

Addis Ababa University
College of Education and Behavioral Study
Department of Special Needs Education

**The Relation Between Primary Education Attendance and Academic
Performance of Grade 3 Students in Haile Bubamo, Government Primary
School, Hossana Town**

By
Ashenefech Michael

June, 2016
Addis Ababa

Addis Ababa University

College of Education and Behavioral Study

Department of Special Needs Education

**The Relation between Primary Education Attendance and Academic
Performance of Grade 3 Students in Haile Bubamo, Government Primary
School, Hossana Town**

**This Thesis submitted to Department of Special Needs Education in
Partial Fulfillment of the Requirements of MA degree in Special
Needs Education**

Addis Ababa University

College of Education and Behavioral Study

Department of special needs

**The Relation between Primary Education Attendance and Academic
Performance of Grade 3 Students in Haile Bubamo, Government Primary
School, Hossana Town**

By

Ashenefech Michael Zekaria

Approval of board of examiners

_____	_____	_____
Chairman, Department committee	Date	Signature
_____	_____	_____
Advisor	Date	Signature
_____	_____	_____
Internal Examiner	Date	Signature
_____	_____	_____
External Examiner	Date	Signature

Acknowledgement

I thank God for; through Him all things were made. And it goes without saying that a work like this could not have been brought to its end without the support of many people.

Sincere and gracious thanks go to my advisor, Dr Fantahun Admas for his guidance and encouragement.

I would also like to extend special gratitude to my husband Wendwesen Demissie for his ceaseless support, encouragement and love. And also my heartfelt goes to my daughter, Sewin Wendwesen for keeping silent when I am at work and love – the completion of my study would have been impossible without them.

To my assistants at home, and colleagues; particularly Ismael, Tsedeke and Roman your support and encouragement have allowed me to fulfill my dream.

Finally, I would like to thank all who willingly participate in my study and who supported me by providing information during data collection.

God bless you all!

Abstract

Pre-primary education is a salient factor in later life; and it is considered as the first step in students' educational journey. The aim of this study was to examine the impact of pre-primary education on academic performance by grade 3 in Haile Bubamo Government primary school in Hosanna Town. The academic performance of students with KG, "0" class and students without pre-primary attendance was compared.. Data from 91 selected students was obtained . Analysis was under taken using percentage, mean, standard deviation, one way ANOVA, and General linear model. The result revealed a statistically significant difference among the three groups (KG, "0" class, and without pre-primary education). Attending pre- primary education programs has statistically significance association with students' academic performance. Students who attend KG achieve better than their peers who attended "0" class. Since KG schools in Ethiopia are largely of the private sector, it couldn't afford all children. Thus reconsideration is needed to improve and change pre-primary education system and allow all children to have the opportunity of education. The study is significant by providing information, for administrative and teachers to improve and expand the services. In addition extensive research has to be conducted.

Acronym

ECCE	Early childhood care and education
KG	Kindergarten
SPSS	Statistical package for social science
ANOVA	Analysis of variance

Table of Contents

Contents	Pages
Acknowledgement	i
Abstract _	iii
Acronym_	iv
Chapter one	1
1. Introduction.....	1
1.1 Background of the study	1
1.2. Statement of the problem	3
1.3 Research Questions.....	4
1.4 Significance of the study.....	5
1.5 Scope of the study.....	5
1.6 Limitation.....	6
Chapter two	7
2. Review of related literature.....	7
2.1. preprimary education	7
2.2. Importance of education in early stage of childhood.....	7
2.3 Preprimary education and skill development	12
2.4 Preprimary education and academic performance.....	16

2.5 Gender and Age, and academic performance.....	17
2.6 preprimary Education in Ethiopia.....	17
2.7 Policies on preprimary education-----	18
Chapter Three	20
3. Method of the study.....	20
3.1. Research design	20
3.2. The target population of the study	20
3.2.1. Sampling	20
3.3. Data collection instruments	21
3.3.1 Document analysis-----	-21
3.3.2. General knowledge test score -----	21
3.4. Procedure of data collection, analysis and interpretation	22
3.7 Ethical consideration.....	23
Chapter four	24
4. Result and interpretation	24
Chapter Five	35
5. Discussion and Summary	35
5.1 Discussion -----	35
5.2 Summary -----	37
Chapter six	39

6. Conclusion, Implication and Recommendations	39
6.1 Conclusion.....	39
6.2 Implication.....	39
6.2. Recommendation	40
References	41
Appendix A.....	46
Appendix B	48

List of Tables

Table 1: demographic characteristics of the study groups	24
Table 2: Results of ANOVA Analysis	25
Table 3 the means and standard deviation of the three groups	26
Table: 4. Post hoc multiple comparison test on the three programs based on the average and test achievement	27
Table 5:Means and standard Deviations of average and test achievement based on gender.	31
Table :9 Generalized linear model-Comparison of programs Age based on test	34
Table :7 Generalized linear model-Comparison of programs gender based on test.....	33
Table 8: Generalized linear model-Comparison of programs Age based on test	34
Table:6 Generalized linear model-Comparison of programs gender based on average achievement.	33

List Figures

Pages

Figure 1: Mean plot of the average achievement.....	28
Figure 2: The mean plot of test achievement	28

Chapter one

1. Introduction

1.1 . Background of the study

Pre-primary Education is the first step in child's educational journey. A great number of scholars and researchers believe that attending preprimary programs help to promote children's social and emotional development, and also preprimary education is highly beneficial for the children's cognitive development and overall social development (Bibi and Ali,2012; Goodman and (Barnet, 1895)). Bibi and Ali (2012), Yoshikawa et al. (2013) and Behsat and Ramazan (2014) also found that pre-school experiences have significant impact on later grade academic achievements.

A study in Ethiopia (Young Lives, 2013) disclosed that attending pre-school education improves early enrolment in formal primary education, and children who attended pre-school have a tendency of completing a higher grade than those who did not. A study by Tassew (2011) in Ethiopia underlined that preprimary education exposure is positively associated with a substantial improvement in children's cognitive development.

Preprimary Education has an impact on language, literacy and mathematics; Research suggests that a year or above preprimary programs will improve children's early language, literacy and mathematics skills (Yoshikawa, et al., 2012).

Children who had Early child care and education experience, perform better when compared to those who had not; students with preprimary attendance typically performed well in test scores;

and they were likely to be enrolled in primary school, and their performance in primary school education is also higher than that of who had not (Barnett, 2008; Yang Lives, 2013; Yoshikawa, et al.,2012).

As it is well established by Woodhead, Vennam, Abebe and Streuli (2009); and Tassew, (2011) the chance to attend pre-primary education in Ethiopia is limited only for urban children. As Private schools are found only in urban areas they are accessible only for urban community, and there is an economical problem of paying fees in private schools for part of the urban community to send their children to early childhood education.

As to the education statistics annual abstract of the ministry of education (MoE, 2013), Recently three delivery modalities introduced via the formal and non formal ways of pre education; these includes kindergarten, “0” class, and child to child; and among the three pre education modalities “0” is run by primary schools and supposed to run side by side and Kindergarten is part of the pre-primary education where children aged 4 to 6 are involved and this program has its own curriculum, trained teachers, administrative staff and school compounds and the schools are owned by non-governmental organizations such as communities, private institutions, and religion-based organizations; “O” class is also included in the pre-primary education system which involves children aged 5 to 6, and who have not been in kindergarten, and Children involved in this program are thought by selected teachers from the respective primary school: and that is how the pre-school children get ready for grade one.

According to Hossana city administration Education office an annual report (2016), there were 41 private schools administered by either private or religious institutions, and 11 were run by government in the primary schools (“O”) class. In the same period there were 1454 students in

government schools from these 820 are females and 634 males; while in private schools among the 5407 students enrolled 3260 are females, and 2147 are males.

In light of these facts, after examining the nature of preprimary education in Ethiopia, this paper aims to analyze the effects of preprimary education programs, and compare students who have the exposure of preprimary education, and students who did not. That is to say what is analyzed in the research is students in KG, 0 class, and without preprimary attendance.

1.2. Statement of the problem

Many studies findings have confirmed that children's earliest experiences in life can have a profound effect on their success in later grade levels and beyond; and preprimary Education have positive impact on the academic achievement of students and on educational environment (Anderson, 1994 and Johnson, 1995; Woodhead et al., 2009; Berlinski, et al., 2009; Bibi and Ali, 2012; Young Lives, 2013; Yoshikawa et al., 2013). Particularly having high-quality, and intensive ECCE programs have positive effect on cognitive development, school achievement and completion (Smith,2014). Also study by Bibi and Ali (2014), disclosed that attending high quality ECCE programs promote children's socio emotional development and prepare them for farther educational journey.

Having examined and look at some studies about the advantage and nature of early childhoodcare and education programs, there are some studies in Ethiopia; Tirussew and Tezera ,2001; Tirussew,Teka, Belay, Belay, Demeke,2007;Woodhead, 2009; Tassew, 2011; Young Lives, 2013; and Amogne, 2014; Mulugeta , 2015) and others. Tirussew and Tezera,2001 on "Early Childhood Care and Development Interventions in Ethiopia" and "Child Labor in Ethiopia:Its Conditions and Link with Early Childhood Education" Tirussew, Teka, Belay,

Belay, Demeke, 2007 on Status of education in Ethiopia; Woodhead, et al 2009, on Challenges for early childhood and primary education in Ethiopia, India and Peru; Tassew, 2011 on The Effects of Early Childhood Education Attendance on Cognitive Development: Evidence from Urban Ethiopia. Young Lives, 2013; On public investment in pre-school education is needed? and Amogne, 2014; Mulugeta, 2015 on The impact of attending pre-school education on later academic achievement of students and Early child care and education attainment in Ethiopia: Current status and challenges respectively.

These researchers mainly attracted on the comprehensive way of the issue. But this study is very specific to the relation between pre-primary education attendance and academic performance (the difference among the three groups of students: called KG/Nursery, “0” class and without pre-primary education attendance).

1.3 Research Questions

This research intended to examine the impact of preprimary education on the academic achievement of grade 3 students. To that end, the following research question have been formulated

1. Is there any significant difference in recorded average performance among the three groups (KG, “0” class and did not attend pre-primary education)?
2. Is there relationship between preprimary education attendance and recorded average performance for the two gender and the different age groups?
3. Is there any significant difference in the general knowledge test among the three groups?
4. Is there any relationship between two sex and different age on academic performance of the three groups?

1.4 Operational definition of variables

Kindergarten (KG) – in this study it refers the program in which children attend their pre primary education for three years.

0 class –it refers to the program in which children participate their preprimary education for a year.

Demographic characteristics - in this study it refers gender and age of the students.

Average academic records – It refers the 2015 academic year, first semester average class performance.

General knowledge test –Test which includes the five subjects of the grade. And was prepared by the researcher with the consultation of the teachers of the students.

1.5 Significance of the study

The study is significant in the following ways:

This study will provide information to Administrators and teachers may use the information derived from this study to modify, enhance, the “0” class program in public school; in order to afford all and better prepare students for the preparation of primary school.

1.6 Scope of the study

The research was conducted in Haile Bubamo primary school in Haddiya zone, Ethiopia. This is one of the 14 administrative zones and 4 special woredas in SNNR. It is bordered on the south by Kambata zone, west by Yem special zone, on the north by Silte and Gurage zone and on the east by Silte (HcAE, 2015). And this study also delimited to only one school and the two demographic characteristics (gender and age) other factors like socio economic and educational

status of the family were not controlled and the study focused solely on quantitative data obtained from the school district.

1.7 Limitation

The following limitations should be taken in to considerations while using the findings of the study.

The first limitation is that, there are other factors not controlled which actually have an impact on academic achievement while examining the effect of pre-school education on academic achievement.

All primary schools in Hosana city administration were not included in this research.

Lastly generalizations should not be made for other grade levels solely based on the finding of this research.

Chapter two

2. Review of related literature

2.1. Preprimary education

Preprimary education is the full range of provision and of activities and experience aimed at prior to their entry in to primary school; and it indicates serving children between age 3 and school age (Hillman & William, 2015). Harrison, Goldfeld, Metcalfe and Moore (2012) also indicate the time of preprimary education as that Early learning programs encompass early childhood education and care programs for children aged from birth to they enter the first year of formal schooling.

2.2. Importance of education in early stage of childhood

Education in early stage is very salient, and it is like a corner stone for successful future life. Connely,(2008) & Harrison, Goldfeld, Metcalfe & Moore (2012) , stated that education in early stages of childhood is especially important because it enables children adjust themselves to the educational and social environment of school; and also early years are a critical period where the pathways to a child's lifetime social, emotional and educational outcomes begin. And also many studies on the area evidenced that successful transition to school at early age; it means that reducing school dropout rate and increasing employment. UNESCO, (2006), indicated that 77 million children out of either primary or secondary schools; from this 7 million have dropout of school.

Another importance of education in early stage is that lifelong patterns for success and also it improves children's short and long term outcomes and it ranges from making children more ready for school to enhance long term educational and other outcomes; particularly if it is of high

quality it is strongly associated with positive educational outcomes and children who attend high quality service are more likely to demonstrate school readiness and acquired different skills that create the foundation for future learning (Hillman & Williams, 2015; Wylie & Carr, 2008; Berlinski, Galiani & Gertle 2006; and Barnett, 2004). Connelly (2008), and Tassew, (2011) stated that human brain develops early stage of and that leads to long term of achievement one's life. (Osakwe, 2009) also confirms that early childhood education experiences affect positively on later school involvement in education and home. Children who fail to experience the early childhood education may suffer more in intellectual development and other social and emotional development (Osakwe, 2009).

The human brain develops more rapidly during this time than at any other consequent period and develops such path which will last for the rest of his or her life; and the speed of the growth depends on whether the child's eagerness to learn is stimulated by their environment (Brown, 2002). A child's ability to pay attention, stay focused, and follow directions emerges in the early years; structured early learning fosters these abilities for later success in school and life (Brown, 2002; Bibi and Ali, 2012). Neurobiology and other brain research fields reveal that a negative experience or the absence of appropriate stimulation in early years is more probable to have serious and sustained effects on a young child than on an older child (Malmberg, 2010 cited in Bibi and Ali, 2012). So participation in comprehensive, good quality ECCE programmes can significantly change the developmental path of a child and also it benefit children, family and the community as a whole.

Early stage of education also play pivotal role in process of learning. The process of skill formation would be relatively easier at early period of life because of the brain neurons has grow at fast rate (Heckman, 2009). Cunha and Heckman (2006), stated that human capital is as a

mixture of different skills and abilities; these skills and abilities acquired in one stage of life cycle and then affect output of learning those skill; The studies on the area evidenced that, during the early years, children develop the important language and cognitive skills required to learn, develop their ability to manage emotions and stress, and learn to cooperate with others. These early years of life are a time of huge social, emotional, and intellectual growth (Harrison, Goldfeld, Metcalfe and Moore 2012; Young Lives, 2013).

The early years of life are critical for the acquisition of concepts, skills and attitudes that lay the foundation for lifelong learning. Recent research in the field of health, psychology and cognition has found that cognitive and non-cognitive stimulation in early life are critical for long term development (Young Lives, 2013).

Researchers believe and investigate the effectiveness of various kinds of early child hood programs in changing or shaping the behavior and enhancing the developments of young children in general. According to Bibi and Ali (2012), young children learn and absorb information very quickly and do have strong interest in every type of innovation.

As stated Harrison, Goldfeld, Metcalfe & Moore (2012), starting kindergarten, children who complete preschool or day care centers program were significantly more advanced in major areas of development like language and literacy, creativity, music and movement, initiative and social skills. They are more eager to learn and try new things and they are best with their classmates.

Bibi & Ali, (2012), the environment also has a great influence on the rapid development on the ideas grasping power and emotional skills of the young children. The extensive studies which

have been carried out on the high quality pre-schools education have long term fruitful effects on a child and especially for those who are weak in studies.

Piaget, (1956), also discusses the different effects of the environment on the growth of mental structures of the child which facilitates learning. He said that the environment stimulates learning and the development of the cognitive domain that the early years hold the key to learning. There is therefore the need for special attention to be given. As stated in Duncan, Ludwing, and Magnuso (2007). Differences in quality of learning environment of children contribute large gaps in test scores, even among children with early child care and Education.

As Gardner also summarized that children between 3 and 6 need a school experience that contributes to all aspects of their total development in effective programs for young children, there are provisions in the form of physical plant, materials and equipment, program and, especially, qualified personnel, which contribute to that total development of the students. Studies in some countries for example, in New Zealand and United States reported that, ECCE participation is positively associated with gains in mathematics and literacy, school achievement, intelligence tests, and also school readiness, reduced drop out, and reduced special education placement. Another very important issue is that, investments in early childhood education are much important than that of other form of public economic gains (Rolnick and Grunewald,2007). and also the economists revealed that ,economic gains as a result of funding for early education programs in two ways: firstly students who have exposure to early childhood education may benefit individually; this mean that he or she would be paid higher salary later on in his/her life. Secondly, early childhood education investment can provide advantages to the economy as a whole; this mean that people who succeed a high level of education can pay more taxes; while people who did not receive early intervention is more likely dependant on public services than

that of with early exposure. (ESDP IV) 2010/2011 – 2014/2015 also state that, “Investment in quality early childhood education yields a high economic return, offsetting disadvantage and inequality, especially for children from poor families”P.14.

Berlinski, Galian, Gertler, (2006) stated that investment in early childhood development is very important and easier. Research in neuroscience, psychology and cognition has established that learning is easier in early childhood than later in life, and that nutrition and cognitive stimulation early in life are critical for long-term skill development. Shonkoff and Phillips,(2000), points out that the returns to investments in early childhood are likely to be higher than those to investments made later in life simply because beneficiaries have a longer time to obtain the rewards. Duncan, Ludwing, and Magnuro (2007) indicated that, in the future poverty will be reduced by investing more in today’s young children particularly, investment in prenatal and infant health and high quality pre- school education program will improve children’s future life and increase benefits to society that can easily cover the cost of government. Carneiro and Heckman (2003), additionally note that investments in human capital have energetic complementarities. Currie (2001) also suggests that it may be more effective for a government to equalize initial “endowments” through early childhood development programs than to compensate for differences in outcomes later in life. Heckman & Masterove, (2006), Rolnick, Grunewald, (2007), also added that investment in early education is the best way in reducing costs to the society; like remedial educational programs and reducing participation in criminal activities in the future. “High returns that early childhood programs can pay in terms of subsequent educational attainment and in lower rates of social problems, such as teenage pregnancy and welfare dependency” (Bernanke, 2007 cited in Hechman & Masterove,2008).

Rolnick, the Former Senior Vice President and Director of Research, Federal Reserve Bank of Minneapolis, and Senior Fellow and Co-Director of the Human Capital Research Collaborative, from University of Minnesota put his good observation on the about the importance of investment in Early childhood Care and Education is Governments should only intervene in markets in which there is a market failure and market failures can occur for a variety of reasons, such as when goods have external effects on society or when they have public attributes. Education has long been recognized as a good that has both external effects and public attributes. Education not only benefits those who have more schooling through higher wages, but educated people benefit all of society since they are more likely to participate in civic institutions, including voting, and are less likely to commit crime. Without public support, markets produce too few educated workers (Rolnick,2005).

2.3. Preprimary education and skill development

Rousseau, emphasis that cognitive skill is one of most important one. He also defines, Cognitive skills are the way in which a child organizes information and *the skills include problem solving, creativity, imagination and memory. They embody the way in which children make sense of the world.* Piaget also believed that children exhibit outstanding differences in their thought patterns as they move through the stages of cognitive development. Neuroscience research revealed that how complex cognitive abilities are build on early life which is foundational skills that many cognitive abilities are sensitive to early life exposure (Duncan, et al., 2007). Cognitive ability is the very crucial aspect for human life; but not sufficient it is one aspect of human skill. For many aspects of performance in social life it is not enough. Non cognitive abilities also matter for success both in the labor market and in schooling. They appear to improve non cognitive skills *motivation, persistence, and the like,* with substantial effects on schooling, labor market

outcomes, and behavioral outcomes such as teenage pregnancy child abuse, and participation in criminal activities. They raise achievement test scores, which can be influenced by schooling (Cunha & Heckman, 2006). Chevalier, Finn, Harmon, & Viitanen, (2006) stated that cognitive ability is one of determinant factor in school activities in addition to this non-cognitive abilities also very important; it play a greater role to be successful in schooling as well as labor market in the society.

Brown, (2002), described that social and emotional skills are one of the necessary core cognitive and non cognitive capabilities, a child's ability to handle emotions and work with others provides a foundation for learning in the classroom. Duncan, et al., (2007) also indicate that early period also a sensitive period for the development of socio emotional skill Self-Regulation and School Readiness Self-regulation is necessary for positive social relations with others and for successful learning. To learn anything in a school setting, a child has to ignore the child next to him who is fun to play with and make his mind concentrate on the story the teacher is reading. The abilities to pay attention and to remember things on purpose are also part of self-regulation (Bandy & Moore 2010).

The role of self-regulation in school success from preschool and kindergarten to middle and high school has been documented in a number of studies. Levels of self-regulation actually predict school success in first grade over and above children's cognitive skills and family background. Cognitive self-regulation is linked with students' achievement in school. Children lacking emotional self-regulation are at higher risk for disciplinary problems and are less likely to make a successful transition from preschool to kindergarten. Emotional self-regulation seems to play a part in child flexibility and later adjustment. Children who did not learn self-regulation in preschool can turn into bullies with aggressive habits of interaction that are difficult to break in

later years.. These skills may be reflected in the following behavior: “they are more interested in school and more motivated to learn, they are eager to complete assignments, they are eager to attend school and have good attendance.”(Brown, 2002 Duncan, et al., 2007). Bandy & Moore (2010) stated that, as children and youth develop, the capacity to regulate their emotions and behavior that indicates a shift from vulnerability to competence; and Learning to actively control emotions and behavior begins in early childhood period. The scholars elaborate the issue via simple example: children in the early grades learn to wait quietly or raise their hand before speaking. Gradually children grow older, the process of self-regulation continues as they become more able to think about what they are doing and react for that reason, such as controlling their anger or resisting the urge to cry or act of crying frequently. Increasingly, research is finding associations between young people’s success in controlling their behavior and emotions, and their social competence, school success, and healthy eating habits. According to Bandy and Moore observation, research finds that children who show signs of poor self-regulation skills are at greater risk for peer rejection, social problems, delinquency, and obesity. For these reasons, it is important to build and improve the self-regulation capacity of children and youth at early age of life via early childhood care and education programs.

Bibi &Ali, (2012) ,also revealed that socially well children are happy to have two or three others around, each child is generally content to carry on with his or her individual activities. Children learn many essential facts about their environment, people and objects simply by playing and interacting with their peers. Play may be seen, therefore as one of the miracles of childhood by means of which children discover things essential to their well being and thoroughly enjoy the process of discovery. Play provides children with a variety of essential experiences like, exploratory, emotional, and social experiences as well as experiences of academic achievement.

The Hungarian Kindergarten Education policy (2012), also reported that, gives a high priority to playing as the primary form of kindergarten activities. Play is defined “as a process following free associations which is a fundamental psychic need of the child, to be satisfied on a recurrent daily basis, for long times and, as far as possible, undisturbed. According to the philosophy of Jean Piaget, Early childhood education often focuses on learning through play, which posits that play meets the physical, intellectual, language, emotional and social needs of children. Children's natural curiosity and imagination naturally evoke learning when unfettered. Thus, children learn more efficiently and gain more knowledge through activities such as dramatic play, art, and social games. Tassoni also suggests that, It is important that practitioners promote children's development through play by using various types of play on a daily basis and key guidelines for creating a play-based learning environment include providing “ a safe space, correct supervision, and culturally aware, trained teachers who are knowledgeable about the Early Years Foundation.” The early childhood theorist Davy, also states that Learning through play has been seen regularly in practice as the most resourceful way a child can learn. Rudolf Steiner the theorist of Early childhood education also believed that, play enables children to talk, socially interact, use their imagination and intellectual skills.

A longitudinal study by Magnuson et al. (2007) also disclosed that children who attended pre-school have higher levels of academic skills than their peers who have no the experience.

Adams,(2008), research findings revealed that there is no difference on academic achievement, social and emotional development of students between who attend pre education and who did not. Another study by Berlinski, et al (2005) revealed that Early child care and education experience provide better academic out comes. Study by Bibi&Ali, (2012), also shown that there

is a significant difference in the academic performance between pupils with pre-school education and those without.

Study in Ethiopia by Tasaw (2011) revealed that, children who have been attending kindergarten have scored 24.4% higher in the raw score of the Peabody Picture Vocabulary Test and 19.6 % in cognitive development than those without pre-school experiences which was statically significant.

2.4 Preprimary education and academic performance

Many people believe that preschool education will have an effect on the achievement of students in primary school (Johnson,1995). Researchers demonstrated that early childhood education can work in schools and have found positive results in achievement (Anderson, 1994). Jacinta and Rotich,(2015) also confirm in their study, ECCE play a great role on academic achievement and socialization.

Academic performance refers to us performance outcomes; it indicates that the level that a person has accomplished specific goals that were the focus of activities in instructional situation, specifically either in school levels or college and university levels (Steinmayr, MaiBner, Weidinger, Wirthwein, 2012). According to these scholars the academic achievement, School systems mostly define cognitive goals that either apply via multiple subject areas or include the acquisition of knowledge and understanding in a specific intellectual areas of development. Therefore, academic achievement should be considered to be a comprehensive construct that comprises different domains of learning.

2.5 Gender and Age, and academic performance

Study revealed that there is no difference between male and female on test scores, mathematics achievement and reading skill (Margaret, 2011) . In contrast to, there is significant association between gender and achievement (Jabor, Kungu, Machtmes, Buntat 2011). And also the study findings revealed there is no difference between young and oldest students on test scores and reading skill (Margaret, 2011). Study by Rodriguez,(2015) contradict that students' age is a factor in students academic achievement.

2.6 Preprimary Education in Ethiopia

Normally, compulsory education in Ethiopia starts at age seven in primary schools. Nevertheless, children can join pre-primary schools between age three to six depending on the availability of the program in their areas it can be kindergarten, "0" classes and child to child as it is mentioned in introductory part. preprimary education in Ethiopia is structured in the form of kindergartens and predominantly provided by the private sector, Non-Governmental Organizations (NGO), communities and faith-based organizations,(Tassaw 2011;2012). In addition, primary education is currently taken as a substitute for preschool education in most parts of the county. That is, majority students are enrolled to primary education without having any exposure to preschool program.

The studies in Ethiopia, Woodhead (2009); Tassaw (2011;2012) shows in Ethiopia children from Urban areas do attend pre- school which is almost restricted for them ,about 58% ;and less than 4 % is for rural children. In addition to this, private schools are predominant in provision of ECCE; which is over 70% and the access is for the more advantaged group of urban children. Young Lives study (2013), also confirmed that, in Ethiopia children who attend pre- school are very few in number those who attend are from urban and better family in education and economic status.

Even though there is good start regarding pre education in primary schools side by side; it is not formal and sufficient as that of kindergarten schools provision.

Young Lives (2013) disclosed that, in Ethiopia the system of education faces a number of constraints; from these the major problem is that, the rapid expansion of the education system especially primary, secondary, high schools and universities are highly expanding, that has left a considerable financial gap between available fund and estimated cost of investments needed to bring improvement quality. This is also obstacle limiting the availability of resource and financial support which are crucial to support quality pre- school education. But still studies in Ethiopia strongly believe that, investment in early childhood education can greatly contribute to the improvement psychosocial, cognitive development and academic performance of the students.

2.7. Policies on preprimary education

In terms of policies pertaining to children, Ethiopia has committed itself to several legislations. One of the most influential declarations in education adopted in 2000 by the Dakar Framework for Action was the first EFA goal. Furthermore, Ethiopia is one of the signatories to the United Nations Convention on the Rights of the Child, signed in December 1991. In addition, the need for children's development has been duly recognized in the country's education, health, and social welfare policies. The Ethiopian health policy has also proclaimed the need to facilitate children's and family health care in order to combat childhood diseases. Parallel to this, the Ethiopian Education and Training Policy (1994) highlights the need for children's overall development during the preschool years. Likewise, the nation's social welfare policy (1996) outlines the country's commitment to fulfilling various social services targeting the care and

security of children. In tune with the international commitment, the Ethiopian Government has embarked on a continuous process of reengineering the issue in its education and training policy and in the past four ESDPs. The first five-year plan of the ESDP-I was launched within the framework of the ETP and the following three year ESDP-II plans did not consider ECCE as absolutely necessary. Not until the third five year ESDP-III plan, was ECCE given the needed policy support by the government to create conducive policy environment and support mechanisms for the participation of various stakeholders. ECCE received much focus in ESDP IV (2010 to 2014/15), which provides a useful analysis of lessons learnt from ESDP III (2005/06 to 2010/11). Tangible program outcomes and targets were set than ever before the preceding ESDPs through different approaches to meet the objective of preprimary education as stipulated in EFA documents. It has placed mainly two key outcome targets: to increase GER from 6.9% in 2009/10 to 20% in 2014/15 and to establish a pre-primary class in all rural and urban primary school compounds (MoE, 2010:29). However, despite the presence of these statements in different sectors of governmental policy and the comprehensive inclusion of preprimary education in the ESDP IV, ECCE in Ethiopia was one of the most neglected areas.

Chapter Three

3. Method of the study

3.1. Research design

The intention of this study is to collect data specific to Impact of preprimary Education on academic performance. In order to meet this purpose causal-comparative (Prospective causal-comparative design) was employed. There are two types of causal-comparative research designs: retrospective causal-comparative research and prospective causal-comparative research. Retrospective causal-comparative research requires that a researcher begins investigating a particular question when the effects have already occurred and the researcher attempts to determine whether one variable may have influenced another variable. Prospective causal-comparative research occurs when a researcher initiates a study beginning with the causes and is determined to investigate the effects of a condition. By far, retrospective causal-comparative research designs are much more common than prospective causal-comparative designs (Gay et al., 2006).

3.2. The target population of the study

Target populations for this study were grade 3 students of a primary school from Hossana city administration.

3.2.1. Sampling

There are 11 government primary schools in Hosanna town out of the 11 schools Haile Bubamo school was selected randomly. From the selected school grade 3 students were selected; and then two sections that were of the learning media via Hadiya language were selected to keep

homogeneity of the groups. The sample study comprised of 91 pupils, 30 were with KG, 30 were with “O” class and 31 were without preprimary education attendance.

3.3. Data collection instruments

Document analysis and test which was developed by the researcher were used.

3.3.1 Document analysis

Document analysis (school records of average score of grade three student in 2015/2008 academic year of first semester. The average score was the five subjects: English, Math Environmental science, Amharic, Hadiya language and---and the scores which were already calculated by the teachers were taken. The minimum score of the average score for KG was 50 and maximum score 94.16; for 0 class 50 minimum score and 83.30 maximum score; for without preprimary education 40 minimum score 78.50 maximum score. Mean score for KG 67.2283; for 0 class 62.7917; for without 58.8758.

3.3.2. General knowledge test score

The purpose of the test was firstly to triangulate the score which was received from school record; second, to differentiate the performance of the three groups of students. Subjects included in the test were English, Math, Environmental Science, Amharic and Hadiya Language. 40min was required for the administration of the test. True-False , Multiple choice matching and fill in the blank space was the form of the test. The minimum score for KG was 25 and maximum 70, for 0 classes minimum 20 and maximum 65 for without preprimary attendance minimum 20 and maximum 60. Mean score for KG 52.8333, for 0 class, 43.0 and for without preprimary education attendance 37.5806.

Initially 25 questions were constructed , before administering to final sample, content validity and reliability of the test was evaluated On 20 pilot samples. With regard to the results of the

Pilot testing, five items had been deleted and amendments are made to others. Internal consistency factor and Cronbach's alpha was used as the standard way of assessing its reliability. In the common situation where a scale is formed from multiple items that are averaged or totaled together, Cronbach's alpha is the standard index of the reliability of the pooled. The application of the Spireman Brown equation showed a consistency factor of 0.79. The application Cronbach's alpha equation showed a reliability coefficient of 0.85, a high coefficient which confirms a high degree of reliability for the instrument (Robert Elliot, 2002).

The SPSS Reliability procedure was used to perform the computations. And the test at final version consisted of 20 questions.

-see (Appendix)

3.4. Procedure of data collection

At first, a pre-visit was made the school for initial contact. Then the aim of the research was explained to prospective participants to maintain the willingness for cooperation. Next, the students with and preprimary were selected based on the independent variable. The selected students and teachers who facilitate the study conditions were then contacted and notified about the purpose of the study and their willingness to participate in the study was obtained.

In the selected school, students' academic achievements were measured through recording the average scores, to assess the academic performance of the students and test was developed by the researcher. The grade 3 students' roster was read thoroughly before the process of copying began; and then the process of copying has been done. After that, test was administered for the three study groups.

3.5. Procedure of data analysis and interpretation

After the necessary data was collected from master roster and the test, tabulation and analyses were carried out using SPSS 20. Different statistical methods like, percentage, mean, standard and ANOVA were employed for analysis purpose. Generalized linear model also used to see the association between early childhood care and education and demographic characteristics of students (gender and age) SPSS Package was used to run the analysis by coding attending KG (1), "0" class (2) and without ECCE (3). Finally interpretations of the results and plausible recommendations have been drawn based on the major findings of the study.

3.7 Ethical consideration

This study was conducted by taking all ethical issues of the research in to consideration. Participants of the study were clear with the purpose of the study and then were asked for their informed consent to participate in the study

Chapter four

4. Result and interpretation

This section examines the effect of KG, 0 class on students' academic achievement. In addition, it assesses the association between academic achievement and demographic characteristics of student (age and gender).

The sample size (N) for the groups with KG, O class and Without ECCE was 91 of this 30 (32.98% KG) , 30(32.98% O class) and 31(34.06% without ECCE). Out of 91 students 18/19.78% are male KG,13/14.3% are female. Out of 91 O class 14/15.4% male and 16/17.58 are female; out of the total number 13/14.3 are male without ECCE and 17/18.68% are female. The gender difference, in the table showed that 54/59.34% are male and 46/50.6 female.

Table 1: demographic characteristics of the study groups

Study group	No	%	Gender	No	%	Age category	No	%
KG/Nursery	30	32.98	M	18	19.78	9-12	30	32.98
			F	13	14.3			
O class	30	32.98	M	14	15.4	9-12	30	32.98
			F	16	17.58			
without ECCE	31	34.06	M	13	14.3	10-13	31	34.06
			F	17	18.68			
Total	91	100		91	100		91	100

➤ **Results of ANOVA Analysis**

The ANOVA results table 2 shows that the difference between the three groups in academic achievement is statistically significant. Both academic achievement variables- semester class average and test achievements were significant. $F(2, 88) = 5.602$, $p = .005$ for average achievement and $F(2, 88) = 13.261$, $p < 0.001$ for the test achievement. These results revealed that preprimary education depending on the nature of programs has a significant positive impact on academic achievement.

Table 2: Results of ANOVA Analysis

		Sum of Squares	Df	Mean Square	F	Sig.
Aver	Between Groups	1064.367	2	532.183	5.602	.005
	Within Groups	8359.571	88	94.995		
	Total	9423.937	90			
Test	Between Groups	3634.043	2	1817.022	13.261	.000
	Within Groups	12057.715	88	137.019		
	Total	15691.758	90			

Table 3 shows that the means of the three groups for average achievement of KG (M=67.2283, SD=11.66383), “0” class(M=62.79, SD=8.44971) and of without ECCE experience (M=58.8758 SD=8.83880); and the mean for test achievement of KG

(M=52.833,SD=12.50402), 0 class (M=43.00, SD=10.95445) and without ECCE (M=37.5806, SD=11.60969).

Table 3 the means and standard deviation of the three groups

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Aver	Kg	30	67.2283	11.66383	2.12952	62.8730	71.5837	50.00	94.16
	O	30	62.7917	8.44971	1.54270	59.6365	65.9468	50.00	83.30
	Non	31	58.8758	8.83880	1.58750	55.6337	62.1179	40.00	78.50
	Total	91	62.9203	10.23281	1.07269	60.7892	65.0514	40.00	94.16
Test	Kg	30	52.8333	12.50402	2.28291	48.1643	57.5024	25.00	70.00
	O	30	43.0000	10.95445	2.00000	38.9095	47.0905	20.00	65.00
	Non	31	37.5806	11.60969	2.08516	33.3222	41.8391	20.00	60.00
	Total	91	44.3956	13.20427	1.38418	41.6457	47.1455	20.00	70.00

Under Table 4 Turkey's post hoc multiple comparison analysis result shows Statistically significant difference in academic achievement among the three groups . HSD Test indicate that, KG group and none group differ significantly in their average achievement ($p < .05$, $d = 8.35$) as well as in achievement test ($p < .01$, $d = 15.25$) KG group and O group differ significantly in this measure ($p = .05$, $d = 9.83$)

There is difference within K.G and without preprimary education for average achievement, but the difference between K.G and O class is not statistically significant. Significant difference with all three groups for achievement test was observed.

Table: 4. Post hoc multiple comparison test on the three programs based on the average and test achievement

Dependent Variable	(I) program	(J) program	Mean Difference (I-J)	Std. Error	Sig.
Aver	Kg	O	4.43667	2.51655	.188
		Non	8.35253*	2.49617	.003
	O	Non	3.91586	2.49617	.265
Test	Kg	O	9.83333*	3.02236	.005
		Non	15.25269*	2.99788	.000
	O	Non	5.41935	2.99788	.173

*. The mean difference is significant at the 0.05 level.

Figure 1: Mean plot of the average achievement

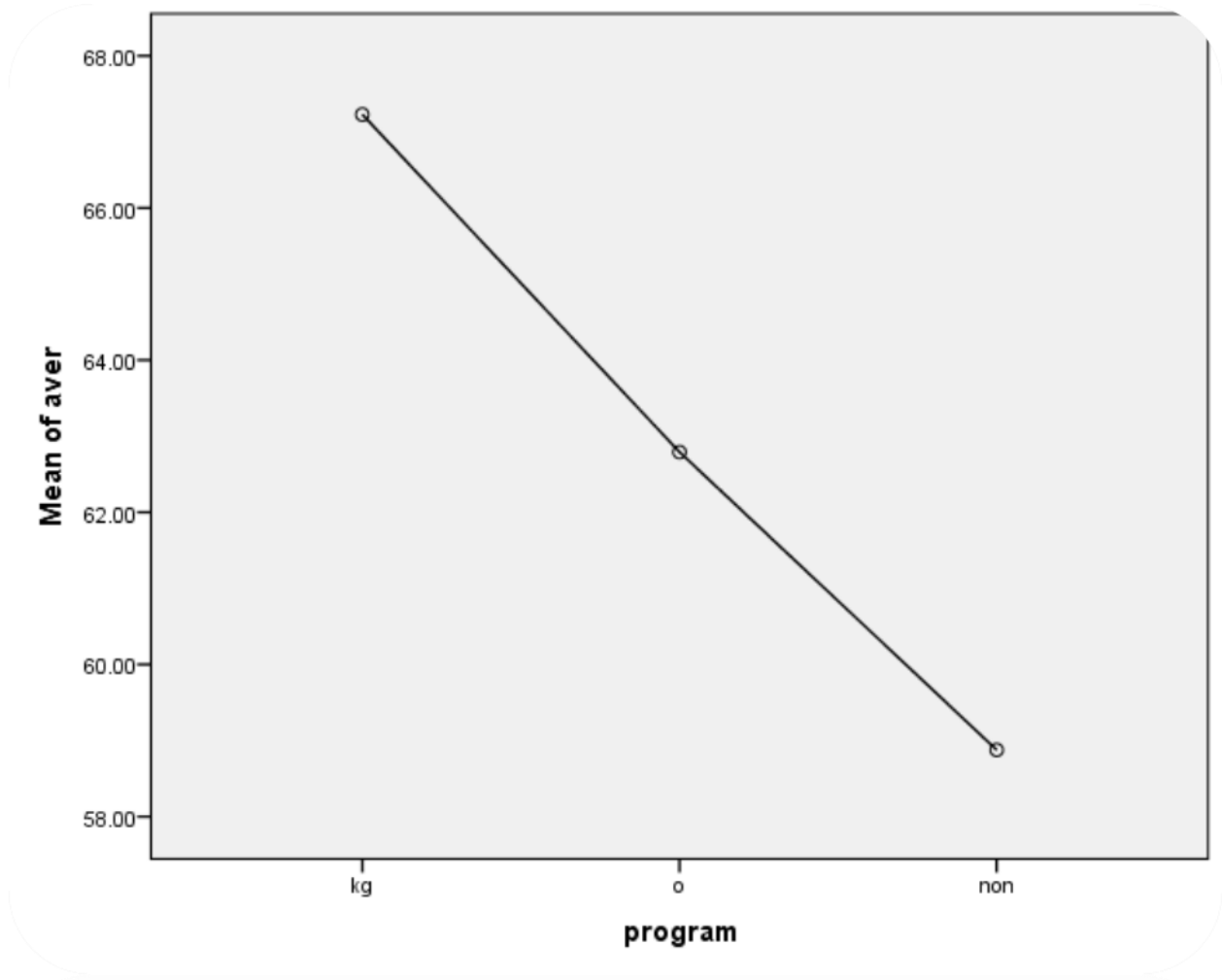
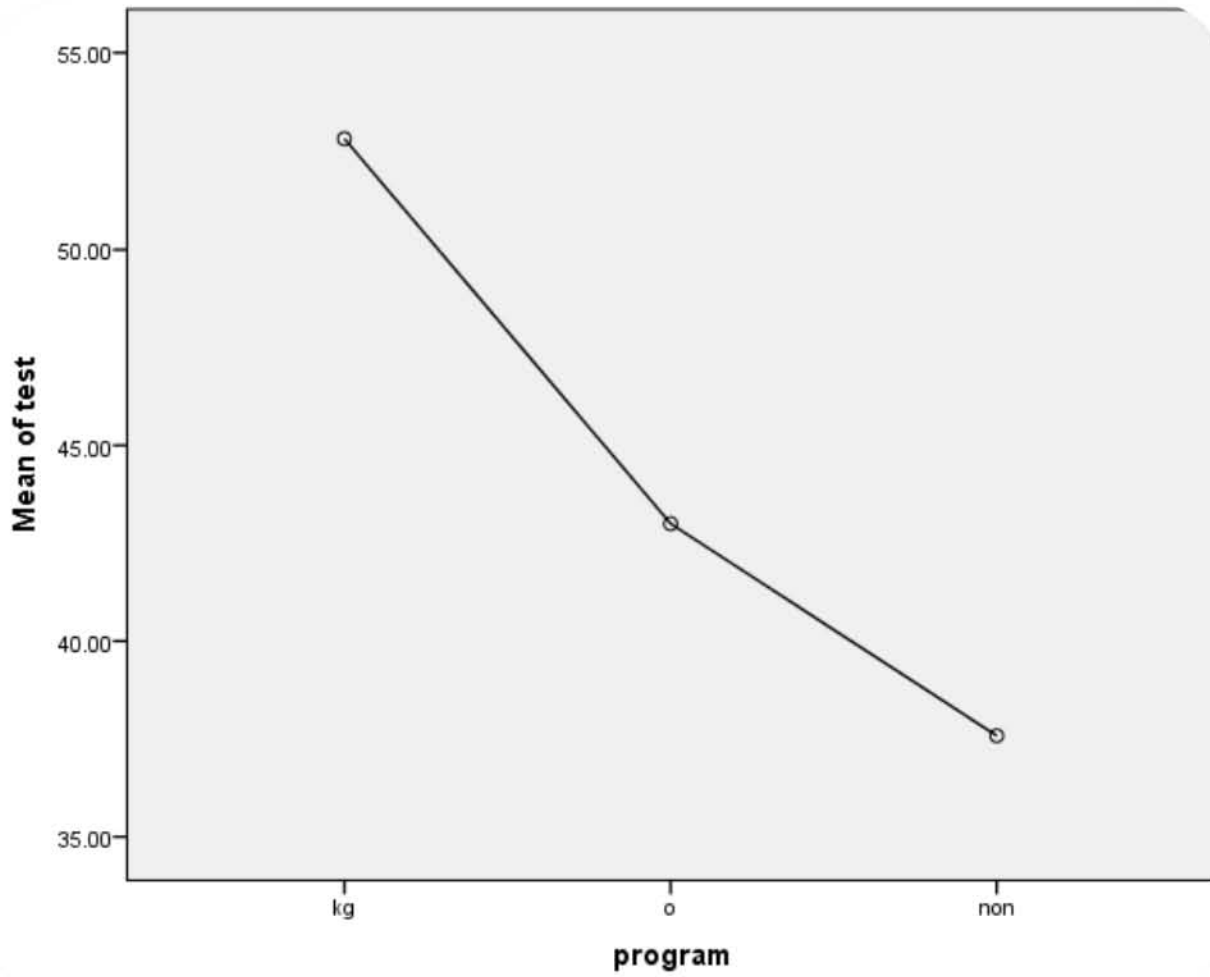


Figure 2: Mean plot of the Test

➤ *Results of Generalized linear model analysis*

Generalized linear model analysis was undertaken to examine the effect of Early childhood care and education with students' average and test achievement when other factors like gender and Age factors are taken in to account. The variables were coded as: the three programs (KG=1; 0 class =2; without ECCE =3); gender of student (1 = male, 2 = female).

Table 5 shows, the means for average and test achievement of the three programs with respect to their gender shows that: the mean for average KG (male M=69.7076, SD=12.88445 female M=63.9862, SD=9.34528). "0" class (for male M=64.8314, SD=10.41783, female M=61.0069, SD=6.05755) and of without ECCE experience (male M=60.3300 SD=7.96744, female M=57.8256 SD =9.50117). The mean for test achievement of the three programs with respect to their gender was also examined .the result shows that KG (male M=56.1765, SD=13.17306, female M=48.4615, SD=10.48503), 0 class (for male M=47.1429, SD=10.86885, female M=39.3750, SD=9.97917) and of without ECCE experience (male M=40.3846 SD=12.82276, female, M=35.5556, SD=10.55642).

Table 5: Means and standard Deviations of average and test achievement based on gender.

Programs	<u>Male</u>			<u>Female</u>			<u>Total</u>		
	n	M	SD	n	M	SD	n	M	SD
KG	17	69.7076	12.88445	13	63.9862	9.34528	30	67.2283	11.66383
		56.1765	13.17306	13	48.4615	10.48503	30	52.8333	12.50402
0 class	14	64.8314	10.41783	16	61.0069	6.05755	30	62.7917	8.44971
		47.1429	10.86885	16	39.3750	9.97914	30	43.0000	10.95445
WoECCE	13	60.3300	7.9674	18	57.8256	9.50117	31	58.8758	8.83880
		40.3846	12.82276	18	35.5556	10.55642	31	37.5806	11.60969
<u>Total</u>	<u>44</u>	<u>65.3855</u>	<u>11.29204</u>	<u>47</u>	<u>60.6126</u>	<u>8.62668</u>	<u>91</u>	<u>62.9203</u>	<u>0.23281</u>
		<u>48.6364</u>	<u>13.78251</u>	<u>47</u>	<u>40.4255</u>	<u>11.41270</u>	<u>91</u>	<u>44.3956</u>	<u>13.20427</u>

N B: bold numbs stands for test achievement

As indicated under the Tables 6.7.8 and 9 Generalized linear model analysis was undertaken to examine the effect of Early childhood care and education with students' average and test achievement when other factors like gender and age are taken in to account. Results from this analysis shows there was no a significant association between Gender and program on average achievement ($p = .813$). This means the interaction (gender*program) is not significant, the effect of KG, 0 class and without ECCE on average achievement is the same for both gender.

Similarly the interaction between Gender and programs on test was not a significant ($p = .849$). This means the interaction (gender*program) is not significant, the effect of KG, 0 class and without ECCE on Test achievement is the same for both gender.

The same result was also observed with respect to Age and programs ($p = .722$). This means the interaction (age*program) is not significant, the effect of KG, 0 class and without ECCE as the table-of Generalized Linear model comparison of programs and age based on test achievement also found no significance ($p = .237$).

Table: 6 General linear-Comparison of programs gender and age based average and test achievement.

Table:6 Generalized linear model-Comparison of programs gender based on average achievement.

Tests of Between-Subjects Effects							
Dependent Variable: aver							
Source		Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Hypothesis	354709.976	1	354709.976	982.327	.020	.999
	Error	361.092	1	361.092 ^a			
Program	Hypothesis	900.128	2	450.064	23.113	.041	.959
	Error	38.944	2	19.472 ^b			
Gender	Hypothesis	361.092	1	361.092	18.540	.050	.903
	Error	38.970	2.001	19.476 ^c			
program * gender	Hypothesis	38.944	2	19.472	.208	.813	.005
	Error	7961.858	85	93.669 ^d			

Table :7 Generalized linear model-Comparison of programs gender based on test

Dependent Variable: test

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Hypothesis	177395.542	1	177395.542	172.916	.048	.994
	Error	1025.904	1	1025.904 ^a			
Program	Hypothesis	3134.784	2	1567.392	73.853	.013	.987
	Error	42.446	2	21.223 ^b			
Gender	Hypothesis	1025.904	1	1025.904	48.326	.020	.960
	Error	42.483	2.001	21.229 ^c			
program * gender	Hypothesis	42.446	2	21.223	.164	.849	.004
	Error	10992.687	85	129.326 ^d			

Table 8: Generalized linear model-Comparison of programs Age based on test Tests of Between-Subjects Effects

Dependent Variable: aver

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Hypothesis	106976.585	1	106976.585	1394.918	.000	.963
	Error	4095.593	53.404	76.690 ^a			
program	Hypothesis	384.715	2	192.358	3.191	.109	.499
	Error	386.091	6.405	60.280 ^b			
age	Hypothesis	241.363	5	48.273	.646	.668	.127
	Error	1657.885	22.176	74.759 ^c			
program * age	Hypothesis	286.274	5	57.255	.571	.722	.035
	Error	7822.014	78	100.282 ^d			

Table :9 Generalized linear model-Comparison of programs Age based on test

Dependent Variable: test

Tests of Between-Subjects Effects							
Source		Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Hypothesis	49241.503	1	49241.503	325.858	.000	.934
	Error	3489.831	23.094	151.113 ^a			
Program	Hypothesis	2153.888	2	1076.944	6.036	.040	.685
	Error	991.625	5.558	178.421 ^b			
Age	Hypothesis	861.690	5	172.338	1.069	.428	.327
	Error	1770.399	10.980	161.237 ^c			
program * age	Hypothesis	910.057	5	182.011	1.390	.237	.082
	Error	10213.760	78	130.946 ^d			

Chapter Five

5. Discussion and Summary

5.1 Discussion

The purpose of the study was to investigate the effect of early childhood care education experience on the academic achievement of primary school children.

The effect was tested based on two basic research questions formulated at the introductory section of the study and the results presented under the result section are thoroughly discussed in line of both research question.

With regard to the first question that reads as “Is there any significant difference on academic achievement between students who had KG, 0 class and did not have ECCE experience?” the ANOVA result as depicted in the table 2, is clearly indicated that the difference among the three groups in academic achievement is statistically significant across both academic achievement of children attending KG/nursery schools out performed than both one year ”O” class and children did not have ECCE experience and “0” class also somehow better than that of students did not have exposure. This indicates that Early childhood care education has a positive impact on the academic achievement of primary school. The result of this study finding proved to be consistent with previous findings. For example Amogne,(2014); Berlinski, et al (2005) have disclosed that having Early childhood care and education has a significant effect on academic achievement; even the proportion of being in the top achieving group of student with early childhood care and education was significantly higher as compared with student who had no experience. Magnuson et al. (2007); Berlinski, et al (2005), also confirm that students who attended early childhood care and education have higher level of academic skills and outcomes

than their peers who have no any experience. Finding by Tasaw (2011) children who have been attending kindergarten have scored 24.4% higher in the row of PPV test and 19.6% in cognitive development than those without ECCE experience which was statistically significant. Study by Osakwe,(2009) also confirm that, pupils with pre-primary education significantly differed in cognitive ability with pupils without pre- primary education; Z-value of 2.05 was greater than the critical value of 1.96 with Df 498 at 0.05 level of significance.

However the result of this study contradicts with Adams,(2008), revealed that there is no difference on academic achievement, social and emotional development of students between who attend pre education and who did not.

In response to the second research question, generalized linear model analysis was undertaken to examine the demographic characteristics of students with the association of academic achievement.

The study also found, there was no a significant association between Age and the two achievement variable over the three programs ($p = .722$). The effect of KG, 0 class and without ECCE as the table-of Generalized Linear model comparison of programs and age based on test achievement also found ($p = .237$). Similar findings by Margaret (2011) found no significant association between age and achievement

This study found, there was no significant association between gender and academic achievement; in both test and average of all subjects. The result of this study proved to be consistent with other finding like; (Margaret 2011). In contrast to, there is significant association between gender and achievement (Jabor, Kungu, Machtmes, Buntat 2011).

5.2. Summary

This study focused on four research questions to determine the difference between students average academic performance and general knowledge test performance students and students gender and age for student who attended KG, 0 class and without preprimary education in the Haile Bubamo primary school Grade 3 student. Comparison of the three groups on the average semester score and general knowledge test were found to be significant. Therefore this study indicated that student attended KG, and 0 class, are factors on students general knowledge test score and KG ,and without preprimary education attendance are factors in students average semester score in grade 3 student.

Research question 1 questioned the significant difference in recorded average performance among the three groups. The result indicated that there was significant difference among the three groups. Research question 2 questioned the relationship between preprimary education attendance and semester average score performance for the two gender and different age groups. The result indicated that the relation was not significant; indicating that student gender and age did not have a significant impact on average performance of the student.

Research question 3 questioned is there significant difference in the general knowledge test score among three groups. The result indicated that there was statistically significant difference among the three groups on general knowledge test performance. Research question 4 questioned is there any relationship between the two gender and different age groups on both average score performance and general knowledge test scores. The result indicated that here was no significant relation between the gender and age.

This study indicated that, for this population, attending preprimary education based on the programs was a factor in students' performance. However age and gender was not a factor in students' academic performance in third grade student.

Chapter six

6. Conclusion , Implication and Recommendations

6.1 Conclusion

This study has not included wider geographical area some residential variables which are likely to be associated with children's academic performance. Second it was recognized that it didn't cover the whole primary schools in the sense that the data from a primary school cycles may not be the same with a single class level. Having this in mind, the major findings of this study are summarized as:

There is significant difference on academic performance between students who had KG, "0" class, and did not attend.. Children attended KG schools out performed; "0" student were better than children did not attend preprimary education.

6.2. Implication

The result of this research study highlighted the academic advantage for student who attended KG and 0 classes on average semester score on general knowledge test score advantage for only student who attended KG program. The study result based on gender and age showed no academic advantage in their average semester result as well as general knowledge test performance for third graders in Haile Bubamo primary school.

6. 3. Recommendation

In the view of the results identified in the study, the following recommendations were given:

- The study would suggest that, Early childhood care education should receive an attention aimed at expanding its coverage as part of primary school so as to make it affordable for all students.
- There is the need of coordination among stakeholders at all levels to expand the service for all children.
- Further study with a large sample and wider geographical area should be conducted to reach a reliable conclusion.

References

- Adams,(2008). The impact of pre education attendance on academic performance of primary school student. Vol. 5(3): 82-90.
- Amogne, A. (2014). The impact of attending pre-school education on later academic achievement of students: Empirical evidences from Dessie, Vol. 4(3): 72-80.
- Bibi, W. & Ali, A. (2012). The Impact of Pre-school Education on the Academic Achievements of Primary School Students. The Dialogue; volume.VII number.2:152-159.
- Bandy & Moore (2010). Self regulation and school success.
- Barnett, W.S. (1995).Childhood Programs on Cognitive and School Outcomes. The Future of Children; volume 5 number. 3: 25-50.
- Barnett,(2004). Better Teachers, Better Preschools: Student Achievement Linked to Teacher Qualifications.
- Barnett, W. S. (2008). Preschool education and its lasting effects: Research and policy implications. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. Retrieved on 15/12/2015 from <http://epicpolicy.org/publication/preschool-education>.
- Berlinski, Galiani & Gertle (2006). The effect of pre-primary education on primary school performance
- Brown, (2002), Social and emotional skills and cognitive and non cognitive capabilities

- Carneiro, P., Crawford and Goodman. (2006). "Which Skills Matter? Center for the Economics of Education", London School of Economic.
- Chevalier, A. Harmon, C. and Viitanen, T. (2006). The economics of Early childhood care and education.
- Cunha, F. Heckman, L. Lochner, and Masterov, V.D. (2005). Interpreting the evidence of life-cycle skill formation. In Handbook of the economics of education, ed. F. Hanushek and F. Welch, 697– 812. Amsterdam: North Holland.
- Connelly, C. (2008). "Early Childhood Education in Buffalo", New York.
- Epstein, A.S. (2003). How planning and reflection develop young children's thinking skill.
- Gay, L., Mills, G., & Airasian, P. (2006). Educational research: Competencies for analysis and applications. New Jersey: Pearson Education, Inc.
- Harrison, L.J. Goldfeld, S. Metcalfe, E. and Moore, T. (2012). Early learning programs that promote children's developmental and educational outcomes. Institute of Health and Welfare; Australian.
- Hillman and Williams, (2015). Early year's education and childcare
- HcAE, (2015). Hosanna city administration Education office an annual report.
- Jacinta, R. M. Rotich, K. S. (2015). "Impact of Early Childhood Education on Pupils' Learning in Primary Schools in Kenya" Journal of Educational Studies, Volume.1, Number.1: 2377-3936.

- Johnson,(1995). The effectiveness of preschool education on academic achievement.
- Margaret, J. (2011). Students' academic success as related to students age and gender.
Dissertation paper. University of Tennessee: Chattanooga.
- MoE (1994). Education and training policy. Addis Ababa, Ethiopia.
- MoE (2005). The Federal Republic of Democratic Ethiopia. Education statistics (2004/05).
Addis Ababa, Ethiopia: Education Materials Production and Distribution Agency.
- MoE (2008). The Federal Republic of Democratic Ethiopia. Education statistics (2007/08).
Addis Ababa, Ethiopia: Education Materials Production and Distribution Agency.
- MoE (2013). Annual educational statistical abstract. Addis Ababa, Ethiopia: EMIS, Planning and
Resource Mobilization.
- Mulugeta, T. (2015). Early child care and education attainment in Ethiopia: Current status and
challenges. African Educational Research Journal, 3(2): 136-142.
- Osakwe,N. (2009). The effect of Early childhood education experience on the academic
performances of primary school children. Journal of Educational Studies, volume. 3
number 2: 143-147.
- Piaget, (1956), the effect of environment on the growth of mental structures of the child.
- Robert Elliot, (2002). The reliability coefficient of the instrument.
- Rodriguez, A. (2015)."Impact of Chronological Age Differences on the Academic Performance
of Students in a First-Grade Classroom" .Education Undergraduate Research.Paper 21.
Retrieved on 15/3/2016/ from http://knowledge.e.southern.edu/undergrad_ed/21.

- Rolnick,(2005). Investing in Early Childhood Development is Smart Economic Development
- Rolnick and Grunewald. (2007). Achieving High Return on Early childhood Intervention: evidence proposal and the Minnesota pilot.
- Smith, (2014). School Completion/Academic Achievement- Outcomes of Early Childhood Education. New Zealand.
- Tassew, W. (2011). The Effects of Early Childhood Education Attendance on Cognitive Development: Evidence from Urban Ethiopia. Paper for the CSAE Conference 2011 on Economic Development in Africa at St Catherine's College, Oxford, 20-22 March 2011.
- Tirussew, T and Tezera, F. (2001). "Early Childhood Care and Development Interventions in Ethiopia" and "Child Labor in Ethiopia:Its Conditions and Link with Early Childhood Education"
- Tirussew,T;Teka, Z; Belay, T;Belay, H; Demeke, G.(2007). Status of Early childhood care and Education in Ethiopia.
- UNESCO (2006). EFA Global Monitoring Report. Strong foundations: Early childhood care and education. Paris: UNESCO.
- UNESCO (2007). EFA Global Monitoring Report. Strong foundations: Early childhood care and education. Paris: UNESCO.
- UNESCO (2014). EFA Global Monitoring Report. Teaching and Learning: Achieving Education for All. Paris: UNESCO.

UNESCO International Bureau of Education (IBE), (2006). Ethiopia Early Childhood Care and Education (ECCE) programmes. Country profile prepared for the Education for All Global Monitoring Report 2007.

UNESCO (2006). EFA Global Monitoring Report. Strong foundations: Early childhood care and education. Paris: UNESCO.

Woodhead, M. Ames, P. Vennam, U. Abebe, W. and Streuli. N. (2009).Equity and quality? Challenges for early childhood and primary education in Ethiopia, India and Peru. Working Paper No. 55, Studies in Early Childhood Transitions. The Hague, The Netherlands: Bernard van Leer Foundation

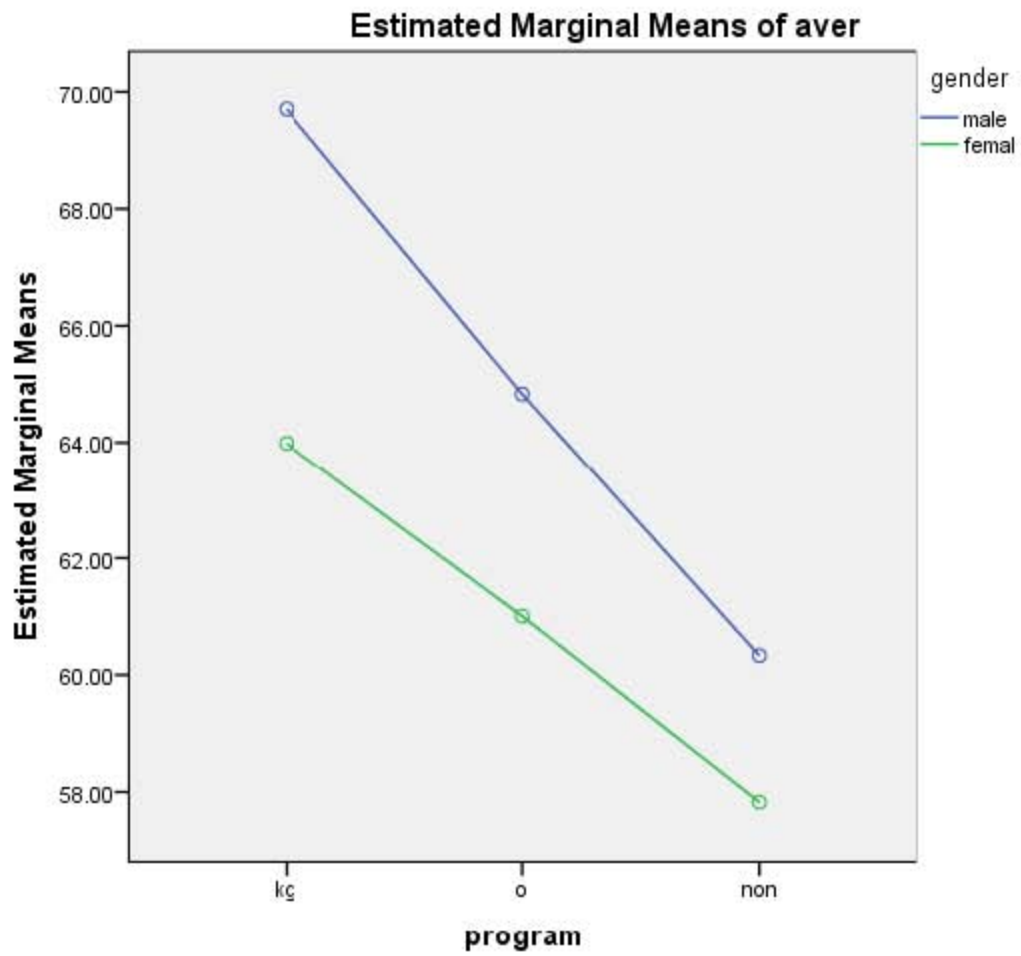
Wylie&Carr,(2008). “The long-term contribution of early childhood education to children’s performance: Evidence from New Zealand.” International Journal of Early Years Education, 11(1), 69-78.

Young Live. (2013). Why public investment in pre-school education is needed? ETHIOPIA Policy Brief 2.Available on www.younglives-ethiopia.org (Accessed on 15/11/2015).

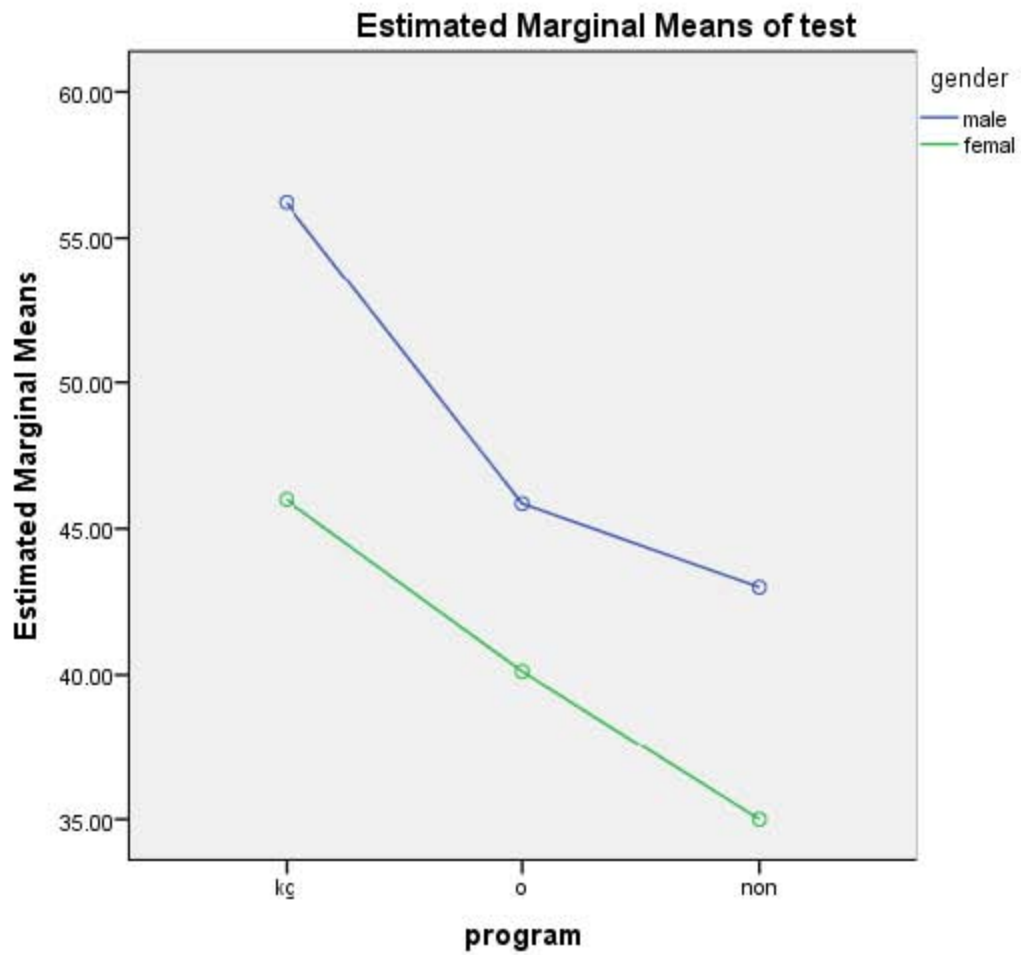
Yoshikawa, Weiland, Brooks-Gunn, Burchinal, Espinosa, Ludwig, Magnuson, Phillips, and Zaslow.(2013). Investing in Our Future: The Evidence Base on Preschool Education.

Appendix B

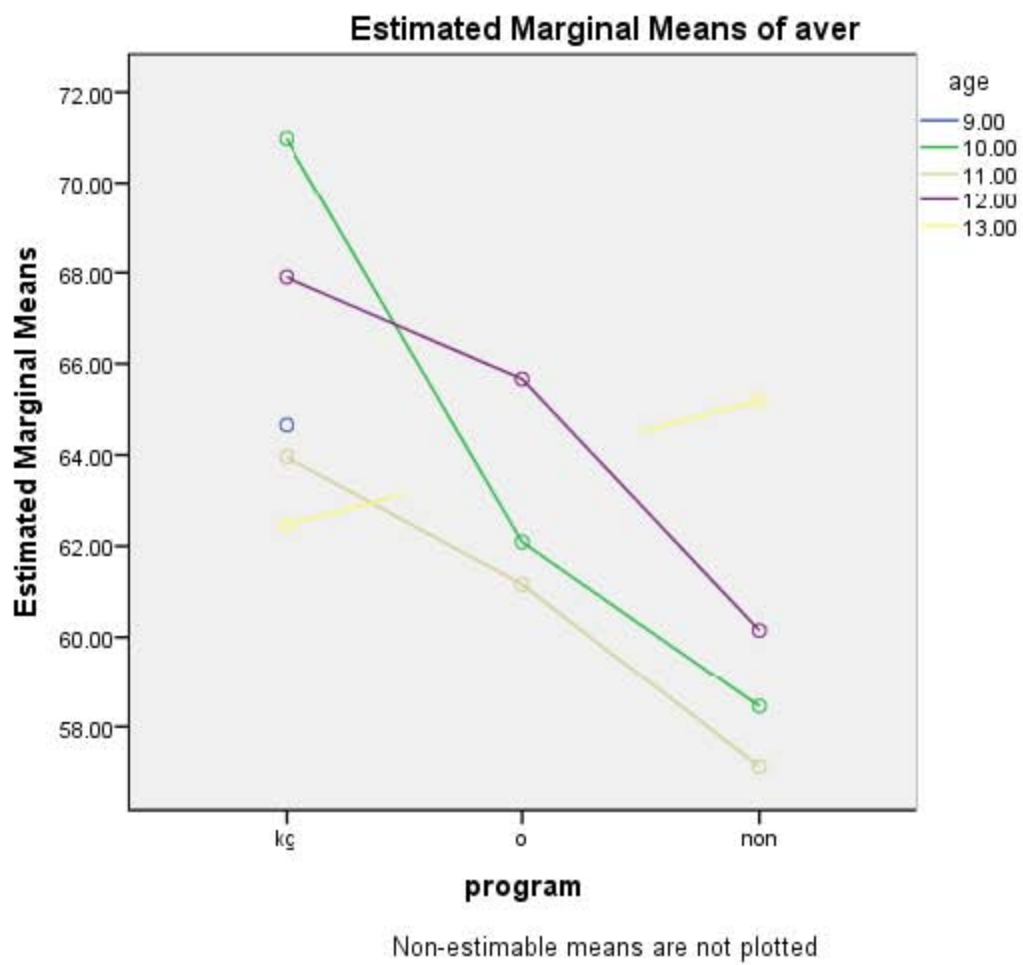
The marginal means for average semester result of male and female



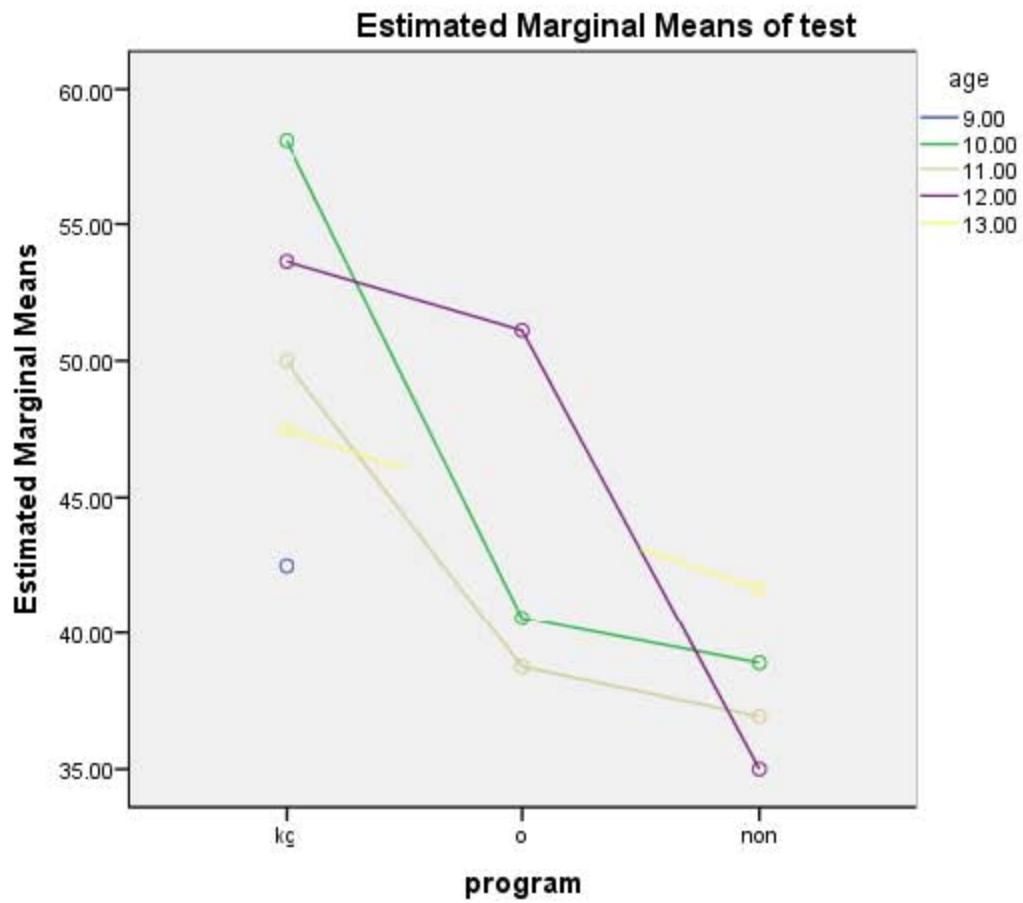
The marginal means for test result of male and female



Shows the profile plots of estimated marginal means of average of semester result based on their ages.



Shows the profile plot of estimated marginal means of average of semester result based on their ages.



Non-estimable means are not plotted