are socio-cultural factors which are constantly present a subservient wife and mother role of girl; types of jops expected by girles, the real and percieved lack of market opportunities (UNICF,1993;Rhoode 1989)as cited by Niftalem Diane (2011)

Odega and Heneveld (1995) as cited by Niftalem Diane (2011)argued that differential treatment of girls from boys by school teachers and parents as well as low expectation of girls causes low motivation among schools.

Grolnick, Ryan, and Deci (1991) as cited by Niftalem Diane (2011) hypothesized that parental involvement primarily influences children‟s attributes and behaviors, which in turn affect mathematics achievement. Similarly, the theoretical framework provided by Hoover-Dempsey and Sandler (1995, 1997) suggests that parental involvement enhances children‟s academic self-efficacy and intrinsic motivation to learn, which in turn operate to enhance achievement.

There is preliminary corroborating evidence that parental involvement is related to such social and motivational attributes in students (e.g., W. Fan & Williams, 2010; Gonzalez & Wolters, 2006; Senler & Sungur, 2009; Steinberg, Lamborn, Dornbusch, & Darling, 1992; Tan & Goldberg, 2009) as cited by Rose K. Vukovic and his partners (2013) . For instance, W. Fan and Williams (2010) found that parental involvement (i.e., parental advising, parents‟ educational aspirations for their children, school-initiated contact) was positively related to students‟ academic engagement, self-efficacy toward mathematics, and intrinsic motivation toward mathematics.

2.5 Mathematics Anxiety

2.5.1 Defination of mathematics Anxiety

Mathematics anxiety can be defined as the general lack of comfort that someone might experience, along with the feelings of tension and anxiety that interfere with the manipulation of numbers and the solving of mathematical problems in a wide variety of life and academic situations (Richardson & Suinn, 1972; Wood, 1988).

Math anxiety is also defined as a phenomenon that is often considered when examining students‟ problems in mathematics. Mark H. Ashcraft Define math anxiety as “a feeling of tension, apprehension, or fear that interferes with math performance” (2002 p. 1).

Richardson and Suinn (1972) as cited by Nuria.G et.al.. (2006) define mathematics anxiety as a feeling of stress and fear that prevent mathematical problem-solving and

calculation in a wide range of regular life and academic occasions. While Aiken (1976) as cited by Nuria.G et.al.. (2006) defines mathematics anxiety as an attitude towards mathematics, Lazarus (1974) defines it as a fear state that individuals feel when they encounter mathematics subjects.

Math anxiety Defined as tense or worrisome feelings that significantly hinder mathematical performance in academic and ordinary life situations (Ashcraft, 2002; Richardson & Suinn,1972) as cited by Vukovic, Roberts, and Green Wright (2013).

2.5.2 Factors contribute to anxiety

For Spielberger and Sarason (1978) self-concept is the over all sum of self referant informationthat an individaul has proccessed, stored and organized in a systematic manner is a factor to contribute the development of anxiety. They pointed out that level of anxiety could fluctuate over time in relation to internal and external stimulation. For Freidman & Bendas.Jacob (1997) an other factor that contribute to anxiety is view to be self-awarness that is feeling of being observers on evaluated by other. Other peoples perception of the individual may have an impact on performance. A more commonly recognized factors of an anxiety is the classroom climate as stated in Vogel and Collins(2004)

Mathematics anxiety is characterized by anxious responding that occurs both in the immediate context of a performance-based setting (e.g., math class) or in anticipation of having to perform publicly (e.g., being called on during math class) and the subsequent potential for negative evaluation by teachers and peers (Ashcraft et al., 2007; Hopko, McNeil, Zvolensky, & Eifert, 2001; Newstead, 1998) as cited by Vukovic, Roberts, and Green Wright (2013). As a performancebased anxiety disorder, mathematics anxiety involves physiological arousal, negative cognitions, escape and or avoidance behaviors, and, when the individual cannot escape the situation, performance deficits (Ashcraft., 2007; Hopko, 2001).

2.5.3 Mathematics anxity and mathematics achievment

The first math anxiety measurement scale was developed by Richardson and Suinn in 1972. Since this development, several researchers have examined math anxiety in empirical studies. Hembree (1990) conducted a thorough meta-analysis of 151 studies concerning math anxiety. It determined that math anxiety is related to poor math performance on math achievement tests and that math anxiety is related to negative attitudes concerning math. Hembree also suggests that math anxiety is directly connected with math avoidance.

Mathematics anxiety is an especially promising mediator of the relationship between parental involvement and children‟s mathematics achievement specifically because of the link between parenting practices and children‟s anxiety-related behaviors more generally (e.g., McLeod, Wood, & Weisz, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003) as cited Vukovic, Roberts, and Green Wright (2013) and because of the well-documented relationship between mathematics anxiety and mathematics achievement (Ashcraft, Krause, & Hopko, 2007; Hembree, 1990; Ma, 1999). Indeed, highly mathematically anxious students enjoy mathematics less, are less confident in their mathematical. Abilities, and, as early as middle school, steer away from mathematics courses (Ashcraft, 2002; Hembree, 1990; Ho, 2000; Ma, 1999) as cited by OCD (2013).

Ashcraft (2002) suggests that highly anxious math students will avoid situations in which they have to perform mathematical calculations. Unfortunately, math avoidance results in less competency, exposure and math practice, leaving students more anxious and mathematically unprepared to achieve. In college and university, anxious math students take fewer math courses and tend to feel negative towards math. In fact, Ashcraft found that the correlation between math anxiety and variables such as confidence and motivation are strongly negative.

2.5.4 The effect of gender and family background on mathemaatics Anxiety

The relationship between gender and mathematics anxiety has also been studied extensively; but findings have not been consistent. There are many studies that have found significantly greater levels of mathematics anxiety in females than males Wigfield A, Meece(1988,) However, there are also many Studies that show no gender differences

in mathematics anxiety Chiu L, Henry LL: (1990,). There are indeed a few studies that have found higher Mathematics anxiety levels in males than in females. . Indeed, many different mathematics anxiety measures have been used in past studies.

Betz NE (1978) found that correlations between mathematics anxiety and mathematics performance for University students differed according to gender and course: female psychology students showed a significant correlation between mathematics anxiety and mathematics achievement test scores, whereas males did not; in contrast, correlations between mathematics anxiety and mathematics achievement test scores emerged for both genders in students enrolled in an advanced mathematics course. Hembree‟s meta - analysis revealed that females‟ higher mathematics anxiety did not result in poorer mathematics performance and that mathematics anxiety was more predictive of mathematics performance in males Hembree R (1990)

Similarly, Miller and Bichsel (2004) found that mathematics anxiety was more predictive of basic math‟s performance in males than in females; but mathematics anxiety was not more predictive of applied mathematics performance in either gender. Ma and Xu (2002) as cited by Nuria.G et.al.. (2006) also found gender differences in the relationship between mathematics anxiety and achievement. Specifically, they found that boys‟ prior low mathematics achievement predicted later high mathematics anxiety at all grade levels, however girls‟ prior low mathematics achievement only predicted later high mathematics anxiety at critical transition points during schooling (for example, transferring from middle school to secondary school).

A possible explanation for the findings of a greater relationship between mathematics anxiety and achievement in males is that girls tend to experience mathematics anxiety whether or not they have any intrinsic difficulties in mathematics, whereas Mathematics Anxiety in boys is more likely to reflect initial problems in the subject. Alternatively, boys‟ performance may be more negatively affected by anxiety, perhaps because it is less socially acceptable for them to communicate their anxieties, and thus they may be less likely to develop or be shown effective strategies of dealing with anxiety. On the other hand, other studies have failed to find gender differences in the relationship between mathematics anxiety and performance/achievement

Many studies indicate small differences in the level of mathematics anxiety experienced by females as compared to males. Hembree (1990) states that females are show a higher degree of mathematics anxiety in particularly at the post -high school level. Research conducted by Lupkowski and Schumacker as cited by Hembree (1990) , involving mathematics anxiety among talented students, showed that female students who do experience low levels of mathematics anxiety might even perform better in mathematical situations.

In addition, studies show that parents, peers, and teachers are more tolerant of girls not succeeding in mathematics (Tobias, 1980). It is expected that because the student is a girl that she will not perform as well as her male counterpart (or classmate). Accordingly, Drew (1992) states in Hall (1999) that women who have high abilities in mathematics are more likely than men with high abilities to understate their mathematics abilities. In contrast, both males and females may experience the same trouble doing mathematics. However, males will not be as likely to be affected by the mathematics anxiety they experience (Tobias, 1980). Mathematics Anxiety and Achievement Hagenson (1983) proposed that females that exhibit more masculine sex typed roles performed better in mathematics related subjects.

Hall (1999) suggested that parents form impressions of their child's interest and abilities in general on the basis of their own beliefs. Parents communicate their beliefs and attitudes about mathematics and its utility through their individual practices. Parents who have mathematics anxiety can pass it on to their children, and teachers who have mathematics anxiety can pass it on to their students (Fiore, 1999). The outcome of these communicated attitudes is one in which students take on their parents' mathematics anxiety (Bush, 1991). Parental influence is therefore significant in the instilling of mathematics anxiety.

2.6 Confidence in learning mathematics

2.6.1 Defination of confidence in mathematics

According to Lakeshore (Drive and San Mateo:- CalCoaches.Org - 2008-2012), Self-confidence is essentially an attitude which allows us to have a positive and realistic

perception of ourselves and our abilities. It is characterised by personal attributes such as assertiveness, optimism, enthusiasm, affection, pride, independence, trust, the ability to handle criticism and emotional maturity. Confidence is learned, it is not inherited. If you lack confidence, it probably means that, as a child, you were criticised, undermined, or suffered an inexplicable tragic loss, for which you either blamed yourself or were blamed by others. A lack of confidence isn‟t necessarily permanent but it can be if it isn‟t addressed. Our religion, the influence of the culture which formed our perspectives, our gender, social class and our parents, in particular, are all factors which influence and contribute to our level of confidence

Galbraith and Haines (1998) see mathematics confidence as evidenced by students who believe they obtain value for effort, do not worry about learning hard topics, expect to get good results, and feel good about mathematics as a subject .

Self-Confidence in Learning Mathematics (SCM) is defined as an investigation how students think of their abilities in mathematics TIMSS (2007). It created an Index of Student‟. This index is formed based on responses to four statements about their mathematics ability: „I usually do well in mathematics‟, „Mathematics is harder for me than for many of my classmates‟, „I am just not good at mathematics‟ and „I learn things quickly in mathematics‟.

Confidence is a dimension of attitude to mathematics that appears to have particular relevance to teachers‟ practices Beswick (in press). Confidence is also defined on the dictionary of Encarta as belief in own abilities,self assurance or a belief in your ability to succeed (Microsoft® Encarta® 2009.)

2.6.2 Confidence in mathematics and mathematics achievment

In a three-year study of students' attitudes and beliefs about mathematics, Kloosterman, Raymond, and Emenaker (1996) found that nearly 66 % of student attitudes and confidence remained constant from year to year. Those students who reported a change in their level of confidence changed only from one level to the next; a student with low confidence never moved to high confidence and vice versa.

Kloosterman, Raymond, and Emenaker (1996) also found the relationship between confidence and achievement varied with age. While there was seemingly no relationship between these two variables in first grade students, by third grade and beyond there existed a strong positive correlation between a student‟s confidence in their mathematical ability and their achievement. Hackett and Betz (1989) who studied college aged men and women, found a "moderately strong positive relationship" (p. 265) between student self-efficacy and performance. It was not clear whether confidence promotes achievement or vice versa.

Lloyd, Walsh, and Yailagh (2005) suggested that confidence did not directly affect achievement but rather what students attributed their success and failure to. In their study of fourth and seventh grade boys and girls in Canada, Lloyd, Walsh and Yailagh found that both boys and girls were more likely to attribute their success to internal factors such as ability and effort and less likely to attribute success to external factors such as the teacher. They made the connection between how students attributed success and failure to self-efficacy by stating that "ability attributions for success have Attitudes, Confidence, and Achievement 9 been linked with higher academic achievement and enhanced perceptions of self-efficacy (p. 401).

Ross and Broh (2000) suggested that while academic achievement enhanced student self-efficacy, the extent to which students felt a sense of personal control over their success is actually what impacted achievement. The implication was that understanding how students thought of their success and failure in math might have been more important than their confidence level as teachers plan how to increase student achievement. How students attributed success and failure in school and their confidence levels may have had an impact on students as they progressed from elementary to middle school and from middle school to high school and beyond. It was not that surprising those students would bring old feelings with them to a new class. Those feelings might have been positive and rooted in a history of success, or could have been negative stemming from a lack of academic success.

In a study of upper elementary students in a metropolitan area of the Western United States, Mason and Stipek (1989) found that, "…students carry with them a certain

amount of baggage to new classrooms that may undermine teachers' efforts to increase student's skills"(p. 65). Therefore, it became important for a teacher to make efforts to assess students' attitudes and confidence early in a school year in order to address "hidden" issues that might have been impacting student achievement. I think teachers too quickly assume that students struggle because they just have not been exposed to the right teaching method. If a student struggled in the classroom as a result of how he or she attributed success and failures in class, then the "right" teaching method might very well have been one that addressed how the student felt about his or her own ability rather than a particular teaching tool.

As Mason and Stipek (1989) stated, "Once teachers ascertain which students possess these negative self-perceptions and emotions, they much develop strategies to Attitudes, Confidence, and Achievement 10 assist students in overcoming the cognitive and emotional obstacles that may interfere with successful performance" (p. 66). Age and grade level might also affect how a student attributed success and failure. Because of their more direct role in student learning, younger students might be more likely to attribute their success and failure to their teacher rather than their own efforts or abilities (Lloyd, Walsh, & Yailagh, 2005). Lloyd, Walsh, and Yailagh found that seventh graders were more likely to attribute success and failures to internal factors than were younger students. As much of the previously mentioned literature suggests, student‟s attitudes and beliefs are shaped by a number of factors. Some a teacher can control, such as the amount of supportive comments during discourse, and others a teacher may have less control over, such as preconceived notions of ability to do math a student brings with them.

2.6.3 Gender difference and family back ground on confidence in mathematics

Often one tries to approach mathematical self-confidence using comparision of girls and boys result. Among others, in the test of Pehkonen(1997) boys in grade 9 were more interested in mathematics and have more confidence in them selves than girl . similar results were found in other studies (e.g Stipek&Gralinski,1991).

Females disposition towards- and hence achievment and participation in mathematics are belived to be socialized , inculcated by a society that tend to view mathematics as a male domain and which perpetuates the idea that males are naturally more mathematicaly inclined (Hanson,1997)as cited by Melissa A. Lynda R. (2003). Jones and Smart (1995) consider lack of confidence to be a major factor affecting girls‟ low participation in mathematics.

The difference seemed to decrease during early studies, but nevertheless are typically still reported in more recent work. Thus the construct „mathematics as a male domian‟‟ continues to be seen as a critical variables in helping to explaing percieved disadvantage experienced by girles in mathematics and relted areas.

Parent‟s educational back ground is likely to be one of the factors that affects students confidence in mathematics. For instance , if the head to the family is highly educated in the related field of mathematics his /her children likely to receive some encouragment guidance and even help in academic work. But still parents feels mathematics as male domain has an influence on their daughters mathematics achievment. Blevins (1991) suggested parents beliefs about girls could clearly be a determinant to their daughters beliefs about mathematics performance.

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this study is to examine the influence students affective factors on mathematics achievment of students. In this chapter the research design , participants and sampling ,research instruments and the method of analysis are descibe below.

3.1 Research method

To perform this study I used a research method which is called quntitative method. Because the quantitative research is „Explaining phenomena by collecting numerical data that are analysed using mathematical based methods (inparticular statistics).

3.2 Research Design

In order to address the research quastion and objectives of this study, non-expermental survey designe were used and correlational research was also as one part to observe the impact of each affective factors on students achievment in mathematics. Here students self- concept ,perceive the usefulness of mathematics, mathematics anxiety confidence in learning mathematics and motivation in learning mathematics are independent variables where as mathematics achievment is the dependant variable.

3.3 The Study Area and Target Population

The area of the study, Lideta Sub-City is one of the 10 Sub- Cities of Addis Ababa City administration. It has three secondary schools called Dejazmach Balcha Abanefso , Hidase Lideta and Africa Hibret. This site is selected purposefully because the researcher has been working there , so he could get better coopration than other areas. The target population consisted of 1475 males, 1664 females students. The population contains 1702 students from grade 9 and 1437 from10. students who have been learning in the first cycle secondary schools in the accadamic year 2006 E.C. in the Sub-City.

3.4 Participants and sampling

The sample frame of this study was all grade nine and ten of both male and femal students.From these identities students affective factors are included ,157 participants were selected which accounts about 5% of the total population. The size of the sample should neither be excessively large nor too small. It should be optimum sample. An optimal sample is one which fulfills the requirement of efficiency, representativeness and reliably. According to Kothair (2004) a study population of interest (N)less than 10,000 sample size of the study is calculated by using the formula:-

$n_f = n/(1+ n/N)$ where $n=\frac{(z^2 xpxq)}{N}$

n=desired sample size

z=standard normal variable at the required confidence level(z-statistics)93%=1.81

p=estimated characteristics of target population=0.5

q=1-p=1-0.5=0.5,d=level of statistical significance error=0.07

Therefore, for the population 3139 the desired sample is calculatedsa:-

$n=\frac{(z^2 xpxq)}{N} = (1.81(0.5)\ (0.5)/(0.007)^2=167$

$n_f = n/(1+ n/N)=167/(1+167/3139)= 157$

Moreover ,the rational to use simple random sampling technique is suited for such homogenous and finite population and it gives equal chance for all students to be included in the study. Furthermore, based on their shool and grade simple random/ lottery method sampling method was employed to select the representative of the population group in each grade level . The sample distribution of the students is shown in the following table.

Table 3

Name of the school	Total number of students			Number of sampled students				
	Male	Female	Total	Male	Female	Total	Grade 9	Grade 10
Dej.Balcha Abanefso	553	673	1226	23	35	58	26	32
Hidase Lideta	455	430	885	19	25	44	26	18
Africa Hibret	467	561	1028	15	40	55	28	27
Total	1475	1664	3139	57	100	157	80	77

3.5 Instruments of Data Collection

To accomplish the objectives of this study, two data collecting instruments (questionnaire and achievement test) were employed.

3.5.1 Questionnaire

In a questionnaire, the subjects respond to the questions by writing or, more commonly, by marking an answer sheet. It helps to collect large numbers of people‟s idea at the same time.

Hence I have prepared the questionnaires for the respondents to assess their feeling on each affective factor. The number of questions which was prepared for this study was 50 items. The questions are grouped into five parts and each part contains 10 items. Part one includes perceived usefulness of mathematics part two about self- concept in mathematics, part three about motivation in learning mathematics , part four includes mathematics anxiety, part five include indicator of confidence related factors.

3.5.2 Achievement test

Achievement test helps to measure an individual knowledge or skill in mathematics. The achievement tests which were consisting of 40 questions were prepared by the

mathematics Exam expertise at Lideta Sub- City Education office. Then the accuracy of the question was validated by three subject teachers from each school in the study.

3.6 Validity and reliability of the instruments

The achievement tests were constructed by mathematics exam committee at Lideta Sub City education office and then the content-related validity was checked by three schools teachers in the study area. Similarly the validity of questionnaire was examined by my colleagues who were doing research and by my advisor for the face and content validity. Items reliability of the questionnaires was examined by pilot test of 40 students and analyzed by using alpha Crombach. The alpha Crombach of the entire questionnaire was 0.914and for each affective factors perceive the usefulness of mathematics, self- concept, motivation in learning mathematics, mathematics anxiety confidence in learning mathematics had a value of 0.651, 0.747, 0.765, 0.675and 0.820 respectively. Similarly the Kuder Richardson Approach of reliability of the achievement test was 0.62 and 0.52 for grade nine and grade ten respectively

3.7 procedures of Data Collection and Administration

Both the achievement test and questionnaire were administered to respondents in face-to-face fashion with the help of assistance. Initially, orientation was given to the assistant data collectors on how to handle questions raised from the respondents. In addition, a brief explanation was providing to the respondents about the instruction of the tools and the confidentiality of the information. Finally 40 items of two hours achievement test was distributed for respondents.

After collecting the achievement test at the same day, questionnaire was coded with the corresponding achievement test and distributed to the respondents to fill out.

3.8 Methods of Data Analysis

The data gathered through the above instrument were analyzed quantitatively. The achievement test scores were recorded. The response of students on each affective factors (motivation in learning mathematics, mathematic anxiety, confidence in learning

mathematics, self-concept on mathematics and perceived the usefulness of mathematics) were sum up and recorded. Having this the overall data was analyzed using SPSS version 20. Using this instrument independent test, Pearson correlation, ANOVA and regression analyses were used since the normality of the data is between -1 and 1.

Chapter Four

Presentation, Data Analysis and Discussion

In this chapter the main body of the research was observed. This is because the chapter is presenting the nature of the data what it looks like as well as it shows how to analysis the basic research question and the discussion of the findings. The data were gathered from sampled respondent through questionnaire and achievement test. This means that from the collected data which is presented in each of the table I put appropriate technique of analysis method.

The presentation and analysis of the data were done to answer the basic research question raised in chapter one. The academic achievement of students in mathematics is based on the current achievement on their achievement test. The discussion part of the finding is assessed with different scholars finding which are describe in the review of literature.

Therefore descriptive statistics was used to analyze and interpret demographic variables whereas independent sample t test, one-way ANOVA and multiple regressions were employed to see the significance difference and the prediction power of affective factors on student‟s mathematics achievement.

4.1 Characteristics of the Respondents

Table 4 respondent‟s sex, grade, family income and parent‟s education level

Variable	Categories	Frequency	Percent
Sex	Male	57	36.31 %
	Female	100	63.69 %
	Total	157	100 %
Grade	Nine	80	51 %
	Ten	77	49 %
	Total	157	100 %
Family income	below 2500	101	64.3 %
	2501-5000	37	23.6 %
	Above 5000	19	12.1 %
	Total	157	100 %
Mother‟s education Background	Not attained formal school	47	29.9 %
	Educated up to high school	70	44.6 %
	Educated up to diploma	21	13.4 %
	Educated up to degree	16	10.2 %
	Educated up to masters or doctorate	3	1.9 %
	Total	157	100 %
Father‟s education Background	Not attained formal school	36	22.9%
	Educated up to high school	68	43.3%
	Educated up to diploma	22	14.0%
	Educated up to degree	27	17.2%
	Educated up to masters or doctorate	4	2.5
	Total	157	100

As shown in table 1 above one hundred fifty seven students were participated in this study among this 57(36.31%) participants were male and the rest 100(63.69%) of them were female respondents. The table also showed that of the total 157 respondents, 80(51.0%) were grade nine and the rest 77(49%) of the respondent were from grade ten.

When we examine family income of the participants; Table 1 showed that about 101(64.3%) of the respondents family income was below ETB 2500. As the data stated above 37(23.6%) of the respondents belong to those which have family income of ETB 2501-5000.Othe other hand the rest of the respondents 19(12.1%) of belongs to those whose family income is above 5000.

Table2. also indicate that 47(29.9%), 70(44.6%), 21(13.4), 16(10.2%) and 3(1.9%) of respondents mother were Not attained formal school, educated up to high school, educated to diploma, educated to degree and educated to masters or doctorate respectively. Similarly 36(22.9%) 68(43.3%) 22(14%) 27(17.2%) and 4(2.5%) of respondents father were Not attained formal school, educated up to high school, educated to diploma, educated to degree and educated to masters or doctorate respectively.

4.2 Student's affective factors and mathematics achievement?

In this part the mean score and of students attitude towards affective factors and their mathematics achievements was discussed.

Table 7 Level of the student's mathematics achievement

Variables	Number of student	Minimum	Maximum	Mean	Std. Deviation
Achievement	157	10	63	31.37	11.218

The above table shows that student‟s scored an average of 31.37which indicated that students level of achievement is low which is below 50%.

Table 8 Level of the student's affective factors

Variables	Number of student	Minimum	Maximum	Mean	Std. Deviation
Usefulness	157	1	5	4.0495	0.64696
Self-concept	157	1	5	3.5184	0.71365
Motivation	157	1	5	3.6774	0.71931
Anxiety	157	1	5	3.5640	0.69926
Confidence	157	1	5	3.5811	0.78197

This table also shows that students attitude to usefulness, self-concept, motivation, anxiety and confidence. The mean numerical value for all categories of respondents is (i.e. 4.0495, 3.5181, 3.6774, 3.5604 and 3.5811) respectively.

As indicated they have positive attitude to perceived as mathematics is usefulness , self-concept, motivation, anxiety and confidence. Because of the mean value were above three for each variable. From the table I can conclude that students had better attitude on the usefulness of mathematics to the rest of each affective factor.

Nyala, J .(2008)**;** The mean numerical value for all categories (male or female) of respondents was above three, then there is a positive attitude On Usefulness of Mathematics, Confidence in Learning Mathematics and Motivation in learning mathematics .

Here when I observe the level of students affective factors and mathematics achievement, students in Lideta Sub-City Secondary School were low achiever which is below 50%. Even if students have such low score they have positive attitude towards usefulness of mathematics, self-concept, motivation, anxiety and confidence. But here it is possible to conclude that having positive attitudes towards these affective factors not led to student‟s achievement in mathematics. In line to this students have highly positive attitude on the usefulness of mathematics this may be due to the government advertizing of different media on science and technology as mathematics a big issue of the education sector as long as running technology in the 70 with 30% allocation of each universities as science and technology and social science and humanity respectively. Nyala, JI. (2008) also argue to that students have a positive attitude on such affective factors. When I observed the above finding, it supported by Nyala, JI (2008)

4.3 significance difference in student's affective factors and mathematics achievement

Here the research question described below is analyzed based on different categories whether there exist difference between each categories on affective factors and mathematics achievement

Is there a significance difference with respect to sex, family income and parent's education background?

In order to analyze the research question stated above; many techniques of analysis methods are used. Some of the methods are descriptive statistics, independent sample t test and one way ANOVA.

Table 8 Descriptive and an independent t-test result on students affective factors and Mathematics achievement with respect to sex

Variable	Sex	N	Mean	Std. Deviation	Std. Error Mean	df	t	p
Achievement	Male	57	33.77	12.420	1.645	155	2.04	0.042
	Female	100	30.00	10.286	1.029			
Usefulness	Male	57	4.1417	.63828	.08454	155	1.351	0.055
	Female	100	3.9970	.64917	.06492			
Self-concept	Male	57	3.6474	.67602	.08954	155	1.721	0.87
	Female	100	3.4448	.72731	.07273			
Motivation	Male	57	3.7562	.71400	.09457	155	1.037	0.302
	Female	100	3.6325	.72203	.07220			
Anxiety	Male	57	3.5813	.70279	.09309	155	1.595	0.113
	Female	100	3.3971	.69185	.06918			
Confidence	Male	57	3.7402	.77957	.10326	155	1.942	0.054
	Female	100	3.4904	.77259	.07726			

This table represents the group statistics results of the independent-samples t-test.on the achievement of mathematics and The Levene"s Test for Equality of Variances (see appendix F).

From the table it is possible to see that the mean value of male (33.77) is greater than that of female students. Similarly the mean value of male student‟s attitude for each affective variables usefulness, self-concept, motivation, anxiety and confidence in learning mathematics is greater than that of female student‟s attitude at each affective factor.

Results had an F-statistic of 0.326 with a significance value of 0.05. Because 0.05 ≥ .05, the one variables had statistically different variance distributions. Therefore, use the 1st row of t-test information to determine if the two means are statistically different from each other. So the t-statistic value was $t_{0.05}$ (155) = 2.04 with p<0.05 that is 0.042.

Similarly we can observe that The Levene‟s Test for Equality of Variances (see appendix E) results on usefulness, self-concept, motivation, anxiety and confidence in learning mathematics. So we can observe that $t_{0.05}$ (155) = 1.351, 1.721, 1.037, 1.595 and 1.941 respectively with p>0 that is 0.0.55, 0.87, 0.302, 0.113 and 0.054 for usefulness, self-concept, motivation, anxiety and confidence in learning mathematics respectively

From the table we can conclude that (t=2.04, df=155 significance =.042) on achievement of students, the mean of male was statistically significantly higher for female by 3.196 on male students.On the other hand there is no significance difference between each affective factors between male and female (sig is greater than 0.05).

The above result also supported by the following researches. For example Jordan (1981) found that the relation of academic self-concept with was 0.45 and 0.41 for male and female students respectively. By counting, he pointed out that the unique proportion of variance in academic achievement accounted for global self- concept failed to achieve significance in both female and male students.

Often one tries to approach mathematical self-confidence using comparisons of girls and boys result. Among others, in the test of Pehkonen(1997) boys were more interested in mathematics and have more confidence in themselves than girl . Similar results were found in other studies (e.g Stipek&Gralinski, 1991).

(Marsh & Yeung, 1998; Pajares &)Miller, 1994), demonstrate that gender directly affects students' Mathematics Self-conceptand . Female students has lower math self-concept beliefs than male students. students do not differ significantly.

In contrast to the mean value of male and female students on each affective factors on mathematics achievement they have less positive attitude than male students. This may be related that those factors related to females students achievement in mathematic in secondary school. Such as school factors family factors and also cultural factors. But on the other hand when we testing whether there was any significant difference in of male and female in Lideta Sub- City Government Secondary schools student‟s attitudes on usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics, it was found that there was no significant difference in attitudes towards mathematics of males and females.

This indicated that both sexes of students have the same feelings towards each affective factor towards Mathematics of High School Students in Lideta Sub- City Government Secondary schools students. In line to my finding Eshun (1991) also found no sex related differences during elementary school years at most affective levels which supports the present findings.

On the other hand I have analyses the significance difference of student‟s affective factors and their mathematics achievement with respect to family income as follow.

Table10. Student‟s affective factors and mathematics achievement with respect to family income: using the descriptive statistics and One-Waye ANOVA.

Variable	Categories	N	Mean
Achievement	below 2500	101	30.52
	2501-5000	37	33.18
	Above 5000	19	32.37
Usefulness	below 2500	101	4.0972
	2501-5000	37	3.8970
	Above 5000	19	4.0930
Self-concept	below 2500	101	3.4837
	2501-5000	37	3.5461
	Above 5000	19	3.6485
Motivation	below 2500	101	3.6540
	2501-5000	37	3.68174
	Above 5000	19	3.7936
Anxiety	below 2500	101	3.4807
	2501-5000	37	3.4441
	Above 5000	19	3.4135
Confidence	below 2500	101	3.6164
	2501-5000	37	3.5488
	Above 5000	19	3.4560

The above table shows that the mean values of students affective factors and their achievement with respect to family income. The mean average score of students on their mathematics achievement was 30.52, 33.18 and 32.37 to the corresponding family income below 2500 , 2501-5000 and above 5000 respectively. When we observe students perception on the usefulness of mathematics, was 4.0972, 3.8970 and 4.0930 to the corresponding family income below 2500 , 2501-5000 and above 5000 respectively. Similarly students self- concept to mathematics was 3.4837, 3.5461 and 3.6485 to the corresponding family income below 2500, 2501-5000 and above 5000 respectively. The

mean value of students motivation was also 3.6540, 3.6817and 3.7936 to the corresponding family income below 2500 , 2501-5000 and above 5000 respectively. On the other hand student‟s anxiety to mathematics was 3.4807, 3.4441 and 3.4135 to the corresponding family income below 2500, 2501-5000 and above 5000 respectively. Similarly when we observe students confidence in learning mathematics their mean value was 3.6164, 3.5488 and 3.4560 to the corresponding family income below 2500, 2501-5000 and above 5000 respectively.

On this issue many researchers have been done. For example, Smith, Brooks-Gunn, and Klebanov (1997) found that the correlation between children‟s mathematics achievement and parental background (namely parent‟s Socio-Economic Status and education level) was mediated by the educational environment at home.

Astin (1982) reported a positive relationship between a family‟s income and academic achievement of undergraduate students. Astin found that, “Among blacks, parental income is related to undergraduate GPA, undergraduate persistence, and satisfaction” (p. 94). Astin reported that African-American students from families of high income had higher college grades than those students from families of low income.

According to Astin (1982), “the educational level of the students‟ parents shows a pattern of relationships to various student outcomes that closely parallels the pattern found for parental income” (p. 95). It could not be determined from Astin‟s work if parental levels of income and education referred to one or both parents. In summary, the higher the level of parental education, the more likely students are to persist and to have a high GPA..

From the above data in testing students in Lideta Sub- City Government Secondary schools student‟s achievement and attitudes on usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics; it is possible to conclude that the mathematics achievement, self- concept and motivation is increasing as their family income increase. But there is no such difference on student‟s perception to the usefulness of mathematics as students family income increase. On the other hand student‟s mathematics anxiety and confidence in learning mathematics is decrease as

their family income increase .these shows that economic strength in the family does not mean the increment in the perception of the affective factors alone.

In line to family income in the context of our country more income generated family are not well educated. So having good family income never bring the students achievement in mathematics their family is not well educated.

This finding is supported by Astin (1982), "the educational level of the students‟ parents shows a pattern of relationships to various student outcomes that closely parallels the pattern found for parental income" (p. 95).

To see the significance difference of student‟s affective factor and their mathematics achievement with respect to family income we can consider the following table which is linked to the above table

Table 11 One-way ANOVA (family income)

Variable	Comparison ion	Sumof squares	Mean squares	df	F	p
Achievement	Between groups	212.584	106.29	2	.843	.432
	Within groups	19417.990	126.091	154		
Usefulness	Between groups	1.127	.563	2	1.352	.262
	Within groups	64.169	.417	154		
Self-concept	Between groups	.472	.236	2	.460	.632
	Within groups	78.979	.513	154		
Motivation	Between groups	.312	.156	2	.299	.912
	Within groups	80.403	.522	154		
Anxiety	Between groups	0.091	0.046	2	0.92	0.912
	Within groups	76.187	.495	154		
Confidence	Between groups	.462	.231	2	.375	.688
	Within groups	94.929	.616	154		

From the above table we observed that the F-statistics of students achievement, usefulness, self-concept, motivation, anxiety and confidence was .843, 1.352, .460, .299, .092, and .375 respectively with p>0 having a value .432, .262, .632, .742, .912 and .688 of students achievement, usefulness, self-concept, motivation, anxiety and confidence was respectively.

From the data above it if possible to conclude that there is no statistical difference on student‟s affective factors and their mathematics achievement with respect to family income since sig value is greater than 0.05 in each variable.

Desimone‟s (1999) Study, f or example, concluded that there were statistically significant and meaningful differences between parent involvement and achievement, according to race - ethnicity and family income. However, the unique contributions of race - ethnicity and family income upo n achievement were not fully elaborated.

In examining alternative assessment methods in elementary science, Saturnelli and Repa (1995) conclude, with respect to the question of whether race or economic status has the greater effect on science and math achievement, “based on the results of this study, it appears that for science, the answer is economic status. Within each racial group, test scores were found to increase significantly from high poverty to no poverty levels (p.34).”

On students family income when we are testing whether there was any significant difference of on family income of the three categories students in Lideta Sub- City Government Secondary schools student‟s achievement and attitudes on usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics, it was found that there was no significant difference in attitudes towards mathematics of students family income. Astin (1982) also found that no significance relation on family income and student achievement.

Here even if there is visible difference in student‟s family income, there is no such significance difference in student‟s achievement as well as on their attitude on each affective variable on mathematics. This is I think due to that students family education back ground is very low that is income in the context of our country more income

generated family are not well educated. So having good family income never bring the students achievement in mathematics if their families are not well educated this links also to student‟s attitude on affective variables

Similarly the following table with the descriptive statistics indicated at appendix F is applicable in order to observe the significance difference of students on student‟s affective factors and mathematics achievement with respect to their father education background

Table12. One-way ANOVA on students affective factors and mathematics achievement with respect to fathers educational background (educational level which are 5 level illiterate educated to high, school ,educated to diploma, educated to degree ,educated to masters or doctorate)..

Variable	Comparison ion	Sumof squares	Mean squares	Df	F	p
Achievement	Between groups	420.845	105.21	4	.833	.506
	Within groups	19209.728	126.380	152		
Usefulness	Between groups	.127	.032	4	.074	.990
	Within groups	65.168	.429	152		
Self-concept	Between groups	1.359	.340	4	.661	.620
	Within groups	78.091	.514	152		
Motivation	Between groups	1 .279	.319	4	.609	.656
	Within groups	79.442	.523	152		
Anxiety	Between groups	0.553	.138	4	0.278	0.892
	Within groups	75.725	.498	152		
Confidence	Between groups	.234	.059	4	.094	.984
	Within groups	95.157	.626	152		

From the table show at (Appendix F) we can see that student‟s achievements mean score were 29.03, 31.65, 31.82, 33.89, 28.13 to the corresponding education level of education ;not educated , educated to high school, educated to diploma, educated to degree and

educated to masters and doctorate respectively. On the data the mean value of students perception on usefulness of mathematics were 4.0333, 4.0320, 4.0515, 4.1045, 4.1111,the mean value of students self-concept were 3.4500, 3.4776, 3.5384, 3.6333, 3.9403,the mean value of students motivation3.7265, 3.5851, 3.6854, 3.8160 and 3.8250 were the mean value of students anxiety 3.5571, 3.4178, 3.4201, 3.5012 and 3.4000and the mean value of students confidence 3.6019, 3.5775, 3.5273, 3.5770 and 3.7771 to the corresponding education level of father education; not educated, educated to high school, educated to diploma, educated to degree and educated to masters and doctorate respectively.

We observed that the F-statistics of students achievement, usefulness, self-concept, motivation, anxiety and confidence was .833, .074, .661, .609, .278 and .094 respectively. Similarly we can observe that the significance value of student‟s achievement, usefulness, self-concept, motivation, anxiety and confidence was .506, .990, .620, .656, .892, and .984 respectively.

Research about the effects of parental involvement on students‟ mathematics achievement have revealed that parent‟s Socio-Economic Status and parent‟s education level play an important role on their children‟s early and later mathematics achievement (Crosnoe & Cooper, 2010; Clements & Sarama, 2007; Jordan, Kaplan, Locuniak, & Ramineni, 2007).

Besides the linkage between family background and self-concept (Orr & Dinur, 1995), it has been generally reported that “better-educated parents have children who score higher on tests” (Bracey, 1998). Thus, parental education is a profound factor influencing development of student self-concept and academic achievement (Eccles & Harold, 1993; Nakagawa, 2000; Pena, 2000.

From the above In testing whether there was any significant difference of on fathers education level on the five categories; students in Lideta Sub- City Government Secondary schools student‟s achievement and attitudes on usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics, it was found

that there was no significant difference in attitudes towards mathematics of each categories since sig>0.05.

Like that of father educational background, mother educational back ground has its own significance output on students affective factors and mathematics achievement. To observe the following table of one-way ANOVA with the descriptive statistics of the same data in appendix G are used.

Table 13. One-way ANOVA on student‟s affective factors and mathematics achievement with respect to mother‟s educational background (educational level which are 5 level illiterate educated to high school, educated to diploma, educated to degree, educated to masters or doctorate).

Variable	Comparison ion	Sum of squares	Mean squares	Df	F	Sig
Achievement	Between groups	408.146	102.036	4	.807	.523
	Within groups	1922.427	126.380	152		
Usefulness	Between groups	1.083	.271	4	0.641	0.634
	Within groups	64.212	.422	152		
Self-concept	Between groups	4.243	1.061	4	2.144	.078
	Within groups	75.208	.954	152		
Motivation	Between groups	5.067	1.267	4	2.545	.042
	Within groups	75.649	.498	152		
Anxiety	Between groups	5.247	1.312	4	2.807	0.028
	Within groups	71.031	.467	152		
Confidence	Between groups	6 .302	1.576	4	2.688	.033
	Within groups	89.089	.586	152		

From the table (appendix G) we can see that student‟s achievements mean score were 30.37, 30.89, 31.90, 35.94 and 30.00, students mean score to the corresponding education level of mother education; not educated, educated to high school, educated to diploma, educated to degree and educated to masters and doctorate respectively. On the data the

mean value of students perception on usefulness of mathematics were 3.9889, 4.0781, 4.2037, 3.9472 and 3.8000,the mean value of students self-concept were 3.3903, 3.4514, 3.8608, 3.6819 and 3.8167,the mean value of students motivation were 3.5352 , 3.6159, 4.0381, 3.7868 and 4.2333 the mean value of students anxiety 3.3624, 3.3831, 3.8788, 3.6271 and 3.1667and the mean value of students confidence 3.4494, 3.5512, 4.0159, 3.4179 and 4.1667 to the corresponding mothers education level; not educated , educated to high school, educated to diploma, educated to degree and educated to master‟s and doctorate respectively.

From the above table we observed that the F-statistics of student‟s achievement, usefulness, self-concept, motivation, anxiety and confidence was .807, .641, 2.144, 2.545, 2.807 and 2.688 respectively. Similarly we can observed that the significance value of students achievement, usefulness, self-concept, motivation, anxiety and confidence was .523 .634, .078, .042, .028, .033 respectively

Parent‟s educational back ground is likely to be one of the factors that affect student‟s confidence in mathematics. For instance, if the head to the family is highly educated in the related field of mathematics his /her children likely to receive some encouragement guidance and even help in academic work. According to Astin (1982), “the educational level of the students‟ parents shows a pattern of relationships to various student outcomes that closely parallels the pattern found for parental income” (p. 95). It could not be determined from Astin‟s work if parental levels of income and education referred to one or both parents. In summary, the higher the level of parental education, the more likely students are to persist and to have a high GPA..

Besides the linkage between family background and self-concept (Orr & Dinur, 1995), it has been generally reported that “better-educated parents have children who score higher on tests” (Bracey, 1998). Thus, parental education is a profound factor influencing development of student self-concept and academic achievement (Eccles & Harold, 1993; Nakagawa, 2000; Pena, 2000)

From the above data it is possible to conclude that when students father education level increase up to degree their achievement also increase but their achievement is decrease

when the level of student‟s mother education is masters and doctorate this show that more educated of their father do not mean that the students achievement is very high . Students perception on, self- concept , motivation and confidence in learning mathematics also increase as the education level of their mother increase from grade 10 to above. But there is no clear relation on student perception on usefulness of mathematics and their mother education level. And students have less anxiety when their mother education level is master and doctorate than the other education level of their mother. Similarly students are highly confident when their mother education level is master and doctorate than the other education level of their mother.

From the above table we observed that there is no statistical difference on students mathematics achievement, perceived usefulness of mathematics and self-concept on mathematics students in Lideta Sub- City Government Secondary with respect to mothers education level since sig value is greater than 0.05 in each variable. On the other hand there is a significance difference at the levels of mother education on motivation, anxiety and confidence in learning mathematics. Therefore, by the Tukey LSD post hoc tests we can see where the differences were form the following table. But here I try to put only the significance difference is occurred and the overall post hoc relation of the three variable with respect to mother education is computed at the appendix I,J and K

Table 14 significance difference of affective factors with respect to mother's education

Dependent variable	mother"seducation level	mother"s education level	Mean difference	sig
Motivation	Educated up-to grade 10	Educated up-to diploma	-.42224	.017
	Educated up-to diploma	Not educated	.50293	.007
Anxiety	Educated up-to grade 10	Educated up-to diploma	-.49570	0.033
	Educated up-to diploma	Not educated	.51642	0.036
Confidence	Educated up-to grade 10	Educated up-to diploma	-.46468	.016
	Educated up-to diploma	Educated up-to degree	.59799	.020

The mean differences between the groups are reported in the multiple comparisons table.

When there are 5groups, there will be 5 unique comparisons for each variable but for simplicity I have listed where the difference is. The significance difference of students on motivation between their mother education levels is educated to grade 10 and educated to diploma is 0.017 and that of not educated to educated diploma is 0.007. Similarly The significance difference of students on mathematics anxiety between their mother education level is educated to grade 10 and educated to diploma is 0.033 and that of not educated to educated diploma is 0.036. The above table also shows significance difference of students on confidence between their mother education levels is educated to grade 10 and educated to diploma is 0.016 and that educated to diploma to educated degree is 0.020

In testing whether there was any significant difference of on mother"s education level on the five categories; students in Lideta Sub- City Government Secondary schools student"s achievement and attitudes on usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics, it was found that there was significant difference in attitudes towards motivation in learning mathematics, anxiety and their confidence in mathematics between those students mother learn up to grade 10 and those

students mother educated to diploma. So it is possible to say that when the level of student‟s mother education is changed from grade 10 diplomas student‟s motivation and confidence increase.

4.3 impact of student's affective factors on students mathematics achievement

The portion of variance in mathematics achievement test is that can be explained by the combined effect of the independent variables. Which were the affective factors (perceived usefulness, self-concept, motivation anxiety and confidence in learning mathematics

Is there a significance impact of student's affective factors on student's mathematics achievement?

Table 16 multiple regression result

	Correlation coefficient	Unstandardized Coefficients		Standardized Coefficient		
Model	r	B	Std. Error	Beta	t	p
(Constant)		8.609	6.137		1.403	.163
Usefulness	0.165	.575	1.522	.033	.378	.706
Self-concept	0.299	2.149	1.813	.1371	.185	.238
Motivation	0.293	1.880	1.950	.121	.964	.337
Anxiety	0.208	-2.012	1.726	-.140	-1.165	.246
Confidence	0.314	3.799	1.927	.237	1.972	.050

Dependent Variable: Achievement

Constant=8.609, Sig ≥0.05 R=.356, R^2=0.1267

Relationship between students achievement in mathematics and students affective factors (perceived usefulness, self-concept, motivation anxiety and confidence) with correlation coefficient .165 , .299 , . 293, .208 and.314 respectively

The above data show that the Unstandardized Coefficients of to the contribution of the independent variable (usefulness, self-concept, motivation, anxiety and confidence) had value of 0.575, 2.149,1.880, -2.012 and 3.799 respectively. Significant impact value of each variable was .706, 238,.337 ,.246 and .050 respectively. Similarly it is possible to observe that the t value is .378, .185, .964, -1.165 and 1.972 to each affective factors usefulness, self-concept, motivation, anxiety and confidence respectively. The data also shows that Multiple regression ($\mathbf{R_{xy12345}}$=0.356) and R^2=0.1267).

Pekka Kupari & Kari Nissinen (2013) Student's mathematics self-concept and expressing confidence in learning mathematics was by far the most significant predictor for their performance. Meanwhile, self-concept was associated with other dimensions of mathematics attitudes (like learning mathematics and perceived importance of mathematics). (Ma & Kishor, 1997) as cited by M. Nicolidau, G. Philippou, students who come to enjoy Mathematics, increase their intrinsic motivation to learn, and vice-versa. The impact of motivation on education of mathematics of a child cannot be undermined. That is why Hall (1989) as cited by A. Tella (believes that there is a need to motivate pupils so as to arouse and sustain their interest in learning mathematics.

Students‟ academic self-concept is both an important outcome of education and a powerful predictor of student success. Belief in one‟s own abilities is highly relevant to successful learning (Marsh, 1986). It can also affect other factors such as well-being and personality development, factors that are especially important for students from less advantaged backgrounds

Bandura (1986) indicates that self-concept, perceived usefulness, and anxiety concepts are “common mechanisms” of personal agency like self-efficacy beliefs and they affect the results. Mathematics self-confidence is determined a conceptual predictor of mathematics Performance (Hackett, 1985).

Chan (2007), in his research work analysis indicated that grade 11mathematics result had an effect on grade 12 perception of the important of mathematics and grade 11 perceive importance of mathematics also had a modest effect on grade 12 achievement. So the above research results show that perceived importance of mathematics and mathematics

achievement has their own effect one to the other. That is if a student scores a good grade in his /her previous grade, this will help to increase his/her perception towards the importance of mathematics, and this leads to the success for the next grade. This shows that perceived mathematics as important subject has positive impact on mathematics achievement.

When I observe the result of this study whether there was significant impact of attitudes on usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics to student‟s achievement and Lideta Sub- City Government Secondary schools students; we examine the above multiple regression table; for every increment in perceiving the usefulness in mathematics of students was resulted in mathematics by 0.575. I.e. students show a positive attitude to the usefulness of mathematics, their achievement test score would increase by 0.575. Similarly a positive attitude to self-concept, motivation and confidence was resulted in mathematics by 2.149, 1.880 and 3.799 respectively (i.e. students show a positive attitude to the self-concept, motivation and anxiety), their achievement test score would increase by 2.149, 1.880 and 3.799 respectively. Whereas for every increment of anxiety in learning mathematics students mathematics achievement decrease by 2.012.

On the other hand when we observe the significance impact of each variable on mathematics achievement; there is no significance impact of each variable since as indicated on the table the sig value is $\geq$0.05.

In this section it is also possible to observed the percentage effect or the contribution of each component (usefulness, self-concept, motivation, anxiety and confidence) on achievements of student in mathematics can be found by R^2x100 %$\approx$($\beta_u r_u$+ $\beta_S r_S$+ $\beta_M r_M$+ $\beta_A r_A$+ $\beta_C r_C$)x100% where β is the standardized coefficient and r is the correlation coefficient of the respective affective variables. So using the formula 12.67% $\approx$ (0.5%+4.1%+3.5%-2.9%+7.4%). Therefore the contribution of perceived the usefulness of mathematics by 0.5%, the contribution of self-concept enhanced the achievement of mathematics by 4.1%, the contribution of motivation in learning mathematics enhanced the achievement of mathematics by 3.5%, the contribution of anxiety decline the

achievement of mathematics by 2.9%. the contribution of self-concept enhanced the achievement of mathematics by 7.24%.

Multiple regression ($R_{xy}12345=0.356$) and $R^2=0.1267$).Which indicate there is a relation between independent variables (usefulness, self-concept, motivation, anxiety and confidence) and the dependent variable achievement in mathematics. It was also observed from the coefficient of multiple determination that ($R^2=0.127$),12.7%of the variation in students mathematics achievement test at Lideta Sub-City Governmental Secondary School was accounted by variability in the five of the predictor(usefulness, self-concept, motivation, anxiety and confidence)as a group.

This finding also argues to Chan (2007), perceived mathematics as important subject has positive impact on mathematics achievement. Bandura (1986) indicates that self-concept, perceived usefulness, and anxiety concepts are "common mechanisms" of personal agency like self-efficacy beliefs and they affect the results. Mathematics self-confidence is determined a conceptual predictor of mathematics Performance (Hackett, 1985).

On the other hand the result is not argued to Pekka Kupari & Kari Nissinen (2013) Student's mathematics self-concept and expressing confidence in learning mathematics was by far the most significant predictor for their performance. Meanwhile, self-concept was associated with other dimensions of mathematics attitudes (like learning mathematics and perceived importance of mathematics). (Ma & Kishor, 1997) students who come to enjoy Mathematics, increase their intrinsic motivation to learn, and vice-versa.

The impact of motivation on education of mathematics of a child cannot be undermined. That is why Hall (1989)(believes that there is a need to motivate pupils so as to arouse and sustain their interest in learning mathematics.

Table 17. ANOVA (combined effect)

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	2489.917	5	497.983	4.387	.001
Residual	17140.656	151	113.514		
Total	19630.573	156			

Moreover the above table is the summary of analysis of variance (ANOVA) which determine the combined effect of the independent variable entered in to the regression. ($F(5,151)=4.387, p=0.001$).

When I observe the result of this study whether all independent variables (usefulness of mathematics, self-concept, motivation, anxiety and confidence in learning mathematics) together has not significant impact of attitudes on to student‟s achievement and Lideta Sub- City Government Secondary schools students; since sig value is equal to .001 which is above a value to say a significance impact is there.

Chapter Five

Summary, conclusion and Recommendation

5.1 Summary

The primary objective of this study was to investigate student‟s affective factors that affect student‟s mathematics achievement in Lideta Sub-City Government secondary schools. To achieve this objective the following basic research questions were formulated for investigation.

1. What are the level of the students‟affective factors.
2. . What is the mathematics achievment of students?
3. Is there a segnificance difference in students affective factors and mathematics achievment with respect to sex , family income and parents education background ?
4. Is there a segnificance difference in students mathematics achievment with respect to sex , family income and parents education background
5. Is there a segnificance impact of students affective factors on students mathematics achievment?

Among total of 3019 target population 157 participant were taken using random sampling technique. 55 respondents from Africa Hibret secondary school, 58 respondents from Dejazmach Balcha Abanfso secondary and preparatory school and 44 respondents from Hidasie Lideta secondary school were selected by simple lottery method. In order to collect valide and reliable data an instrument namely questionnaire and achievement test were employed. The collected data were analysed using results of descriptive statistics, independent sample-t test, multiple regression and Analysis of variance (ANOVA). Finally the analysis yields the following findings.

1. The level of student‟s achievement in mathematics is very low which accounts mean of 31.37.

2. Students have high perception on the usefulness of mathematics. On the other hand students have above the medium attitude or positive attitude on self-concept on mathematics, motivation in learning mathematics, anxiety on mathematics and confidence in learning mathematics.

3. There were a significance difference between male and female students on mathematics achievement (t=3.645, df=155 significance =.00). so that the mean of male was statistically significantly higher for female by 3.196.

4. On the other hand there is no significance difference between each affective factors with respect to gender, grade level, family income, fathers education back ground (sig is greater than 0.05). We observed that there is no statistical difference on student‟s mathematics achievement, perceived usefulness of mathematics and self-concept on mathematics with respect to mothers education level since sig value is greater than 0.05 in each variable. On the other hand there is a significance difference at the levels of mother education on motivation, anxiety and confidence in learning mathematics.

5. Multiple regression ($\mathbf{R_{xy12345}}$=0.356) which indicate there is a relation between independent variables (usefulness, self-concept, motivation, anxiety and confidence) and the dependent variable achievement in mathematics. It was also observed from the coefficient of multiple determination that (R^2=0.127), 12.7%of the variation in students mathematics achievement test at Lideta Sub-City Governmental Secondary School was accounted by variability in the five of the predictor(usefulness, self-concept, motivation, anxiety and confidence)as a group. The contribution of perceived the usefulness of mathematics by 0.5%, the contribution of self-concept enhanced the achievement of mathematics by 4.1%, the contribution of motivation in learning mathematics enhanced the achievement of mathematics by 3.5%, the contribution of anxiety decline the achievement of mathematics by 2.9%,and the contribution of self-concept enhanced the achievement of mathematics by 7.24%.

The major finding of this study is thus, there is no significance relation of each affective factors to their mathematics achievement in the study area.

5.2 Conclusions

The major focus of this study was to see student‟s affective factors on their mathematics achievement in Lideta Sub-City Government secondary schools. Accordingly, the findings of this study indicate that each affective factor (usefulness, self-concept, motivation, anxiety and confidence) do not significantly affect students mathematics achievement even if students achievement is very low.

There is positive relationship between student‟s achievement in mathematics and student‟s affective factors (perceived usefulness, self-concept, motivation anxiety and confidence)

There is no significance impact on each a affective factors (perceived usefulness, self-concept, motivation anxiety and confidence) to their mathematics achievement.

5.3 Recommendations

Based on the findings of this study, suggestion about the practical implication and further investigation were forwarded for concerned bodies

1. School principals and teachers have a potential to strength the students achievement in mathematics by preparing awareness on the subjects importance and when mathematics anxiety occurs and its consequence on their achievement.
2. The affective factors are mainly affects female students mathematics achievement, school principals should aware teachers about special treatment for female students like preparing special tutorial program for them. Consequently they might smooth the relation with female student and facilitate environment to study mathematics at home.
3. Sub –city educational offices have a potential to increase parents education through inclusive adult education. Hence it is best focus on parents in addressing adult education. Since parent‟s education affect female student‟s mathematics

achievement specifically and student‟s achievement in general at Lideta Sub-City Government secondary schools as indicated in the discussion section.

4. Schools should encourage students to participate in co-curricular activities such as mathematics club, natural science. It might attract, motivate, confidently and remove anxiety in learning mathematics

5. The biased believe and attitude of parents, school communities and students themselves were also contributing factors for student‟s low achievement in mathematics. Therefore, panel discussions both in school and at Sub-City level held to awaking student‟s competency in general and mathematics in particular.

6. Teachers are the crucial person on the achievement of students in mathematics. So they must be egger in helping students in different aspects for students to be high achiever like adjusting special class for low achiever in tutorial form.

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Appendix A

አዲስአበባዩኒቨርስቲ

ድህረ-ምረቃትምህርትቤት

የስነ-ትምህርትናስነ-ባህርይጥናትኮሌጅ

ሒሳብ ስነ-ትምህርት ት/ ክፍል

Mathematics Achievment Test for G-9

General direction

This exam contains 40 items and the time allowed to attempt allquestion is 2hrs. There is only one best answer for each of the question. Choose the correct answer and write the letter of your answer o from the given alternatives

1. Let x be an even integer and y be an odd integer then which one of the following is correct?
   A. $x^2 + y^2$ is even C. xy is even
   B. $(x- y)^2$ is even D. $(x+ y)^2$ is even
2. The GCF of two numbers is 4 and their LCM is 516. If one of the number is172, then what is the other number?
   A. 8 B. 12 C. 16 D. 20
3. If $8^x = 16^y$, then what is the value of $\frac{y}{x}$?
   A. $\frac{3}{4}$ B. $\frac{4}{3}$ C. $\frac{2}{3}$ D. $\frac{3}{2}$
4. The fraction form of $2.1\dot{3}$ is equal to
   A. $\frac{192}{99}$ B. $\frac{912}{90}$ C. $\frac{96}{90}$ D. $\frac{32}{15}$
5. The solution set of $(\frac{125}{27})^x = \sqrt[3]{0.6}$ is equal to:
   A. $\{\frac{1}{9}\}$ B. $\{-\frac{1}{9}\}$ C. $\{\frac{1}{3}\}$ D. $\{-\frac{1}{3}\}$
6. If the graph of $y=x^2$ +bx +c passes through (2, 5) and (3, 6), then what is the value of "b" and "c"?
   A. 2, 3 B. -4, 9 C. -4,-9 D. -2, 3
7. What is the solution set of the equation $4^x - 2^{x+1} = 8$?
   A. {1} B. {2} C. {3} D. {4}
8. What is the number of elements of the set A? If it has 127 proper subset?
   A.6 B.5 C.8 D.7
9. Let A={1,{2,3}} and B={1,2,3}, then which one of the following is correct ?
   A. A=B B. A$\leftrightarrow$B C. A∩B= {1} D. A∪B={1,{1,2,3}}
10. The domain of f(x)=$\sqrt{x^2-4}$ is

A. (-2,2) B.[-2,2] C.$(-\infty,2)\cup(2,\infty)$ D. $(-\infty,2]\cup[2,\infty)$

11. 11.Let A={1,2,3} and B={2,3,4}. If R is a relation from A to B given by R= {(x, y) : x+ y=6}, then what is the range of R?

A. {2,3} B.{3,4} C.{1,5} D.{1,4}

12. Let $f(x)=\frac{x+4}{2x}$ and $g(x)=\frac{x+4}{x+1}$, then which one of the following statement is true ?

A. The domain of (f+ g) is [0,-1]

B. The domain of (fg) is $(-\infty,-2]\cup[1,\infty)$

C. The domain of $\frac{f}{g}$ is R/{-2,0}

D. The domain of $\frac{f}{g}$ is R/{-4,-1,0}

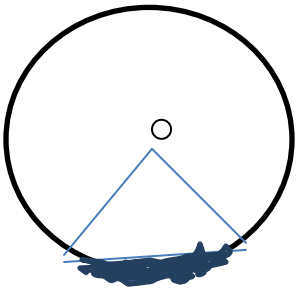
13. If the measure of a central angle of a regular polygon is 18^0 , then the measure of each of its interior angle is equal to:

A. 20^0 B.62^0 C.162^0 D.180^0

14. Which one of the following statement is correct?

A. If two triangles are similar, then they are congruent.
B. If two triangles are congruent, then they are similar.
C. All equilateral triangles are congruent.
D. The area of all equilateral triangles is equal.

15. In the figure below, O is the center of the circle and ΔOPQ is an equilateral triangle with radius 3cm, then which one of the following is **NOT**correct?



A. The area of the shaded region is $\frac{3\,(2\pi-3\sqrt{3})}{4}cm^2$

B. The perimeter of the sector is $(6+\pi)$cm

C. The area of ΔOPQ is $\frac{9\sqrt{3}}{4}$cm^2

D. The perimeter of the shaded region is 47π

16. In ΔABC, if AB=5cm, BC=7cm and AC=8cm, then what is the area of ΔABC?

A.10 cm^2 B. $10\sqrt{3}$ cm^2 C.3cm^2 D. $3\sqrt{3}$ cm^2

17. The table below shows the frequency distribution of temperature in a certain town for the first 10 days, then which one of the following is **not true?**

Temperature in ^{0}C	0	4	5	6	7
Number of days	4	1	3	1	1

A. The mean is 3.2
B. The median is 5
C. The mode is 0
D. The range is 7

18. If the population function f(x) has mean M(x)=4 and

$M(x^2)=25$ then the standard deviation is equal to:

A. 3 B.5 C. 6 D.8

19. If the measure of the interior angle of a pentagon are x^0, $2x^0$, (x+10), $(x-10)^0$ and $(x+30)^0$, then what is the value of **x** ?

A. 70^0 B.75^0 C.80^0 D. 85^0

20. What is the solution set of the system of equation given below?

$\frac{3x}{2} = 5 - 2y$

$x - 2y = 5$

A. {(2, 4)} C. $\{(4,-\frac{1}{2})\}$

B. $\{(\frac{1}{2},3)\}$ D. $\{(-\frac{1}{2}, 6)\}$

21. The sum of the digits of a certain two digit number is 8 twice the ten digits exceeds the unit digit by 1, and then what is the number?

A. 62 B.71 C.35 D.53

22. If $f(x)=-x^2-2x+8$,then which one of the following is not correct?

A. The vertex is (-1,9) C. The range is $[9,\infty)$

B. The axis of symmetry is x=-1 D. The maximum point is (-1,9)

23. You have birr 60 to spent on textbooks. The text books cost 5 birr each at shop A and 6 birr each at shop B, but Shop A has only 6 of the books. Then how must you buy the book in order to obtain the maximum number

A. 10 book from shop A and 2 Book from shop B

B. 6 book from shop A and 5 Book from shop B

C 5 book from shop A and 6 Book from shop B

D.11 book from shop A and 2 Book from shop B

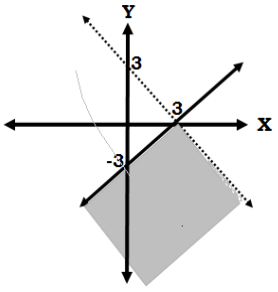
24. the maximum value of $R = \{(X,Y) = y \geq x^2 - 4\}$ is

A. 0 B. -4 C. 4 D. Not determined

25. If A = [-1,1] and B = [-2, 0), then $A \mid B$ is equal to

A. (-1,0) B. [0,1] C. (0,1] D. [-1,0]

26. Which of the following equation represent the



A. $R = \{(x , y) = y \leq x - 3 \text{ and } y \leq -x + 3\}$

B. $R = \{(x , y) = y \geq x - 3 \text{ and } y \geq -x + 3\}$

C. $R = \{(x , y) = y \leq x - 3 \text{ and } y < -x + 3\}$

D. $R = \{(x , y) = y < x - 3 \text{ and } y < -x + 3\}$

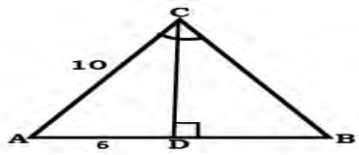
27. The solution set of $|2x-100| = -200$ is

A. {0} B. {100} C. { } D. {50}

28. For what value of k so that the line with equation $4x + ky = 12$ will be parallel to $x = 3y$

A.12 B. -12 C.$-\frac{4}{3}$ D. $\frac{4}{3}$

29. In right angled triangle ABC CD is an altitude to the hypotenuse AB if AC = 10 units and AD = 6 units what is the length of BD



A. 10.6 units C. 64 units
B. 8 units D.14 units

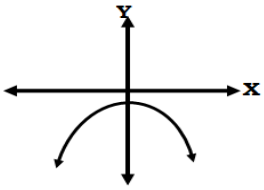
30. When a pilot of an airplane was flying horizontally at a height of 500m above a level stretch of land. He observed a car at an angle of depression of 30^0. How far was the car from the airplane?

E. 250 m B. 1000m C. $500\sqrt{3}$ m D. $\frac{1000\sqrt{3}}{3}$ m

31. *If* $f(x) = \sqrt{3}x$, $g(x) = x^2 - 1$ *then* $(f - g)(x)$

$A\sqrt{3}x - x^2 - 1$ $B. -\sqrt{3}x + x^2 - 1$ $C. \sqrt{3}x - x^2 + 1$ $D. x^2 - 1 - \sqrt{3}x$

32. The graph shown below is the graph of the equation $y = ax^2 + bx + c$, which one of the following statements is true about the coefficient of the equation?



A. a < 0 and $b^2 - 4ac > 0$
B. a > 0 and $b^2 - 4ac < 0$
C. a < 0 and $b^2 - 4ac < 0$
D. a > 0 and $b^2 - 4ac > 0$

33. When simplified $\frac{2\sqrt{3}+3\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ is equal to

A.6 B. $5\sqrt{6}$ C. 5 D.$\sqrt{6}$

34. Which one of the following is correct

A. Rhombus is square C. Square is a rectangle
B. Parallelogram is rectangle D. Rectangle is Rhombus

35. What is the equation of the line pass through the point P_1(-1,3) and P_2(4,3)

A. Y =3XB. X=3 C. Y= 3 D. Y = 3X + 1

36. The slope of the line 3x -4y = 10 is

A $\frac{4}{3}$ B. $\frac{3}{4}$ C. $-\frac{4}{3}$ D. $-\frac{3}{4}$

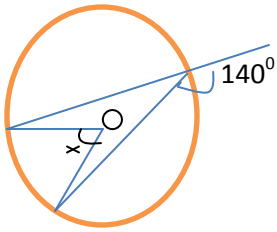
37. What is the solution of the equation (X+8)(X-3) = 3X ?

A {-4, 6} B. {-6, 4} C. {-8, 3} D. {-3,2}

38. When we convert 60^0 to radian ,then it became:

A.$\frac{\pi}{3}$ B.$\frac{4}{3}\pi$ C. π D.$\frac{\pi}{6}$

39. What is the value of x for the following figure where O is the center of the circle



A.20 B.40 C.80 D.140

41. If a vector $\overline{AB}$ has initial point A (0,0) and terminal point B(1,$\sqrt{3}$).then which one of the following is correct about the magnitude and the direction of$\overline{AB}$?

A. 3 and tan 60^0 C.2 and tan60^0

B. 6 and tan 60^0 D.4 and tan 45^0

Appendix B

አዲስ አበባ ዩኒቨርስቲ
ድህረ-ምረቃ ትምህርት ቤት
የስነ-ትምህርትና ስነ-ባህርይ ጥናት ኮሌጅ
ሒሳብ ስነ-ትምህርት ት/ክፍል

Mathematics for G-10

Choose the correct answer from the given alternatives

1. What is the angle of inclination of the line if its slop is equal to 0?
   F. $\frac{\pi}{4}$ B. $\frac{\pi}{2}$ C. π D. $\frac{1}{3}\pi$

2 For every relation R and its inverse R^{-1} which one of the following is **true**?
   A. $R= R^{-1}$ B. $(R^{-1})^{-1} = R^{-1}$ C. $(R^{-1})^{-1} = R$ D. $R0R^{-1} = R$

3 Which one of the following equation of line perpendicular to $l: x + y = 2$?
   A. 2x – 2y = 2 B. y + x = 2 C. y – 2x = 1 D. y = 2x + 1

4 If $\tan\theta = \frac{4}{3}$ in the 3rd quadrant then $\sin\theta =$ _____?
   A. $\frac{5}{4}$ B. $-\frac{5}{4}$ C. $\frac{4}{5}$ D. $-\frac{4}{5}$

5 The solution set of the inequality $(X-1)^2 \geq X + 1$ is
   A. $(-\infty,-3] \cup [0, \infty)$ C. $[0, \infty)$
   B $(-\infty,0] \cup [3, \infty)$ D. $(-\infty,-3]$

6 If $f(x) = \sin x$ and $g(x) = \cos x$ then which one of the following statement is **not true** about f and g?
   A. Both functions have the same range.
   B. The domain of both function is $|\mathfrak{R}$.
   C. Their graphs have the same axis of symmetry.
   D. They have the same period.

7 The domain of the function $f(x) = \sqrt{x-1} + \frac{1}{x-1}$ is
   A. (1, ∞) B. (-∞,1) C. (-∞, 1] D. (-∞,1) ∪ (1, ∞)

8 When the polynomial $p(x)$ of degree 6 is divided by a polynomial $q(x)$ of degree 2 then the degree of the quotient is
   A. 3 B. 4 C. 8 D. 1

9 If $f(x) = x^3-2x^2+1$ and $g(x) = x^2-x-1$ then which of the following is **necessarily true**.
   A. $f + g(x) = x^3 - x^2 + x$ C. $f(x) - g(x) = x^3 - 3x^2 + x + 2$
   B. $g(x) - f(x) = 3x^2 - x^3 - x - 2$ D. $f(x) - g(x) = g(x) - f(x)$

10 The exact value of $tan\frac{7}{6}\pi$

A. $\sqrt{3}$ B. $-\sqrt{3}$ C. $-\frac{\sqrt{3}}{3}$ D. $\frac{\sqrt{3}}{3}$

11 What is the reference angle for $-\frac{11}{6}\pi$

A. 60^0 B. 45^0 D. 30^0 D. 55^0

12 For what value of 'a' such that the line passing through P(1,a) Q(3,-5) will have a positive slop.

A. -7 B. a∈(-7, ∞) C. a∈(-3, ∞) D. a∈(3, ∞)

13 If $2\log_2 x = y$ and $\log_2 2x = y + 4$, then the value of x and y respectively

A. -6 and $\frac{1}{8}$ B. $\frac{1}{8}$ and -6 C. $6\ and\ \frac{1}{8}$ D. $-6\ and\ -3$

14 What is the degree measure of the acute angle θ if $\frac{sin\theta}{cos80^0} = 1$

A. 80^0 B. 10^0 C. 20^0 D. 79^0

15 Which one of the following is symmetric set

A. [2,5] B. (-4,4) C. (-5,5] D. (-∞,0)

16 What is the value of P and q, if $x - 1$ is a common factor of $f(x) = x^4 - px^3 + 7qx + 1$ and $q(x) = x^6 - 4x^3 + qx^2 + qx - 3$

A. $q = \frac{1}{2}$ and $p = \frac{11}{2}$ C. $q = 2$ and $p = \frac{2}{11}$

B. $p = \frac{1}{2}$ and $q = \frac{11}{2}$ D. $q = \frac{2}{11}$ and $p = 2$

17 If f and g are polynomial function of degree 3, then which one of the following is necessarily **true**?

A. $f + g$ is degree of 3 C. $f + g$ is degree of 6

B. $2f$ is degree 4 D. fg is degree 6

18 Which one of the following is co-terminal angle to $\frac{2}{3}\pi$?

A. $-\frac{8}{3}\pi$ B. $\frac{4}{3}\pi$ C. $-\frac{4}{3}\pi$ D. $\frac{10}{3}\pi$

19 Which one of the following is the inverse of $f(x) = 2^{-x}$?

A. $g(x) = -\log_2 x$ C. $g(x) = (\log_2 x)^{-1}$

B. $g(x) = \log_2 -x$ D. $g(x) = \log_2 x$

20 What is the equation of the line pass through the point P_1(-1,3) and P_2(4,3)

A. Y =3XB. X=3 C. Y= 3 D. Y = 3X + 1

21 In which quadrant dose the terminal side of θ lies, assuming that θ is in standard position such that secθ> 0 and cotθ<0

A. Quadrant I B. Quadrant II C. Quadrant IV D. Quadrant III

22 What is the solution of the equation (X+8)(X-3) = 3X ?

A. {-4, 6} B. {-6, 4} C. {-8, 3} D. {-3,2}

23 For non-zero real numbers a and b and a positive integers m and n , then which one of the following statement is false ?

A. $\frac{a^m}{a^n} = a^{m-n}$ B. $a^m \times a^m = a^{m+n}$ C. $a^{\frac{m}{n}} = \sqrt[n]{a^m}$ D. $a^{-n} = a^{\frac{1}{n}}$

24 The characteristics of log 0.000213 is equal to :

A.3 B.4 C.-3 D-4

25. If f(x) =(x+8) $(x-(1+\pi))^2$ then what is the degree of f(x)?

A. 2 B. 3 C.5 D.6

26. If α and β are roots of $x^2+6x+9=0$ then which one is false?

A. $\alpha - \beta = 0$ B. $\alpha + \beta = 6$ C. $\alpha^2 + \beta^2 = 18$ D. $\alpha\beta = 9$

27. If x is an acute angle and cotx =2, then what is the value of sinx?

A. $\sqrt{5}$ B.5 C. $\frac{\sqrt{5}}{5}$ D. $\frac{\sqrt{2}}{5}$

28. Let A(3,5) and B(1,-3) are two opposite vertices of a square, then what is the area of the square?

A. 24 sq. Units B.42 sq. Units C.34 sq. Units D.43 sq. Units

29. If θ is an angle in standard position and the point (-3,-4) is on the terminal sides of θ, then which one of the following is **true**?

A. $\sin\theta = \frac{4}{5}$ B. $\cos\theta = \frac{3}{5}$ C. $\sin\theta = \frac{-4}{5}$ D. $\cos\theta = \frac{-4}{5}$

30. If log2=0.3010 and log3=0.4771,then log12 is equal to :

A. 1.0791 B. 0.7781 C.0.1436 D.0.1249

31.If $\log(x^2-3) = 2\log(x-1$, then what is the value of x?

A.1 B.2 C. 3 D.4

32.which one of the following is not co-terminal with 45^0?

A. $-\frac{7\pi}{4}$. B. -315^0 C. 315^0 D. $\frac{-15\pi}{4}$

33.when $f(x)=3x^7- ax^6+5x^3-x+11$ is divided by x+1 ,the remainder is 15. What is the value of **a**?

A .11 B.-11 C.22 D.-22

34. If x-2 is a factor of $3x^4-4x^2-kx+6$ then what if the value of **k?**

A. -19 B.19 C.13 D.-13

35. Which one of the following is not correct about $f(x)=b^x$, b>1

A. the value of the function are between 0 and 1for x<0.
B. The range of the function is the set of all real numbers.
C. the y-intercept of the function is 1.
D. the function is increasing as x increase.

36. Let 0<a<1<b, then which one of the following is not correct?

A. If $a^x=b^x$, then x=0 C. If $a^x>b^x$,then x<0

B. If $a^x<b^x$, then x>0 D. If $a^xb^x<0$,then x<0

37.If $f(x) = \sin x$ and $g(x)= \csc x$ then which one of the following statement is **true** about f and g?

A. Both functions have the same range.

B. The domain of both function is $|\mathfrak{R}$.

C. Their graphs have the same asymptote.

D They has the same period

38. What is the area of a sphere whose radius is 4cm?

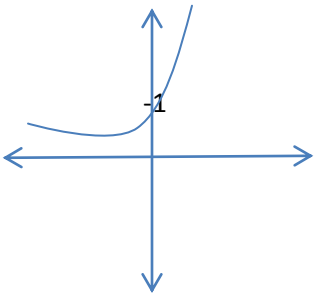
A. 16π cm^2 B.64 πcm2 C. 32 π cm^2 D8 π cm^2

39. A frustum formed from a right circular cone has base radii 8cm and 12 cm and slant height of 8cm.then the lateral surface area is _____?

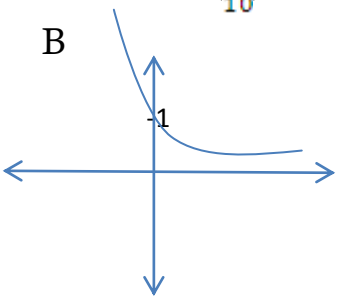
A.200 π cm^2 B.80 π cm^2 C.120 π cm^2 D.96 π cm^2

40. Which one of the following represent the graph of f(x)= $(\frac{7}{10})^2$

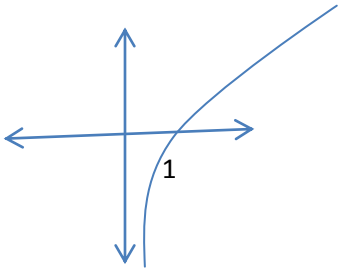
A



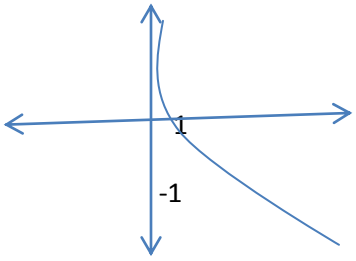
B



C



D.



Appendix C

አዲስ አበባ ዩኒቨርስቲ
ድህረ-ምረቃ ትምህርት ቤት
የስነ-ትምህርትና ስነ-ባህርይ ጥናት ኮሌጅ
ሒሳብ ስነ-ትምህርት ት/ክፍል

መመሪያ፡- የዚህ መጠይቅ ዓላማ ተማሪዎች ለሒሳብ ትምህርት አስፈላጊነት ያላቸው አመለካከት፣በሒሳብ ትምህርት ያላቸው ግላዊ እሳቤ፣በሒሳብ ትምህርት ያላቸው ፍላጎት፣ሒሳብን መፍራት እና በሂሳብ ትምህርት ያላቸው መተማመን ከሒሳብ ውጤታቸው ጋር ያለውን ተዛምዶ ለመረዳትነው፡፡

ክፍል-1 :የግልሁኔታ

1. ጾታ፡ ወንድ ☐ ሴት ☐
2. የክፍል ደረጃ፡ ዘጠነኛ ☐ አስረኛ ☐
3. **የቤተሰብነባራዊሁኔታ፡**

3.1 **የኢኮኖሚ አቅም (ወርሃዊ ገቢ):** ከ2500 ብር በታች ☐ 2501-5000 ☐ ብር

ከ5000 ብር በላይ ☐

3.2 **የትምህርት ደረጃ፡**:

3.2.1 **የአባት:**ምንምያልተማረ ☐ እስከ አስር የተማረ ☐

እስከዲፕሎማ የተማረ ☐ እስከ ዲግሪ የተማረ ☐

እስከ ማስተረስና ዶክትሬት ዲግሪ የተማረ ☐

የተማሩት ትምህርት ከዲፕሎማ በላይ ከሆነ በምን ተመረቁ ?

ከሒሳብ ጋር ይያያዛል ☐ ከሒሳብ ጋር አይያያዝም☐

3.2.2 **የእናት** :- ምንም ያልተማረች ☐ እስከ አስር የተማረች ☐

እስከዲፕሎማየተማረች ☐ እስከ ዲግሪ የተማረች ☐

እስከ ማስተረስና ዶክትሬት ዲግሪየ ተማረች የተማረች ☐

የተማሩት ትምህርት ከዲፕሎማ በላይ ከሆነ በምን ተመረቁ?

ከሒሳብ ጋር ይያያዛል ☐ ከሒሳብ ጋር አይያያዝም☐

ክፍል-2፡ከዚህ በታች የተጠቀሱትን ጥያቄዎች በሚገባ በማንበብ የአንቺን/የአንተን የስምምነት ደረጃ በመክበብ መልሺ/መልስ 1 = በጣም አልስማማም, 2 = አልስማማም, 3 = ምንም አልወስንም, 4 = እስማማለሁእና 5 = በጣም እስማማለሁ)

Table 18

ክፍል-1 :ስለሒሳብትምህርትጠቀሜታ						
1.	ሒሳብ መማር ኑሮዬን ለማሻሻል ይረዳኛል፡፡	1	2	3	4	5
2.	ሒሳብ በኑሮዬ ላይ ለምሰራቸው ነገሮች አይጠቅመኝም፡፡	1	2	3	4	5
3.	ሳይንስና ቴክኖሎጂን ለማጥናት ሒሳብ ይጠቅመኛል፡፡	1	2	3	4	5
4.	የሒሳብ ትምህርት ተግባር ላይ የማይውል ነው፡፡	1	2	3	4	5

5.	የሒሳብ ትምህርት ጠቃሚና አስፈላጊ የትምህርት አይነት ነው።	1	2	3	4	5
6.	ሒሳብን መማር ጊዜ ማባከን ነው።	1	2	3	4	5
7.	የሒሳብ ትምህርት ብዙ ተግባራዊ ስራዎችን ለመሥራት እጠቀምበታለሁ።	1	2	3	4	5
8	ሁለተኛ ደረጃ ትምህርቴን ሳጠናቅቅ ሒሳብን የምጠቀምበት አይመስለኝም።	1	2	3	4	5
9	ለወደፊት ስራዬ ስለሚጠቅመኝ ሒሳብን በደንብ መረዳት አለብኝ ብዬ አስባለሁ።	1	2	3	4	5
10	ሒሳብ ነክ ጨዋታወችን ለመገንዘብ ሒሳብን በደንብ መማር ጠቃሚ አይደለም።	1	2	3	4	5
ክፍል-2፡ስለ ሒሳብ ትምህርት ያለህ/ያለሽ ግላዊ ግንዛቤ						
1.	በሒሳብ ትምህርት ውጤቴ ደስተኛ ነኝ።	1	2	3	4	5
2.	ሒሳብ ስሰራ ሲከብደኝ አብዛኛውን ጊዜ እተወዋለሁ።	1	2	3	4	5
3.	በሒሳብ ትምህርት ጥሩ ውጤት ለማምጣት የምፈልገውን ያህል እሰራለሁ	1	2	3	4	5
4.	በሒሳብ ትምህርት ውጤታማ አይደለሁም።	1	2	3	4	5
5.	አብዛኞቹ ተማሪዎች በሒሳብ ትምህርት ይበልጡኛል።	1	2	3	4	5
6.	የሒሳብ መምህሬ ጥያቄ ሲጠይቀኝ መመለስ እወዳለሁ።	1	2	3	4	5
7.	ብዙ ጊዜ ሒሳብ ትምህርትን መማር እንደሌለብኝ ይሰማኛል።	1	2	3	4	5
8	አቅሜ በፈቀደ መጠን የሒሳብ ትምህርትን ለመስራት ጥረት አደርጋለሁ።	1	2	3	4	5
9	የሒሳብ መምህሬ በሒሳብ ትምህርት ብቁ እንዳልሆንኩ ያስባሉ።	1	2	3	4	5
10	በሒሳብ ትምህርት ስራዎቼ ኩራት ይሰማኛል።	1	2	3	4	5
ክፍል-3፡በሒሳብ ትምህርት ጊዜ ያለህ/ያለሽ ፍላጎት በተመለከተ						
1.	በሒሳብ ትምህርት ጥሩ ውጤት ለማምጣት በቂ ጥረት አላደረግሁም።	1	2	3	4	5
2.	በሒሳብ ትምህርት ክፍለ ጊዜ አዲስ ነገር መማር ደስ ይለኛል።	1	2	3	4	5
3.	በሒሳብ ትምህርቴ ጎበዝ እንድሆን ከፍተኛ ጥረት አደርጋለሁ።	1	2	3	4	5
4.	አዲስ ነገር ለመማር ስል ፈታኝ የሆኑ የሒሳብ ስራዎችን ብሰራ እመርጣለሁ።	1	2	3	4	5
5.	የሒሳብ ትምህርት ስማር ፈታኝ ጥያቄዎችን መስራት አልፈልግም።	1	2	3	4	5
6.	የሒሳብ ትምህርት ስራዬን ከክፍል ውጭ አልሰራም።	1	2	3	4	5
7.	የሒሳብ ጥያቄ ለመስራት በራሴ እተማመናለሁ።	1	2	3	4	5
8	የሒሳብ ትምህርት መማር ስላለብኝ ብቻ ነው የምማረው።	1	2	3	4	5

9	በሒሳብ ትምህርት የነቃ ተሳትፎ አላደርግም፡፡	1	2	3	4	5
10	በሒሳብ ትምህርት የተሸለ ትኩረት ከሰጠሁ ላቅ ያለ ውጤት ማምጣት እችላለሁ፡፡	1	2	3	4	5
ክፍል-4 ፡ስለ ሒሳብ ትምህር ትፍርሀት						
1	የሒሳብ ትምህርት ስማር ምቾት ይሰማኛል፡፡	1	2	3	4	5
2	የሒሳብ ጥያቄን የመማሪያ ሰሌዳ ላይ ወጥቶ መስራት ይከብደኛል፡፡	1	2	3	4	5
3	በሒሳብ ትምህርት ላይ ጥያቄ ለመጠየቅ እፈራለሁ	1	2	3	4	5
4	ስለ ሒሳብ ትምህርት ሲወራ ይጨንቀኛል፡፡	1	2	3	4	5
5	የሒሳብ አስተማሪው በክፍል ውስጥ ሲያስረዳ የሚገባኝ ቢሆንም አስተማሪው ከክፍል ለቆ ሲወጣ ግን ሊከብደኝ ስለሚችል እጨናነቃለሁ፡፡	1	2	3	4	5
6	በሒሳብ ትምህርት ክፍ ለጊዜ ክፍል ውስጥ እገኛለሁ፡፡	1	2	3	4	5
7	የሒሳብ ትምህርት ፈተና ከሌላ ትምህርት የተለየ አያስፈራኝም፡፡	1	2	3	4	5
8	የሒሳብ ትምህርት ፈተና እንዴት መጠናት እንዳለበት አላውቅም፡፡	1	2	3	4	5
9	የሒሳብ ትምህርት ሳነብ ድካም አይሰማኝም፡፡	1	2	3	4	5
10	የክፍል ተማሪዎች በሒሳብ ትምህርት ያላቸው ፉክክር አያስፈራኝም፡፡	1	2	3	4	5
ክፍል-5 በሒሳብ ትምህርት ያለህ/ያለሽ የራስ መተማመን						
1	ሒሳብ መማር እንደምችል እርግ ጠኛ ነኝ፡፡	1	2	3	4	5
2	እኔ ከምማርበት ክፍል በላይ ያሉ የሒሳብ ጥያቄዎችን የምሰራ አይመስለኝም፡፡	1	2	3	4	5
3	የሒሳብ ትምህርት ለእኔ ከባድ ነው፡፡	1	2	3	4	5
4	ሒሳብ ስሰራ በራሴ እተማመናለሁ፡፡	1	2	3	4	5
5	በሒሳብ ትምህርት ጥሩ ውጤት ማምጣት እችላለሁ፡፡	1	2	3	4	5
6	የሒሳብ ትምህርት በደንብ መስራት አልችልም፡፡	1	2	3	4	5
7	የሒሳብ ትምህርት ለእኔ መጥፎ የሚባል የትምህርት አይነት ነው፡፡	1	2	3	4	5
8	ከበድ ያለ የሒሳብ ጥያቄ መስራት እንደምችል አስባለሁ፡፡	1	2	3	4	5
9	በሌላ ትምህርት ጎበዝ ብሆንም የሒሳብ ትምህርት ግን መስራትአልችልም፡፡	1	2	3	4	5
10	ሒሳብ በደንብ እንደምሰራ አውቃለሁ፡፡	1	2	3	4	5

School of Graduate Study
College of Education and Behavioral studies
Department of Mathematics

Objectives:-the main objectives of this questionnaire are to investigate the relationship of perceived importance of mathematics, motivation in learning mathematics, confidence in learning mathematics and mathematics anxiety and self concept to mathematics and mathematics achievement. Hence you are kindly requested to respond for each item through critical reading.

Part-one personal information

1. Sex: male ☐ Female ☐
2. Grade level Ninth ☐ Tenth ☐
3. Family background
   3.1 Economical status the family
   Below 2500 ☐ From 2500 -5000 ☐ above 5000 ☐
   3.2 Educational background
   4.2.1 Father"s ; not educated ☐ up to grade 10 ☐ to diploma ☐
   up to degree ☐ up to masters or doctoral degree ☐

If he is educated diploma or degree in what field he is graduated?
Related to mathematics ☐ not related to mathematics ☐
4..2.2 Mather"s ; not educated ☐ up to grade 10 ☐ up to diploma ☐
up to degree ☐ up to masters or doctoral degree ☐
If she is educated diploma or degree in what field he is graduated?
Related to mathematics ☐ not related to mathematic ☐

Part two the following items are formulated to investigate students perception on the usefulness of mathematics in their achievement and in future career and life goal motivation in learning mathematics, confidence in learning mathematics and mathematics anxiety and self concept to mathematics,. The items indicated the level at which students know the importance of mathematics. Therefore please read each item carefully and then put your own level of agreement or disagreement, with the items circle the number that best matches your attitudes or feelings about each affective factor to math.

1 = (SD) Strongly Disagree
2 = (D) Just Disagre
3 = (U) Unsure or no feelings one way or the other
4 = (A) Just Agree
5= (SA) Strongly Agree

Table 18.2

Perceived usefulness of mathematics						
	Question					
1.	Knowing mathematics will help me earn a living	1	2	3	4	5
2.	Math will not be important to me in my life's work.	1	2	3	4	5
3.	I'll need mathematics for my future work	1	2	3	4	5
4.	I don't expect to use much math when I get out of school	1	2	3	4	5
5.	Math is a worthwhile, necessary subject.	1	2	3	4	5
6.	Taking math is a waste of time.	1	2	3	4	5
7.	I will use mathematics in many ways as an adult.	1	2	3	4	5
8	I see mathematics as something I won't use very often when I get out of high school.	1	2	3	4	5
9	I'll need a good understanding of math for my future work	1	2	3	4	5
10	Doing well in math is not important for my future	1	2	3	4	5
Self –concept in mathematics						
1.	I am satisfied with my mathematics work	1	2	3	4	5
2.	I usually quite when my mathematics work is hard	1	2	3	4	5
3.	I am doing as well in mathematics as I would like to	1	2	3	4	5
4.	I am failure at mathematics	1	2	3	4	5
5.	Most boys and girls are smarter than I am in mathematics	1	2	3	4	5
6.	I like to be called on by teachers to answer questions	1	2	3	4	5
7.	I often feel like quitting mathematics	1	2	3	4	5
8	I am doing the best school mathematics that I can	1	2	3	4	5
9	My teacher feel that I am not good enough in mathematics	1	2	3	4	5
10	I am proud of my mathematics work	1	2	3	4	5
Motivation in learning mathematics						
1.	I usually spend great effort to accomplish my work in mathematics	1	2	3	4	5

2.	I enjoy learning new thing in mathematics class	1	2	3	4	5
3.	I have a strong desire to excel with mathematics	1	2	3	4	5
4.	I prefer working at mathematical problem which challenging so that I can learn new things out of it.	1	2	3	4	5
5.	I don˝t like challenging question when I learn mathematics	1	2	3	4	5
6.	When I have not done a task in the class then I usually give up.	1	2	3	4	5
7.	I often do something to prove that I can do in my self	1	2	3	4	5
8	I learn simply for the sake of learn in mathematics class	1	2	3	4	5
9	I want to get higher scores in math class, because I want to demonstrate my capability to my classmates	1	2	3	4	5
10	If I pay full attention in math class, I can get better grades.	1	2	3	4	5
	Mathematics Anxiety					
1	I cringe when I have to go to math class.	1	2	3	4	5
2	I am uneasy about going to the board in a math class	1	2	3	4	5
3	I am afraid to ask questions in math class	1	2	3	4	5
4	I am always worried about being called on in math class	1	2	3	4	5
5	I understand math now, but I worry that it's going to get really difficult soon	1	2	3	4	5
6	I tend to zone out in math class	1	2	3	4	5
7	I fear math tests more than any other kind	1	2	3	4	5
8	I don't know how to study for math tests	1	2	3	4	5
9	It's clear to me in math class, but when I go home it's like I was never there	1	2	3	4	5
10	I'm afraid I won't be able to keep up with the rest of the class	1	2	3	4	5
	Confidence in mathematics					
1	I am sure that I can learn math.	1	2	3	4	5
2	I don't think I could do advanced math.	1	2	3	4	5
3	Math is hard for me.	1	2	3	4	5

4	I am sure of myself when I do math	1	2	3	4	5
5	I can get good grades in math.	1	2	3	4	5
6	I'm not the type to do well in math.	1	2	3	4	5
7	Math has been my worst subject.	1	2	3	4	5
8	I think I could handle more difficult math	1	2	3	4	5
9	Most subjects I can handle OK, but I just can't do a good job with math.	1	2	3	4	5
10	I know I can do well in math.	1	2	3	4	5

Appendix D

Table 19 Independent Samples Test(SEX)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Achievement	Equal variances assumed	2.812	.096	2.047	155	.042	3.772	1.843	.131	7.413
	Equal variances not assumed			1.944	99.723	.055	3.772	1.940	-.078	7.621
Usefulness	Equal variances assumed	.002	.964	1.351	155	.179	.14472	.10709	-.06683	.35626
	Equal variances not assumed			1.358	118.251	.177	.14472	.10659	-.06636	.35579
Selfconcept	Equal variances assumed	.475	.492	1.721	155	.087	.20254	.11770	-.02997	.43504
	Equal variances not assumed			1.756	123.789	.082	.20254	.11536	-.02579	.43086
Motivation	Equal variances assumed	.017	.896	1.037	155	.302	.12372	.11935	-.11204	.35949
	Equal variances not assumed			1.040	117.692	.301	.12372	.11898	-.11190	.35935
Anxiety	Equal variances assumed	.087	.768	1.595	155	.113	.18420	.11548	-.04392	.41232
	Equal variances not assumed			1.588	115.090	.115	.18420	.11598	-.04553	.41394
Confidence	Equal variances assumed	.182	.671	1.942	155	.054	.24979	.12864	-.00432	.50391
	Equal variances not assumed			1.937	115.735	.055	.24979	.12896	-.00563	.50522

Appendix E

Table 21 Father‟s education level

Variable	Edu level	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Achievement	Illiterate	36	29.03	9.492	1.582	25.82	32.24	10	53
	Edu up to10	68	31.65	11.351	1.377	28.91	34.40	10	63
	Edu to diploma	22	31.82	13.719	2.925	25.74	37.90	10	60
	Edu to degree	27	33.89	11.547	2.222	29.32	38.46	15	58
	Edu to master or doctorate	4	28.13	1.250	.625	26.14	30.11	28	30
	Total	157	31.37	11.218	.895	29.60	33.14	10	63
Usefulness	Illiterate	36	4.0333	.75122	.12520	3.7792	4.2875	2.60	5.00
	Edu up to10	68	4.0320	.60127	.07291	3.8865	4.1776	2.44	5.00
	Edu to diploma	22	4.0515	.64985	.13855	3.7634	4.3396	2.60	5.00
	Edu to degree	27	4.1045	.64026	.12322	3.8513	4.3578	2.30	5.00
	Edu to master or doctorate	4	4.1111	.74569	.37284	2.9246	5.2977	3.00	4.60
	Total	157	4.0495	.64696	.05163	3.9475	4.1515	2.30	5.00
Selfconcept	Illiterate	36	3.4500	.78756	.13126	3.1835	3.7165	1.80	5.00
	Edu up to10	68	3.4776	.68850	.08349	3.3110	3.6443	1.80	5.00
	Edu to diploma	22	3.5384	.76132	.16231	3.2008	3.8759	1.90	4.80
	Edu to degree	27	3.6333	.64867	.12484	3.3767	3.8899	2.20	5.00
	Edu to master or doctorate	4	3.9403	.70960	.35480	2.8112	5.0694	3.10	4.80

	Total	157	3.5184	.71365	.05696	3.4059	3.6309	1.80	5.00
Motivation	Illiterate	36	3.7265	.79448	.13241	3.4577	3.9954	2.30	5.00
	Edu up to10	68	3.5851	.68206	.08271	3.4200	3.7502	1.80	5.00
	Edu to diploma	22	3.6854	.89827	.19151	3.2871	4.0836	1.40	5.00
	Edu to degree	27	3.8160	.56665	.10905	3.5919	4.0402	2.89	4.70
	Edu to master or doctorate	4	3.8250	.54391	.27195	2.9595	4.6905	3.40	4.60
	Total	157	3.6774	.71931	.05741	3.5640	3.7908	1.40	5.00
Anxiety	Illiterate	36	3.5571	.72321	.12054	3.3124	3.8018	1.80	4.80
	Edu up to10	68	3.4178	.65775	.07976	3.2586	3.5770	1.70	5.00
	Edu to diploma	22	3.4201	.88615	.18893	3.0272	3.8130	1.00	4.80
	Edu to degree	27	3.5012	.65401	.12586	3.2425	3.7600	2.30	4.60
	Edu to master or doctorate	4	3.4000	.52281	.26141	2.5681	4.2319	3.00	4.10
	Total	157	3.4640	.69926	.05581	3.3537	3.5742	1.00	5.00
Confidence	Illiterate	36	3.6019	.77744	.12957	3.3388	3.8649	1.80	5.00
	Edu up to10	68	3.5775	.75594	.09167	3.3946	3.7605	1.80	5.00
	Edu to diploma	22	3.5273	1.00173	.21357	3.0831	3.9714	1.00	4.80
	Edu to degree	27	3.5770	.73799	.14203	3.2850	3.8689	2.11	5.00
	Edu to master or doctorate	4	3.7771	.40124	.20062	3.1386	4.4155	3.38	4.33
	Total	157	3.5811	.78197	.06241	3.4578	3.7043	1.00	5.00

Appendix F

Table 22 Mother education level

Appendix H

Table 23 Reliability of the instrument

Variables	Edu level	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	max
						Lower Bound	Upper Bound		
Achievement	Illiterate	47	30.37	10.451	1.525	27.30	33.44	10	63
	Edu up to10	70	30.89	11.058	1.322	28.26	33.53	10	60
	Edu to diploma	21	31.90	12.572	2.744	26.18	37.63	10	53
	Edu to degree	16	35.94	12.345	3.086	29.36	42.52	18	58
	Edu to master or doctorate	3	30.00	12.500	7.217	-1.05	61.05	18	43
	Total	157	31.37	11.218	.895	29.60	33.14	10	63
Usefulness	Illiterate	47	3.9889	.65428	.09544	3.7968	4.1810	2.60	4.80
	Edu up to10	70	4.0781	.62780	.07504	3.9284	4.2278	2.30	5.00
	Edu to diploma	21	4.2037	.65069	.14199	3.9075	4.4999	2.60	5.00
	Edu to degree	16	3.9472	.72190	.18048	3.5625	4.3319	2.44	4.70
	Edu to master or doctorate	3	3.8000	.72111	.41633	2.0087	5.5913	3.00	4.40
	Total	157	4.0495	.64696	.05163	3.9475	4.1515	2.30	5.00
Self-concept	Illiterate	47	3.3903	.62855	.09168	3.2058	3.5749	1.80	4.70
	Edu up to10	70	3.4514	.73508	.08786	3.2762	3.6267	1.80	5.00

	Edu to diploma	21	3.8608	.72542	.15830	3.5306	4.1911	2.20	5.00
	Edu to degree	16	3.6819	.78204	.19551	3.2652	4.0987	2.00	4.80
	Edu to master or doctorate	3	3.8167	.16073	.09280	3.4174	4.2159	3.70	4.00
	Total	157	3.5184	.71365	.05696	3.4059	3.6309	1.80	5.00
Motivation	Illiterate	47	3.5352	.72188	.10530	3.3232	3.7471	1.80	5.00
	Edu up to10	70	3.6159	.73209	.08750	3.4413	3.7904	1.40	5.00
	Edu to diploma	21	4.0381	.65013	.14187	3.7422	4.3340	2.56	5.00
	Edu to degree	16	3.7868	.62808	.15702	3.4521	4.1215	2.50	4.70
	Edu to master or doctorate	3	4.2333	.40415	.23333	3.2294	5.2373	3.80	4.60
	Total	157	3.6774	.71931	.05741	3.5640	3.7908	1.40	5.00
Anxiety	Illiterate	47	3.3624	.65974	.09623	3.1687	3.5561	1.80	4.80
	Edu up to10	70	3.3831	.74395	.08892	3.2057	3.5605	1.00	5.00
	Edu to diploma	21	3.8788	.56349	.12296	3.6223	4.1353	2.30	4.80
	Edu to degree	16	3.6271	.64821	.16205	3.2817	3.9725	2.33	4.60
	Edu to master or doctorate	3	3.1667	.28868	.16667	2.4496	3.8838	3.00	3.50
	Total	157	3.4640	.69926	.05581	3.3537	3.5742	1.00	5.00
Confidence	Illiterate	47	3.4494	.73359	.10701	3.2340	3.6648	1.80	4.70
	Edu up to10	70	3.5512	.83334	.09960	3.3525	3.7499	1.00	5.00
	Edu to diploma	21	4.0159	.57519	.12552	3.7540	4.2777	2.80	5.00
	Edu to degree	16	3.4179	.79382	.19846	2.9949	3.8409	2.11	4.67
	Edu to master or doctorate	3	4.1667	.41633	.24037	3.1324	5.2009	3.70	4.50
	Total	157	3.5811	.78197	.06241	3.4578	3.7043	1.00	5.00

	Variable	N of Items	Cronbach's Alpha
1	All variables	50	0.914
2	Usefulness	10	0.651
3	Self-concept	10	0.747
4	Motivation	10	0.765
5	Anxiety	10	0.675
6	Confidence	10	0.820

Table 24 Reliability of the achievement test

		N of Items	Reliability
1	Achievement test of grade 9	40	0.62
2	Achievement test of grade 10	40	0.52

Table 25 Normality of the instrument (questionnaire)

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
VAR00001	40	.00	5.00	3.9000	.95542	-1.020	.374
VAR00002	40	1.00	5.00	4.1000	1.17233	-1.008	.374
VAR00003	40	.00	5.00	3.3000	1.50555	-.780	.374
VAR00004	40	.00	5.00	4.2750	1.10911	-1.025	.374
VAR00005	40	1.00	5.00	4.3750	.92508	-1.068	.374
VAR00006	40	1.00	5.00	4.4000	.87119	-1.026	.374
VAR00007	40	1.00	5.00	3.8000	.99228	-.902	.374
VAR00008	40	1.00	5.00	3.7750	1.09749	-.875	.374
VAR00009	40	2.00	5.00	4.0500	.84580	-.901	.374
VAR00010	40	2.00	5.00	4.2750	.67889	-.920	.374
VAR00011	40	1.00	5.00	2.5250	1.26060	.587	.374
VAR00012	40	.00	4.00	2.6000	1.29694	-.232	.374
VAR00013	40	.00	5.00	3.3250	1.36603	-.565	.374
VAR00014	40	1.00	5.00	3.0000	1.37747	-.124	.374
VAR00015	40	1.00	5.00	3.1250	1.28477	-.016	.374
VAR00016	40	1.00	5.00	3.3000	1.30482	-.083	.374
VAR00017	40	1.00	5.00	4.1250	1.06669	-1.028	.374
VAR00018	40	1.00	5.00	3.8750	1.09046	-1.014	.374
VAR00019	40	.00	5.00	3.2500	1.25576	-.583	.374
VAR00020	40	1.00	5.00	2.6250	1.21291	.146	.374
VAR00021	40	.00	5.00	3.2750	1.35850	-.465	.374
VAR00022	40	1.00	5.00	3.6250	.97895	-.715	.374
VAR00023	40	1.00	5.00	3.7500	1.08012	-1.012	.374
VAR00024	40	1.00	5.00	3.2250	1.31046	-.008	.374
VAR00025	40	.00	5.00	2.8250	1.43021	.158	.374
VAR00026	40	1.00	5.00	3.5000	1.13228	-.781	.374
VAR00027	40	1.00	5.00	2.9000	1.39229	.247	.374
VAR00028	40	.00	5.00	3.2250	1.44093	-.524	.374
VAR00029	40	.00	5.00	2.9750	1.32988	-.021	.374
VAR00030	40	1.00	5.00	3.8750	1.20229	-.959	.374
VAR00031	40	1.00	5.00	2.9750	1.32988	.117	.374
VAR00032	40	1.00	5.00	3.2000	1.26491	-.077	.374
VAR00033	40	1.00	5.00	3.5000	1.24035	-.636	.374
VAR00034	40	.00	5.00	2.9000	1.42864	-.093	.374
VAR00035	40	1.00	5.00	3.0000	1.30089	.147	.374
VAR00036	40	1.00	5.00	4.1500	1.07537	-1.225	.374
VAR00037	40	1.00	5.00	3.1000	1.35495	-.060	.374
VAR00038	40	1.00	5.00	2.9000	1.37375	.064	.374
VAR00039	40	.00	5.00	2.8750	1.30458	-.341	.374
VAR00040	40	1.00	5.00	3.3750	1.16987	-.492	.374
VAR00041	40	1.00	5.00	3.8750	1.24422	-1.265	.374
VAR00042	40	.00	5.00	2.7500	1.27601	-.049	.374
VAR00043	40	1.00	5.00	3.2250	1.38652	-.304	.374
VAR00044	40	1.00	5.00	3.3000	1.22370	-.260	.374
VAR00045	40	.00	5.00	3.3250	1.49164	-.886	.374
VAR00046	40	.00	5.00	2.9000	1.37375	-.249	.374
VAR00047	40	1.00	5.00	3.2500	1.31559	-.418	.374
VAR00048	40	1.00	5.00	3.0250	1.36790	.016	.374
VAR00049	40	1.00	5.00	3.1000	1.37375	-.376	.374
VAR00050	40	1.00	5.00	3.4000	1.44648	-.379	.374
Valid N (listwise)	40						

Appendix I

Table 26

Multiple Comparisons						
Dependent Variable: motivation LSD						
(I) mother education	(J) mother education	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Illiterate	Up to grade ten	-.08069	.13338	.546	-.3443	.1829
	Up to diploma	-.42366*	.20018	.036	-.8192	-.0281
	Up to degree	-.25164	.20472	.221	-.6562	.1529
	Masters or doctoral	-.69817	.42119	.100	-1.5305	.1342
Up to grade ten	Illiterate	.08069	.13338	.546	-.1829	.3443
	Up to diploma	-.34297	.19124	.075	-.7209	.0350
	Up to degree	-.17095	.19599	.385	-.5583	.2164
	Masters or doctoral	-.61748	.41702	.141	-1.4416	.2066
Up to diploma	Illiterate	.42366*	.20018	.036	.0281	.8192
	Up to grade ten	.34297	.19124	.075	-.0350	.7209
	Up to degree	.17202	.24636	.486	-.3148	.6589
	Masters or doctoral	-.27451	.44293	.536	-1.1498	.6008
Up to degree	Illiterate	.25164	.20472	.221	-.1529	.6562
	Up to grade ten	.17095	.19599	.385	-.2164	.5583
	Up to diploma	-.17202	.24636	.486	-.6589	.3148
	Masters or doctoral	-.44653	.44500	.317	-1.3259	.4328
Masters or doctoral	Illiterate	.69817	.42119	.100	-.1342	1.5305
	Up to grade ten	.61748	.41702	.141	-.2066	1.4416
	Up to diploma	.27451	.44293	.536	-.6008	1.1498
	Up to degree	.44653	.44500	.317	-.4328	1.3259
*. The mean difference is significant at the 0.05 level.						

Appendix J

Table 27

Multiple Comparisons						
Dependent Variable: anxiety LSD						
(I) mothereduc	(J) mothereduc	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Illiterate	Up to grade ten	-.02072	.13046	.874	-.2785	.2371
	Up to diploma	-.51144*	.19579	.010	-.8983	-.1245
	Up to degree	-.26467	.20023	.188	-.6604	.1310
	Masters or doctoral	.19574	.41195	.635	-.6183	1.0098
Up to grade ten	Illiterate	.02072	.13046	.874	-.2371	.2785
	Up to diploma	-.49072*	.18705	.010	-.8604	-.1211
	Up to degree	-.24395	.19170	.205	-.6228	.1349
	Masters or doctoral	.21647	.40787	.596	-.5895	1.0225
Up to diploma	Illiterate	.51144*	.19579	.010	.1245	.8983
	Up to grade ten	.49072*	.18705	.010	.1211	.8604
	Up to degree	.24677	.24096	.307	-.2294	.7229
	Masters or doctoral	.70719	.43321	.105	-.1489	1.5633
Up to degree	Illiterate	.26467	.20023	.188	-.1310	.6604
	Up to grade ten	.24395	.19170	.205	-.1349	.6228
	Up to diploma	-.24677	.24096	.307	-.7229	.2294
	Masters or doctoral	.46042	.43524	.292	-.3997	1.3205
Masters or doctoral	Illiterate	-.19574	.41195	.635	-1.0098	.6183
	Up to grade ten	-.21647	.40787	.596	-1.0225	.5895
	Up to diploma	-.70719	.43321	.105	-1.5633	.1489
	Up to degree	-.46042	.43524	.292	-1.3205	.3997
*. The mean difference is significant at the 0.05 level.						

Appendix k

Table 28

Multiple Comparisons						
Dependent Variable: confidence LSD						
(I) mothereduc	(J) mothereduc	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Illiterate	Up to grade ten	-.10178	.14450	.482	-.3873	.1838
	Up to diploma	-.45843*	.21687	.036	-.8870	-.0299
	Up to degree	.03153	.22179	.887	-.4068	.4698
	Masters or doctoral	-.71726	.45630	.118	-1.6190	.1845
Up to grade ten	Illiterate	.10178	.14450	.482	-.1838	.3873
	Up to diploma	-.35665	.20719	.087	-.7661	.0528
	Up to degree	.13331	.21233	.531	-.2863	.5529
	Masters or doctoral	-.61548	.45178	.175	-1.5083	.2773
Up to diploma	Illiterate	.45843*	.21687	.036	.0299	.8870
	Up to grade ten	.35665	.20719	.087	-.0528	.7661
	Up to degree	.48996	.26690	.068	-.0375	1.0174
	Masters or doctoral	-.25882	.47985	.590	-1.2071	.6894
Up to degree	Illiterate	-.03153	.22179	.887	-.4698	.4068
	Up to grade ten	-.13331	.21233	.531	-.5529	.2863
	Up to diploma	-.48996	.26690	.068	-1.0174	.0375
	Masters or doctoral	-.74878	.48210	.123	-1.7015	.2039
Masters or doctoral	Illiterate	.71726	.45630	.118	-.1845	1.6190
	Up to grade ten	.61548	.45178	.175	-.2773	1.5083
	Up to diploma	.25882	.47985	.590	-.6894	1.2071
	Up to degree	.74878	.48210	.123	-.2039	1.7015
*. The mean difference is significant at the 0.05 level.						

Declaration

I, under signed, hereby declare that this thesis is my original work done under the guidance Mulugeta.A (PhD)

Name Belete Abebaw Signature_____

Date_____

This thesis has been submitted for the examiners with my approval as a university advisor

Mulugeta.A (PhD) Signature _____

Date_____

November 2014

Addis Ababa University