Ethiopian Journal of Behavioral Studies, 2018, 1 (1), 47-66

Mother Involvement in the Education of Children in Addis Ababa Primary Schools: Development and Validation of a Measure

Tamirie Andualem

Abstract: *Parental involvement in the education of children in school, in and outside of home has been universally accepted phenomena for children's utmost academic, social and personality development since mainly Bronfenbrunner's (1979) conceptualization of children's contextual development. In a country like Ethiopia where raising children is more of traditional, and knowledge emanating from reputable research findings to change this tradition is scarce, development, validation and standardization of an instrument for assessing parental involvement in education is a vital endeavor. Most of the studies made by the graduate students on parenting have been a crude Amharic translation of the foreign instrument without proper standardization and validation. Development of Amharic Mother Educational Involvement in Addis Ababa primary school second cycle students has been made in this study taking the following major stages: observation of schools and review of literature, development of a pool of items, and correlation and factor analysis. Mother educational involvement was found to be multidimensional phenomena (using exploratory and confirmatory factor analysis); with average reliability coefficient of the global scale was .91. While child's sex was not related to mothers' involvement, there was statistically significant correlation between mother educational level, age and grade of students, and type of schools and mother involvement. Similar to previous theoretical and empirical studies, as a sign of validity, this instrument come up with the data that mothers are more involved for younger children, when they have more education and from private schools.*

Background

Theoretical background of parental involvement

Traditional parental responsibilities such as feeding, and giving love and care are no more enough for the complete development of the child in this modern and complex world. Apart from sending children to school, parents are expected to actively take part in the children's learning both at school and at home. The responsibility of parents in the overall education of children is known in the child-education literature as parental involvement.

Joyce L. Epstein is one of the pioneers in the history of conceptualization of parental involvement. Epstein (1995) views parental involvement from the perspective of what schools do to help parents participate in improving the educational attitude and behaviour of students. Epstein (1995), in her widely quoted article known as School/family/community Partnerships: Caring for the Children We Share, presented six-types-of-involvement: parenting, communicating, volunteering, learning at home, decision-making in schools, and collaborating with community.

While Epstein (1995) views parental involvement from what mainly schools initiate and organize, a different conceptualization of parental involvement that is initiated mainly by parents was presented by Grolnick and Slowiaczek (1994). The former is generally named as school involvement and the latter as home involvement.

Published studies carried out locally on educational involvement of parents are scarce. The literature search conducted for this study found only Marew (2004) in the body of the peer-reviewed literature on this subject. The only other research works in this area are in the form of MA thesis (e.g., Admassu, 2004) or unpublished papers presented at academic conferences (e.g. Kassahun, 2010). Apart from this, Belay's (2008) critical and comprehensive

treatment of the role of fathers' involvement on the psychological development of adolescents, as a complex and multidimensional phenomenon, and Teka's (2002) systematic investigation on the role of mothers' involvement on the child's development are worthy of special note as they provide useful background knowledge on the role of parents in the overall development of children and adolescents in Ethiopia.

Even if the importance of general parental involvement in the education of children is not at issue, its meaning, its causes and consequences, and how it is measured and its validity still remain controversial.

Validating a measure

The theorization of Cronbach & Meehl (1955) on construct validation in reference to theory of the construct is the leading authority for validation studies. It is nearly impossible to get a credible psychological testing book that does not refer to these authors. According to these authors, "if the data does not go with the prediction" of the researcher, there are three ways of interpreting this: "the test does not measure the construct variable, the theoretical network which generated the hypothesis is incorrect, and the experimental design failed to test the hypothesis properly."(p70).

From this theoretical framework, we can understand that if the data does not confirm the hypothesis, with the assumption that the theory or hypothesis is meaningful, the problem must be from the measurement of the variable(s), or the analysis of the relationship of the variables. In other words, if the theory of the relationship between variables is valid, and the data (result) shows this, it means that the measurement and analysis of the data is also valid.

Statement of the Problem

There are several studies carried out by graduate students on the relationship of parental involvement and children's academic achievement with disparate findings, taking different measures of parental involvement. For instance, Alemayehu (2010) found a correlation as significant as .70 while Anteneh (2012) found no correlation. These and other accessed studies locally and globally are not based on a valid instrument and standardized procedure of collecting data that could help to compare results. Even a peer reviewed or published article by Marew (2004) is based on an instrument that lack proper development and validation procedures. Furthermore, almost all MA theses (Admasu, 2004; Getachew 2006; Asamenew, 2006; Alemayehu, 2010; Anteneh, 2012) conducted their studies using different self-made instruments that are not validated in the proper sense of the term.

Developing and validating a parental involvement questionnaire carefully, systematically and following the state of the art in the discipline, therefore, could play its role in alleviating challenges surrounding parental involvement studies. Hill and Taylor (2004, p163) emphasize this problem by stating that in spite of the "recent advances in conceptualizing and studying parental school involvement, there are still challenges" such as "lack of agreement about definitions and measurement inconsistencies, making it difficult to compare findings across studies".

Shortage of teaching material or reference material for a course in instrument development

The graduate program in Measurement and Evaluation in the School of Psychology, the former Department of Psychology, of the Addis Ababa University took almost two decades before it developed a valid and standardized instrument that could be used as a guide for students who would wish to work in this area, including by developing questionnaires or scales, or as a teaching material for courses in test construction or instrument development. In other words, the shortage of local-research based teaching material or reference material for instrument development course in the School of Psychology graduate program has contributed its part for this research to be made.

Problem of conceptualization of studies targeted at testing a theory:

Most of the studies (published or otherwise) in Ethiopia which this researcher read or attended to could be grouped under empirical studies, or "problem solving" type works, executed through the testing of a theory developed in other countries. The essential element in empirical study is the quality of observation or measurement or the data quality. If the researchers lack full mastery of the tools with which to assess data quality, it will be impossible to test an existing theory, let alone lay the foundations for a new and culture-sensitive theory to replace the old and general theory.

The process of quality assessment of quantitative data is essentially an effort to measure its reliability and validity. However, this is not a concept without its own challenges either. Reporting Cronbach alpha reliabilities as low as .60 as an adequate coefficient is being repeated these days, probably quoting Yalew (1999). Yalew (1999) presented it in his book about research methods, which he wrote in Amharic. Unless sufficient explanation is given, reporting reliabilities as low as .60 means 40% of the data is due to random error (Brown, 1984; Kerlinger, 1986; Nunnally & Bernstein, (1994)). When this much random error is seen in addition to the unreported systematic error, one cannot hope to gain much insight by proceeding to read and evaluate the analyses and interpretations based on such data.

This research, therefore, will be directed at answering the following research questions.

1. What are the indicators of maternal involvement in the education of children in Addis Ababa Primary Schools?
2. What is the level of consistency of the maternal involvement measure in Addis Ababa Primary Schools?

2.1 What is the interrater reliability of the scores quality of indicators of maternal involvement?

2.2 What is the internal consistency of scores of maternal involvement?

2.3 What is the stability of the scores of maternal involvement measure?

3. What is the validity of maternal involvement questionnaire?

3.2 What is the relationship between maternal involvement and age of children?

3.3 What is the difference between government and private school mother?

3.4 Is maternal educational level related to level of involvement?

3.5 Is maternal involvement different across sex of the children?

4. What is the level of maternal involvement in the education of children in Addis Ababa?

Method

The Population

This study is conducted in Addis Ababa, which has a population of over 3 million (almost a quarter of the urban population in the country), and is divided into 10 sub-cities (projection of CSA, 2008).

As regards the population of the study there are 474,875 students, with almost 70% of the students attending in government schools and another 24% in private schools. The remaining 6% go to schools run by religious missionaries, Churches, Mosques, NGOs (Others), and Foreign communities (Educational Statistics Annual Abstract 2003EC/2010/11 of Addis Ababa City Government).

Sample size

As this research has instrument development and validation as its major component, different stages of data collection and analysis were carried out, which required different sample size to each stage.

When nearly 40 sample size was used for the first stage of the study, the last stage of the sample size was 1500. Sample size of around 1500 students was used based on the premise that each cell will have at least a sample size of 30 (it is a minimum criteria to apply parametric correlation test) in each cell, where each cell will be one of the following: sex of the student (two categories -male and female) X Grade (four

categories - grade 5, 6, 7, & 8) X School type (two categories, government and non-government) X Educational Status (four categories, Illiterate, Primary education, Secondary education, College and above) X Intactness of the parents (three categories, single parent, both parent, and others).

Procedures of Instrument Development and Validation

Step1: Definition of the construct

Review of related literature, observation of parent teacher conference and interview of teachers helped to define the construct. The definition of the construct, parental involvement in education, was given in the first chapter of this paper.

Step 2: Item generation and format selection

In this step the writer reviewed different scales and questionnaires developed locally (Admasu, 2004; Kassahu, 2010; Marew, 2004;) and overseas (Fantuzzo, Tighe, & Childs, 2000; Grolnick & Slowiaczek, 1994; Manz et al., 2004 & Rogers et al., 2009). Most of the tools used or developed by these authors are meant for assessing the general parental involvement that includes what is being done at school, at home and between these two institutions.
In addition to looking into other instruments, this writer consulted four government documents having some activities parents should do for the education of children (MOEd, 1999a; MOEd, 1999b; Addis Ababa Education Bureau, 2004EC; *Arada* Sub-city Administration Education Bureau, 2005EC).

Step 3: Expert review of the items

Five university instructors who conducted research on parental involvement or give courses on developmental psychology (experts who conducted research on the area) rated the extent to which 42 items of the English version measure the construct of parental involvement. The raters were given the purpose of the questionnaire and tentative definition of the construct and major literatures of the area. The raters were requested to rate the items in two dimensions, relevance and clarity, and to select in terms of three options (very relevant, relevant or very clear, clear and not clear). The raters were also given open-ended space to give comments about the items. After the raters returned the questionnaire inter-raters agreement analysis was made using content validity ratio (CVR) and found to be .80 which is, according Lawshe (1975), is a good index. Based on the comments of the reviewers and the inter-rater agreement coefficient, 35 items for the next stage were selected. Further analysis is presented in the Results section.

Step 4: Stability analysis of the construct measure

The Amharic version of the 35 items test was given to 40 students in grade 6 government school (*Hamle* 19 in Kolfe Keranio Sub-city) students around mid October 2013 within time interval of 8 days and the test retest reliability was calculated to be .69
Another test retest was performed on 87 students of Ethiop Japan students in an interval of one month from November 2 to December 1, 2013. In this part the number of items was reduced to 25 items. The test-retest reliability for mother involvement data was .76 and for father involvement data was .77.

Step 5: Structural analysis of the questionnaire

At this stage psychometric qualities such as reliability (test-retest, internal consistency using Cronbach alpha), and validity (factorial validity) were determined. Stratification variables such as grade, sex of children and parents, ownership of schools (private, government and public), SES of the schools (in terms of payments made by students and to teachers) will be considered at this stage.
Exploratory data analysis was carried out again for this sample before going to reliability and other advanced analysis.
Factor analysis: On the data of the sample exploratory analysis of the number of factors or dimensions of the construct were made. After the number of factors was explored through EFA,

confirmatory factor analysis was carried out using Structural Equation Modelling analysis (AMOS).

By using exploratory factor analysis, determination of the most parsimonious factor structure was assessed orthogonal (varimax) rotations. Factor structures were evaluated according to standard multiple criteria (McDermott, 1993 as cited in Manz et al., 2004): (a) eigenvalues of the unrotated factors are to be greater than or equal to 1; (b) the rotated factor solution is expected to meet the criteria of Scree test; (c) the degree of the variance accounted for by a factor in relation to the total scale variance will be considered; (d) each factor is expected to demonstrate adequate internal consistency.

Step 6: Correlation analysis of the data

As one aspect of validation (e.g., Campbell & Fiske (1959)'s multi-trait multi-method matrix (MTMM)), correlation analysis of different variables (age of the child, educational level of parents, school type by ownership of schools, and academic achievement) with parental involvement was carried out. The data of these variables were collected using different methods, students' self-report (parental involvement data, educational level of parents), school record (academic achievement of students), and education government offices (percentage of passed and failed students in the private and government schools).

School record academic achievement scores of 153 students in one government school (Ethio-Japan primary school) from grade 5 to 8 were collected and correlated with parental involvement data.

Step 7: Standardization of the instrument

This is the final stage of the study. The instrument that was developed and validated in the former stages was administered to a sample of 1505. Stratifications considered in the previous stage will be used in this stage too. Apart from the stratification variables considered, parents or students demographic variables (including educational level of parents, work condition, religion, family size, family structure, and marital status) were used in the standardization of the instrument.

Procedures of Data Collection

Data were collected by using teachers in the respective schools. Training was given to the data collectors for an hour before the data was collected.

During administration of the questionnaire, the researcher supervised two assistants (one from government school and the other from private school) when they were implementing the data collection process.

It was learned from data collectors that more guidance was given to especially lower grades and some government school students, as to how to fill in the questionnaire. For example, taking the first item and writing it on the board with the options, the administrator guided them how to fill in the questionnaire. Students with one parent or substitute do not fill in both sides of the questionnaire.

Students were guided to fill in on both sides of the questionnaire, with left column for mother's or her substitute and on the right column for father or his substitute.

In addition to the parent involvement data, other data (e.g., sex) were collected to make validation of the instrument.

Results

This section has three parts: Reliability Analysis, Factorial Analysis and Relational analysis. Under Reliability Analysis we will see the reliability coefficients for different groups. In Factorial Analysis part, the number of factors, the items associated to each factor and factor structure in the different category of respondents are treated. The final part of this section is a result showing validity analysis.

Reliability Analysis

As this study is fundamentally instrument development, reliability analysis is given wider treatment in this study. Different forms of reliability and reliability of the data across different groups is treated below.

Reliability Analysis of Students' Perception of Mother Involvement Data

Internal Consistency Reliability of Mother's involvement data was found to be .915.

Table 1: *Reliability Analysis Across Different Groups of Respondents*

		Alpha
Sex of the child	Girls	.92.
	Boys	90
Grade level	5	.91
	6	.91
	7	.92
	8	.91
Mother's educational level	No schooling	.94
	Primary school	.90
	Secondary school	.91
	Higher education: Diploma	.89
	Higher education: First Degree	.87
	Higher education: Second degree and above	.87
School status	Government	.93
	Private	.88
Grand total		.92

The minimum Cronbach alpha reliability (.87) is obtained from higher education mothers and the minimum split half reliability (.82) is obtained from mothers with first degree.

Table 2: *Subscale Reliability Analysis*

Subscales	Number of items (k)	Mother's involvement
Parenting	4	.60
Communication with teachers and others	4	.73
Management of play and time	6	.75
Support and supervision at home	11	.83

Standard error of the reliability for the parenting subscale is, with n = 856 and r_{xx} = .65, $Sr_{xx} = [1 - r_{xx}^2] / \sqrt{(n-1)}] = [1 - .65]/ \sqrt{(856-1)} = .35 / 29 = .012$, which means 95 percent of the samples will result in reliabilities within .63 and .67

Test Retest Reliability of Involvement Data

Test retest reliability was made two times. The first was made to the 35 items that were selected after the experts review, and it was found to be 0.69. The second stability coefficient was made on the last 25 items and it was found to be 0.76.

Theta Reliability Index

Theta reliability index is sometimes called composite reliability index. This index is computed when the unidimensionality of the variable is not assumed. As factor analysis was carried out to assess the dimensionality of the construct, reliability analysis using largest Eigen value was carried out as follows.

Table 3: *Theta Reliability Index of Mother Involvement*

Eigen value				Theta (θ) Reliability
Comp. 1	Comp. 2	Comp. 3	Comp.4	
7.87	1.35	1.20	.99	.91

Theta is calculated using the following formula, [k/(k-1)][1-1/λ], where k is the number of items in the scale and λ is the first (largest) Eigen value from principal components model analysis (Tao & Fan, 2013).

Mother Involvement Dimensions

Factor structure of Maternal Involvement Data

In order to condense the 25 items into meaningful components, first the exploratory factor structure was run for both father and mother involvement data. Following this, confirmatory factor was performed for confirming the stability of the factors extracted by the exploratory method.

Table 4: *Factor Analysis of Mother Involvement Data*

	Component			
	1	*2*	*3*	*4*
1.Discusses curricular and extracurricular activities I learned at school.	*.637*			
2.Tells me personal stories, stories from books, or other stories related to education	*.588*			
3.Makes ready educational materials when needed				*.725*
4.Helps me to set realistic learning goals or plans	*.463*			
5.Forces me to read or study even when I am not motivated to			*.531*	
6.Makes sure that a conducive learning/study environment is created at home	*.445*		*.349*	
7.Supervises cleanliness of the clothes and body parts before going to and after coming from school			*.617*	
8.Make ready for what is to be eaten and drunk before, during and after school time			*.599*	*.343*
9.Buys educational materials (both necessary and accessory) at my will	*.346*			*.621*
10.Sends comments and queries in writing or through telephone to my teachers or school management members	*.731*			
11.Asks me about teacher's teaching method	*.589*			
12.Communicates to me his/her high expectation of my educational future	*.393*	*.312*		*.356*
13.Contacts teachers to know about my education	*.640*			
14.Talks with neighbors or my friends or their parents about my education.	*.389*	*.357*		
15.Checks up my test results				*.501*
16.Praises me for my high performance in school		*.324*		*.483*
17.Checks exercise books that I used at school	*.487*		*.358*	
18.Limits the amount of time I watch TV (drama, football, music, etc).		*.645*		
19.Limits time spent on mobile or computer games.		*.720*		
20.Limits time spent with friends playing.		*.708*		
21.Helps me in having regular sleeping schedule		*.511*	*.417*	
22.Checks where I am after and before school		*.344*	*.462*	

23.Helps me with my homework.	*.481*		*.422*
24.Ask me who my friends are and how they do in their schooling	*.302*	*.356*	
25.Checks on whether I had completed my homework.	*.450*		*.477*

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Total variance explained is 46.34%

Confirmatory Analysis Result

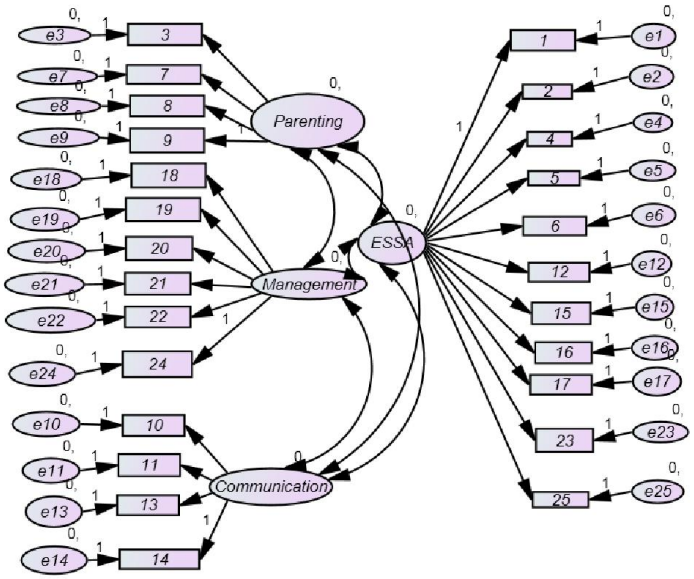

Figure 1: Factor structure of parental involvement in children's education

A RMSEA values less than .05 indicate a good fit (Brown & Cudeck, 1993 in Byrne, 2001, p85) and Interval of ECVI .773 to 1.034 is a good fit (Byrne, 2001, p87).

The factor analysis presented above resulted in the following feature of parental involvement.

Table 5: *Names and Structures of the Twenty Five Items*

Structure/Scale	Items code	Number of items
Parenting	3.Makes ready educational materials when needed 7.Supervises cleanliness of the clothes and body parts before going to and after coming from school 8.Make ready for what is to be eaten and drunk before, during and after school time 9.Buys educational materials (both necessary and accessory) at my will	***4***
Communication with teachers, friends, and relatives	10.Sends comments and queries in writing or through telephone to my teachers or school management members 11.Asks me about teacher's teaching method 13.Contacts teachers to know about my education 14. Talks with neighbours or my friends or their parents about my education.	***4***
Management of play and time	18. Limits the amount of time I watch TV (drama, football, music, etc). 19. Limits time spent on mobile or computer games. 20. Limits time spent with friends playing. 21.Helps me in having regular sleeping schedule 22.Checks where I am after and before school 24.Ask me who my friends are and how they do in their schooling	***6***
Educational support and supervision at home	1.Discusses curricular and extracurricular activities I learned at school 2.Tells me personal stories, stories from books, or other stories related to education 4.Helps me to set realistic learning goals or plans 5.Forces me to read or study even when I am not motivated to 6.Makes sure that a conducive learning/study environment is created at home 12.Communicates to me his/her high expectation of my educational future 15.Checks up my test results 16.Praises me for my high performance in school 17.Checks exercise books that I used at school 23. Helps me with my homework. 25. Checks on whether I had completed my homework.	***11***

Validation Using Relationship of Variables

As presented in the literature part of this paper, validation of an instrument is a continuous process (rather than one shot-activity), based on different sources of data, expressed by multiple indicators than single statistical coefficient.

To reiterate the major activities, processes used to pool indicators or items, expert evaluation of the items, tryout of the items, internal consistency (to be assessed using reliability and factor analysis) of the scores of the items, and relational analysis of the scores of the instrument. With the exception of the last one, relational analysis of the scores of the instrument, the others were presented before this section.

The relational analysis of the data (which is coined by AERS, APA, NCE (1999) as "Evidence based on relations to external variables") will be structured into: correlation of mother's and father's involvement, correlation of involvement and age or grade level of the child, correlation of parental involvement and the status of the school (private or government), correlation of parental involvement with educational level of parents, parental involvement and academic achievement.

The Correlation of Age and Involvement

Correlations of mothers' and fathers' involvement were made using both correlation coefficients. The correlation of age and involvement in Pearson's and Spearman's coefficient, respectively, are -.324 ($p<.05$) and -.281($p<.05$).

Difference Between Groups of Respondents on Maternal Involvement

This analysis is sometimes called as "Groups Difference Validity" (Allen & Yen, 1979; Cohen & Swerdlik, 1999; Payne, 1992; Linn & Gronlund, 2010)

Difference between government and private schools

The difference between government and private schools in their parental involvement was assessed using ANOVA (given that the correlation coefficient between the two dependent variables, mothers' and fathers' involvement, is .72 as indicated above). As descriptive statistics is to be presented before the inferential statistics, the following table is presented to this effect.

Table 6: *Descriptive Statistics of Mother Involvement in Government and Private Schools*

School type: Government or Private	Mean	Std. Deviation	N
Government	76.3796	15.80668	245
Private	81.6072	11.84621	471
Total	79.8184	13.55251	716

As seen in the table above, the involvement of fathers and mothers in private schools is more than government schools, by close to 5 points, in a scale of 100 points. The statistical significance and degree of association is assessed in the following table.

Parental Involvement and Academic Achievement

The relationship between parental involvement and academic achievement was assessed in two ways. The first is correlating academic achievement scores of some students with their perceived parental involvement. The second is comparing the frequency of failed and passed students in grade eight examinations (region based test, which could be called as partially standardized test) in both government and private schools.

The correlation of mother involvement and academic achievement (r =.02) is not correlated with statistical significance This result is consistent when dimensions of parental involvement are considered as presented in the following table.

Table 7: *Correlation of Components of Mother Involvement and Academic Achievement*

		Academic achievement	Parenting	Communication with teachers and others	Management of play and time	Support and supervision
Academic achievement	*Pearson Correlation*	*1*	*.11*	*.09*	*.048*	*.005*
	Sig. (2-tailed)		*.187*	*.256*	*.559*	*.502*
	N	*153*	*153*	*153*	*153*	*153*

The result means that academic achievement and parental involvement are not correlated with statistical significance means that children with high academic achievement may not have high parental involvement, and children with low academic achievement may not have low parental involvement.

This result, which is the absence of significant correlation between parental involvement and academic achievement, is paradoxical to commonsense, will be seen in the Discussion section..

Level of parental involvement

The overall level of parental involvement was described before using mean and standard deviation. As this study is a partial standardization study, presentation of all respondents' level of involvement by categorization into four groups seems relevant for interpretation other data to be made another time based on this instrument.

Table 8: *Level of Parental Involvement in Terms of Scale Values*

Label	Scale range	Father	Mother
Never involved	25 – 37.4	2%	1%
Sometimes	37.5 – 62.4	13%	13%
Frequently involved	62.5 – 77.4	45%	40%
Always involved	77.5 - 100	40%	46%

This table shows that 2% of fathers and 1% of mothers are never involved, according to the perception of children. Thirteen percent of both groups are sometimes involved while over 85 percent of parents are frequently or always involved.

It was stated before this section that the average of fathers' involvement and mother involvement in their order was 76.8 and 77.4. The difference between the two was not statistically significant.

When the involvement scores are seen into the subscales, we have the following scores.

Table 9: *Level of Involvement on Each of the Subscales*

	Father's Involvement		Mother's Involvement	
Scales	Mean	SD	Mean	SD
Parenting	3.40	.65	3.54	.56
Communication with teachers and others	2.61	.78	2.56	.79
Management of play and time	3.02	.73	3.07	.70
Support and supervision	3.15	.60	3.14	.58

As shown in the table, parents are best involved in parenting such as caring the child before and after the school and least involved in communicating teachers.

Discussion

This section discusses three fundamental parts in instrument development: item construction and analysis, reliability and validity. Even if reliability is within the scope of validation a separate discussion will be given to both issues for sake of convention and simplicity.

Item Construction and Analysis

Processes used to construct items and their analysis

Before the items were developed to be the final instrument, several activities that range from observing parent-school conferences to the review of scales developed in other countries

were carried out. Forty two items (68% more than the final items), which is more than the minimum requirement as suggested by DeVellis (2012, p80) (at least 50% more of the final items), were developed before subsequent evaluation of the items. Following expert evaluation of the items on the clarity and relevance of the items, and a tryout (the first pilot study), the second pilot study was carried out. The number and format of items in the second and final sample are the same. As the final study is a standardization process, larger and diverse subjects were included.

Among the twenty five items in the scale, the fifth item, "forcing children to study", does not seem to go with theory/literature and previous standardized scales in other countries. This item was included in the scale to reflect local reality: one sample school in this study clearly stated it in the "duties of parents" manual given to parents at every year. Furthermore, as this item seems to be theoretically different from other indicators, the researcher included it as a way to validate the scale, with the assumption that this item is should be least reliable item. Consistent with this hypothesis, in both mother's involvement and father's involvement data, the reliability (item-total correlation) coefficient of this item is the least. If this item were excluded from the test, the reliability coefficient would have higher value than reported in this study.

The least mean among the items scores is an indicator that the activity related to this item is less frequently performed. The tenth item, "communicating teachers in writing or in person" is least performed. "Preparing/readying educational materials" was found to be nearly always performed by parents. It is this item that has the least variance which indicates that parents are almost uniform in performing this task. Unlike this item which has the highest mean and the least variance, the tenth item has the least mean and highest variance (for father's involvement). For mother's involvement, "communicating teachers" is the third highest variance with "management of child's time and play" taking the lead. Even if "communicating teachers" is not appropriately performed by parents in general, this task is superiorly carried out by parents in private schools and educated parents, compared to other group of parents. This is consistent with the literature (Grolnick, Benjet, Kurowski, &Apostoleris, 1997; Seginer, 2006).

Reliability

Reliability in this study is derived in different forms (inter-rater, test-retest, internal consistency, and factor analysis), and the coefficients vary from .70 to .91. To have a comprehensive understanding of this instrument, it seems important to see the meaning, sample sizes associated to reliability and interpretation of it.

Reliability is, in different earlier textbooks and many researchers in our country, taken as a property of a test. Its current understanding is that it is the property of the scores obtained from the test (AERS, APA, NCE, 1999; Urbina, 2004). This implies that the reliability coefficient varies from one administration of that specific test to another administration and from one group of respondents to another respondent. The different reliability coefficients (e.g., internal consistency reliabilities, test-

retest, and reliability coefficient based on factor analysis) reported in this research is a justification for this point.

The sources of errors associated to test scores arises from a test itself (e.g., clarity of items in the test), respondent (e.g., health and interest to fill in the questionnaire), test administration and scoring (e.g., lack of rapport in the case of questionnaire administration), testing condition (e.g., the suitability of the place or the room to fill in the questionnaire). For instruments that are used for essential purposes such as health and high stake researches more than one reliability indices are expected to be reported. This is one of the reasons we see more than one reliability coefficient in many standardized tests or questionnaire.

Many theses (graduate research papers) in and outside of our School report reliability coefficients for the pilot sample, without doing the same to the final sample. This is the confusion people have that reliability is a property of the test, rather than of the scores or data obtained from specific administration of it. While reliability of the pilot data is important, much more important is the reliability of the final data.

Sample size is another important point to be taken in reliability coefficient. Sample size for standardized instruments should be large (over one hundred) (e.g., Comrey & Lee, 1992). One of the reasons that statistical significance is not carried out for reliability is that large sample sizes normally result in statistically significant results even for small effects (small correlations or reliabilities). The stability of reliability coefficient from one large random sample to another sample is another reason that should be noted why we have to take large sample size in instrument development studies.

As was presented in the Result, the reliability coefficients in this study are inter-rater reliability, test-retest reliability, internal consistency reliability (Cronbach alpha), and Theta reliability.

The important assumption in inter-rater reliability is the uniformity or equality of the raters in their knowledge or competence over the construct. If they are not at the same level, this difference may diminish the reliability coefficient of the data. Even if they have had research experience on the area, the raters in this study are different in their teaching and research experience: one is lecturer and the others are above this rank, one assistant professor and the other three associate professors.

In general, experts' evaluation of an instrument is an evidence for its appropriateness and meaningfulness. The so called "experts reviewed the instrument and their comments are incorporated in the final instrument" which is a cliché in many research papers is not advisable. Unless it is critically and exhaustively reported (as regards the credentials of the experts, what did they do when they evaluated, what is the statistical or empirical input to the instrument, etc), the inference or conclusion drawn from such instrument or score is not acceptable.

The test retest reliability coefficient (.76) in this study could be taken as lower than the desirable. The moderate instability of parental involvement and the sample size and homogeneity of the respondents could be taken as meaningful explanations. The level of parental involvement is related the work load of parents at home or office. If they are busy in the first administration of the instrument they may not be so in the second administration of the instrument. This may have effect on their involvement and then children's' evaluation of their parents' involvement.

Test retest was made to students of one classroom and one school, and with small sample size. Such sample size could not represent the diversity of the students taken Addis Ababa. If larger and more diverse sample was taken, higher Pearson Product moment correlation coefficient would have been obtained (Nunnally & Bernstein, 1994).

Before concluding the test retest reliability result of the data, it is important to note how it improved from the first test-retest reliability (35 items for ten days resulted in .69) to the second test-retest reliability (25 items for one month resulted in .76). This is what Cohen (1994) calls for "less is more".

The internal consistency of the items is the major reliability indicator in this study. This was performed in the different groups of respondents and in two stages of the research (pilot sample

and final sample). Given that the construct is multi-dimensional (as it will be discussed below under factorial validity), reliability coefficient of more .80 is an indicator of usefulness of the data, and the instrument by inference.

The least Cronbach alpha reliability and split half reliability are obtained from mothers with higher education. This may be due to relatively smaller sample size than other groups and probably less variability of their involvement as they get more education. It is recalled that homogeneity and sample size of respondents is related to reliability (Sattler, 2001; Nunnally & Bernstein, 1994). Respondents who are small in number and homogenous in the attribute produce low reliability coefficient.

In addition to the overall reliability Cronbach coefficients, the four subscales were explored for their within-internal consistency reliability. Parenting subscale that has four items was observed to have .60 for mother's involvement and .65 for fathers' involvement. Such low reliability coefficient was also obtained in Cooper (2010) with eight items. It is known that items that are limited in number and that are not tapping a one-dimensional construct (items that are different) are resulting less Cronbach reliability coefficient.

The above reliability coefficients are based on classical test theory of reliability which is based on the assumption that the variable is a one-dimensional construct. As parental educational involvement has sub-dimensions in both earlier studies and this research, one of the current reliability indices, called Theta or composite reliability coefficient, was performed on this data. This reliability coefficient indicates that the data or the instrument for the source of this data has high reliability coefficient.

Validation

Unlike reliability, validity is a property of the test data and some other data obtained from a theoretically meaningful and related data. While reliability could be taken as a within-coefficient, validity is a between-coefficient. It is being a common knowledge that reliability is a necessary condition for validity. When a test that is reliable is not necessarily valid, the reverse is true theoretically. A valid test is a reliable test. This can be seen in association with correlation and causation. While causation shows correlation, correlation does not necessarily show causality. As causality is correlation plus something, validity is reliability plus something. In reliability we assess only the correlation of scores of a variable, while in validity the scores should not only correlate within scores of a test but also between scores of another test.

Validity is more complex, more indirect, and more meaningful than reliability. As implied in the above explanation, validity requires different sources of data to be taken seriously. In order to show that validity requires different data and serious of stages, another concept, validation, is coined these days. Validity is the quality or property of a test and validation is the process used to evaluate the meaningfulness, appropriateness and usefulness of test (specifically the interpretation of the test) (Urbina, 2004). Validation is the continuous process of gathering, summarizing, and evaluating relevant evidence concerning the extent to which that evidence supports the intended meaning of data yielded by an instrument and inferences about the standing on the characteristic it was designed to measure (Cizek, 2012).

Factorial Validity

One of the various procedures carried out to validate the Amharic Parental Educational Involvement in this study is using exploratory factor analysis, and then confirmatory factor analysis.

Before running the exploratory factor analysis, Bollen & Lennox (1991) suggested that optimum correlation coefficient for effect-indicator items is between .1 and .5 and result for this study is almost within this range. The exploratory factor analysis carried out in this study resulted in different numbers ranging from three to six factors in different sample groups (mother involvement in general, enrollment in

private schools, and enrollment in government schools, to mention major groups). To mention the extreme results, mother involvement in general resulted in three factors while mother involvement in private schools resulted in six factors (including factors loading on only single items), with average variance explained a little more than 50%. Streiner (in Floyed & Widaman (1995, p295) suggested that factors should explain at least 50% of the total variance. Even if large common variance is expected from the exploratory factor analysis, Parker, et al (19930 (as cited in Floyd & Widaman, 1995, p295) explored 36.6% of the total obtained variance.) Many other groups such as father involvement in general, father involvement in government schools, mother involvement in government schools, and mother involvement to girls resulted in four factors. This inconsistency of factor structure has led this researcher to use a special form of structural equation modeling called confirmatory factor structure.

Before running confirmatory factor analysis using AMOS, the researcher specified a four factor structure. The exploratory factor structure used for the different groups, and the literature (Fan, 2001; Tan & Goldberg, 2009) laid the foundation for specifying the factor structure for this instrument to be four. Tan & Goldberg (2009), for instance, came up with four factors named as direct school involvement, homework involvement, extracurricular involvement, and interpersonal involvement.

The names of the four factors specified in this study are: one, parenting; two, Communication with teachers, friends, and relatives; three, Management of play and time; and four, Support and supervision at home. This model of four factors was tested using different fit indices and confirmed to be feasible structure.

Demographic variables and Mother Involvement

Before discussing how correlating demographic items and other variables is a means of validating measure, it seems procedural to see what Comrey (1988) concluded in his factor analytic study of scale development. In scale validation, Comrey (1988, p761), noted that the investigator, besides other evidences, has to show how the measure "correlates with important variables such as age, IQ, and socio-economic status; and how its mean and standard deviations vary across naturally occurring groups of general interest (e.g., gender, geographic, cultural, and occupational"

Several demographic items were included in the questionnaire as adjunct to assess the concurrent validity of the questionnaire: sex of the child, age of the child, languages spoken at home, religion of the parents, number of children at home, with whom the child lives at home currently, if mother works outside of home, as to who is tutoring the child, and mother's and father's educational status.

Literature and the practical experience of the researcher served to come up with these demographic factors. From among these variables, age of the child and grade level, parental educational status, the status of the school are found to be related to parental involvement.

Age of the Child and Mother Educational Involvement

A number of studies (e.g, Seginer, 2006) have found out a significant relationship between age of the child and parental educational involvement. That parents are more involved to children of younger ages is consistently stated finding. In this study, as age increases involvement decreases for both mothers and fathers involvement. This result can be taken as one indicator for the validity of the instrument.

Similarly, the involvement of parents was found, with statistical significance, to differ across grade levels. This is consistent with the review of Chen (2008) that there is grade level difference on parental involvement with the child at home or at school. Unlike in many schooling of developed countries, many students with over age and under age children are learning in one classroom. Owing to this, this researcher compared the involvement of children across grade levels. Even with this reality, the highest involvement was made by both mothers and fathers to grade five students.

The ownership of the school and parental involvement

With the presumption that schools governed privately and by the government showed different parental involvement, statistical analysis of the data confirmed this widely expected experience: that schools in private schools have higher parental involvement.

As to why parents in private schools are more involved than the government may due to, for instance, parents in private school have better socio-economic status (having more time and better understanding of the role of involvement). Private schools have different means to make parents involved in the school. For instance, in all of the private schools this researcher observed there is a communication book that teachers and parents interact daily by writing and signing on the book.

The communication book used by schools help the bi-directional communication (from teacher-to-parent and from parent-to-teacher). In the book there are different learning activities that the child exhibited at school and homework given daily. In the book parents are expected to check for their children's homework and the remark teachers send to parents. Seginer (2006) in the developmental ecological analysis of parental involvement in education reviewed different studies that came up with the relationship of school type and parental involvement. Taylor (2004) also made a critical analysis of how family and school characteristics affect the involvement of parents in education of their children.

Educational level of parents and their involvement

The educational level of parents was assessed in six levels (no education, primary education, secondary education, one or two years of higher education (Diploma), three or more years of higher education earning first degree, qualifications with second degree and above). In addition to the analysis of the data among these six levels, these six levels were also collapsed into three levels (no education, primary and secondary education, and third, college education) for supplementary analysis. The result was found to be consistent with higher educational level of parents linked to higher level of involvement. This difference was true for both mothers and fathers data.

This result could be seen together with difference between government school parental involvement and private school parental involvement. The educational level of parents in both government and private schools is different, with parents in private schools to have higher level of education. The educational level of mother and fathers in both schools was different with mother level to be less than father's educational level. Even if mother educational level is different from father educational level their involvement was not found to different with statistical significance.

Mother involvement and academic achievement

There is wide perception that parental involvement in education raises academic achievement (Grolnick and Slowiaczek, 1994). Many studies tried to investigate the link using descriptive correlation method. The findings are inconsistent with some reporting to have found positive, others negative, and still others no correlation.

The correlation of academic achievement scores of individual students and their perception of parental involvement was not found to be statistically significant in this study. Exploring the number of students passing and failing grade 8 examinations (a region wide test, developed, administered and scored by Addis Ababa Education Office) in both government and private schools showed that when significant numbers of students fail in government schools, failure in private schools in this exam is almost nonexistent. Higher number of promotion of students and better involvement of parents in private schools indicate that parental involvement is related to academic achievement. If we conclude that parental involvement and academic achievement are related what is the reason that correlation data does not show this reality? The reason that the correlation analysis (usually Pearson Product moment correlation analysis) is negative or nil is parents give more

assistance and continuous supervision to children with lower scores (e.g., Stevenson and Baker, 1987). Children with higher academic achievement do not need the support or the supervision of parents like that of weaker students. To have a better imagination of the link between involvement and academic achievement, we can assume the method of research to be experimental where some parents (experimental group) were trained and supported to be involved for some weeks while others (control group) taken as a comparison group, with both groups of parents and students to be the same in all other related factors.

In spite of the statement that parental involvement and academic achievement are related, some empirical studies (e.g., Chen, 2008), contend that the relationship is indirect. Parents assist the change of some child characteristics such as motivation, expectation and reading skills, and these attributes, in turn, influence the academic achievement of students (Hill and Craft, 2003)

The level of involvement

Once the standardization of the instrument is completed, description and analysis of the status of parents' involvement in their children's education seems logical.

As indicated in the Result when nearly 2% and 13% of children reported that their fathers are, in order, never involved and sometimes involved. Regarding mother involvement, 1% and 13% are never involved and sometimes involved, in their order. Even if these figures may be taken as negligible or small, the issue here is not the smallness of number but the right of all children to get the necessary support from parents (Keith, Reimers, Fehrmann, Potterbaum, Aubey, 1986).

Recommendations

1. According to the result of this study, the average level of parental involvement, as perceived by children, was found to be high (greater than 3.5 on a scale of 4 points) . In spite of this, there are a number of parents who are reportedly not, or less, involved in their children's education. Provision of learning materials and sending children to school, attributes fulfilled by almost all parents in this study, is not adequate for the effective development of children in school. It is true that most parents may not be literate enough to assist their children with homeworks and related assignment, but parents can still give time to their children by sitting with them when they are busy with school work at home, by contacting teachers and friends of the child to discuss about the progress and/or challenges faced by their children and by engaging in similar forms of activities that do not necessarily require them to make direct academic inputs into their children's academic work.

2. Contacting teachers and other school personnel was the least-used of all the dimensions of educational involvement. School management bodies, Parent-Teacher/School Associations, *Kebele/Woreda* government education offices, and non-government organizations working on education and children should make a concerted effort to bring parents to schools at times other than the few regular and parent-school days. One way to achieve this is by preparing a fixed times in the school year at which every teacher and/or other school personnel familiar with their children's education would be available for parents to discuss with.

3. As validation is a continuous, cumulative and time-taking process, this study tried to investigate only some of the levels, while a lot of other relevant issues will have to be investigated by future researchers. Succeeding stages such as longitudinal study of parental educational involvement, manipulation or field experimentation of parental involvement, and correlating it with other valid measures (self-report and others) of attributes of children and parents should be performed.

4. Instrument development, validation and standardization are rare research practices in Ethiopia. Although this task requires a lot of time and resources, the goal and its potential result is certain to be worth all the cost. It is when there is credible research evidence, which

itself is based on credible data, that society in general and policy makers in particular can use the research outputs to effectively intervene in the development of children. The standardization and validation of the instrument is important even for programs that are not psychometric, especially where psychometric research programs do not exist.

Considering the significance of research in this area in the shaping of the next generation of leaders for the country, the School of Psychology at the AAU and other schools in other universities should give priority to this area of research.

5. Researchers should not take instrument development as an adjunct activity of their theory-hypothesis test research. When instrument development is an independent, time-taking activity and indeed a hypothesis testing activity in itself, it is a common practice to see researchers to construct items they think related to their topic, get it seen by their peers or "so-called experts", "pilot test" and go on their major task, "theory or hypothesis testing" process. This may be one of the factors that contribute to many educational and psychological study papers remaining on the shelves without getting the attention of key stakeholders in this field. Therefore, researchers should try to get a standardized and validated instrument, and if there is no such instrument, they should request the relevant institutions of the university for help so this issue is addressed properly.

6. Reporting results based on high reliability coefficient should be practiced by researchers or practitioners such as counselors. It is common practice to see reliability coefficients as low as .60 being considered acceptable without giving further explanation. Such practice should not continue and the standard minimum reliability coefficient of .80 for research activities and .90 for clinical and other applied areas, should be respected.

7. Studies should report the reliability and validity of the final data of their research. It is common practice to see only the reliability coefficient of the pilot data, which is especially true for the adapted/adopted instruments. Even if a researcher uses a locally standardized and validated instrument, as reliability and validity is essentially about the data, and not about the instrument, the reliability and validity of the final data should be reported.

8. The Graduate Programs at the Addis Ababa University and other institutions should allot commensurate funds to support requests for instrument development and validation by researchers in psychology and other social science areas.

References

Admasu Saji (2004). Parents' Involvement in Their Children's Schooling and Its Relationship to Students' Academic Performance in High Schools of Addis Ababa, Unpublished MA Thesis, Addis Ababa University

Aiken, L. R. (1996). *Rating Scales & Checklists: Evaluating Behavior, Personality, and Attitudes*. Jonh Wiley & Sons, InC

Alemayehu Belay (2010). Parental involvement in their children's education and its relationships with students' academic performance in some selected private second cycle primary schools in Bahir Dar, Unpublished MA thesis, Addis Ababa University

American Educational Research Association (AERA), American Psychological Association (APA), & National Council in Education (NCE). (1999). *Standards for Educational and Psychological Tests*. Washington, D.C.: American Educational Research Association.

Anteneh Negussie (2012). Relations among parental involvement, gender and student's academic performance among secondary schools in Debre Markos Town, Unpublished MA thesis, Addis Ababa University

Asamenew Demessie (2006). Parental Involvement and classroom environment as predictors of academic self-efficacy (Unpublished Master's Thesis Addis Ababa University)

Belay Tefera (2008). *Notions of Fatherhood among Ethiopian Adolescents: Nature,*

Effects and Determinant. Delhi: Gagandeep Publications

Bollen, K.A., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin*, 110, 305-314

Bronfenbrenner, U. (1979). *Ecology of human development; experiments by nature and design.* Cambridge: Harvard University press.

Campbell, D. T. & Fiske, D. W. (1959). Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix. *Psychological Bulletin*, 56(2), 81–105. In D.N. Jackson and S. Messick (Eds.), *Problems in Human Assessment* (pp 43-56), New York: McGraw-Hill Book Company

Chen, J. (2008). Grade-Level Differences: Relations of Parental, Teacher and Peer Support to Academic Engagement and Achievement among Hong Kong Students. *School Psychology International*, 29, 183-198.

Cizek, G.J. (2012). Defining and distinguishing validity: Interpretations of score meaning and justifications of test use. *Psychological Methods*, 17 (1), 31 - 43

Clark, L.A. & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7(3), 309 - 319

Comrey, A. L. (1988). Factor-Analytic Methods of Scale Development in Personality and Clinical psychology: Methodological Contributions to Clinical Research. *Journal of Consulting and Clinical Psychology*, 56 (5), 754 - 761

Cooper, C.E. (2010). Family poverty, school-based parental involvement, and policy-focused protective factors in kindergarten. *Early Childhood Research Quarterly*, 1, 1-13.

Cronbach, L. J. & Meehl, P. E. (1955). Construct Validity in Psychological Tests. Psychological Bulletin, 52(4), 281–302. In D.N. Jackson and S. Messick (Eds.), *Problems in Human Assessment* (pp 43-56), New York: McGraw-Hill Book Company

Dereje Gebre (1998EC). Teachers' and Parents' role on Students Homework, Addis Ababa, unpublished (Amharic Version)

DeVellis, R. F. (2012). *Scale Development: Theory and Applications (3rd ed.)*. Los Angeles: Sage.

Epstein, J. L. (1995). School/family/community partnerships: Caring for the children we share. *Phi Delta Kappan*, 76, 701−712.

Fantuzzo, J. W., Tighe, E. & Childs, S. (2000). Family Involvement Questionnaire: a multivariate assessment of family participation in early childhood education. *Journal of Educational Psychology*, 92, 367-376

Floyd, F. J. & Widaman, K. F. (1995). Factor Analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment*, 7, 286-99.

Getachew Aregay (2006). Psychological factors influencing academic achievement of south Tigray high school students (Unpublished Master's Thesis Addis Ababa University)

Grolnick,W. S., Benjet, C., Kurowski, C. O.,& Apostoleris, P. H. (1997). Predictors of parental involvement in children's schooling. *Journal of Educational Psychology*, 89(3), 538-548.

Grolnick, W. S. & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child Development*, 65, 237-252.

Hill, N. E. & Taylor, L. C. (2004). Parental School Involvement and Children's Academic Achievement: Pragmatics and Issues. *Current Directions in Psychological Science*, 13, 161-164.

Hill, N. E. & Craft, S. A. (2003). Parent–School Involvement and School Performance: Mediated Pathways Among Socioeconomically Comparable African American and Euro-American Families. *Journal of Educational Psychology*, 95, 74–83.

Kassahun Habtamu (2010). Mothers' and Fathers' Involvement in Their Children's Schooling: A Study in Two Primary Schools in Addis Ababa. (Unpublished Manuscript)

Keith, T. Z., Reimers, T. M., Fehrmann, P. G.,Pottebaum, S. M., & Aubey, L. W. (1986). Parental involvement, homework, and TV time: Direct and indirect effects on high school achievement. *Journal of Educational Research*, 78, 373-380.

Kerlinger, F.N. (1986). *Foundations of Behavioral Research*. New York: Holt, Rinehart and Winston, Inc.

Krejcie, R V. & Morgan, D. M. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610

Lee, J.-S., & Bowen, N. K. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal*, 43, 193–218.

Manz, P. H., Fantuzzo, J.W., & Power, T. J. (2004). Multidimensional assessment of family involvement among urban elementary students. *Journal of School Psychology*, 42, 461–475.

Marew Alemu (2004). Parent-School Interaction: Quantitative and Qualitative Analysis (my translation of the Amharic text). *The Ethiopian Journal of Education*, XXIV, 83-105.

Ministry of Education (1999ECa). School Improvement Program-Implementation Guideline (Unpublished Manuscript, Amharic version), Addis Ababa

Ministry of Education (1999EC b). School Improvement Framework (Unpublished Manuscript, Amharic version), Addis Ababa

Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric Theory*. New York: McGraw-Hill.

Rogers, M. A., Theule, J., Ryan, B. A., Adams, G. R., & Keating, L. (2009). Parental Involvement and Children's School Achievement Evidence for Mediating Processes. *Canadian Journal of School Psychology*, 24, 34-57.

Sattler, J.M. (2001). *Assessment of Children: Cognitive Applications* (4th ed.). San Diago: Jerome M. Sattler Publisher

Seginer, R. (2006). Parents' Educational Involvement: A Developmental Ecology Perspective. *Parenting: Science and Practice*, 6, 1-48.

Tan, E. T., & Goldberg, W. A. (2009). Parental school involvement in relation to children's grades and adaptation to school. *Journal of Applied Developmental Psychology*, 30, 442–453.

Teka Zewdie. (2002). Maternal knowledge, Involvement and Integrative Early Child Development Programs in Ethiopia. *The Ethiopian Journal of Education*, XXII, 57-83.

Urbina, S.(2004). *Essentials of Psychological Testing*. New Jersey: John Wiley & Sons, Inc.

Yalew Endawoke (1999). Qualitative and Quantitative Research: Principles and Practices (Amharic version). Addis Ababa