HOME, CHILD LABOUR AND SCHOOL PARTICIPATION AS DETERMINANTS OF ACHIEVEMENT IN BIOLOGY AMONG SECONDARY SCHOOL STUDENTS IN THE SOUTH – WEST, NIGERIA

BY

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MATRIC NUMBER: 181916

A Thesis Submitted to International Center for Educational Evaluation,
Institute of Education, University of Ibadan, Ibadan.

In partial fulfilment of the requirements for the Degree of

DOCTOR OF PHILOSPHY

of the

UNIVERSITY OF IBADAN

JUNE 2019

CERTIFICATION

This is to certify that this study was carried out by Michael Segun **OJETUNDE** in the Institute of Education, University of Ibadan, Ibadan, Oyo State, Nigeria.

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ACKNOWLEDGEMENTS

My appreciation goes to the Almighty God who gave me the privilege and strength to complete this programme. I am indebted to my dynamic supervisor, Professor Adenike E. Emeke, who is quite understanding, caring, accommodating and tolerant despite her busy schedule, and for also her financial and moral support all the time. She always motivates me through her prompt response to any challenge I have with my project and other things related to my academics. I am also grateful to the Director of Institute of Education, Prof. F.V Falaye, and other members of staff for their immense contributions to my academic and moral life. My special thanks goes to Prof. J.G. Adewale, Prof. E. A. Okwilagwe, Dr J.O. Adeleke and Dr Junaid, to mention a few.

I appreciate all the academic and administrative staff of the Department of Educational Management for their tolerance during my Youth Service (years 2012/2013) and their support in one way or the other during my M.Ed and PhD programmes, most especially Prof. F.S. Akinwumi, Dr E.A. Isah, Dr J.O. Oyebanji and Dr A.O. Atanda.

My sincere gratitude goes to the family of Prof. Babalola for the all round support I received during my stay with them. Your family will forever be remembered in all the halls of my praise. I am alsoents right from my childhood days and gave me all the necessary support.

I cannot forget my childhood friend, Dr (MBBS) Olubayo Oyetunde, who served as a source of encouragement to me right from my primary school days till the time I gained admission into the University, and for his continual provision of tips on life issues all along.

Permit me to also express my gratitude to all the youths I have pastored and those I am still pastoring for their encouragement and periodic questioning on the stage of my programme, most especially “my first daughter” inperson of Samuel Uchechi. My appreciation goes to the whole family of the Deeper Life Bible Church for the undiluted word of God and spiritual encouragement I get through them on a daily basis.

I cannot but express thanks to my Late father and mother, Mr Albert and Mrs Alice Ojetunde, for their care and love and timely teachings on howto be diligent. This is also my way of saying thank you to my siblings, aunties, uncles and other distant relations for the love shown to me and shared amongst them.

My unreserved appreciation goes to my unknown wife who I have committed to God's hands to keep till the day we shall meet. God bless you all. Amen.

ABSTRACT

Biology is an important school subject to students who aspire to be scientists. Trends of students' performance in external examinations indicated that less than 50% of candidates usually pass the subject at a minimum of credit level. Empirical studies on the causes have focused largely on teachers' ineffectiveness and inadequate learning and teaching facilities. The extent to which home, school participation and students' engagement in child labour activities contribute to under-achievement in senior secondary school biology have not been well investigated, especially in a structural equation modeling context. Therefore, an 18-variable structural equation model comprising variables of home (parents' location, cultural value, educational background, employment status, occupation, income, family type and size), child labour (timing and frequency of labour, parents' attention to students' need and provision of learning materials), school participation (punctuality, attendance, home and class assignments) and students' achievement in biology was developed. This was with a view to establishing causal relationship among the variables and to determine the direct and indirect effects of each of the variables on students' achievement in biology.

Ex-Post facto design was adopted for the study. Three states- Ogun, Osun and Oyo- were randomly selected from among states that have state capitals with distinct urban and rural areas. The selected capitals were stratified along location (urban/rural), while 21.0% of the secondary schools from each location were selected randomly. Twenty-five senior students who engaged in academically detrimental labour activities were randomly selected from each sampled schools. Six validated instruments, namely Cultural Value (r=0.73) and Parental Involvement in Students' Academic (r=0.71) questionnaires; Socio-Economic Status (r=0.68), School Participation (r=0.78) and Labour Participation Screening (r=0.85) scales and Biology Achievement Test (r=0.81) were developed. Data were analysed using Pearson product moment correlation and Path analytical procedure of Structural equation modeling at 0.05 level of significance.

Among home variables, educational background (r=0.67), cultural values r=0.28), parental location (r=0.16), occupation (r=0.08), income (r=0.05) and family size (r=-0.02) had significant relationship with students' achievement in biology. From the child labour variables, students' frequency (r=-0.35) and timing (r=-0.16) of participation in detrimental labour activities had significant relationship with students' achievement in biology. Attendance (r=0.45), punctuality (r=-0.34) and class assignment (r=0.31) were school participation variables that significantly influenced achievement in biology. The model fit of Chi Square (χ^2 (df=97)=113.72 which is an indication of good fit, with Goodness of fit index of 0.94, Normed fit index of 0.95 and Comparative fit index of 0.99 was established. Moreover, 77% of the causal effects in the model were direct effect, while 23% were indirect.

Educational background, cultural values, parental location, and timing and frequency of participation in detrimental child labour activities inhibited students' achievement in biology in the south – west, Nigeria. Therefore, parents should be enlightened on the negative impact of child labour on students' academic achievement and other school activities.

Keywords: Child labour**,** Cultural value,Achievement in biology
Word count: 461

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CHAPTER ONE
INTRODUCTION

1.1 Background to the Problem

The impact of education on the growth and development of any country is widely emphasized. This is the reason governments, individuals and societies continue to allocate their scarce resources to education.Generally, people have come to realize that the only avenue to development in all ramifications, which does not come spontaneously but through concerted and unrelenting effort is to be engulfed in education. Little wonder the developing countries of the world, such as Nigeria and other African countries have come to consider education as a magic for progress in later part of twentieth century and more importantly, in this millennium. It is obvious that the expectations from education as a sector areso greatand these expectations include:

- to contribute to national development through high-level relevant manpower training;
- to acquire both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society;
- to promote and encourage scholarship and community service;
- to forge and cement national unity;
- to promote national and international understanding and interactions;
- to develop the intellectual capability of individuals to understand and appreciate their local and external environments; and
- to develop and inculcate proper values for the survival of the individual and the society. FRN (2004)

Survival of individuals in the society is the concern of different tiers of governments. Huge amounts of government resources are allocated to different sectors on a yearly basis to ensure that possible threats to the survival of members of the society are eliminated.

Also, among the subjects studied in secondary schools, Biology is one of the subjects that isconcerned with life, its processes and the survival of the individual.A good grasp of biological sciences is necessary for human survival. Biology is multidisciplinary in nature as evident in its knowledge contribution to areas like agriculture, medicine, health and diseases control, industry and research, and also in the training of specialists in these areas. Also, Biology contains

unifying concepts on science, and so may be well suited for developing scientific literacy. Biology is a science subject that is important to life and life processes. Biology exposes students to the world of self-knowledge and knowledge of their immediate and distant environment. This implies that if students are equipped with adequate knowledge on their environment, it may go a long way in creatingawareness of the benefits they could derive from it. Consequently, they will make effort to protect, improve and sustain their environment.Thus, the 21st Century has been called a "Biology"centurybecause of the many advances in human's understanding of the basic processes and components of life(Teng, 2007).

Similarly, based on biological discoveries and their applications, many lingering problems of hunger and poverty among almost a quarter of humankind have been ameliorated and solved. Moreover, as profound challenges face the world even as we advance technologically,biology offers great scope to meet these challenges, especially in the assurance of food security, and in the use of biology to meet the needs for more food,fuel, fiber and animal feed – the 4 F's (Teng, 2007).

Some of the achievements that have been made through biological sciences include application of genetics in agriculture for production of hybrid crops and farm animals with desirable qualities and early maturing varieties of plants and animals; the use of biological method instead of chemical method in the control of agricultural pest; and the use of naturally occurring bacteria to clean up oil spills and toxic chemicals. Also, in medicine, application of biology helps in the production of single cell protein by micro-organisms to help people with protein deficiency. Equally, genetically engineered microbes which are used for manufacturing substances that are difficult to produce,such as insulin and interferon,were developed through the knowledge of biology. Again, the use of hybrid technology to produce antibiotics and in-vitro fertilisation that help infertile couples to have children are achievements of Biology (Ramalingam, 2010).

In spite of the importance of Biology, studies have shown continuous under-achievement in the subject at the secondary school level over the years. Indeed, as important asthe subject is, students' performance in the subjectis consistently poor.This is worrisome and calls for investigation. Many researchers, in and outside Nigeria, have been concerned about this problem of under-achievement in this all-important subject (Okebukola, 1997; Ijaiya, 2000).

WAEC Chief Examiners' Report (2013) affirmed the state of poor performance, especially in Biology practical, and highlights the observed weaknesses of candidatesthus:

- Poor understanding and lack of higher order cognitive skills, to handle questions such as those that are more typically encountered in Section C of the examination,
- Shallow knowledge of the subject and rote learning,
- Lack of deep understanding of biological processes or the sequential steps in experimental procedures,
- Lack of specific knowledge and an inability to explain, interpret and apply biological principles,
- Confusing similar-sounding or similarly spelled terms in biology to the extent that a completely different biological meaning is conveyed, and
- Reliance on a key word or words from a term while attempting to define or explain that term (WAEC Chief Examiners' Report Nigeria, 2013).

It can be concluded that students' performance in Biology is poor due to their inadequate exposure to practical works, inability to explain, interpret and apply biological principles and non-acquisition of relevant skills. An incessant poor performance or under-achievement of students in Biology as a subject could reduce the level of scientific research and technological development in Nigeria. As a result, necessary skills need to be imbibed by secondary school students for optimum achievement in Biology, as it is also an additional reason why teaching-learning of Biology should be given serious attention.

Empirical studies on students' achievement in Biology identified some variables to be responsible for students' consistent under-achievement in senior secondary school Biology. Among these are lack of qualified and certified teachers(Animasahun, 2011); use of traditional teaching method which encourages rote learning (Nwagbo and Chikelu, 2012); students' poor attitude and poor self-esteem (Drew andWattkins, 1997; Ogundipe, 2004); poor teaching methodology (Adeyemi, 2002), poor funding of school/laboratory and deficient assessment (Ugwu, 2007) and inadequate laboratory facilities and exposure (Chia, 1995; Ganiyu, 2000 and Adeyegbe,2005) among others.

In addition, reported studiesin literature also reveal that students' performance or achievement in any subject is the resultant performances in some school participation variables (Holgado,Jariego,Palacio,and Oviedo-Trespalacios; 2014). School participation indices (such as students' attendance, commitment to home/class assignment, availability of reading materials and students' punctuality) take into account the child's experience in some school activitiesand are found to explain larger percentage of variances that occur in students' scholastic achievement (Buonomo, 2011). Buonomo also observed that students' engagement in some home activities such as buying and selling could hamper participation of students' in school activities.Though,there appears to be a relationship between student engagement in home activities,students' attendance in school, punctuality to school and students' commitment to home and class assignment;these relationships only provide indirect measures of the educational consequences of the child's involvement in labour activities. In fact, in certain cases, it is shown that children who engage in child labour usually attend schoolbut lack active participation in such school's activities as well as class and home assignment.This suggests that the effects of students' economic activities on academic performance are linked to the influence of child labour on the students'classroom activities (Buonomo, 2011).

Researchon relationships between attendance and students' performance most especially that of Gunn, 1993,reported that students' attendance in school is a predictor of future academic performance. Also,the total amount of the time students report studying has often been examined as a potential predictor of success in school. It can be said that the more time students spend studying, the better grades they receive (Plant, Ericsson, Hill and Asberg, 2005). Chang and Romero (2008) reported that attendance is critical throughout the student's period of schooling, but intermittent attendance can have significant negative impact on the early years during the period when basic academic skills are being developed.

Another school participation variable that is rarely researched among scholars in the field of education is punctuality to school. Lauby(2009) reported that the attendance and punctuality policy in United State of America clearly states that "regular and punctual attendance is of paramount importance in ensuring that all students have full access to the curriculum". Valuable learning time is lost when students are absent or late. Romero (2013) reported the following results for students with punctuality problem in kindergarten: ten times as likely to be chronically

absent in kindergarten and first grade; weaker academic performance in mathematics, reading, science, and word knowledge compared to the performance of peers who are never tardy. Punctuality is also an important aspect of school. A student who does not show up on time or is not punctual is considered to be tardy. Also, Tyre, Feuerborn, and Pierce (2011) defined tardinessas "student's failure to be in an assigned seat at the sound of the final transition bell or tardy bell". Tardiness or failure to be punctual is considered to be an academic problem as shown in the study conducted by Fish, Finn and Finn (2011).

Another important factor that provides indirect measure of academic achievement is students' attention to class and home assignment. Not only is there paucity of studies on the impact of assignment on academic achievement of students in Biology, results so far are conflicting. Assignments that are graded with the score used as part of the final grade, are expected to improve students' performance as students will be motivated to work on the graded assignment and will learn from it. Consequently, their test scores will improve. Grove and Wasserman (2006) found that a grade incentive to complete assignments boosted the academic achievement of academically average students, but not those who were academically above or below average, or of any other class standing. On the other hand, Geide-Stevenson (2009) found that graded assignments had no impact on academic performance.

In addition, studies have shown that effective learning cannot take place without availability of basic relevant learning materials. In addition to private studies where teachers give the students tutorial, exercises and homework, the need for learning materials is imperative. Ogunshege (1990) posited that books are veritable vehicles of communication and transmission of education, learning and culture in any society. Akujuo (1991) emphasised that books and other learning materials have been the basic tools for any educational development. Shuaibu (2005) observed that for effective and meaningful learning to take place, three factors are indispensable. These are the teacher, the pupils, and the learning materials alongside the conducive environment. Based on African culture and traditions, it is an assumption in this study that children who engage in their parents' economic activities are likely to attract their parents' attention when it comes to material provision and help with assignment.

However, in certain cases, a negative relationship between the number of hours worked and the hours of school attendance has been found (Boozer and Suri, 2001).Previous studies on the

trade-off between work and schooling examined this issue and found that working caused substantial negative aspects on school attendance, grade progression, participation in school activities, and educational attainment (Patrinos and Psacharopoulos, 1995; Akabayashi and Psacharopoulos, 1999; Heady, 2003).Buonomo (2011) noted that the number of hours worked above a specific threshold is detrimental to academic performance, particularly because work begins to compete with the educational context. Under this threshold, a better academic performance with respect to nonworking children was found. Also, many empirical studies on the problem of students' under-achievement in education generally have been tracedto the effect of child labour (Akabayashi and Psacharopoulos, 1999; Cervini, 2005, 2006; Gunnarsson, Orazem and Sanchez, 2006; Heady, 2000; Orazem and Gunnarsson, 2004). However, information on the effect of child labour thatempirical studies have linked with the reason for students' under achievement is yet to be reported with respect to Biology.

Historically, child labour is not a recent phenomenon. It has existed over the centuries, notonly in impoverished developing and third-world countries, but also in developed countries until the beginning of the 20th century (Sakurai, 2006). According to Pallas (1993) cited inSakurai (2006)andUNICEF(2005) who examined the role of schooling in the social contexts of four industrialised nations (the U.S., Germany, Great Britain, and Japan), family was the central place in which children played, learned, and worked in pre-industrial societies. The family decided whether children were mature enough to be independent and start a new family. For instance, in U.S. pre-industrial periods, many children were engaged in various forms of productive labour, such as domestic work and agricultural work under parental surveillance. Family needed the income from children, and the work wastypically supervised by parents or neighbours; thus, child labour was not considered a social problem (Sakurai,2006 and UNICEF, 2005).

The negative aspects of child labour were first spotlighted during industrialisation in Great Britain when cheap child labourers in exploitative factory working conditions became apparent.It is during this period that the term "child labour" was first coined (Cunningham and UNICEF 2005). With the introduction of high-speed machinery, working children were replaced by mature adult labourers. Moreover, formal schooling and certification gradually began to be required to obtain qualified positions for more technical work (Horrell and Humpheries, 1995). As a result, throughout the industrialisation periods in many

developed countries, the idea that children should remain in school longer was fostered in order to secure adult working positions and to save children from exploitative working environments (Cunningham and Viazzo, 1996) in Sakurai(2006)and UNICEF(2005).

As an attempt to fight child labour problems, a number of schools were established. For instance, in the U.S. whereindustrialisation impacted school development, there was a conspicuous increase in the number of formal schools during the 1880s-1890s; twice as many formal schools as professional schools were constructed (Kett, 1977). Another example can be drawn from Great Britain. During the early stages of industrialisation, an increasing number of children were hired at factories, and their household economic contributions were great. However, with the coming of the 20th century, the percentage of child factory labour decreased while the percentage of children in school increased (Cunninghhan and Viazzo, 1996).

Accordingly, child labour, industrialisation, and schooling were historically inseparable elements in developed countries in the early 20th century. After industrialisation, the central socialising force changed from the household to school and children and adolescents were segregated from adults, both socially and physically (Sakurai, 2006andUNICEF, 2005).It should be recalled that child labour in pre-industrial periods was not highly correlated with poverty. Furthermore, the reality that industrialisation reassigned children from labour to schooling has led some economists such as Becker (1997) to argue that the process of industrialisation or economic growth will lead developing societies into the modern world, or that economic growth and modernisation will vanquish child labour as well.

The situations in contemporary developing countries where child labour is still a serious problem are different from pre-industrial periods in developed nations. Various empirical studies that describe situations in Africa (Canagarajah and Nielsen, 2001; Cockburn, 2001; UNICEF, 2005) and South Asia (Delap, 2001; Toor, 2001) where child labour is most concentrated have argued that poverty is the primary reason why children work. Although, it should be noted that poverty is not the sole reason why children engage in labour; child labour could beculture induced (Delap, 2001) or could be associated with other determinants such as children's age, education, gender, and parental employment conditions (Dehejia and Gatti, 2001). Majority of the child labour literature asserts that it

occasionally perpetuates an inter-generational trap rooted in poverty (Wahba, 2001). Therefore, it could be concluded from the foregoing thatchild labour can cause,and couldbe the result of poverty.

As an attempt to fight the problem of child labour in Africa, African Charter on the Rights and Welfare of Children (ACRWC) was adopted by the African Union in 1990 and entered into force in 1999. The Charter covers civil, political, economic, social and cultural rights. Article 21 of the African Charter on the Rights and Welfare of the Child makes specific references to harmful social and cultural practices. Most of the rights conferred on children under the United Nations Convention on the Rights of Children (UNCRC, 1995) are similar to those conferred under the African Charter on the Rights and Welfare of Children (ACRWC, 1999).The ACRWCalso contains Article 31 which specifies the responsibility of the Child. This is important when interpreting child's rights in Africa and Article 31 specifies that every child shall have responsibilities towards his family and society, the State, other legally recognised communities and the international community. It states further that the child, subject to his age and ability and such limitations as may be contained in the Charter, shall have the duty:

a) to work for the cohesion of the family, to respect his parents, superiors and elders at all times and to assist them in case of need;
b) to serve his national community by placing physical and intellectual abilities at its service;
(c) to preserve and strengthen social and national solidarity;
(d) to preserve and strengthen African cultural values in his relation with other members of the society, in the spirit of tolerance, dialogue and consultation and to contribute to the moral well-being of society; and
f) to contribute to the best of his abilities, at all times and at all levels, to the promotion and achievement of African Unity.

In the same vein, ACRWC (1999) Article 21 condemns harmful social and cultural practices against the child as it states that countries that are parties to the present Charter shall take all appropriate measures, to eliminate harmful social and cultural practices affecting the welfare, dignity, normal growth and development of the child and in particular:

a. those customs and practices prejudicial to the health or life of the child; and

b. those customs and practices discriminatory to the child on the grounds of sex or other status; and that

c. Child marriage and the betrothal of girls and boys shall be prohibited and effective sanction, including legislation, shall be taken to specify the minimum age of marriage to be 18 years and make registration of all marriages.

Also in Nigeria, Child Right Law was promulgated in year 2006 and the major sections in the document states that:

(1) Subject to this Law, no child shall be:-

(a) subjected to any forced or exploitative labour; or

(b) employed to work in any capacity except where he is employed by a member of his family for light work as an agricultural, horticultural or domesticcharacter, or

(c) required, in any case to lift, to carry or move anything so heavy as-to be likely to adversely affect his physical, mental, spiritual, moral or social development, or

(d) employed as a domestic help outside his own home or family environment.

(2) No child shall be employed or work in an industrial undertaking and nothing in this subsection shall apply to work done by children in technical schools or similar approved institutions if the work is supervised by the appropriate authority.

(3) Any person who contravenes any provision of subsection (1) or (2) of this section commits an offence and is liable on conviction to a fine not exceeding fifty thousand naira, or imprisonment for a term of five years or to both fine and imprisonment.

(4) Where an offence under this section is committed by abody corporate, any person who at the time of the commission of the offence was a proprietor, director, general manager or other similar officer, servant or agent of the body corporate deemed to have jointly and severally committed the offence may beliable on conviction to a fine of two hundred and fifty thousand naira.

The provisions relating to young persons in sections 58, 59, 60, 61, 62 and 63 of the Labour Act shall apply to children under this law.

(1) No person shall buy, sell, hire, let on hire dispose of or obtain possession of or otherwise deal in a child

(2) A child shall not be used:-

(a) for the purpose of begging for alms, guiding beggars, prostitution, domestic or sexual labour or for any unlawful or immoral purpose; or

(b) as a slave or for practices similar to slavery such as sale or trafficking of the child, debt bondage or serfdom and forced or compulsory labour;

(c) for hawking of goods or services on main city streets, brothels or highways;

(d) for any purpose that deprives the child of the opportunity to attend and remain in school as provided for under the compulsory, free Universal Basic Education Bill.

(e) for prostitution or for the production of pornography or for any pornographic performance; and for any activity in the production or trafficking of illegal drugs and other activity relating to illicit drugs as specified in the National Drug Law Enforcement Agency Law.

(2) A person who contravenes the provisions of subsection (1) of this section commits an offence and is liable on conviction to imprisonment for a term of ten years.

Despite all these constitutional enactments,child labour is still a far-reaching and complex problem in developing countries. Majority of parents stillengage the under-age children, especially those below age 17years in activities detrimental to their health, education, etc.Patrinos and Psacharopoulos (1995) showed that factors predicting an increase in child labour also predict reduced school attendance and an increased chance of repeating classes. Akabayashi and Psacharopoulos (1999) showed that, in addition to school attainment, children's reading competence decreases with child labour hours. In addition, Heady (2003) used direct measures of reading and mathematical ability and found a negative relationship between child labour and educational attainment in Ghana.Also, Cavalieri (2002) used propensity score matching:hefound a significant negative effect of child labour on educational performance.

Moreover, most empirical studies on child labour were conducted in relation to Mathematics and English (Akabayashi and Psacharopoulos, 1999; Cervini, 2005, 2006; Gunnarsson, Orazem and Sanchez., 2006; Heady, 2000; Orazem and Gunnarsson, 2004). The types of child labour vary according to the country's culture and the family culture, rural or urban residency, socio-

economic conditions and existing level of development, among other factors (Pinzo´n, Bricen, Gomez andLatorre, 2003). Although, majority of studies that analysed the genesis, impact, and consequences of child labour are derived from an economic point of view (Basu and Van, 1998) in Brown (2002). Several authors do analyse the social and communal causes that underpin the employment of child and youth labour. Hence, this study investigated home variables such as number of children in the family, employment status, parental income, and level of education.

Majority of the studies conducted on the influence of child labour on students' performance are based on the results of standardised tests rather than on indirect information on the performance of the students who engaged in child labour. This study takes a step further to examine the effect of child labour on quality school participation variables that underline students' academic achievement. This is because in the majority of cases, child labour makes adequate child inclusion in the educational activities difficult (Dyer, 2007), given the time that the time for work takes fromtime allocated to studies and that the attention to academic activities is reduced, due to the fatigue incurred as a result of the labour (Sabia, 2009). In fact, in theliterature, the amount of time the child devotes to labour or the moment of the day/week in which he/she is dedicated to labour and the impact of labour on variables related to education have barely been taken into account (Sabia, 2009), although, these have been identified in the literature. Therefore, this study intends to examine the frequency of students' participation in economic activities as well as timing of participation and their corresponding influence on students' achievement in Biology. For example, researches in developing countries have found that majority of child and youth labourers regularly attend school (Heady, 2000).Also, majority of the studies on child labour have traced the root cause of child labour to home background of those children who engage in it

Home background as a factor affecting students' achievement to a very large extent determines studens future success or failure. Home is the first place where the education of a child begins; a foundation where subsequent forms of education are laid. Types, size, location and culture of a family are well reported in literature to influence to a large extent the level of achievement of a child in the school or any educational endeavour. Variation inhome characteristics of a child, such as parental, educational, income, occupational, and employment status, have greater impact on the child's future achievement.

There are home factors that also affect the frequency of students' participation in child labour activities. For instance, Rosati and Rossi (2003) found that the number of family members in the home correlated negatively with the number of hours the child worked. Similarly, Mukherjee and Das (2008) found that in India, family size has an important effect on school dropouts and on the increment of the incidence of child labour. In this sense, it is possible that other factors, in addition to the number of family members, are associated with the participation of children in labour.

The poor quality of the educational system (Ray, 2000; Mukherjee and Das, 2008; Kim, 2011) and the low salaries and poor working conditions of the parents (Kim, 2009) are also noted as other socio-economic factors that can drive the family to compel their children to work. Other aspects that are not strictly economic, such as the educational level of parents, the number of people that live in the home, the birth order of each child or the existence of polygamy (Dane, 2003; Canals-Cerda andRidao-Cano, 2004; Arends-Kuenning and Duryea, 2006; Emerson and Portela, 2008; Omokhodion and Ochendu, 2009) also act as either causal or predisposing elements for incorporating children into the workforce. Moreover, Mukherjee and Das (2008) noted that among those parents with higher educational level, there is a lower frequency of their children engaging in manual labour. This is probably due to their awareness of the negative effects of child labour on the child's scholastic achievement. In this sense, Kim and Zepeda (2004)investigated the factors related to children's involvement on family farms in the United States. They found that the decision of the parents for their children to contribute to family work is influenced by the consideration that this will benefit the children in such processes as social development, responsibility, strengthening of family bonds, and vital learning.

According to Cruzador (2001), "there is nothing wrong with work, what is wrong is the way the children are exploited, beaten and sexually abused". Children who engage in work have the opportunity of acquiring skills in various trades. This paves the way to self-reliance and self-sufficiency in this contemporary society. In the rural areas, children engage in farming, fishing and trading to help their immediate families. As they do these, they are also preparing themselves as responsible citizens of tomorrow. Gill (1990) warned against the complete

eradication of child labour worldwide, calling for a more "nuanced" view of the contribution of children to both family livelihoods and income.

Moreover, they learn a lot about ethical principles such as accepting responsibilities and how to live. Children working as domestic servants with wealthy families have the opportunities of learning to be good home keepers. In Nigeria, both in rural and urban settings, children work to help their families, to relieve their parents from untold indebtedness. Child labour, according to Chess (2005), results in illiteracy which is passed onto generations because the illiterate parents also send their children to work. Since a large percentage of the parents are poor, additional income to the family budget can only be boosted through child labour.

Whether child labour attracts social or future benefits or not, it is necessary to evaluate the impact that the presence, frequency, type, and distribution of the labour performed by children and youth has on particular performance factors in the educational context. In this sense, it is necessary to differentiate such aspects like the distribution of child labour (morning, afternoon or night; weekend or during the week) and the harshness of the labour, as it was established by the International Labour Organization.

Some locational and cultural values have also been observed to influence children's engagement in child labour. Personal observation of some African culture has revealed that children who help their parents in labour activities get their attention when it comes to their academics. More so,children are more likely to have higher academic achievement levels and improved behaviour when families are involved in their education (Bryan, 2005). Learning begins at home through interaction with one's family. Research findings have also shown that a continued effort of parents in the form of attention/ involvement in their child's education can improve academic achievement (Driessen, Smit and Sleegers, 2005; Fan, 2001; Hong and Ho, 2005). There is little research available on the relationship between parents'attention to students' academic activities and academic achievement of secondary school students. Majority of the research in this area have been conducted solely with elementary school students (Baily, Silvern, Brabham, and Ross, 2004; Marjoribanks, 2005). This study takes a step further toattempt an in-depth look at parental attention to academic activities of their children, and their academic achievement among secondary school students. On the other hand, though parental involvement is essential for all

children, the nature of parental involvement changes according to race/ethnicity, parent education, and socio-economic status of parents, family structure and the extent to which children also contribute to household income especially among parents in developing countries (Paratore, Hindin, Krol-Sinclair, and Duran, 1999; Schneider and Lee, 1990). Parents' involvement in their children's education has been found to improve students' attendance (Epstein and Sheldon, 2002), and behaviour in school (Sheldon and Epstein, 2002) as well as their completion of homework/assignment (Keith, Keith, Troutman, Bickley, Trivette, and Singh, 1993).

Also, as a practice, parents in African countries handle their children differently according to their culture. There are reports that from an early age,boys and girls are taught different skills and are assigned gender specific roles. In many cultures, female children have a lower ranking than male children and are generally denied educational opportunities (Poipoi, 2012). Studies also show that when parents are faced with financial constraints, especially in rural areas, they give priority to boys' education. Poipoi also observed that some parents regard the girls as intrinsically inferior to boys. Because of this belief, girls are more likely to drop out of school when financial difficulties exist in families. He reports further that domestic child labour keeps more girls than boys out of school and that many parents in developing countries will give preference to boys' education, and fail to appreciate the value of education for girls. Instead, they see the value of girl's labour in housework and other subordinating activities such as fetching water and firewood.

United Nations Educational Scientific and Cultural Organisation (UNESCO, 1975) in Ligeve and Poipoi(2012) stated that girls clean the house, cook, fetch water, and help care for the younger children, especially when a mother dies, falls ill or is overworked. With all these chores done, girls may be too exhausted to concentrate on their studies, leading to poor performance. In rural areas, female children are often more burdened by after school duties than male children. They attribute this to the fact that most of the after school duties are largely female roles. Moreover, a female child's performance in education may not be as highly valued as that of a male child. Thus, while the male child is seen as needing time to do school based home assignment; this may seem to parents to be of secondary importance for the female child. In addition, a work by Amar et al. (2008) on the quality of life and mental health of child labourers in Toluviejo (Colombia)

noted that the entrenchment of child labour in the culture of the country, is a way for the child to contribute to the family economy or a way for the child to learn vital skills for the future.

There is a consensus among psychologists and educationist that a child's environment can exert considerable influence on his or her intellectual development (Okonkwo, 2002). Past studies have explained the importance of school factors on the achievement of students particularly in science(Maduabum 1992, Olarewaju 1994, Durant1995 andOnwuakpa1998). In the same vein, Ndukwu (2002), and Odinko (2002) noted that schools located in urban areas are better positioned to attract more quality students and teachers who exhibit the readiness to take academic business seriously.Studies have shown that location of a school can affect performance in Biology and by deduction, couldaffect performance in Chemistry, Mathematics and other science subjects. Unlike previous studies which suggest that the effect of location is in favour of urban students, the result reported by Okonkwo(2002)shows the opposite.This shows that the effect of location might not be absolute. It was, therefore,part of the thrust of this study to investigate the influence of school location among other factors on the model on students' achievement in Biology.

Home factors have the potential to influence a child's academic achievement. This is because it is the first environment of the child. The initial experience that would mold the child's values, aspirations, emotions, interest and attitudes are offered by the parents/family (Okeke, 2009). What the child learns at home and how the family motivates them towards education contributes to the child's success in school (Essien, 2002). Similarly, Obasi (1999) observed that mere making sure that the children are prepared for school in the morning (punctuality) is important for the children's successful achievement at school. Obasi also reported that parents, whether highly educated or not, have realized the importance of their children acquiring education, especially science education. Contrariwise, Essien (2002) also found that parents' level of education had no significant influence on students' performance in sciences and Geography.

Also, Osuafor and Okonkwo (2013) found that there is no significant influence of family type and parents' occupation on students' achievement in Biology. The reports on the influence of parents' employment status revealed that children from upper socio-economic background have 60% greater chance of high achievement than children from low working class homes. Odebunmi (2000) observed that middle class parents tend to provide a good environment for their

children academically than those of poor parents. According to him, rich parents can provide books and materials for their children to work at home, and this can encourage high level of achievement.Howley (1989) and House (2002) contended that students learn better if they are from above average or average income family, with well-educated parents who participate in the school's education process of their children and encourage them to learn. Furthermore, Osuafor and Okonkwo (2013) reported that there is a significant influence of parents' level of education on students' achievement in Biology because students of parents with high level of education are more likely to enjoy after school lesson, and get some assistance on issue related to their school activities than those with low education level. Also, this slight difference may be due to the fact that the highly educated parents belong to the upper and middle classes and are economically buoyant to support their children academically.

Moreover, Teese (2004), Sharma (2004), Dubey (1999) and Crane (1993) agree that students whose parents belong to the high ranking occupational status are found to have better grades in Mathematics than their counterparts whose parents belong to the low ranking occupational status. This is because parents with high ranking occupational status might have enough income which could be used to provide the needed materials and support for their children's education (In form of financial and material attention). Report shows that the adverse effects of child labour on students' achievement are likely to be increased if a child spends more time on labour activities (Heady 2003; Gunnarsson et. al.2003), and if the child works beyond a certain threshold of hours (Admassie and Bedi's 2003). Heady (2003) made use of a special Living Standards Measurement Survey in Ghana that included information on test scores. He found that child work had relatively little effect on school attendance but had a substantial effect on learning achievement in reading Mathematics and other science subjects, such as Biology.

In addition, research indicates that regardless of social and economic factors, the students with higher attendance rates achieved higher test scores (Applegate 2004, Redick and Nicoll, 1990). When a student's non-attendance increases, research has shown a corresponding decrease in student's achievement (Herberling and Shaffer, 1995). It is concluded that initial attendance is a fair predictor of future academic performance (Gunnarsson et. al.2003). The total amount of time that students use for study has often been examined as a potential predictor of success in

school, and was concluded that the more time the students spend studying, the better grades they should receive (Plant, Ericsson, Hill and Asberg, 2005).

Achievement gains in education are determined to a great degree by the time-on-task and time allocated to learning (commitment to home and classwork). Students who spend more time on task or committed class or home assignment tend to demonstrate more achievement gains than students who spend less time on task (McKinney, 2000). Nzelum (2010) explained that parental involvement in children's education as well as the time students spend on school activities has a definite impact on learners' level of academic success.D'Amico (1984) found that working while in high school lowered study time but had no impact on students' achievement. Lillydahl (1990) found that part-time work actually increased grade point averages when the job involved less than 13.5 hours per week, although, the effect dissipated thereafter. Both D'Amico and Lillydahl found evidence that part-time work improved knowledge of' business and economics.

As a belief among most African parents, working right from childhood confer some future advantages in the aspect of skills required for the world of work, however, working at this levelthat most students from low family backgroung found themselves hinders their adequate inclusion in academic activities and consequently, reduce their achievement in school subjects. There are studies conducted on students' home factors, child labour and students' achievement in English language and Mathematics. Rarely do those studies incorporate variables that indicate the extent of students' participation in school activities as a result of economic/labour activities. Also, the influence of home, child labour and school participation was rarely examined alongside achievement in Biology. This gave impetus to this study's examinationof the influenceof home, child labour, and school participation on achievement in Biology among secondary school students in the South-West Nigeria.

1.2 Statement of the Problem

Despite the efforts of governmental and non-governmental organisations at different times to reduce and eradicate the menace of child labour among under-aged children globally, the practice of child labour is still prominent among African parents, Nigeria is not an exception. Research in the sphere of child labour have traced factors responsible for engagement of under-aged children in workforce to the family background of those children.The determinants of child

activity options extend well beyond issues of education to include the child, parent, household and community characteristics. A deep understandingof these determinants and their consequences would inform a better child welfare management policy in Nigeria, but such analysisthat brings about that kind of understanding appears lacking at the national level in Nigeria. In addition, within the empirical literature on child labour, there has been a shift from mere quantification of the causes of child labour to the socio-economic analysis of their determinants. This has coincided with a widespread realisation that simply banning child labour is unlikely to eradicate the problem or may even make a household worse off, both economically and socially. Studies have shown that inthe majority of cases, child labour makes adequate child inclusion in the educational activities difficult because the time taken to work is taken away from the time allocated to studies, and the attention to academic activities is reduced due to fatigue produced by labour. Therefore, this study seeksan in-depth knowledge of the determinants and consequences of child labouramong secondary school students in Nigeria. The thrust of this work is to ascertain the determinants of child labour beyond what have already been identified in the literature, particularly in the Nigerian society where there is ineffective machinery to enforce child rights.

Most empirical studies on child labour were conducted in relation to achievement in Mathematics and English Language. Information on the effects of child labour as relating to achievement in Biology is yet to be provided. This study, therefore, provides empirical information on theeducational consequences of child labour on students' achievement in Biology by examiningdirect consequencesof this phenomenon onstudents' school participation,and linking with scholastic achievement in Biology using path analysis.

Moreover, there appears to be no known study to this researcher that has examined the causal-linkagesamong child labour factors, students' school participation and students' achievement in Biology. It is on the basis of this identified gap that the researcher examineddirect and indirect influencesof child labour, and school participation variables on students' scholastic achievement in Biology. The concomitant influence of linkages amongfactors of child labour, school participation variablesand students' achievement in Biology werealso examined.

1.3 Research Questions

In order to guide the study, the following questions were raised:

1. What is the magnitude and direction of relationship that exists among home, child labour factors, school participation variables and students'achievement in Biology?
2. Is the model which describes the causal effects amonghome, child labour factors, school participation variables and students'achievement in Biology consistent with the observed correlations among them?
3. What are the fit indices of the hypothesised model for home, child labour factors, school participation variables and students' achievement in Biology?
4. What are the estimated direct, indirect, and total causal effects of home, child labour factors, school participation variables and students' achievement in Biology?

1.4 Scope of the Study

The study was conducted in the Southwestern part of Nigeria, which consists of 6 states. The researcher was interested in using the path analysis component of Structural Equation Modelling (SEM) to establish and estimate the paths of inter-causal direct and indirect linkages among home variables, child labour factors,school participationand students' achievement in Biology. The other aspects of structural equation modeling, confirmatory factor analysis and structural regression, were not used. More so, out of the six states in the Southwestern Nigeria, only Oyo, Osun and Ogun were considered for data collection activities because they have distinct rural and urban areas.

1.5 Significance of the Study

The result of this study will be useful to government and education policy makers as regards making positive impact on decisions for ameliorating child labour in Nigeria, with the realisation that simply banning child labour is unlikely to eradicate the problem or may even make a household worse off economically and socially. This provides insight into causal linkages of home variables that propel the parents to force their children into labour force.

This research will sensitise parents about the harmful effects of child labour on their children's academic, body physiology and future achievement. Generally, the study will be of immense importance to students as the result will reveal the importance of participating in school activities

and its effect on achievement. School authority will also gain insight into the havoc wrecked by students' engagement in economic activities on school participation so as to design actionable strategies to reduce its menace; guidance or counselors will also be enlightened on the possible combination of economic and school activities coupled with students' home background that will result into optimum achievement for the students. The result will also be of importance to parents as well as governments as it provides useful data on the dangers and hazards of child labour, its effect on students' academic performance and the appropriate measures that may be adopted to eliminate child labour. Finally, the study could be useful to future researchers on child related issues.

1.6 Definition of Terms

Child labour: It is the involvement of under-age (especially those between the age ranges of 12-17years) children in activities detrimental to their health and education. With respect to this study, child labour was measured using some economic activity indicators such as hawking, farming and other household chores during school period. Child labour refers tothe frequency of participation andthe timing of participation in economic activities in this study.

Achievement in Biology: This focuses onthe scores of students in Biology Achievement Test. Itwas measured as a continuous variable.

School Participation: Quality of the child's experience and classroom activities in the school,measured as students' attendance, commitment to home and class assignment, availability of school learning materials in Biologyand students' punctuality in the school.

Home Variables: These are factors peculiar to students'parents, which make their child/children engage in child labour. Home variables with respect to this study are:students' location (rural or urban), culturalinfluence, parental income,parentallevel of education, employment status, family size and type of family.

Structural Equation Modeling (SEM): Statistical procedure for studying the presumed direct and indirect influences of independent variables on each other and on dependent variable. Path analytic aspect of SEM was used in this study.

Poverty: This is defined as the inability of students' parents to attain a minimum standard of living.With respect to this study, poverty is the inability of the parents to meet students' educational need without such students engaging in child labour activities.

Cultural Value: This is the belief of parents which makesthem engage their children in economic activities at the expense of their academic pursuit,measured by students' scores obtained from Cultural Value Questionnaire.

Location: This is the place that the studentor students' family resides. Location with respect to this study is the rural or urban part of the state capitals in South WestNigeria.

Socio-economic Status: This is the parents' status in the society relating to their standard of living,with respect to parental income, parents' employment status, highest educational qualification and parental occupation, measured by scores obtained from the socio-economic status scale.

Acronyms and Abbreviations

SEB: Socio-Economic Background

SES: Socio-Economic Status

ILO: International Labour Organisation

UNICEF: United Nations International Children Fund.

WOTCLEF:Women Trafficking and Child Labour Eradication Foundation.

UCW: Understanding Children's Work

EFA: Education for All

UNESCO: United Nations Economic Scientific and Cultural Organisation

CHAPTER TWO
LITERATURE REVIEW

A review of literature is an exercise in which the researcher tries to identify, locate, read and evaluate previous studies, observations, opinions and comments related to his/ her intended research. In this regard, this chapter examines some of the existing literatures and writings on the influence of students' home factors on child labour and students' achievement in Biology. Hence, the review of the literature was carried out as follows:

2.1 Theoretical Background

2.1.1 Human Capital Theory

In the field of child labour; while many theories have elabourated on why children work and the effects of adolescent employment on academic achievement, limited literature on child labour have utilised theoretical frameworks to explain why working children or children who engage in child labour have low academic attainments compare tothose who do not. Shultz (1960) model of standard human capital investment shows that families send their children to work if the return is greater than the alternative use of the child‘s time, such as schooling. In a similar vein, Ben-Porath (1967) observed that educational investments (and then child labour supply) are determined by weighing the present discounted value of schooling against its opportunity cost. Child labour may be the optimal response to a trade-off between returns to and costs of education (Becker, 1991). The link between cost of education and child labour is quite immediate since in most developing countries, and at least at low levels of education, the cost of schooling mainly constitutes the opportunity costs.

However, occasionally, the lower achievement of working children is a problem because it blocks accumulation of human capital (Rosati and Rossi, 2001). Human capital theory, formulated by two economists, Theodore Schult (1961) and Gary Becker (1964), encourages investment in education and other relevant work training because such investment will entail increased income in the future. They argue that by such investment, people accumulate appropriate knowledge, skills or abilities, and thus, become a more productive labour force than those without these assets. Accordingly, individuals with better skills, longer education and experience of relevant work are considered more productive and thus may expect higher income (Shultz,1961; Becker, 1964).

Under the rubric of human capital theory, education is not the only category that can confer on people the necessary skills and knowledge. Work can also instill children with good knowledge, responsibility, cooperation, or other forms of skills that are otherwise unobtainable and which will be utilised in future work (Ruhm, 1997; Osterman, 1980). This concept is accepted in developing regions such as Latin America to promote the positive impacts of light work by

children (Boyden, 1999).However, it should be noted that the idea that "work gives children something to learn" is observed in adolescent work context. This is because in reality, most child labour take place in either agriculture or domestic chores where such accumulated skills can hardly be obtained. Therefore, most literature imply that such human capital accumulation for the younger children can only take place at school, not in the workforce (Rosati and Rossi, 2001; Post and Pong, 2000; Sedlacek et al., 2003). Child labour is considered harmful to children's welfare because it may "interfere with human capital accumulation" affecting the present and future health of the child (Rosati and Rossi, 2001).

Another concept that explained the effect of child labour on achievement is zero-sum theory. The zero-sum model assumes that the time and energy that students utilise for their employment will be directly subtracted from the time and energy which, otherwise, are available for either school related activities or time with their family and friends (Neumann and Morgenstern, 1944). While there are some limitations, this theoretical model has been often used to explain deleterious effects from excessive employment in secondary school (Carr, Wright and Brody, 1996; Marsh, 1991; Greenberger and Steinberg, 1986; Oettinger, 1999; Hansen and Jarvis, 2000). This theory is applicable to explain worldwide child labour problems, especially in the context of working children /adolescent who combine work and schooling.

Human capital theory states thatthe use of human capital should be allowed if its return will be greater than alternative use of human energy or time. With respect to this study, human capital theory explains the relation between child labour and students' academic achievement with firm believe thatthe return on the use of child energy and time could be more or less than alternative use of children's time or energy. If a child engages in activities that will confer skills needed for the world of work in the future and develop their numerical and mental abilities, such work has its returns greater than the alternative use of child's time but if those activities are detrimental and its returns is less than the alternative use of children's time and energy, such activities could be described as being negative and not advisable.

2.1.2 The Culture of Poverty Theory

The theory of culture of poverty explains child labour from the perspective of poverty. The idea of a culture of poverty was introduced in the late 1950s by an American anthropologist, Oscar

Lewis. He developed the concept from his fieldwork among the urban poor in Mexico and Puerto Rico. He contended that anywhere poverty is found, people in those places exhibit feelings of marginality, helplessness, inferiority and dependence. In Nigeria, the poor often develop various strategies by which they cope with their conditions in form of doing things their own ways. These feelings compel them to take actions and engage in many activities that will ensure a quick escape from the realities of poverty, one of which is child labour. It is seen as a normal way since it is common among them.

According to Lewis (1996), the "culture of poverty" theory has the following elements on the level of individual, the parents, caregivers and guardians who experience the above feelings; they suffer from weak ego structures, lack impulse control and show little ability to defer gratification, have a sense of resignation, fatalism and an unstable family structure. These qualities therefore, make them to believe that the only source of hope is by giving out their children to labour with a view to earning extra income for the upkeep of the family (Ering, 2000). Lewis is of the opinion that these people show a great deal of self-perpetuating and echoes of poverty which succeeding generations could imbibe and exhibit as lifestyles, beliefs and values that are not simply an adjustment to low income. Even the children themselves may in subsequent times, compel their own children to embrace child labour so that they do likewise, and this will continue with succeeding generations. The theory is criticised for its inability to show the area in which the poor are found to be egoistically weak. It tends to paint a picture of generic poverty, which in reality shows distinct and unique characteristics. It has also been criticised on the grounds that it does not apply to Western societies, and even research in Africa shows that there is a high level of community action by engaging in self-help projects like the Esusu Thrift Contribution (Okolo, 2002). Family heads are getting involved in political activities and engaging themselves in private practices to augment their finances.

Culture of poverty theory states that parents and guidance who engaged their children in labour that are detrimental, suffer weak ego structure and lack impulse control to delay gratification of their instinctive impulse, which is why they push their children intothe workforce. Culture of poverty theory, with respect to this study, explains the relationship among home background variables (such as cultural value, parental income, parents' level of education, family size, family types, parents' occupation, employment status) and child labour variables (frequency and timing

of participation in labour activities) with the notion that home background variables could act as causal of any variable of child labour.

2.1.3 The Functionalist Theory

Durkheim (1858-1917) is most closely associated with functionalism, since he often employs analogiesfrom biology. The most prominent is his organic analogy, in which society is seen as an organic whole with each of its constituent parts working to maintain the others, just as parts of the body also work to maintain each other. This idea is basic to his concept of organic solidarity and distinguishes between functional and historical explanations and recognises the need for both (Marshall, 1994). To Durkheim, a functional explanation accounts for the existence of a phenomenon or the carrying out of an action in terms of its consequences and contribution to maintain a stable social whole(Marshall,1994). Similarly, religious institutions serve to generate and maintain social solidarity. Historical explanations are on account of the chronological development of the same phenomenon of actions. A new form of modified functionalism is now undergoing revival in studying societies.These modern functionalisms are usually associated with the works of Parsons (1902-1979) and Merton (1910). Merton, in his work, distinguishes between manifest functions (intended consequences or consequences of which the participants are aware) and latent functions (unintended consequences of which the participants are unaware). To the functionalist theorists, societies and individuals exist and work to sustain each other in an organic matter. The functionalists view each part of the society as performing a function that keeps and sustains the entire society. To them, failure in the performance of one function results in a breakdown of the entire society.

This implies that every part (no matter how small) has a vital role to play if the sustenance and unity of the whole is desired. Child labour, therefore, results from the inability of the society to function well by not being able to provide for the poor families the adequate socialisation, education, incentives, responsiveness to human problems, equality of access to the resources and opportunities, infrastructure as well as the necessities and provisions needed for decent or optimal standard of living. The functionalists also believe that there is child labour because the poor families have equally failed in their function and responsibilities as parents and are, therefore,responsible for the existence and prevalence of child labour in the society. They

equally maintain that child labour also arises as a natural phenomenon and as a way of life because of the resources which accrue from child labour to these poor families.

Functionality theory holds that parents and political bodies alike have failed in their responsibility and that is the reason why children are forced into the workforce. Functionality theory, with respect to this study, explains the relationship between variables such as location, cultural value and child labour. It accounts for the regional differences in child labour in Nigeria, variation in functional failure across different political bodies, and families in different states of Nigeria account for the difference in practice and magnitude of practice of child labour.

2.2 Conceptual Review

2.2.1 Historical and Current Perspectives of Child Labour

Child labour is not a recent phenomenon. It has existed over the centuries, not only in the impoverished developing countries but also in developed countries until the beginning of the 20th Century (Cunningham and Viazzo, 1996; Weiner, 1991). According to Pallas (1993), who examined the role of schooling in the social context of four industrialised nations (the U.S., Germany, Great Britain, and Japan), family was the central place in which children played, learned, and worked in pre-industrial societies. The family decided whether children were mature enough to be independent and start a new family. For instance, in U.S. pre-industrial periods, many children were engaged in various forms of productive labour, such as domestic work and agricultural work under parental surveillance. Family needed the income from children, and the work was typically supervised by parents or neighbours; thus, child labour was not considered a social problem (Pallas, 1993).

The negative aspects of child labour were first observed during industrialisation in Great Britain when cheap child labourers in exploitative factory working conditions became apparent, and it was during this period that the term “child labour” was first coined (Cunningham and Viazzo, 1996; Zelier, 1985; UNICEF, 2005). With the introduction of high-speed machinery, working children were replaced by mature adult labourers. Moreover, formal schooling and certification gradually began to be required to obtain qualified positions for more technical work (Horrell and Humpheries, 1995). As a result, throughout the industrialisation periods in many developed countries, the idea that children should remain in school longer was fostered in order to secure

adult working positions and to save them from exploitative working environments (Cunningham and Viazzo, 1996).

As an attempt to fight child labour problem, a number of schools were established. For instance, in the U.S. where industrialisation impacted school development, there was a conspicuous increase in the number of formal schools during the 1880s-1890s; twice as many formal schools as professional schools were constructed (Kett, 1977). Another example can be drawn from Great Britain; during the early stages of industrialisation, an increasing number of children were hired at factories; and their household economic contributions were great.

The number of child labour increased until 1900 in Spain, though many of these children worked for family establishment. The income from children ages 10 - 14 was substantial for their household until the second half of the 19th century. After the industrialisation, however, the percentage of children under 14 working in the factories decreased (1909, 2.5%; 1910, 1.4%; 1914, 1.2%; and 1920, 1.0%, respectively). Technological innovation in the textile industry that had been brought as part of industrialisation together with a rise in living standard, demographic change, the introduction of compulsory schooling, and the development of primary and technical education contributed to the great decline in child labour in Spain (Tiana-Ferrer, 1986).

However, with the coming of the 20th century, the percentage of child factory labour decreased, while the percentage of children in school increased (Cunninghhan and Viazzo, 1996). Accordingly, child labour, industrialisation, and schooling were historically inseparable elements in developed countries in the early 20th century.After industrialisation, the central socialising force changed from the household to school, and children and adolescents were segregated from adults both socially and physically (Pallas, 1993). It should be recapitulated that child labour in pre-industrial periods did not highly correlate with poverty. Further, the reality that industrialisation reassigned children from labour to schooling has led some economists such as Gary Becker (1997) to argue that the process of industrialisation or economic growth, will lead developing societies into the modern world or that economic growth and modernisation will stop child labour as well.

The situations in contemporary developing countries where child labour is still a serious problem are different from pre-industrial periods in developed nations. Various empirical studies that describe situations in Africa, most especially in Nigeria (Canagarajah and Nielsen, 2001; Cockburn, 2001; UNICEF, 2005) and South Asia (Delap, 2001; Toor, 2001) where child labour is most concentrated, have argued that poverty is the primary reason why children work.

Similarly, Fallon and Tzannatos (1998) in their World Bank's position paper articulate that "widespread poverty is the major cause of harmful child labour in developing countries". Thus, reducing poverty through economic development, and promoting other improvements such as changes in basic education, are essential elements of effective strategies to attack child labour" (Fallon and Tzannatos, 1998). Children work, as child labour relates to cultural aspects such as gender norms (Delap, 2001) as well as more general determinate issues such as children's age, education, gender, and parental employment conditions (Dehejia and Gatti, 2001).Majority of the child labour literature assert that it occasionally perpetuates an inter-generational trap rooted in poverty (ICCLE, 2001).That is, "child labour is both a cause and a consequence of poverty". Similarly, Longford (1995), who spent many years in Africa as a government official, contends that "poverty is the primary cause of child labour" where parents remain unemployed or have low income. Post (2001) who studied child labour in three Latin American nations argues that 59% of the working children named "poverty" as their reason for working. In brief, a large body of literature exploring why children work argue that poverty is the principal cause of child labour; although, cultural aspects, human rights, education, and adult employment are also interlinked and have been the topics of vehement discussions.

In the area of child labour, two foremost contemporary trends emerge. First, since 1990 and onward, child labour has been referred to in connection with human rights and education. Particularly, after the worldwide ratification of the UN Convention on the Rights of the Child (1989), child labour issues have been discussed from the perspective of human rights (Tomasevski, 2003; Hammarberg, 1997; Hammarberg, 2000), and an inextricable linkage between child labour and education has also been focused since the World Conference on Education for All (1990) and Dakar Framework for Action (2000) (Post, 2001a; Maitr and Ray, 2002; ICCLE). Since 1999, international organisations such as UNICEF have also shifted gears

to a more education-focused approach for working children, especially girls. In 2002, the UN also released an agenda for the 21st century called “A world fit for children.”

Secondly, the world has witnessed inter-agency cooperation among governments, UNICEF, World Bank and ILO since the late 1990s, and two conferences in the late 1990s (Amsterdam and Oslo) reached agreement over illegalised forms of child labour. This was particularly evident after the *Worst Forms of Child Labour Convention* (No.182, 1999) was established and rapidly ratified by a large number of countries. Although, theConvention No.182 is sometimes critically viewed as a compromise among international organisations such as UNICEF and ILO, whose original objectives and perspectives on child labour differ (Post, 2001a; Myers, 1999).

It is without doubt that since 2000 and thereafter, international organisations with their different objectives on child labour have been cooperating towards the elimination of the worst formsof child labour. For instance, UNICEF (2005) emphasises the elimination of the worst forms of child labour stating that: “it is now a priority for UNICEF and other international agencies to take action to end the worst forms of child labour, which includes an estimate of 180 million children” (Such examples of inter-agency cooperation have been observed through the joint research initiatives called “Understanding Children’ Work (UCW) (2000)” among ILO, UNICEF, and the World Bank, and through international initiatives called “Global Task Force” among ILO, UNICEF, WB, UNESCO and Global March against Child Labour that officially took effect in 2005 at the Beijing EFA high level group meeting). Subsequent sections of this paper give a synopsis of contemporary trends in child labour, including its definition, forms, and current estimates, as well as the programmes that try to eliminate child labour.

The final section examines the relationship between child labour and education, especially primary education, as it relates to one of the EFA Dakar goals. According to the ILO’s official data, an estimated 218 million children were counted as child labourers as of 2004 (Hagemann, Diallo, Etienne, Mehran, 2006). Just as the problem of child labour has been around long enough to attract attention, so has the term “child labour”. Although, following the ILO Convention No.182 of Worst Form of Child Labour, the term,child labour, is generally interpreted as “all cases in which children are exposed to harm at work whether or not children are less than 14 years old or not” (UNICEF, 2005).The meanings and implications of child labour have been

highly dependent on its social, cultural, and economic contexts as well as missions, strategies, and objectives of each working organisation (Post and Sakurai, 2001; Post, 2001). This is one of thereasons this study examines the social, cultural and economic attributes of parents that are directly related to child labour and students' achievement.

2.2.2 Forms of Child Labour in Nigeria

Childhood is expected to be the best time to lay a foundation of a balanced social and emotional stability for an expected adult. It is during childhood that the ingredients on which the child should grow is expected to be put in place. However, child abuse has been recognised as a violation of the rights of the child through the adoption of the convention on the Rights of the Child by many countries, including Nigeria. This convention recognises the significance of liberty, equality and nurturance as essentials for the preservation of children's integrity as individuals. Some of these principles include respect for the dignity of children as members of the human community; family protection and assistance to sustain children in natural environment for their growth and well-being; and state protection of children from exploitation and abuse.

Despite all these, there are still high incident of the problem of child abuse in Nigeria. There are prevalent cases of violent physical abuse which sometimes lead to the death of the child, child sexual abuse, child labour, child emotional abuse and child neglect. In the media, there are reports of incest, child prostitution, child trafficking, street children and the almajiris in the northern part of the country. Children abound on the streets hawking their wares when they should be inschool laying solid foundation for their future; such children are refered to as child workers. Some abused childrenwho manage to be in school, do not fully devote their time to their studies. Holistically, most child workers are engaged as domestic servants, bounded labourers, industrial/farm labourers, hawkers and commercial sex workers.

2.2.3 Domestic Servants

This is the most common form of child labour in Nigeria where children are employed to give domestic services. Domestic services need not be hazardous but most often they are. At ages ranging from seven to fifteen, domestic servants are made to wake up as early as 5a.m. every morning, keep the house clean, wash clothes, prepare food for the household, etc. and retire late

to bed. Such children are sometimes paid poorly or not paid at all, and most of the time deprived of affection, schooling, play, social activities, etc. They are also vulnerable to physical and sexual abuses (Awake 1999).

2.2.4 Bonded Labourers

This is another big contributory factor to child labour in Nigeria. Some very poor parents pledge the services of their young children to farmers or factory owners in exchange for loans. Where the parents cannot repay their debts, the children remain in long servitude (Awake 1999).

2.2.5 Industrial and Farm Labourers

Many children are employed as labourers in construction and farm operations because of the little money they would be ready to accept. Most of the time, they are exposed to snake bites, insect bites and suffer asthma or bronchitis after being exposed to cement and pesticides. Some others have been mutilated while cutting with machetes on the farms (Madunagu, 1999).

Most child work occurs in agriculture, mining and in the informal sectors of the economy. While some of the children help in farming, fishing and cattle rearing to beef up the family's economy, others work in mines and public settings, industries, workshop and in private households as domestic servants. In public settings, you see them as newspaper vendors, shop and markets stalls minder, car washers/watchers, cobblers, scavengers and porters in the markets. According to UNICEF (2001), it has become increasingly common to find so called "any work" children, offering to carry out any type of menial tasks such as street hawking, mining, apprentices in workshops or work as bus conductors, iron benders and metal workers, carpenters, tailors, weavers, hairdressers, barbers and workers in the catering industries. For instance, in Mali and Burkina Faso, children climb down shafts up to 80 meters deep to work in gold mines, (Hodges, 2000). There is no doubt that such end up physically and psychologically incapacitated.

2.2.6 Hawkers/Scavengers

Hawking and scavenging for scraps are other forms of child abuse and child labour. Many children in Nigeria are engaged in street hawking and scavenging for plastics, bottles, tins, etc. While hawking and scavenging, these children are exposed to molestation and abuses by total strangers. They could even be stowed away as slaves and lose contact with their families. They also stand the risk of being used for ritual purposes (Madunagu, 1999).

2.2.7 Commercial Sex Workers

Most recently, many parents have been reported to arrange for their children to be taken away to engage in prostitution for money even at very tender ages. These children are subjected to innumerable physical and emotional abuses, not to mention HIV infection, which makes it one of the most hazardous forms of child labour. The wife of the then Vice President of the Federal Republic of Nigeria, Mrs. Titi Abubakar, engaged in a war against women trafficking and child labour through her foundation known as Women Trafficking and Child Labour Eradication Foundation (WOTCLEF). This foundation, however, has not been able to bring this practice to a total stop.

Sexual exploitation of children is a grave abuse of rights and is consequently deplored by the convention on the rights of children. Hodges (2001) asserts that commercial sexual exploitation has become a problem of special concern in Nigerian as many of the children subjected to it are already victims of HIV/AIDs and other sexually transmitted infections. Studies by Adedoyin and Adejoke (1995) and UNICEF (1999) indicate that child prostitution is now common in towns in Nigeria with about ten thousand (10,000) children involved in prostitution. In the last decade, there has been large-scale trafficking of children and adolescent girls to Europe, particularly Italy, for work in sex industries while the boys work in mines and industries. Here, they also do all kinds of menial jobs. The traffickers promise them legitimate and lucrative jobs. However, on arrival, they are handed over to prostitution rackets. They are forced to engage in sex and all kinds of odd works (including drug trafficking) to payoff tickets and accommodation (Human Right publication, 2000).

2.2.8 Causes of Child Labour

Okojie (1987) postulatesthe causes of child labour to be an adverse economicenvironment, under-employment, massive retrenchment, unemployment and a poor quality of life. Nmom(2003) in his book,Interpreting Social Problems and Public Issues in Nigeria, contends that while poverty is often postulated as the principal cause of forcing children into child labour, a lack of social service at home, a lack of good housing, inadequate food and health care service,

combine to compel parents to engage their children in child labour. The least privileged children, including children without families and/or without homes, are the mostvulnerable to these social ills. The economic constraints also force people to look for wealth at all cost to the detriment of their children. Various empirical studies that describe situations of child labour in Africa (Canagarajah and Nielsen, 2001; Cockburn, 2001; UNICEF, 2005) where child labour is most concentrated, have argued that poverty is the primary reason why children work. Although, it should be noted that poverty is not the solereason, as child labour relates to cultural aspects such as gender norms (Delap, 2001) as well as more general determinateissues such as children's age, education, gender, and parental conditions (Dehejia and Gatti, 2001).

Moreover, the fact remains that parents engage their children in child labour in order to augment family income. They also find that the parents of child labourers tend to have low educational, occupational, and income attainments. Corroborating these findings is another study earlier conducted by Togunde and Richardson (2006) on household size and composition as correlates of child labour in urban Nigeria. Various household sizes and composition were examined as implicating factors in child labour. The study concludes that most working children come fromhouseholds with low parental socio-economic status. Other demographic variables like parental educational achievement and number of children are found to influence child labour practices. In his study of parental socio-economic status, correlates of child abuse and neglect in Ibadan, Nigeria, Olawale (1999) reportsa significant difference in the abuse and neglect of students from lower socio-economic background than those from higher socio-economic background. He also reports a significant difference in child abuse and neglect among parents of low educational status than parents of high educational status.

Furthermore, child labour in Africa may indeed not be an index of povertyor under-development. In the eyes of an African traditional person, what in the West is called child labour is tohim an opportunity to introduce the child into occupational training early in life. This may have compounded the issue of child labour and restrict researchers from attributing its escalation strictly to exploitation as the reason that motivates parents to subdue their children to child labour. Traditional parents often believe that the earlier suchtraining commences the better for the child.Hence parents introduce their children to their (parents') chosen careers early in life. For this reason, it will not be an unusual sight to see a five-year old drummer, shoemaker or

cloth-weaver, depending on the parents chosen profession. Meanwhile, this does not reflect the perspective of the urban and the Western parents who believe in and practise the contrary. This has,therefore,made the issue of child labour rather a global phenomenon whichnotoriously has attracted the attention of important world bodies such as the UNICEF and the ILO (Santrok, 2004).

According to Crosson (2008), there is a link between parents with marginal income and the imperative to push children into work so as to supplement family income. This view is supported by Bass (2004)and Binder and Sorgin (1999) who hold that children of poor families have to help generate family income and compensate for economic discrepancies in society, particularly as the gap between the haves and have-nots has grown inrecent years. In such situations, poverty breeds poverty. A poor family has a high probability of staying poor since low family income carry with them high risks of illness, limitations on mobility, and limited access to education. Thus, the legacy of poverty is passed from parents to children (UNICEF, 1997). The United Nations Development Programme (UNDP), in its debut Human Development Report, ranks Nigeria the 137th out of 174 nations in terms of human development. Graphically, Nigeria's Human Development Index (HDI) value is 0.400. Countries with HDI value below 0.5 are considered to be poor and to have low human development. In Nigeria, this poverty plays itself out as prostitution, corruption, robbery, street life, increased unemployment, poor livingconditions, high infant mortality, acute malnutrition,short life expectancy, and human deprivation (Ajila and Olutona, 2000). Child labour is also one of the indicators of poverty in 70% of households in Nigeria, providing an essential means of income for poor families. A 2003 ILO survey of child labour in Nigeria identified eight causation factors. These are: cultural influence, economic problems, national debt, and lowlevel education,unemployment, street life and single parents' families, with the last three factors exacerbating poverty (Oruwari 1996).

Joshua (2001) in his explanation of child labour in developing countries, finds close relationships between this phenomenon and socio-cultural, traditional and social structure. Where child labour is deeply rooted in social and cultural structure, neither the parents nor the children themselves will realise that child labour is against the interest of the children. Another dimension to this argument is that in many societies, there is a general belief that work is good for character building and skill development of the children (Brooks-Gunn andFurstrnberg,

1986). In some other societies, there is a tradition that children are expected to follow their parents' footsteps in a particular trade at a very early age, which again results to exploitation of the child for the survival of the parents. Gill (1977) mentions the size of the family as an important factor responsible for child labour. He reveals that the size of the family or the number of children in the family is related to the likelihood of child maltreatment or abuse. He notes that the larger the family size, the greater the risk of involving children in child labour. This is more where the parents' socio-economic status is low (Fayeye, 1995).

2.2.9 Socio-Economic Determinants of Child Labour

A generic of Becker's (1981) household decision model such as the one articulated and summarized by Pörtner (2001) or Cignati and Rosato (2000), assumes that the household acts to maximize utility which is a function of the number of children, the schooling per child, the leisure time per child, the leisure of the parents, and a composite consumption good. These goods are produced using a composite commodity purchased in the market place and the time of household members. The time inputs to produce the composite consumption goods can be supplied by the mother or by the children. Household income can be earned by selling goods produced in a household enterprise or by working as a wage labourer. Inputs to the production of the household enterprise good include physical assets owned by the family and by parent and child labour. Markets for labour, goods, and capital are taken to be perfectly competitive, at least initially.

The husband allocates time between market work and leisure; the mother allocates time among market work, child rearing, and home production; and children allocate time among market work, education, leisure, and home production. Uncompensated cross-elasticities in this model concerning children are the following:

An increase in the father's wage raises the implicit price of his leisure and will lead to substitution towards the child's education, if the child's education and the father's leisure are substitutes. An increase in the father's wage will also raise household income. If a quality-child is a normal good, then education will rise.

An increase in the mother's wage increases the opportunity cost of each birth, thereby lowering the optimal family size to the extent that child quality isa substitute for child quantity; thus, the

fall in the optimal family size will raise investment in education. However, to the extent that the mother's work in the home is a substitute for the child's work in the home, child leisure and education may decline when the mother's wage rises. Finally, the rise in the mother's wage will raise the demand for all normal goods. Quality children may be among these, in which case educational attainment will rise.

An increase in the child's wage works through several channels to alter the amount of education. First, an increase in the child's wage raises the opportunity cost of time spent in school. Second, an increase in the child's wage raises the return to each birth to the extent that the subsequently larger family size leads families to trade off quality for quantity of children, educational attainment will decline further.

The impact of an increase in the child's wage also depends on whether leisure and education are complements or substitutes. If leisure and education are complements, then, the rise in the cost of leisure will induce a decline in the demand for education. However, if they are substitutes, a rise in the wage will raise the demand for education. In order to determine the net effect of the child's wage, we have to weigh the income and substitution effects. If the contribution of the child's work to household income is small, then, the substitution effect will dominate and the child will increase work and reduce education. An increase in land holdings or other family assets should increase income, thereby increasing educational attainment. The explicit explanations of the reasons for child labour based on Becker (1981) household decision model are comprehended as follows:

2.2.10 The Quality-Quantity Trade-Off

Most theoretical analysis hypotheses tradeoff between the quantity and quality of children, as reviewed by Schultz (1997). However, Rosenzweig and Evanson (1977) allow the quantity-quality tradeoff to emerge as a by-product of the impact of the mother's wage on the number of children. In this case, the increase in the mother's wage raises the opportunity cost of the labour-intensive enterprise of raising children. The fall in the number of children in the family make resources available to increase child quality. For example, the services that children provide for their parents may be defined as the product of the number of children and their average quality.

In that case, quality and quantity are inherently substitutes. However, Cigno and Rosati (2000) note that this depends on the presumption that the net cost of a child is negative.

2.2.11 Variation in Child Quality across Siblings

Investment in child quality typically varies across children. There are several theories as to why this would be the case Ejernæs and Pörtner (2002) associate this with birth order. They identify three different possible explanations: budget constraints, biology, and returns to scale in household production.

2.2.12 Household Budget Constraints

Even if parents would like to equalise educational expenditures across children, they may not do so if they lack access to capital markets or if they do not realize the value of borrowing against future income. In this event, the level of spending on first and last born will be higher than the family average for two reasons. First, as noted by Cigno and Rosati (2000), families that are liquidity constrained cannot spend the return of their investment on their children until they have entered the labour force. Once the oldest children in the family begin working, the household budget constraint is relaxed, permitting more investment in the human capital of younger siblings.

Second, time spent in a smaller family is longer for first-born and last-born than for middle children (Birdsall, 1991). Note, however, that when a family is liquidity constrained, the youngest children in the family receive their *bonus* in form of greater educational attainment since their family will be smallest during their school-age years. By comparison, the oldest children will receive their bonus in form of greater maternal attention as infants. In addition, the last children to be born in the family will enter when the parents are at the peak of their earning power, thus, further biasing human capital formation in the youngest children in the family (Parish and Willis, 1993). Birdsall's insights also suggest some interesting interactions between mother's work and child's work. She reasons that mothers who work are not at a corner solution in the time allocation across children, whereas mothers who do not work allocate all of their available time to nurturing. Birdsall finds that mothers, who engage in market work outside the

home, spread their maternal resources across their children more evenly than mothers who engage exclusively in home production. The impact of a mother's market work on human capital formation is reversed, however. A mother who reduces hours of market work as the number of children in the family rises in order to increase the maternal time spent with each child, also lowers family income. The negative impact on household income may create an incentive to withdraw older children from school and send them to work. In other words, a family can use income of their older children to reallocate the mother's time from periods in which her family is small toward those periods in which her family is large.

Thus, once again, we might expect a first-born to begin work earlier than subsequent children. Biologymay play a secondary role. First-borns and children born to older women tend to have lower birth weight than middle children. These middle children, then, may have more potential to acquire human capital. Parents may draw conclusions concerning a child's genetic endowments, and ability to acquire human capital, by observing such factors as how prone they are to illness, genetic disorders and ability to grow physically based on birth weight. Gender, of course, may also play a role in the parents' evaluation of the earnings potential of an educated child.

Ejrnæ and Pörtner (2002) use a biology-based argument to explain birth-order effects in human capital investment. They assume that parents make fertility decisions sequentially. They have one child, then, observe the genetic endowment. Based on the observed outcome of the first child, they make a decision as to whether to have a second and so on. The objective function of the parents is to maximize an index of human capital embodied in their children. The upshot of this process is that, as soon as they have a child with higher than averaged expected genetic ability, they stop having children and focus a disproportionate amount of resources on that last child.

Thus, even if genetic abilities arrive randomly, parents stop having children or reduce the rate at which subsequent children are conceived, once an above average child is born. As a consequence, the last born will receive more human capital than children born higher in the birth sequence.

2.2.13 Returns to Scale in Household Production

Differences in innate ability are not the only reason that investment in human capital may vary across children in a single family. Up to this point, constant returns to scale in household production were assumed. This implies that children in the household in the same cohort can be assigned the same set of tasks. However, Chernichovsky (1985) suggests that there may be returns to scale for some tasks. Consequently, children within an age cohort may be assigned different tasks. Some may be engaged in household production and others in acquiring human capital. In a similar vein, Levison (1991) argues that parents may be diversifying their investment in children. Placing all children in school may expose the family to excess risk from income shocks. As a consequence, some children in the family may be assigned the task of acquiring skills that have immediate market value, such as that which can be acquired with on-the-job training.

2.2.13 Children as Insurance

The Ejrnæ and Pörtner (2012) model also offers an explanation for the inverse relationship between family size and education. Large families arise when the random birth of the above average child occurs only after multiple draws from the birth distribution. Such families, by virtue of their large size, are constrained in their ability to invest even in the most innately abled children. Overall investment is, therefore, lower for small families, and investment in above average children is also reduced. In this model, children are being used as savings vehicle. Parents are optimally investing in the number and quality of children to maximize the market value of the family as a whole. Of course, in some economic environments, there may be savings vehicles that are better investments than children. In countries that do not have well developed financial markets, land holdings may offer the most attractive rate of return. If the return to education is low and the return to land is high, then, family wealth is maximized by having a large number of child-farmers.

Parents are also motivated to have children as a form of insurance in economic environments in which insurance cannot be purchased at an actuarially fair price; a point made by many authors as reviewed by Pörtner (2001). Parents may be particularly motivated to use children as insurance instruments when land tenure rights are uncertain. DeVany and Sanchez (1977) found that land reform in Mexico, which made it impossible for land to be bought, sold, leased, or

mortgaged, resulted in large family size. Having children for insurance purposes can have several consequences, as explored by Pörtner (2001). Since it is the nature of insurance that income is sacrificed to reduce uncertainty, the return to the last child born may be negative. Thus, family size is larger than it would otherwise be. Large family size, of course, translates into fewer resources for human capital investment, and thus, early entry into the labour force.

Furthermore, to the extent that children are used to stabilise income, child labour will be positively correlated with the severity and frequency of negative income shocks. By contrast, higher expected future income will lower the demand for children for insurance purposes. The use of children as a form of insurance also provides some insight into the role of parental education in determining child labour, even after controlling for current income. Educated parents are likely to have higher expected future income, and therefore, be less likely to incur the expense of today of having children to insure against low income in the future. Smaller family size for a given present income translates into more resources for human capital formation. Thus, educated parents may have fewer, more educated children because of a reduced need to insure against future poverty.

In teasing out the role of parental education empirically, we will be particularly interested in those studies that control not only for income but also for expected future income and family size. That is, parental education positively correlated with human capital investment in their children because the parents have higher future income and smaller number of children, or because they have a deeper understanding of the value of education? Education, particularly of the mother, has a secondary impact on human capital formation. Child mortality is lower for educated mothers; thus, requiring fewer costly births to achieve the targeted family size. More resources are therefore left to invest in surviving children. In this framework, positive income surprises raise fertility. Parents who receive what they believe to be a temporary windfall are likely to invest some of it in having more children. These additional children then provide additional income in the future when household income returns to a more typical level. As a consequence, income surprises that ultimately proved to be permanent can produce some curious empirical results.

Families that have persistently high income that is unexpected are likely to have a larger family size and less human capital formation than we would normally expect. Thus, income growth will more slowly reduce family size when it is unexpected. Child mortality has conflicting effects on family size. On the one hand, if a child is more likely to survive infancy, the expected rate of return per birth is higher, thus raising the optimal family size. However, the increase in the probability of surviving childhood raises expected future household income, thereby lowering the optimal family size.

2.2.14 Human Capital Formation

The decision to educate one's children as discussed by many authors, most notably Becker (1974). Baland and Robison (2000) make a particularly direct connection of human capital formation to child labour when evaluating the efficiency characteristics of household decisions. They note that when parents are altruistic toward their children, have the ability to leave a bequest to their children, and have free access to capital markets, then investment in their children's education will be efficient. Parents in this setting optimise by equating the earnings of the last hour of a child's labour to the present discounted value of earnings that would accrue to the family due to the last hour of human capital acquisition in school. That is, the parents act to maximise the value of the dynasty's income.

2.2.15 Capital Market Failure

Problems with inefficient child labour arise when families are credit-constrained, as noted by Laitner (1997), Parsons and Goldin (1989), and Jacoby and Skoufias (1997), and as analysed by Baland and Robinson (2000). For example, if parents expect family income to be rising over time, then they may find it optimal to borrow against the future so as to smooth consumption across time. That is, it is optimal for savings to be negative when children are young. However, if parents do not have access to credit markets, then they have to rely on internal assets. In the child-labour scenario, parents borrow from the future by putting their children to work rather than investing in human capital that will make their children more productive in the future. Such a strategy, while optimal for the family in this constrained situation, is not efficient. The present discounted value of another hour of schooling is greater than the return to another hour of work. There is an abundance of indirect empirical evidence, discussed below, concerning the role of credit constraints and educational attainment. However, Dehejia and Gatti (2002) test the

hypothesis directly. They estimate a basic model of child labour determination for a panel of 172 countries for the years 1950-60, 1970, 1980, and 1995. The credit-constraint variable is proxied by the share in GDP of private credit issued by deposit- money banks. They find that a one standard deviation increase in the share of credit in GDP is associated with a 10 percent standard deviation decrease in child labour. They conclude that families with access to credit are considerably less likely to put children to work during a period of economic volatility than parents without access to credit.

Similarly, Jacoby and Skoufias (1997) study the effects of incomplete financial markets on child labour through their analysis of time allocation of children ages 5 to 18included in the Village Level Studies Survey, 1975-1978, of ten villages in semi-arid India. This work is particularly interesting because it attempts to disentangle credit market failure from insurance-market failure. This decomposition is accomplished by comparing how families cope with anticipated seasonal variations in income with unanticipated shocks due to variations in rainfall. The use of child labour to smooth seasonal income variations reflects incomplete capital markets, while the use of child labour to smooth variations in rainfall reflects the unavailability of insurance. Jacoby and Skoufias found that parents make significant use of child labour to self-insure. Small farms were found to be particularly poorly insured. They do not have access to seasonal borrowing. In contrast, large farms appear to have access to insurance but not seasonal credit. However, it is unclear how the consequent irregular school attendance affects human capital accumulation. Over the course of three years, a typical child in a household with limited access to credit acquired 98% of the human capital of a child completely insured against household specific risk.

2.2.16 Non-transferability of Household Assets

The analysis of Baland and Robinson (2000) suggests that as long as asset markets are functioning and there are transfers between parents and children, parents will make efficient working decisions for their children. This is the case if the parents are altruistic toward their children and intend to leave them a bequest, or if children are altruistic toward their parents and intend to support them during retirement. However, Bommier and Dubois (2002) argue that when children have a disutility of work, then, even if parents are altruistic toward their children and have access to credit, the amount of child labour will still be inefficiently high. Bommier and

Dubois consider the particular case in which parents choose the amount of child labour and that labour reduces the future productivity of their children. These children, when grown, work and provide a transfer to their parents. Children set the size of the transfer to their parents by equating at the margin their own utility of consumption to the pleasure they get from their parent's consumption. If a parent makes the child work, that work lowers the child's future income, and therefore, the transfer to the parent. Thus, the child can punish the parents for forcing them to work as a child by reducing the size of the transfer. The key here is that the transfer declines because child labour makes those children ,once grown, less productive than they would have been had they gone to school. That is, the parents are punished for inefficient formation of human capital in their children.

However, the unhappiness that the children feel while working does not affect their future income and so does not affect the size of the transfer they pay to their parents. Thus, parents pay no penaltyfor imposing this distress on their children, resulting in inefficient child labour though asset markets are functioning properly.

2.2.17 Failure in the Markets for Land or Labour

The model of household decision-making outlined above presumes that households have access to perfectly functioning markets for land and labour. However, as a practical matter, there may be several types of market failure that will alter the optimising decisions combining children and other household assets. Skoufias (1995) emphasises the importance of the difficulties that families may have in employing labour or in leasing land. There may be, for example, high monitoring costs associated with the use of non-family labour. As a consequence, families may have difficulty adjusting toward the household's desired cultivated area, given their reluctance to employ labour from the spot market.

The implications of labour-market failure for child labour are significant. In a model with perfect labour and land markets, the investment in children should be positively associated with land holdings through the income effect. However, in the presence of labour and land-market failure, a family with large land holdings may use the children to work the land rather than invest in human capital. Indeed, Skoufias (1995) finds in empirical analysis of six villages in a semi-arid region of India for the period 1975-1984 that the larger the number of adult males and children in

the household, the smaller the amount of land leased out and the greater the amount of land leased in by the family. This is the case even after controlling for other household assets, other work opportunities, and education level of the household head. Market imperfections in the capital and labour markets can further interact, with adverse consequences for children. To the extent that land is used as a savings vehicle land holdings may be dispersed over a large number of families rather than concentrated in the hands of a small number of large efficient farms. However, optimal use of the land may require child labour inputs, if there are also significant monitoring and moral hazard issues with hired labour.

Labour market failure can also contribute to child labour when it is accompanied by adult unemployment, as analyzed by Basu (2000). Basu considers the impact of an adult minimum wage. If the statute specifies a wage that is above the equilibrium level, then adult unemployment may emerge. Parents may bridge the gap in earnings by putting their children to work. The analysis by Basu is part of a general observation concerning the interrelationship between income inequality and child labour. Ranjan (2001)concludes that in an economy where child labour is inefficient – that is, the return to education outweighs the forgone earnings of a child, but poor households with an uneducated head do not have access to credit markets – then greater income inequality is associated with more child labour. In contrast, Rogers and Swinnerton (2001) emphasize the opposite. For economies that cannot support the entire population without child labour, increased inequality reduces child labour. In this case, if all families have an equal share of household income, then, all families will require child labour to survive. However, if income is unevenly distributed, then, families in the upper half of the distribution maybe viable without putting their children to work. In this case, the number of working children will decline.

2.2.18 Bargaining Failure

Several theories propose the possibility that bargaining failure is a contributing factor in child labour. Becker (1993) and Baland and Robinson (2000) make a compelling case that non-altruistic parents fail to invest in an efficient level of human capital in their children, because the child cannot pre-commit to repay the loan made by the parents to the child while in school. Genicot (1998) suggests that even when parents are altruistic toward their children, bargaining with the parents' employer may give rise to child labour. He argues that for households at a very

low level of income in which the intake of nutrients is suboptimal, an employer may seek to increase a worker's productivity by paying a higher wage. The expectation is that the higher wage would be spent on food, thereby making the worker more productive. However, if the worker has a family, some of the increased wage maybe spent increasing the consumption of family members other than the worker. Thus, the sought after productivity-enhancing benefits of the higher wage will not be realised. In order to internalise the leakage, the employer may seek to employ all members of the family, including the spouse and children. The reward to the family of supplying the child for work is not only the child's wage but also the increment to the parent's wage because he/she is no longer sharing productivity-enhancing food with other members of the family.

2.2.19The Mother's Stature in the Household

The unified model above presumes that parents jointly solve a family maximisation problem. However, alternatively, we may assume that the parents maximize a weighted family welfare function, where the weights depend on the bargaining power of the mother and father. It is well established that households in which the mother has more bargaining power are likely to spend more money on children's clothes and food and less on tobacco and alcohol (Kanbur and Haddad, 1994). However, Basu and Ray (2001) reason that the relationship between maternal stature in the home and the incidence of child labour is not monotonic. In fact, they find that a balance of power between parents is more likely to reduce child work than a family in which all decision-making is concentrated in the hands of a single parent. The reasoning is straightforward. Consider a household in which both parents have bargaining power anddo not engage children inlabour activities but enjoy the goods that the added income can bring. If either parent completely controls the purse strings, then the additional income earned by children will be devoted entirely to the goods that they desire. Hence, at the margin, the powerful parent will weigh their own disutility for child work against the value they themselves place on the goods purchased by that labour.

By contrast, consider decision making in a balanced household in which each parent controls half of the household income. In this case, each parent weighs their disutility from putting their child to work against the goods that can be purchased with only half of the child's income.

Clearly, both parents will choose a smaller amount of child labour when they only control half of the income, because the benefit is now smaller than before but the psychic cost of putting their child to work is just as great. The psychic cost of child labour has a public-good quality in the household. That is, each parent suffers the cost of putting their child to work, whether or not they enjoy the benefit of the proceeds. By contrast, spending the proceeds of the child's labour has a private-good quality. When one parent controls all household spending, the powerless parent has no ability to inject his/her willingness to pay to reduce the level of child labour. Analysing household data from the Nepal Living Standards Survey (June, 1995), Basu and Ray find that child labour is highest when the father is dominant in the household and lowest when there is a balance of educational attainment in the household. Further, while it is preferable to have an educated mother in lieu of an educated father, children fair best in a balanced household.

2.2.20 Children's Stature in the Household

The willingness of children to work, aside from their parents' requirement that they do so, may also play some role in determining the level of child labour. As with mothers, an increase in the share of household income earned by children may enhance their role in decision making in the family. Moehling (1995), in her empirical analysis of early 20th century urban America, finds that working children received a larger share of household resources than nonworking children.Indeed, some of the most challenging theory concerning child labour attempts to simultaneously determine the amount of child labour and the amount of bargaining power that the child has in the household (Moehling, 1995 and Bourguignon and Chiappori,1994).

These models are complex due to the fact that the amount of bargaining power that the child has is determined by the fraction of household income earned, but the fraction of household income earned is in turn an outcome of the bargain over how much the child works. If we resolve this debate in favour of determining bargaining power as a function of potential earnings power, as suggested by Basu (1999), we can provide an explanation for the startling rise in the stature of the child throughout the 20th century. For it remains something of a mystery as to why current day parents continue to invest in the formation of human capital in their children well past the age of twenty years old.

For the sake of argument, assume that bargaining power in the household is a function of potential, as opposed to actual earnings. In such a case, one of the impacts of an upward-trending worker productivity profile is to raise the stature of younger members of the household. This is the case because younger members of the household ultimately will be more productive, and thusearn more than their older counterparts when these younger members finally do enter the labour force. Thus, one of the effects of the technology revolution was to ramp up the worker productivity profile, and tilt bargaining power toward younger members of the household.

Basu (1999) notes that such bargaining games have the potential to reach deeply into the sociological construction of families. For example, the game described above may not have a unique equilibrium. As a consequence, child labour may be deeply imbedded in a complex interaction between bargain and outcome that may not be readily amenable to policy intervention. Tuttle (1999) adds a second dimension to the issue of child stature within the home. She argues that one of the effects of technological change in the textile mills was to create employment opportunities for children distinct from their parents. That is, some children were employed in the textile factories not in a subcontracting relationship with their parents, but directly by the plant manager. As a consequence of these new employment opportunities, parents found themselves in competition with mill managers for the labour services of their children. The consequent increased bargaining power of children raised their stature in the home.

2.2.21 Economic Crisis

Economic volatility can affect household decision-making through a number of channels. On the one hand, a decline in economic activity that reduces current employment opportunities relative to the future may lower the opportunity cost of an education relative to its future payoff. Thus, families may decide to increase educational attainment. However, for families that are credit-constrained or lack access to employment insurance, the impact may be the opposite. Children are withdrawn from school and put to work in order to span the economic downturn. There is considerable evidence that families in developing countries adjust labour market activity of the children in response to shocks. Jacoby and Skoufias (1997) find that parents in rural India withdraw their children from school during an unanticipated decline in crop income. Duryea

(1998) finds that paternal unemployment during the school year reduces the probability of grade advancement for boys and girls.

Behrman, Duryea, and Szekely (1999) found that for 18 Latin American and Caribbean countries, macroeconomic instability, as measured by volatility of international terms of trade and GDP, has played a dominant role in the slowdown in educational attainment since the early 1980s. Similarly, Flug, Spilimbergo, and Wachtenheim (1998), analysing cross-country panel data, found a significant negative correlation between schooling and macroeconomic activity. Skoufias and Parker (2002) studied the impact of economic shock variables on time use by Mexican 12-17 years old using the National Mexican Urban Employment Survey.

Analysis was conducted on families during the economic crisis of 1995 and the recovery period of 1998-1999. Impacts of economic crisis are measured by such variables as the male and female unemployment rate. They found that, on impact, Mexican families largely turn to older adult males and females to augment household income, though there is some measurable effect on the schooling of children. However, shocks have a significant effect on whether children continue in school in the next school year. The effect is most notable for female children, suggesting that these girls are replacing the mother's work in home production. Finally, "safety net" programmes had a significant effect on the effect of macroeconomic shocks on investment in human capital. In comparison, Cameron (2002) analyses the effect of the economic crisis in Indonesia during the late 1990s on education, labour force participation, and health. Based on data from four villages in the 100 Villages Survey, school attendance dropped slightly at the onset of the crisis but is now higher than pre-crisis levels. Fewer children are also working, though the ones that do are working longer hours. Of children ages 15-19 in 1998, nearly half worked 35 hours or more per week, and 14% worked 55 hours or more.

However, Cameron's analysis is not entirely supported by Manning (2000). While it is true that there is only a small change in aggregate labour-force participation rates and enrollment rates in 1998, as compared to 1997, Manning documents a dramatic increase in the number of street children in Indonesia. Children have become a common sight, selling food, drinks, and newspapers at most intersections, particularly in Jakarta. The Department of Social Affairs estimates that children working in this capacity have risen from 10,000-15,000 before the crisis

to around 50,000 in 1999. Lim (2000) finds similar results for the Philippines. Enrollment rates for primary school fell from 99.2 percent in 1997-98 to 98.1 percent in 1998-99. This change for elementary students is quite small. However, the enrollment rate for secondary students fell by 7.2 percent and the enrollment rate for high school students dropped from 76percent to 70 percent. Labour-force participation rates also rose for children ages 10-14, from 9.6 percent to 10.6 percent. For males, the rate rose from 11.7 percent to 13.4percent.

Some additional evidence can be found from the way that families respond to other types of unanticipated adverse events. Pitt and Rosenzweig (1990) study the effects of an increase in infant morbidity on the time allocation of families. Based on analysis of the1980 National Socio-economic Survey of Indonesia, a high rate of child morbidity increases the time teenage daughters spend in home production and reduces their formal labour-force participation and educational attainment.

2.2.22 Influence of Child Labour on Individual and Society

Child labour generates negative effects that hinder the child's cognitive, emotional and social development (Amar et al., 2008). Many of these child labourers are in a critical period of their psychosocial development during which key aspects of their personality and social behaviour, such as self-esteem and self-concept, are being molded and defined. In this sense, the school context, the relationship with peers, and the family environment are all factors that can affect the formation of these key personality concepts (Omokhodion et al., 2006). Likewise, child labour generates negative consequences on the quality of life and on the mental health of minors. Amar et al. (2008) finds that in addition to the perception of poor physical health, child labourers presented greater emotional wear. Furthermore, the minors who participated in their study perceived that their physical and emotional health interfered to a greater extent in the functioning of the family, and that their health was an obstacle to their development. Children and youths can be much more vulnerable than adults to the psychological and physical impact of labour, due to their psycho-physiological immaturity and the process of growth and development in which they are immersed (O'Donnell et al., 2002).

However, according to these same authors, there is a clear lack of evidence in the literature about the direct effects of child labour on the mental and physical health of the children to the point

that clearly contradictory results are given in some cases (O'Donnell et al., 2002). Social and economic consequences of child labour have also been identified. For example, Emerson and Portela (2003) find that adults who have not worked during childhood had higher salaries. They even note a generational link to child labour. This link can be established in terms of the continuity of conditions of poverty in the community context. However, even controlling for the income variable, it is possible that this generational link is associated with the persistence of certain social norms or educational patterns in the family, all of which determine child labour in families with parents who worked during their childhood. Thus, child labour does not only have immediate and short-term effects on the child, but rather, these effects are also present in the long term throughout the whole lifecycle. Taking on labour-related activities at an early age, reduces work opportunities during adulthood, hinders the achievement of an adequate educational level, and even impedes the formation of a stable family unit (Beegle et al., 2007; Seebens and Wobst, 2003).

2.2.23 Government Policies to Avert Child Labour

There are provisions in federal and state legislation seeking to address any forms of violence against children. The Child's Right Act (CRA) 2003 under sections 21-40 provides for the protection of children against discrimination, harmful and exploitative practices of the child such as exploitative or hazardous child labour, child hawking, begging for alms, and exploitation prejudicial to the welfare of the child in Nigeria. In addition, government has provided an enabling environment and support for the civil society organisations (CSOs) to thrive, and has drawn from their formulated policies, programmes and interventions for child victims of abuse and violence. Furthermore, CSOs, NGOs, child rights activists, legislators, judicial law enforcement officers, academics and government officialswere formed to push the passage of the Child's Right Act at the National Assembly and eventually its promulgation into law. The group is currently advocating for the adoption of the Act as State laws in the 36 states of the federation.

Moreover, to ameliorate the negative developmental effect of child labour and its obvious prevalence in Nigeria, Universal Basic Education (UBE) was introduced by theNigerian government in1999. Among the objectives of the scheme is the needto promote access to education, reduce the incidence of school dropouts, provide alternative education to dropouts, and ensure the acquisition of occupational skills in school and effectively nurture the child's

mind towards taking on communal role. There are other programmes initiated by the Nigerian government like NAPTIP (National Programmes against Trafficking in Persons) which are also aimed at curbing the ugly trend of child labour. As recently as 2002, the United States Department of Labour (2002) reported that governmental agencies will be implementing a USDOL-funded ILO-IPEC (United States Department of Labour funded International Programme on the Elimination of Child Labour) national programme to eliminate child labour, and participate in a USDOL-funded ILO-IPEC regional project to combat the trafficking of children. Also the International Labour Organisation (ILO) internationalised the campaign against child labour, with the adoption of Convention 182 on the Elimination of the Worst Forms of child labour in 1999 (Komolafe, 2008). Other world bodies like UNICEF are not left behind in the fight against child labour, and Nigeria had since ratified many of these international instruments that generally affect the rights of the child.

Policy in the Child labour Markets

The markets for child labour in the official economyare few and narrow, usually well known by national policymakers. The ILO conventions forbidding children under the age of fifteen to labour apply to this narrow area. This does not mean that this policy is unimportant, for two reasons:

- Pockets of low-paid jobs for children with appalling work conditions do exist in many African countries: in quarries, low-technology mines, forestry, fishing, coffee and tea plantations, etc. Here too, the policy debate around international trade sanctions and children's rights is applicable.
- An even more important consideration is the effect of such regulation on child labour not yet performed.

As we have argued before, there is likely to be a considerable excess supply of child labour. If the African economies succeed in achieving faster growth and the formal sector demand increases, child labour performed for the market might become a serious problem, and the ILO approach important. There are valid reasons to doubt the effectiveness of direct intervention in the labour markets for children. However, it is worth trying because it may lead the transition into a "good" (Basu 1999) equilibrium with few child labourers, and it gives the authorities incentives to watch the outcomes of important social and economic processes. An additional

advantage is that it is likely to work only on the child labour market without creating incentives to increase child labour activities at home. As indicated above, the child labour markets in the informal economy are a wider issue, but more difficult to regulate. The raison d'êtreof the informal economy is precisely to ease entry by avoiding costly rules. In principle, however, regulations should work in the same way as markets in the official economy, only be more difficult to implement. The most urgent task in Africa is to regulate the market for domestic servants. In addition to fixing age standards, working hours and working conditions, it is possible that the authorities should stimulate the collection of information made by the brokers in this market. It is also an area to mobilise both the elite and the parents' soul searching. Attempts to develop services, schools, and centres for mistreated housegirls have had some success, but it is unlikely to work on a large scale. Both these and the separate schools and lodgings for street children are useful in assisting the collection of information about serious social problems, but can hardly be developed on a scale large enough to address the problem without stimulating it at the same time.

Education Policy

Schooling and education must remain the central policy instrument for overcoming child labour in Africa. Unlike most other policy instruments, they work against both major forms of child labour. To be effective, atwo-ways adjustmentbetween the children's work tasks and schooling is necessary. Otherwise, the children may quit or not join the school, either on their own or through their parents' initiative. While it is important to improve the quality of the schools, such an adjustment also implies that the schools should be adjusted to the agricultural seasons and not become overly ambitious. If the schools are not adjusted to the agricultural seasons, the alternative costs of having the children attend during those seasons may become too high. Due to the cumulative nature of many learning processes, the result might be that the children drop out and have to work full time at home or in the market.

If the school is too far, only the most highly motivated and those with nutritious diets will be able to attend. If the financial costsare too high, the poorer children and children living in communities with small cash income cannot afford to attend school, and will work or go idle.In order to fight harmful child labour, free compulsoryschooling has the advantage that it gives the teachersmore power over both children and parents in influencinga child's time allocation.

Teachers are theonly persons who possess the information needed todistinguish harmful child labour from useful child workin the homesteads. Because there are importantspillovers from one child's participation at school tothe other children's from the same hamlet, an activeinvolvement at the community level among the teachersin fighting dropouts due to harmful forms of childlabour is essential. Moreover, this might be a Nigerian argumentfor some countries; compulsion will give incentives totrace the children who are without guardian supervision; who are becoming housegirls, street children,and have moved outside their local community in theprocess. Such tracing will limit the powers of exploitationat the hands of their employers.

In areas with high population growth, preschool or kindergartens may be particularly helpful in fighting both school dropouts and harmful child labour. The reason is simply that too many schoolgirls are hard-pressed by child-care responsibilities in addition to their other work burden. To have kindergarten close to schools may give some relief.

Health Policy

The connections between child labour and health policy are less evident. Clearly, malnutrition affects young children's school performance and leads to irreversible dropouts. Because of malnutrition, children may resort to harmful labour at home or in the market. Later, they may become somewhat apathetic, and stay in their homes performing activities on the borderline between work and idling because they lack the strength to leave. Some forms of child labour expose the children to high health risks, and a reasonably effective health system might be able to register this exposure and help identify these forms of child labour and also the children becoming orphans because of the AIDS epidemic. The measures taken to control the spread of the AIDS epidemic are also important in reducing the number of children who have to survive by selling their labour services in the market.

Agricultural Policy Instruments and Rural Infrastructure

General poverty reduction measures in agricultural areas are likely to mitigate some of the more serious forms of child labour, because the incentives to push children out early are reduced. However, for the better-off farms, the alternative costs of schooling may increase, and some of the less harmful forms of child labour may increase. Reducing the average distance between the household and its water resource, and improving cooking techniques so they become less

unhealthy will help reduce harmful child labour.One of the reasons that women and children shoulder such a large share of agricultural work in Africa is that the traditional methods of cultivation (no plows or draught animals) permit it. Major changes in methodsof cultivationare likely to reduce the role of children and provide free time for more play and studies.

Labour Market Policy Instruments

In most African countries, the Ministries of Labour have direct policy instruments of varying strength. These are applied in the context of the official economy to ensure that the countries are following their legal frameworks, and regulating which industries allow children to work at the specified age. While deviating in detail, most countries have rules modelled on the international conventions proposed by ILO and adopted by several African countries. A larger number have signed the UN Convention on the Rights of the Child that implies similar rules. The key instruments are labour inspectors and cooperation with the trade unions and employer associations in the country. Some feeble attempts to address the problem of child labour in the domestic servants market have also been made with these instruments.

Family policy

Given the important role family structure plays in the economy, family policy should, in principle, have wider implications in African countries than within the OECD (Organization for Economic Cooperation and Development) area. However, it is a notoriously difficult area of policy, which is one reason it is difficult for the government to control important sections of the African economies without violating the principles of non-interference in family life. Because breakdowns in the traditional ways of the African family systems are the cause of most socially harmful forms of child labour. It is difficult to find effective policy instruments that may attack the problem from its roots. It is, of course, not difficult to construct policies that may address parts of the problem, such as laws to make fathers liable to pay for their children's upkeep after they have left the mother. In order to be implemented, however, such laws demand more administrative capabilities on the part of the governments than they are likely to supply. To establish a network of social workers that would be able to remove exploited children and send them to their parents or to public institutions, is clearly an administrative Utopia that could easily turn into nightmares of corruption.

In practice, teachers and health personnels are in the best position to observe families and respond to their problems. If they care, that knowledge may change the family game. Demoralised cadres of primary school teachers will likely respond to the most harmful forms of child labour. While important, there are reasons to fear that none of these public networks is strong and effective enough to compensate for the decline in the protection of the extended family system against the most harmful child labour.

In addition to addressing excessive child labour performed within private households, family policy is also confronting a set of influences with important consequences for the children's work responsibilities and the division of labour among the children. The measures to reduce population growth, such as measures to introduce contraceptives, will also reduce most forms of child labour. Because there are few "objective" policy instruments in this area, and most are weak, propaganda is sometimes the only instrument left. Public debates are essential to re-adjust the gender division of work and responsibilities that, under modern conditions, gives many men such wide scope for free-riding and many young children heavy work and responsibilities. Alcoholism is a social ill that has not received the attention it deserves within the African context; although, it may have important consequences on child labour within the family. It is both an expression of and a cause of a weakened family structure. Female alcoholism has particularly severe consequences for the children, resulting in both malnutrition, and increasing workloads and responsibilities (Levine and Levine 1981). In addition to forcing increased responsibilities on their own children, young house girls are frequently forced into substitute parenthood.

Premarital pregnancies currently give rise to a large number of children that are not accepted by the families. The fathers of these children usually pretend that the children are not theirs, and the children may become severely disruptive of their mothers' careers. Often, their mothers are not even permitted to continue their education. Given the general excess supply of children in large areas of Africa, these pregnant children are not welcomed elsewhere in the family. They often receive worse treatment than legitimate children. Kilbride and Kilbride(1991) relate a story in which the illegitimate children receive less food and more work than the other children in the household. Both public propaganda and African public debates on this subject are essential to change the undesired behaviour patterns and to reduce their harmful effects.

2.2.24 Regional Factors Influencing Child Labour

2.2.25 Locational Difference in Child Labour

In the study of Okwukpara andOdurukwe (2006), the variables used in capturing community characteristics are location in terms of zone and sector (rural or urban). The result shows that location has significant influence on the child's participation in economic activities. Specifically, the location of a child by zone does not matter except in Southwest (which has negative and significant effect on participation of the child in economic activities), and in North East and North West (which have positive and significant effects on participation of the child in economic activities) compared with children from the South East. The result also shows that children in rural areas are more likely to participate in economic activities.

The degree of participation as indicated by the t-value shows that there is a significant difference between rural and urban children in different child activity options except gender differences in idling activities, which is statistically not significant. Kayongo-Male and Onyango (1991) note that in rural areas, female children are often more burdened by after school duties than male children. Okwukpara and Okwukpara (2006) observe that the lower participation in school (whether on full-time or part-time basis) in rural than urban in all the zones reflects two things. First, the greater predominance of poverty in rural area than urban area (similar studies have confirmed this; for example, Grootaert, 1998, Nelson, 2000). Second, enterprises such as farming that encourage child participation in economic activities are more common in rural than in urban areas. More idle children are recorded in the rural North than in the rural South. This may be connected to delayed enrolment, disability or lack of interest in education, which are important variables that determine child participation in schooling.

Barros et al. (1994) find that child labour in urban Brazil tends to be higher not in the poorest cities but in cities rich in income and in opportunities such as Curtiba and Porto Allegre. Children tend to work more in cities with flourishing labour markets (Levison, 1991) than in cities with high poverty. Similarly, time series studies have shown that the years with the highest rates of child labour did not necessarily coincide with the years of highest poverty (Barros et al, 1994).Others, such as Neri and Thomas (2000), show that during times of economic growth, both child labour and the probability of repeating a grade were above the fitted trend line. In a

rigorous study spanning 12 years, Duryea and Arends-Kuennings (2003) show that employment rates for 14-16 years old in urban Brazil increase as local labour market conditions improve. Child labour, therefore, clearly responds to opportunities provided by the market.

The probability for a child to work reduces as the size of the household increases. Its effect on the schooling is mixed; it is positive or null depending on whether we distinguish boys from girls or the urban area from the rural one. When the standard of living and the household composition, the socio-economic categories of the household head and the child characteristics are given; the geographical location influences the activity of the offspring. So, a child in a rural area will have greater probability of working than the one living an urban zone, all things else being equal.

2.2.26 Difference in Child Labour across Culture

Child labour has been found to be directly related to peoples' culture as it relates to their existing values and norms. For example, a work by Amar et al. (2008) on the quality of life and mental health of child labourers in Toluviejo (Colombia) notes that the entrenchment of child labour in the culture of the country, is a way for the child to contribute to the family economy or a way for the child to learn vital habits for the future. In addition, the authors note that the reasons for the labour of minors reported by the adults differ according to the children's age. Thus, for 15-17 years old youth, labour entails an important contribution to their development and to the roles that they are expected to carry out in the future. For younger children, an allusion is made to economic issues related to the need for the child to contribute to the family income.

There are reports that from early age, boys and girls are taught different skills, and are assigned gender specific roles(Ligeve and Poipoi, 2012). In many cultures, female children have a lower ranking than male children and are generally denied education opportunities (Government of Kenya, 1992). Studies also show that when parents are faced with financial constraints, especially in the rural areas, they give priority to boys' education. Implementation of cost sharing in education has surely made it very expensive for parents to educate their children. Given this tendency of parents to favour boys in education, girls are prone to be disadvantaged. Olweya(1996) in Poipoi (2012) observes that some parents regard girls as intrinsically inferior to boys. Because of this belief, girls are more likely to drop out of school when financial difficulties exist in families. Poipoi adds that domestic child labour keeps more girls than boys

out of school and that many parents in many developing countries will give preference to boys' education and fail to appreciate the value of education for girls. Instead, they see the value of girl's labour in the house as collecting firewood and fetching of water. Traditions and rigid social agreements also constitute a non-negligible determinant of child labour. Work is considered as one of the most efficient means to learn about the world and life of children. We can still find today, in most developing countries, the belief that it is advisable for a teenager to have some petty workto do in order to know the value of money. Sometimes, children are called over to play their social roles by continuingto do what their parents were doing in some particular sectors such as farming, hunting, trading, drumming, etc. Consequently, the child does not need to learn any other thing than the work associated with his/ her lineage, and moreover, s/he has to help his/her parents. The results of the work in the context of Peru and Pakistan show that under certain conditions, child labour can favour their personal development(Ray, 2000).

2.2.27 Socio-Cultural Causes of Child Labour

Over the years, the cause of child labour has directly or indirectly been linked to the prevalence of economic poverty. Poverty is more or less blamed for this worldwide scourge. It is claimed that it is poverty that makes parents/guardians send their children to the streets to hawk; go for prostitution; sell their children for child trafficking; allow their children to be employed into formal and informal sectors for daily or monthly pay; deny their children formal education and allow them to wallow in dirt and unhygienic conditions in the name of working. In fact, every form of child exploitation is linked to poverty. Children are found in all nooks and crannies of the world hustling for survival. Economic poverty (although at different levels and percentages) is found among all peoples of the world. There is no society or country with 100 percent rich citizens. Therefore, child labour – hawking, bus conducting, begging on the streets, working in large factories, etc.is auniversal endemic.This is a pointer to the fact that there is more to child labour than mere economic poverty.

In several parts of the world, there are many families which are epitomes of economic poverty, but have no children in the streets (while meeting all their needs according to their levels), and others that may not be classified as economically poor where almost all children are involved in one form of child labour or the other (Oleribe, 2002). These findings are stimulants of the assertion that child labour is not a product of economic poverty.Furthermore, many economically

poor countries have over the years developed innovative and creative programmes to tackle poverty – believing that this will help tackle (and if possible eradicate) most social vices like child labour, prostitution, armed robbery, etc. However, theseprogrammes have failed, especially in Nigeria and other African countries. Some have blamed the failure of these programmes on poor policy formulation, others on inadequate infrastructures or poor implementation, while some on the absence of proper policy evaluation and monitoring (Oleribe, 2007). The solutions to all these identified factors fail to address the problem of child labour. This failure may be a pointer to some underlying factors which none has identified or tackled. It is these underlying factors that both perpetuate economic poverty and other social vices in these countries. These underlying factors, which are the true causes of child labour in Africa, are the Five (5) Cultures of Child Labour. These are:

2.2.28 The Culture of Poverty

This is not 'poverty' but 'the culture of poverty'. There is a world of difference between 'economic poverty' and 'the culture of poverty'. While poverty refers to a situation where a person or group of persons exist at a level below the globally accepted subsistence level of 1dollar($1) /day/person or now 2 dollar ($2) /day/person, the culture of poverty refers to a situation where parents are programmed to believe that they are poor (a state of mental poverty), and thus incapable of meeting their needs. They believe that they cannot help or improve on themselves and always look for an external force, factor or person to blame for their predicaments. They claim that if they have/had good education, better government, better relations, rich parents, stronger foundations, encouraging brothers, etc., they would have been better. They never allow anyone to blame them for their present position. They, therefore, look for external helps to alleviate their problems. Similar mental poverty is found widely among African leaders who always blame their inadequacies on colonial rule and slave trade, and have internationalised begging from developed nations of the world. To them, unless there is money from outside either as grants, loans or donations; no project could be carried out successfully. Such parentsend up leaving their destinies unexplored and live on others as either parasites or unnecessary burdens. They refuse to think and live to survive. They grab on others as their sole ticket to life. It is not surprising to see them on the roadsides begging, using their innocent fragile children as 'compassion stimulators' when they can do something better with their time and

energy. They claim that there are no jobs when all around Africa many farmlands remain uncultivated. They claim that there is no money when everywhere both natural and human resources lie unexplored and unexploited.

They claim that there are poor governments when all governments are usually drawn from people with similar complaints. These set of parents have 'good' reasons for their failures, and therefore see no reason why they should do anything about it. These are the culturally poor people, the foundation of child labour. They use growing and innocent children for financial gains; some may even sell the not too strong ones or give them out for loans. The naïve children become their sole source of survival.These parents deny these children normal childhood and the chance to develop themselves through proper formal or informal education. These parents become devastating models to the children. They are socialized and brought up to believe that beggingis the only way out of hunger. This is not economic poverty, but a culture of poverty;a culture that accepts the wrong and justifies it. That kind of culture perpetuates bondage and smiles at it. It is a culture that accepts defeats and celebrates it. This is the fundamental cause of child labour not poverty.

2.2.29 Culture of Comparison

Many children are today abused by their parents or caregivers, primarily because they are daily compared with the wrong group of their peers. Parents and guardians are good at telling children to see other children who are involved in all manner of child labour and the impact their activities are having on their families' finances, while failing (deliberately) to compare them with others who are in school and are doing very well with their studies. Children in these families are made to feel guilty if they are not working like their so-called contemporaries, and sometimes they are starved because they could not meet up with the financial targets set for them by their parents or guardians. Many abusive parents are victims of this culture in many towns and villages in Africa. They see their children not as who they are but as what they want the public to see in them. That is, seeing them the way other mentally poor parents see their children. They want their children to help make more money for the families; they want to belong where other families belong; they want to do what other families are doing and they want to obtain what other families are obtaining. They think it is right. They think this is the only way to train their children and make them fit into the culture and setting they find themselves.

There are communities where all families have children in one form of child labour or the other, primarily because of this cultural colouring, not economic poverty. Studies have shown that children of traders are more likely to be found in the streets hawking (Oleribe 2002). This happens not because the parents are poor, but more importantly, other traders are doing the same. The culture of comparison is destroying the destinies of those children. Something must be done about it.

2.2.30 Culture of Laziness

This is one culture that is very prevalent in most African countries. Many adults look up to others to solve their problems, demand others to feed them while they waste their time doing things that are not meaningful. A typical African adult wakes up late; talks or chats most of the day; does minimal work in the day time; sleeps early when there are no visitors to talk with or no film to watch; but eats like a horse. In offices, they work at their own pace. The jobless are less perturbed as long as there is food on the table.Even economic poverty is a product of laziness. Having no interest in doing any meaningful job, they depend on their children to provide for the whole families. Children are allowed to work in the streets as hawkers, street beggars, bus conductors or wheelbarrow pushers while their lazy parents sit somewhere collecting the monies they make and feeding fat on them. This again is wrong.It is a cultural practice that has been accepted by many ethnic groups in Africa. Some go all the way accepting and identifying with this wrong way of life, while a large proportion do a miniaturepart of the jobs while the children do the major works. Many children are blackmailed into these jobs by parents who claim that having brought the child into the world and taken care of him/her while an infant, it is now time for the growing child to repay all the expenses and devotion the parents gave to him/her. This culture is the major cause of more than 10 percent of the prevalence of child labour in most African countries. In most cases where parents are hardworking, child labour is completely eradicated. In families where parents are diligent, children are seen in schools learning and improving themselves. This is completely opposite in families with lazy parents. Therefore, families are not poor because they have no job, no money to start a business or no good inheritance, but just because the head of the family is outrightly lazy. A resolution of this culture is one of the vital steps to the eradication of economic poverty in Africa.

2.2.31 Culture of Past Life

Many abusive parents were products of child abuse. They were victims of child labour, parental negligence and emotional abuse. These childhood experiences make them believe that abusing their children is the only way out of their financial predicaments,and the only way of bringing up their children. To them, it is a viable socialisation process for the child. In some communities, a child is not properly trained if by the tenth year of life he/she is not contributing to the family income. The more they contribute, the better theirupbringing.The parents believe that since they hawked, for instance, during their childhooddays and are doing well today, they see nothing wrong in their children hawking. Some of such parents claim that it was while hawking or working as a child that they learned most of the things that made them what they are today, and therefore find it difficult to see why they should deny their children such 'wonderful' experience. To such parents, child labour is a sine qua none to holistic child socialisation process, and cannot be ignored (Oleribe, 2006). It is the beginning and end of child training. It is the belief of many parents that no child can survive without it. However, they fail to remember the numerous children that were not so lucky; the millions that died while on the streets; the hundreds of thousands that were kidnapped; and several that were handicapped or deformed in the process. They forget their age mates that are destitute primarily because of complications that arise from child labour. They only cite the few that make it. This is not a product of economic poverty, but a mere consequence of culture of past experience.

2.2.31 Culture of Incompetence

In Nigeria, like in most other third world states, mediocrity is celebrated at the expense of meritocracy. Many people are put in places of authority not because of what they can do, but due to either whom they know or where they come from. This has drastically undermined true development and sustained evil practices – one of which is child labour. Children are not abused because the nations are economically poor, rather because the leaders make money from them – claiming that Africa is poor and citing their rehabilitation as a basis for asking for grants, loans and donations. They parade them in public as evidence of economic despondency and make the world believe that without them working; their parents cannot feed them nor train them. These are leaders without vision and lacking any good mind of their own. Similar incompetence is found in offices (both public and private), industries and government quarters that have ruined

our economy and wasted our resources, hampering enduring development. Children are, therefore, not in the streets because the countries are economically poor, but just because the nations of Africa have over the years glorified mediocrity and celebrated it. Understanding these principal causes of child labour and having political will to tackle the hydra-headed monster called child labour is what Africa needs (Oleribe, 2007).

2.2.32 General Impact of Child Labour

Child labour generates negative effects that hinder the child's cognitive, emotional and social development (Amar et al., 2008). Many of these child labourers are in a critical period of their psycho-social development during which key aspects of their personality and social behaviour, such as self-esteem and self-concept, are being molded and defined. In this sense, the school context, the relationship with peers, and the family environment are all factors that can affect the formation of these key personality concepts (Omokhodion et al., 2006). Likewise, child labour generates negative consequences on the quality of life and on the mental health of minors. Amar et al. (2008) observe that in addition to the perception of poor physical health, child labourers present greater emotional wear.

Furthermore, the minors who participated in their study perceived that their physical and emotional health interfered to a greater extent in the functioning of the family, and that their health was an obstacle to their development. Children and youth can be much more vulnerable to the psychological and physical impact of labour than adults, due to their psychophysiological immaturity and the process of growth and development in which they are immersed (O'Donnell, Doorslear and Rosati, 2002). However, according to these same authors, there is a clear lack of evidence in the literature about the direct effects of child labour on the mental and physical health of the children to the point that clearly contradictory results are given in some cases (O'Donnell, Doorslear and Rosati, 2002).

Social and economic consequences of child labour have also been identified. For example, Emerson and Portela (2003) find that adults who had not worked during childhood had higher salaries. They even noted a generational link to child labour. This link can be established in terms of the continuity of conditions of poverty in the community context. However, when controlling for the income variable, it is possible that this generational link is associated with the

persistence of certain social norms or educational patterns in the family, all of which determine child labour in families with parents who worked during their childhood. Thus, child labour does not only have immediate and short-term effects on the child, but rather, these effects are also present in the long-term throughout the whole lifecycle. Taking on labour-related activities at an early age reduces work opportunities during adulthood, hinders the achievement of an adequate educational level, and even impedes the formation of a stable family unit (Beegle et al., 2007; Seebens and Wobst, 2003).

2.3 Empirical Review

2.3.1 Child Labour and Parental Characteristics

The design and implementation to deal with child labour policies and programmes are based on adequate knowledge of the causes that drive children to enter the labour market. These causes of initiation and continuation of child labour are related to economic factors, as well as social and cultural factors. Regarding the causes of child labour, Webbink et al. (2011) propose a comprehensive model at different levels. For these authors, the causes of child labour can be:

(a) The resources related to family income, the job or the education of the parents,

(b) The structural characteristics, such as the number of brothers or family members, the availability of educational resources, and the level of urbanisation, and

(c) The culture as it relates to the existing values and norms associated with child labour

2.3.2 Child Labour and Parental Employment Status

Canagarajah and Coulombe (1997)haveopined that when mothers are more available for market work, children are removed from the labour market. It should also be noted that when both parents are gainfully employed in non-farming activities, there is increased school enrollment and less participation in work or idling activities of male children than female children. According to Emerson and Souza (2003), the human capital of parents is an important factor for putting children to work. Considering the above, parents who are in possession of a great potential of human capital are supposed to have a high income, increasing therefore the probability of sending their children to school rather than to the labour market. Among other things, the nature of parents' employment can influence their decision whether or not a child would be put in the labour market (Canagarajah and Coulombe, 1997). The study of Wahba

(2000) revealed that children whose parents work in the public sector have a greater probability of going to school than working.

2.3.3 Child Labour and Parents' Education

It is often postulated that educational attainment of parents plays a key role in determining a child's work. Educated parents are expected to dissuade children from engaging in laboursome activities because they usually realise the importance of education, in particular,the future benefits of a child's education. As arguedby Behrman et al. (1999), the mother's level of education increases her services as a home tutor rather than as a market labourer, and thus raises the return of the time that her children spend in education. The afore findings weresupported by Cartwright and Patrinos (1999), who say that increased education of mothers implies that better educated mothers have greater opportunities for paid employment outside the home.This fosters an increasein household income, and it has greater probability of a child attending school. By increasing family income, the mother's employment reduces the need to rely on thechild's labour.

Poor quality of the educational system (Ray, 2000; Mukherjee and Das, 2008; Kim, 2011), and low salaries and poor working conditions ofparents (Kim, 2009) are also noted as other socio-economic factors that can drive the family to force their children to work. Other aspects that are not strictly economic, such as the educational level of parents, the number of people that live in the home, the birth order of each child or the existence of polygamy (Dane, 2003; Canals-Cerda and Ridao-Cano, 2004; Arends-Kuenning and Duryea, 2006; Emerson and Portela, 2008; Omokhodion and Ochendu, 2009) also act as either causal or predisposing elements for incorporating children into the workforce. Moreover, Mukherjee and Das (2008) noted that among those parents with greater educational levels, there is a lower frequency of their children engaging in manual labour.

2.3.4 Child Labour and Parental Income

A clear relationship exists between income and the participation of children and teenagers in labour related activities. Low level of parental income and elevated poverty levels can force families to send their children to work, thereby preventing the children from investing in the human capital developement by attending school (Jensen and Nielsen, 1997). Child labour could

persist in the presence of high parental income if the degree of altruism of the parents is sufficiently low (Rogers and Swinnerton, 2004). Therefore, decision to send a child to school does not only depend on those incentives by the government and the parental level of income, but on factors such as the expected returns on the alternative uses of a child‘s time, nature of the capital market and credit constraints (Basu and Van, 1998; Baland and Robinson, 2000; Edmonds, 2004; Loury, 1981).

There is consensus amongst researchers, and previous studies have established that income is positively correlated across generation and income is presumably correlated with unobserved abilities transmitted across generations (Shea, 2000). There is also extensive literature on intergenerational transmission with regards to both income and education (Solon, 1999; Behrman and Rosenzweig, 2002; Plug, 2003; Black et al. 2005). Unobserved factor such as parental abilities that are correlated with economic status could potentially bias simple Ordinary Least Square regression estimates. There may be differences in parents' abilities (which comes from heterogeneity in skills, tastes and preferences) to generate income that are passed onto their children and generate the observed correlation between parental income, child labour and schooling (Løken, 2010). This may be due to hereditary factors, cultural factors, or from other family background linked to parents' education levels.

The empirical literature review on influence of parental income on child labour mostly considers the correlation between household income, child labour and schooling (Ray, 2000). Most of these studies find positive association between family incomes and children‘s schooling. Household‘s wealth, e.g. land, has been found to have negative effect on children‘s schooling but positive effect on children working (see Bhalotra and Heady, 2003; Basu et al. 2010). However, endogeneity of income still remains an issue of contention in most of these studies.High earning parents presumably have high ability on average than low-earning parents.

In order to mitigate the problem of endogeneity, spate of studies use instrumental variable approach to address the concern of the endogeneity of family income (see Shea, 2000; Blanden and Gregg, 2004), using father‘s union status, industry and job losses as instruments (compares children of union fathers to children of non-union fathers with similar observable skills). Shea (2000), on one hand, finds that parental income due to union status has negligible impact on

children‘s human capital accumulation but has significant effect on a sample of low income families. Blanden and Gregg (2004), on the other hand, review different approaches to estimating the effect of family income on children‘s educational attainment for Britain. They find significant, but small effect of family income. In addition to parental union status as instrument for parental income, Chevalier et al. (2013) use minimum school leaving age for the parents and month of birth for the children as instrumentsfor parental education as well to investigate the intergenerational transmission of education, with both parental income and education. They show that parental income matters for children‘s education. Maurin (2002) uses grandparent‘s socio-economic background as a predictor of parental incomes. He finds that with a higher family income, a child is much less likely to be hinderedfrom schooling.

2.3.5Child Labour and Family Structure

Family structure is an important factor that affects the intensity of child labour. The size and the composition of the households are equally a decisive factor of children participation in work. Within this context, large families without sufficient income to satisfy their need, find their children involved in labour market. The work of the concerned children can have in the long run negative effects on the welfare of the households (Galli, 2001). In the case of Morocco, the study of Baghagha (2002) shows that in 53% of cases, children who work come from households having three to five individuals. Mukherjee and Das (2008) find that in India, family size has asignificant effect on school dropouts and on increasing the incidence of child labour. In this sense, it is possible that other factors in addition to the number of family members are associated with the participation of minors in labour. For instance, for Ravallion and Wodon (2000), the family divides the child between work and education according to the family’s regular level of consumption and expenditures, the child’s previous attendance in school andthe time dedicated to leisure by the family. Other aspects that are not strictly economic, such as the educational level of parents, the number of people that live in the home, the birth order of each child or the existence of polygamy (DANE, 2003; Canals-Cerda and Ridao-Cano, 2004; Arends-Kuenning and Duryea, 2006; Emerson and Portela, 2008; Omokhodion and Ochendu, 2009), also act as either causal or predisposing elements for incorporating children into the workforce.

2.3.6 Child Labour and Parental Employment

There has been substantial debate over whether children and parents (particularly mothers) are substitutes or complements in economic activity. Proponents of the complementary argument assert that when mothers participate in the labour force, children take over household work from mothers. That is, mothers and children are complementary in economic activity (domestic work) (Levison, 1991). On the other hand, proponents of the substitution argument (e.g., Basu and Van, 1998) assert that when mothers are more available for market work, children are removed from the labour market. This results in a decrease in the labour force participation rate of children and an increase in school attendance. The mode of organisation of the family economy is more susceptible to mobilising children when the household head is employed, compare to the situation when the latter is jobless. The effect is higher when the household head works in the informal sector.

2.3.7 Child Labour and of School Participation

Most of the studies that evaluate the impact of child labour on time in school concentrate on whether or not the child is enrolled. In many countries, enrollment rates for working children do not differ drastically from those of children who are not working, particularly at younger ages. Some have pointed to this evidence as suggesting that child labour and schooling are not mutually exclusive (Ravallion and Wodon, 2000). Less is known about the relationship between child labour and school attendance because it is more difficult to elicit information on school attendance from household surveys. Parents' impressions of their child's attendance record are likely fraught with errors. It is possible to integrate official attendance records from the school with household survey data, but this has not been done frequently in practice.

In the end, time spent in school is an input into the educational production process and is no more a measure of schooling outcomes than is child labour. If child labour and time in school are both measured in hours, the time budgetedcreate an almost certain negative relationship between the two, even if child labour does not harm learning. Consequently, the impact of child labour on learning is unlikely to be well-measured by the impact of child labour on time in school. Also, variation in promotion across schools may reflect differences in standards of success, but variation in promotion within a given school should reflect differences in cognitive achievement across children. In practice, it is difficult to use information on promotion unless one follows a cohort of students over time. Retrospective promotions collected from a given class will

invariably include only those who werepromoted to the current grade. Therefore, grade-for-age dominates information on promotions for a single cross-section.

Grade repetition rates are also affected by child labour. One study that compared Panamanianchildren ages 5-17 who combined working and schooling with schooling-only children has interesting results. Grade repetition is still quite serious in Latin America, and Panamanian children are no exception. This rate is unequally higher for the children engaged in both work and schooling. For instance, according to a child labour survey by CGR/DEC (2000) in Panama; while 40.2% of students who were engaged in solely schooling were not behind grade at the primary school level, the percentage decreased to14.5% for the students who combine working and schooling as of year 2000 (ILO, IPEC, Central America, 2003, p. 109). Similar results were obtained in the study of Sedlacek et al. (2005) who also analysed the effects of child labour on grade repetition. Utilising the results of a household survey of 16 Latin American countries covering 10-16 years old children; their regression analysis led them toconclude that after controlling for family characteristics and other variables, working children were significantly less likely to be in the appropriate grade than non-working children. They further found that reducing the probability of work by 10% would decrease the lag at school by 12.3%. In sum, they consistently found that child labour participation negatively affectedschool attendance as well as grade repetition.

Several other studies exploring the effects of child labour on achievement in developing countries have suggested similar results. Duro (2001), for instance, found that working children in Argentina obtained lower scores than non-working children. Guarcello (2005) explored the impact of child work on school attendance and performance in five countries: Brazil,Kenya, Lebanon, Sri Lanka, and Turkey, and conclude that work reduces the rate of retention, and in some countries, the number of hours worked also increased the probabilityof dropping out. However, one atypical finding from Guarcello (2005) is that in some countries, being a working child does not necessarily affect “actual learning outcomes” such as test scores. This is a rare example suggesting a neutral impactof child labour on achievement.

Rosati and Rossi (2001) explored the effect of child labour on school attendance and the effects of hours worked on school performance. Utilizing the two national household data sets from

Pakistan and Nicaragua, whose economic as well as social structures differ widely, they regressed the probability of falling back in the course of study on the number of hours worked, adjustedfor a set of explanatory variables such as income, household composition, area of residence and parental education. From statistical analysis ofthe Pakistan data, the authors argue that child labour adversely affected school retention rates. Furthermore, they found that hours worked also affected retention rates, concluding that even a few hours of work may "nontrivially influence school outcomes".

In the same way, the authors explored the data from Nicaragua and found that an additional hour worked significantly increases the probability of grade repetition, and even an hour of work per day increases the probability of failing at school (Rosati, and Rossi, 2001). These results from two developing countries in different regions imply that not only working versus not working but also the number of hours worked is a detrimental factor that affects school achievement. Thus, they stress that any child labour would damage accumulation of human capital (education) and child welfare. Ray and Lancaster (2004) also explored hours worked by children on schooling effects by using multi-country evidence based on SIMPOC data. They asked to what extent does children's work at ages 12-14 negatively affect school attendance and performance, and concluded that hours worked had a significantly negative influence both on children's school attendance and performance, and in some countries, such as Cambodia, hours worked detrimentally reduced children's ability to read and write.

2.3.8 Parental Characteristics and Students' Achievement

2.3.9 Socio-economic Background and Students' Achievement

There are many relationships existing between socio-economic background and students' achievement (Woolfolk, Winne, and Perry, 2000). There has been much research evidences found to show that high socio-economic background students of all ethnic groups display higher average levels of achievement and stay in school longer than low-SEB students. (Alwin and Thornton, 1984; Goleman, 1988; White, 1982). Other research studies have found that when SEB is measured solely in terms of parents' education, income, or occupation, the relationship between Socio-Economic Statusand achievement is stronger than when it is measured in terms of family atmosphere variables such as parents' attitudes toward education, theiraspirations for their children or the intellectual activities of the family(Woolfolk, Winne, andPerry, 2000).

Achievement levels within industrialised countries were explained mostly by students'socio-economic background. Similarly, a recent review of approximately 60 empirical studies on determinants of students' achievement in developing countries found that school characteristics were related to students' achievements in the vast majority of the studies, after holding constant students' social economic background (Fuller, 1986).There is strong evidence that students' socio-economic background contributes significantly to both educational attainment and achievement of students in developing countries. Philippines, Smith and Choung (1986) found that parental, occupational and educational level shape children's school attainment with the same level of magnitude, since the early 20th century. Similarly, using household income as a rough proxy for students' social class, Chernichovsky and Meesook (1985) found significant educational attainment in Indonesia students'socio-economic background like parents' education,occupation, income and standard of living have been shown to relate to students' achievement, such that students from middle to upper class families tend to achieve better than students from less advantaged background (Jaffe, 1985; Rani, 1998; Simon, 2004).

Onocha (1985) in Olatunbosun (2013) corroborates this that a child from a well-educated family with high socio-economic status is more likely to perform better than a child from an illiterate family. Similar results are found by Teese (2004) in his analysis of students' achievement where he finds clear and consistent trends for children from lower socio-economic background. Robin'sreport (1993) notes generally that there was a cumulative disadvantage for the children from low working class homes. The report reveals that children from upper socio-economic background have 60% greater chance of high achievement than children from low working class homes. Odebunmi (2000) opines that middle class parents tend to provide a good environment for their children academically than those of poor parents. According to him, rich parents can provide books and materials for their children to work at home, and this can encourage high level of achievement.

Howley (1989) and House (2002) contend that students learn better if they are from above average or average income family, with well-educated parents who participate in the school's education process and encourage their children to learn. They establish that the socio-economic background of students affect theirachievement. For families in poverty, basic necessities are

lacking, and parents may place top priority on housing, clothing and health care. Educational toys, games and books may appear to be luxuries. This point is supported by Bookcock (2000) and Lloyd (2002) on the relationship between school performance and parental socio-economic condition, where they conclude that students with high achievement tend to come from families that are more educated and with higher status of occupation. According to him, the higher the socio-economic background of the students, the higher their achievement in Mathematics.

2.3.10 Parental Income and Students' Achievement

Family income is associated with students' achievement, but careful studies show little causal connection. School factors such as teachers' quality, school accountability, school choice, etc. have higher causal impacts than family income perse(Olatunbosun, 2013). A study conducted by Sum and Fogg (1991) found that students of poor parents were ranked in the 19th percentile on assessments while students from a mid-upper income family were ranked in the 66th percentile on assessments. Data from the Early Childhood Longitudinal Study (ECLS) measuring kindergarten students' achievement on the ECLS reading achievement assessment, low-income students scored at about the 30th percentile, middle income students scored at about the 45th percentile, and upper-income students' scored at about the 70th percentile (Rowan et al., 2004). Students from low income families consistently, regardless of ethnicity or race, score well below average (Bergeson, 2006). For example, in one study, 43.5% of low-income students did not successfully meet any of the required subject area assessments while only 13.2% of low-income students met all of the required subject area assessments (Bergeson, 2006). Similar studies have found comparable results showing that children who lived in persistently poor families scored 6 to 9 points lower on the various assessments than children who were never poor (Smith and Hausafus, 1997).

By contrast, a few studies have found little correlation between income and academic achievement of the students. A study conducted by Mayer (1999) pre-tested students in reading and Mathematics prior to an increase in income, followed by a post-test after the increase in income. The findings indicate that the effect on readingscores ranges from a small negative effect to a small positive effect while the effect on Mathematics scores is slightly greater (Mayer, 1999). An additional study conducted by Mayer (2000) studied the test scores of siblings, testing one sibling prior to an increase in parental income and another sibling after an increase in

parental income. The study found that "changes in income between the siblings have a very small and statistically insignificant effect on children's test scores and educational attainment'' (Mayer, 1999). Thus, studies show that there is nocorrelation between students' test scores and income level. The occasional lack of correlation between income and achievement in some studies may be due to the source of the income.

2.3.11 Parents'Education and Students' Achievement

There is evidence that parents' education will affect students' academic achievement in Mathematics. According to Grissmer (2003) and Taiwo (1993), parents' level of education is the most important factor affecting students' academic achievement. This, according to Taiwo (1993), is because the parents would be in a good position to be second teachers to the child; and even guide and counsel the child on the best way to perform well in education and provide necessary materials needed by him/her. This is supported by Musgrave (2000) who reported that a child that comes from an educated home would like to follow the steps of his/her family and by this, work actively in his/her studies. He reported further that parents who have more than a minimum level of education are expected to have a favoured attitude to the child's education and to encourage and help him/her with school work. They provide library facilities to encourage the child to show examples in activities of intellectual type such as reading of newspapers, magazines and journals. They are likely to have wider vocabulary by which the children can benefit and develop language fluency.

Onocha (1985) in Olatunbosun (2013) concludes that a child from a well-educated family with high socio-economic status is more likely to perform better than a child from an illiterate family. This is because the child from an educated family has a lot ofsupport, such as a decent and good environment for academic work, parental support and guidance, enough textual and academic materials and decent feeding. He or she is likely to be sent to good schools where well-seasoned teachers will handle students.

However, the most important effect of socio-economic background is that it generally makes parents less available to support and encourage their children in their schooling (Baker and Sodem, 1997). Also, literatures reveal that the home background variables have a great influence on the students' psychological, emotional, social and economic state (Onocha, 1985; Crane,

1993; Rani, 1998; Dubey, 1999; Mitchell, 1999; Musgrave, 2000; Neil and Keddie 2001; Grissmer. 2003; Teese, 2004; Sharma, 2004). This means that the family background and context of a child affect his/her reaction to life situations and level of achievement. There is evidence that parents' education will affect students' academic achievement in Mathematics. According to Grissmer (2003), parents' level of education is the most important factor affecting students' academic achievement. Taiwo (1993) submits that parents' educational background influence the achievement of their wards. Musgrave (2000) states that a child that comes from an educated home would like to follow the steps of his/her family and by this, work actively in his/her studies.

2.3.12 Parental Occupation and Students' Achievement

According to Yee and Eccles (1988), different occupations engaged in byparents have different effects on the education of their children. It thus appears that career modeling from parents could make a noticeable impression on children's intellectual development and academic achievement. For example, mothers who engage in menial jobs like hair dressing, sewing, petty trading, farming, catering among others, are more likely to have less contact hours with their children and this will lead to low performance of their children. That is, it can affect the numeracy, vocabulary and communication skills of their children. These mothers will most likely want their children to toe the line of their trade and as a result, may not bother to lay much emphasis on the early intellectual development and achievement of their children.

Moreover, Teese (2004), Sharma (2004), Dubey (1999) and Crane (1993) agree that students whose parents belong to the high ranking occupational status are found to have better grade in Mathematics than their counterparts whose parents belong to the low ranking occupational status. This is because parents with high ranking occupational status might have enough income which can be used to provide the needed materials and support for their children's education.

2.3.13 Parents' Provision of Learning Facilities and Students' Performance

Studies have shown that children are more likely to have higher academic achievement levels and improved behaviour when families are involved in their education (Bryan, 2005) as learning

begins at home through interaction with one's family. Research findings have also shown that a continued effort of parental involvement throughout the child's education can improve academic achievement (Driessen, Smit and Sleegers, 2005; Fan, 2001; Hong and Ho, 2005). There is little research available on the relationship between parental involvement and academic achievement of secondary school students. A majority of the research in this area has been conducted solely with elementary school students (Baily, Silvern, Brabham, and Ross, 2004; Marjoribanks, 2005). Thepresent study may provide an in-depth look at one aspect of parental attention to students' academic activities, and academic achievement of secondary school students.

Facilities according to Storm (1979) have been identified as very important variables in the teaching and learning throughout the world. Facilities according to the American Association for Vocational Instruction Materials (1979) are the classroom, labouratories, workshop and equipment. Faisal and Annutte (2001) and Patrick et al (2001) in their studies observed that the decline in the performance of students is due to inadequate facilities. Maitarfsir (2003) states that lack of instructional materials which serves as teaching aids to facilitate quick understanding of the subject matter in the classroom is a great impediment to conducive learning environment for STM education.

Various studies have shown that the proper use of teaching materials/aid will positively enhance the teaching and learning process in science (Dale, 1983, Okebukola 1989 and Johnson 1991). In all, various reasons have been adduced as major factors among which is lack of necessary teaching materials/aids in our schools as responsible for the observed poor trend in students' performances for the SSCE for the period 1993 – 1997 (Ajewole 1991 and Ivowi 1991). Futunbi (1996)reported that laboratory facilities and instructional materials to which students have been exposed are contributing factors to the students' academic achievement. In the same vein, Jimoh (1992) observed that poor laboratory facilities and lack of relevant textbooks are among factors that are responsible for low performance of students in Physics, Chemistry and Biology.

2.3.14 Parents' Attention and Students' Academic Performance

Parental attention may have very essential influence on school-based activities of children. These activities may involve contacts with teachers, checking the attendance of children in school,

monitoring their activities in school, and checking their periodical academic progress reports. All these might be very helpful for better academic achievements of children. Parents become more concerned about the learning opportunities that secondary schools provide. As children move from the middle grades to the secondary school, parents also crystallise their educational expectations for their children. As students complete school education, parents become increasingly concerned about their teen's further education and about the effects of secondary school programmes on post-secondary opportunities (Catsambis and Garland, 1997). Parental involvement had also been found to have positive impact on children academic achievement even when the background factors such as social class, family size, has been taken into account (Deslorges and Abouchar, 2003).

2.3.15 Child Labour and StudentsAchievement

In Nigeria, statistics reveals that 15 million children under the age of 14 are working across the nation, and that many are exposed to long hours of work in dangerous and unhealthy environments (UNICEF, 2006; FOS, 2003). These children, according to the report, carry too much responsibility that is above their age. Over eight million children manage, at least partly, to stay in school and work in their spare time to pay for their education and buy books. Most of the studies on the consequences of child labour have paid attention to school enrollment or attendance, only a few studies (Heady 2003; Psacharopoulos 1997; Admassie and Bedi 2003; Gunnarsson et. al. 2003 and Rosatti and Rossi 2003, Khanam and Ross, 2008) have examined the effect of child labour on students' achievement or cognitive attainment. Lower school enrollment or attendance may not represent thereal consequences of child labour, because these are simply indicators of time inputs for schooling, not learning outcomes. Child labour could harm students' achievement without hurting school enrollment and even school attendance, which is possible by reducing the leisure of a child. In Ghana, for instance, Heady (2003) analysed the effect of children's economic activity on their level of learning achievement. The result shows that work has a substantial effect on the learning achievement in the key areas of reading and Mathematics. Work has a much larger effect on advanced mathematical scores. This effect is substantial on children's mathematical skills, if they work outside the home. Therefore, Heady concludes that children who work as well as attend school find themselves as being less

able to learn as a result of exhaustion or a lack of time to complete homework, or a diversion of interest away from academic concerns.

Analysing the household survey data from two Latin American countries, Bolivia and Venezuela, Psacharopoulos (1997) conclude that working children are three times more likely to fail a grade in school. They find that child labour reduces the educational attainment by about two years of schooling for working children, relative to the non-working children. In Africa, particularly in Nigeria; it has been observed that child workers have lower school attendance and lower achievement (Robson, 2004). Children are engaged in the gales and servicessector of the economy in both rural and urban areas as street hawkers, domestic servants, car washers, beggars and even prostitutes. In some studies, children employed in these endeavours, often labeled "street children" or "children of the street", have run away from parental or guardian abuse, leaving them to sort out a living on their own (Finkelman, 1995). Similar to other sectors of children's employment, child labour in sales and services in less developed countries has a negative effect on the level of education attained, school attendance, grades, literacy, lecture time, and overall human capital formation (Murphy et. al.,1991). It is also a known fact that child labourers tend to keep bad company and arenegatively pressured by peers. From the above discussion, it can be concluded that child labour lowers school achievement in every country.

Contrary to the above studies, Ehrenberg and Sherman (1987) found that working while in secondary school had little impact on students' achievement. D'Amico (1984) found that working while in high school lowered study time but had no impact on students' achievement. Lillydahl (1990) also found that part-time work actually increased grade point averages when the job involved less than 13.5 hours per week, although the effect dissipated thereafter. Both D'Amico and Lillydahl found evidence that part-time work improved knowledge of' business and economics. Others have found evidence that working longer hours harm students' achievement. The general conclusion from these studies is that there is little evidence that working while in school harms students' achievement, provided that the part-time job does not involve too many hours (Damico and Singh, 1984). In fact, part-time jobs can actually enhance learning in subjects that are complementary with work. However, where part-time work harms students' achievement, the effect is small (D’ Amico, (1984).

However, it is dangerous to extend these conclusions derived from the studies in developed countries to the case of young children working in developing countries; because part-time work may be more disruptive for attaining basic numeric in the sense that the types of jobs performed by older students in developed countries may be more complementary with schooling than the low-skilled, manual work performed by young children in developing countries. Thus, the perceived view from the literature on child labour and students' achievement is that although some work can be useful for a child, in most cases, the benefits of work are outweighed by its harmful effects on a child's physical, mental and intellectual development (Amin, 1994). Also, these adverse effects of child labour on students' achievement are likely to increase if a child spends more time on labour activities (Heady 2003; Gunnarsson et. al.2003), and if the child works beyond a certain threshold of hours (Admassie and Bedi's 2003).

2.3.16 Quality School Participation Variables and Students' Achievement in Biology

2.3.17 Relationship betweenAttendance and Students' Achievement

Students' attendance is positively and significantly related to academic achievement, concluded by Lamdin (1996) based on the empirical analysis of data from 97 public elementary schools. The importance of attendance is critical throughout the students' life, but can have significant impact when chronic absence occur in the early years during the period when basic academic skills are being developed, attributing to interference with future academic progress. This is supported in the report by Chang and Romero (2008), funded by the Annie Casey Foundation, with a focus on improving the future of disadvantaged children through a secondary analysis of national data on attendance. The report maintains that "chronic absence in kindergarten has an immediate impact on academic performance", and those students subsequently display inferior abilities in Maths, reading, and general knowledge in first grade.

This is further exhibited in an analysis of data on attendance obtained from the National Center for Children in Poverty and executed by Chang and Leong (2012). The analysis conveys low plausibility that a student who had been chronically absent in kindergarten and first grade would be reading proficiently in third grade. Even when attendance improved in third grade, the students with chronic kindergarten absence performed lower in fifth grade. An investigation was conducted by the partnership of ECONorthwest Children's Institute, the Chalkboard Project, and

Attendance Works, using data compiled by the Oregon Department of Education. Using their interpretation of the results of the investigation, Buehler, Tapogna, and Chang (2012) point out that the "researchers found that the absences at kindergarten level predicted poor attendance and lower achievement in the years ahead".

In an effort to validate the findings of previous research regarding attendance and attainment, Burd and Hodgson (2006)investigated further using data that covered a five year period for five courses. The research results indicated a correlation between attendance and attainment, as measured by the final exam. The correlations were "significant tat the 0.05 confidence level and are therefore unlikely to be due to chance". Current accountability measures rely heavily on students' achievement being demonstrated through state exams. Nichols (2003) conducted research to discover factors that could help determine which students were at risk of failing the Indiana state proficiency exam in Mathematics and English language arts, using data collected from the graduation classes of 2000 (n = 2000), 2001 (n = 2056), and 2002 (n = 2364). Based on the results of his study, Nichols concluded that attendance "remains a critical predictor of student achievement". Chen and Lin (2008) reviewed existing research, dating back to 1954, of the relationship between class attendance and exam performance, and conducted further investigation using a randomised experimental approach. Their research results supported the existing research, showing diminished student performance on compulsory exams to be linked to interrupted attendance.

Attendance has an impact on achievement; good attendance has a positive impact while poor attendance has a negative impact (Arulampalan, Naylor, and Smith, 2008; Marburger, 2006; Roby, 2004) and the positive impact may be even greater than historically thought (Johnston, 2000). Data collected in studies completed by the school districts in Minneapolis, MN and Rochester, NY, were used by Johnston (2000) to portray the significance of attendance. The study in Minneapolis revealed that students with attendance rates of 95% were twice as likely to pass the state language arts test as those with an 85% attendance rate.

2.3.18Relationship between Punctuality and Students' Achievement

Showing up or punctuality to school is an important aspect of schooling (Johnson, Crosnoe, and Elder, 2001). A student who does not show up on time is considered tardy. Tardy can be defined

as a "student's failure to be in an assigned seat at the sound of the final transition bell or tardy bell" (Tyre et al., 2011). Not showing up on time or being tardy, is considered to be problematic as shown in the study conducted by Fish et al. (2011), who documented "the extent of misbehaviour in tenth grade public high school students in 1990 and 2002". The study used two national databases: the National Education Longitudinal Study of 1988 (NELS88) and the Educational Longitudinal Study of 2002 (ELS2002). Perspectives of administrators, teachers and students on student misbehaviour were examined "to compare the type and extent of misbehaviour among high school students during this time period". As detailed in the study, administrators perceived tardiness and absenteeism as the most problematic issues of students'misbehaviour with results being similar over time and among school locations. The data established that teachers perceived 5% of students to be frequently tardy, and the teachers' perceptions were similar over time.

Wiener (2010) is of the opinion that tardiness is a concern even within the early childhood setting, as determined by a national survey of Head Start programmes. The survey included rural, suburban, and urban settings. Teacher information collected in the survey shows that in classrooms, with a maximum of 18 children, three to six various children were tardy on a weekly basis. Banicky and Janicki (2006) prepared the report for the School Board of Virginia Beach, Va. City Public Schools to provide them with information to assist in the goal to "increase support for teachers and administrators that will assist schools in maximising the use of instructional time". Teachers and administrators from eight randomly selected schools within the district participated in the survey. Students' tardiness was rated as a moderate or large impediment to instructional time by the majority of high school respondents and building administrators. Robers, Zhang, and Truman (2010) relay that the survey data collected from the 2007- 08 school year for the National Center of Educational statisticsrevealed that almost 34% of public education teachers either agreed or strongly agreed that students' tardiness interfered with their teaching. These studies clearly portray the problem of tardiness: existing from the preschool level through high school, continuing across time and geographic locations, impeding instructional time, and perceived as the most problematic issue of student misbehaviour.

2.3.19 Students Commitment to Home/Class Assignment and Academic Achievement

One of the least researched issues is the impact of graded assignments on students' performance, even though assigning problem sets is now an important part of teaching strategies employed at secondary school level (Geide-Stevenson, 2009). Assignments that are graded, with the score used as part of the final course grade, are expected to improve test performance. The logic is that students will be motivated to work on the graded assignment and will learn from it; consequently, test scores will improve. Graded assignments, however, do impose costs on both instructors and students. Instructors spend time grading the assignments and providing adequate feedback. As for students, they may need to forgo other, more productive learning processes and methods to make the time to work on graded assignments (Geide-Stevenson, 2009). Thus, it isnecessary to examine whether and to what extent graded assignments benefit students.

Although, few studies have examined the impact of homework assignments on student performance at the elementary and secondary education levels, it is also observed that a few studies have investigated this important issue in a university-level setting. Cooper (1989) provides an excellent review of the studies on the impact of homework on students' performance in elementary and secondary schools. Grove and Wasserman (2006), using data from Economics students in aU.S. University, compared Exam performance of students for whom assignments counted toward the final grade with the performance of a control group. Using Ordinary Least Squares regression analysis, the study found that a grade incentive to complete assignments boosted the Exam performance of academically average freshman students but not those who were academically above or below average, or of any other class standing. Geide-Stevenson (2009) used data from Economics students at another U.S. university and found from Ordinary Least Squares regression analysis that graded assignments had no impact on academic performance. Thus, not only is there a paucity of studies on the impact of assignment on academic performance of university students, but the results so far also are conflicting. In the present study, we aim to fill the gap in the literature and extend the earlier studies in a number of ways.

2.4 Appraisal of Literature and Gaps to be Filled

A natural instinct in all living things that make for their self-preservation is adaptation; failure to adapt leads to extinction. In a bid to alleviate the problems posed by the harsh economic realities

(poverty) in Africa, especially among Nigerians, the common practice is that parents and childrenalike are drafted into some forms of work to improve the economic fortunes of the household to alleviate poverty. Studies have examined the reason why most parents force their child/children into different forms of workforce. Salako (2003) established from a cross-sectional data that low levelof education andlow socio-economic status of the parents is responsible for children being drafted into work. Outof the children interviewed by Salako, 25% said they work to earn money needed by their parents, 67.3% earn money needed for school fees, while 2.8% said it was to begin a trade. Okojie (1987), Oruwari (1996)and Aderinto (2000) linked the phenomenon of child labour to socio-economic background, and concluded thatpoverty is the major cause of child labour and low socio-economic background.This study was conducted without the causal link of parents' socio-economic background to child labour.

Literature has also established the cultural/ locational difference in child labour in Nigeria.In a study by Okwukpara and Odurukwe (2006), the variables used to capture community characteristics are location in terms of zone and sector (rural or urban). The result shows that location has significant influence on the child's participation in economic activities,particularly in South West,which has negative and significant effect on participation of the child in economic activities; and in North East and North West, which have positive and significant effects on participation of the child in economic activities; compared with children from the South East where there is no significant relationship. The result also shows that children in rural areas are more likely to participate in economic activities.However, the study did not link child location with parents' socio-economic background or students' achievement.

Parental socio-economic status has been correlated with child abuse and neglect in Ibadan, Nigeria. Olawale (2009) reportsa significant difference in the abuse and neglect of students from lower socio-economic background than those from higher socio-economic background. He also reports a significant difference in child abuse and neglect among parents of low educational status than parents of high educational status. The empirical literature reviewed on influence of parental income on child labour covers three categories. The first category considers the correlation between household income, child labour and schooling (Ray, 2000). Most of these studies found positive association between family incomes and children's schooling. Other studies that are not strictly socio-economic such as the educational level of parents, the number

of people that live in the home, the birth order of each child or the existence of polygamy (DANE, 2003; Canals-Cerda and Ridao-Cano, 2004; Arends-Kuenning and Duryea, 2006; Emerson and Portela, 2008; Omokhodion and Ochendu, 2009), have also been established to act as either causal or predisposing elements for incorporating children into the workforce but their concomitant causal linkage with students' achievement was not examined.

Evidence that students' socio-economic background contributes significantly to both educational attainment and achievement of students in developing countries was reported in the literature by Philippines, Smith and Choung (1986).They found that parental occupational and educational level shape children's school attainment with some level of magnitude. Most of the studies on the consequences of child labour have paid attention to school enrollment or attendance.It would appear that onlya few studies (Heady 2003; Psacharopoulos 1997; Admassie and Bedi 2003; Gunnarsson et. al. 2003 and Rosatti and Rossi 2003, Khanam and Ross, 2008) have examined the effects of child labour on students' achievement or cognitive attainment. Lower school enrollment or attendance may not represent thereal consequences of child labour, because these are simply indicators of time inputs for schooling, not learning outcomes. Child labour could harm students' achievement without hurting school enrollment and even school attendance. This is possible by reducing the leisure of a child. In Ghana, for instance, Heady (2003) analysed the effect of children's economic activity on their level of learning achievement. The result shows that work has a substantial effect on the learning achievement in the key areas of reading and Mathematics, but the socio-economic background and location effect of the children used in the study was not linked with child labour.

Webbink et al. (2011) proposed a comprehensive model of different levels to establish causal relationship among resources related to family income, the job or the education of the parents; the structural characteristics, such as the number of brothers or family members, the availability of educational resources, and the level of urbanisation, and the culture as relates to the existing values and norms associated with child labour.However, the resultant effects of these variables on students' achievement, especially in Biology were not examined.The literatures reviewed regarding the above studies have examined phenomenon of child labour singularly or in combination with child's socio-economic background or students' achievement,but there is a gap in literature on a single study that examines the influence of students' home variables on child

labour and students' achievement in Biology. Again, most studies that have been conducted examinedthe direct influence of child labour on students' achievement, without looking at influence of child labour on such classroom process variables as students' attendance, punctuality, and availability of learning resources for student which is otherwise known as school participation. It is on the basis of this that the researcher investigated the extent to which students' home variables influence child labour and school participation. The concomitant influence or linkages between students' home variables on child labour, school participation and students' achievement in Biology were also examined.

CHAPTER THREE

METHODOLOGY

This chapter describes the research methodology. It includes research type, population, sampling procedure and sample, instrumentation, method of data collection and procedure for data analysis.

3.1 Research Design

The study adopted*Ex-Post-facto* design of correlational type. The research design is chosen because the researcher does not have control over the variables as their manifestation has already occurred. The causal relationship among the variables was examined.

3.2 Variables of the Study

Exogenous Variables

X_1=Parents' Residential Location

X_2 = Parents' Cultural Value

Endogenous Variables

X_3= Parental Educational Background

X_4= Parents' Employment Status

X_5=Parents' Occupation

X_6=Parents' Income

X_7= Family Type

X_8= Family Size

X_9=Parents' Attention to students' Educational Needs

X_t=Parents' Provision of Educational Material for the Students

X_a=Frequency of Students' Participation in Child Labour

X_b= Timing of Participation in child Labour

X_c=Students' Attendance in School

X_d=Students' Punctuality to School

X_e=Students' Commitment to Home

X_f=Students' Commitment to Class Assignment

X_g=Availability of Educational Materials for Students

Criterion Variable

$X_{h=}$ Students' Scholastic Achievement in Biology

Variable X10 was represented as Xt while variables X_{11} to X_{18} where represented as $X_{a,}$ $X_{b,}$ $X_{c,}$ $X_{d,}$ $X_{e,}$ $X_{f,}$ $X_{g}$and X_{h}.

3.3 Population

The population of the study comprises all senior secondary school I andII students who engaged in child labour activities in the State capitals, with distinct rural and urban secondary schoolsin South West Nigeria.

3.4 Sampling Technique and Sample

Multi-stage sampling procedure was used to select participants for the study. At the first stage,three states representing 50% of the South-West Stateswere purposively selected. The states were Osun, Ogun and Oyo. These states were selected because their capitals have distinct urban and rural settings. At the second stage, the selected Stateswere stratified along location (Urban/Rural) and 21.0% ofthe secondary schools from each location (69 out of 329 secondary schools) were selected at random in order to meet the minimum sample size for SEM estimation. At the third stage, child labour screening instruments were administered to the senior secondary school I and II students in the selected secondary schools, to determine those who were involved in academically detrimentalactivites due to child labour.Twenty-five senior secondary school students who have been found through screening to haveengaged in academically detrimental activities,were randomly selected from the sampled secondary schoolsto make the total sample size of 1725 participants. Table 3.1 shows the selection of participants for the study.

Ordinarily, the minimum sample size for structural equation modeling is 10 cases (subjects) per parameter. The number of parametersin a model isestimated using the formula; n= q(q+1)/2

Where n=number of parameters

q=number of observed variables.

In this study, the number of observed variables is 18 thus,

Number of parameter=18(18+1)/2

342/2 =171. Hence, the minimum sample size = 171x10 =1710 participants

Table 3.1: School Location and Selection of Sample

State	Location	Number of Secondary Schools	Selected Secondary School	Sample
Oyo	Rural	149	31	775
(Ibadan)	Urban	122	25	625
Osun	Rural	12	3	75
(Osogbo)	Urban	9	2	50
Ogun	Rural	8	2	50
(Abeokuta)	Urban	29	6	150
Total		329	69	1725

Source:Columns 1-3 wereAdapted from Teaching Service Commission (TESCOM); Oyo, Ogun and Osun States.

3.5 Instrumentation

Six instrumentswere used for data collection:

1. Cultural Value Questionnaire
2. Socio-Economic Status Scale
3. Parental Involvement in Students' AcademicQuestionnaire
4. School Participation Scale
5. Labour Participation Screening Scale
6. Biology Achievement Test

3.5.1 Cultural Value Questionnaire (CVQ)

This instrument consisted of 15-items developed by the researcher for the students on their parents' cultural value or beliefs that influence students' actions or choices. The instrument was patterned after Likert's modified format of Strongly Agree = 4points, Agree= 3points, Disagree =2points and Strongly Disagree= 1point.

3.5.2 Socio-Economic Status Scale (SSS)

The socio-economic status scale consisted of nine itemsdeveloped and drawn on parental socio-economic variables such as parents' educational qualification, family type, family size, employment status, parents' income and parents' occupation. This is given as Appendix II.

3.5.3 Parental Involvement in Students Academic Questionnaire

This was developed by the researcher to elicitinformation on child labour indicators, such as parents' attention to those students who engage in child labour, and ease of parents' procurement of educational resources for students who help them in carrying out economic activities. This is given as Appendix III.

3.5.4 School Participation Scale

This instrument was also developed by the researcher to collect information on variables that arelikely to improve or reduce students' achievement as a result of students' engagement in some activities. The instrument was sub-scaled into students' attendance in the school, frequency of students' participation in child labour, timing of child labour, punctuality in school, commitment to home and class assignment, and availability of educational materials for the students. See Appendix IV on page 160.

3.5.5 Child Labour Participation Screening Scale (LPSC)

The instrument was self-developed. It contained series of child labour activities to determine students who engage in child labour activities and those who do not. The expected response options are frequently, sometimes and never. See Appendix V.

3.5.6 Biology Achievement Test (BAT)

A self-developed 45-item achievement tests in Biology consisting of multiple choice items with response format lettered A to D content was drawn from Senior Secondary School I and II curricular.It contained basic knowledge of Biological science required and useful for secondary school students, irrespective of their field of study (Arts, Science or Social Science). Besides, most problems identified by West African Examination Council Chief Examiners' report 2013 were found to be in those topics. The instrument was constructed by the researcher using a Table of Specification (TOS), which consists of first three cognitive domains namely Knowledge, Comprehension and Application. The first three cognitive domainswere used because the instructional strategies used for implementation of Biology curriculum is based on making students to be knowledgeable, to comprehend and apply the concepts/skills taught where

necessary. Each correctly answered question attracts 1 mark such that possible range of scores on the test is 0 to 45 marks. The test blue-print is presented on Table 3.2

Table 3.2: Test Blue-Print for Biology Achievement Test

		Levels Of Cognitive Domain			
S/N	**Subject Matter Content**	**Knowledge**	**Comprehension**	**Application**	**Total**
1.	Organisation of Life	5 *(2,4,5,6 &8)*	4 *(1,3,7 &9)*	0 -	9
2.	Organism and Its Environment	8 (*13,14,15,53,54, 55,57&60)*	4 *(10,11,12,56)*	3 *(16,58&59)*	15
3.	Organisation of Life II	3 *(17,18 &19)*	1 *(20)*	0 -	4
4.	Continuity of Life	4 (*46,48 49 &50)*	3 *(47,51 &52)*	0 -	7
5.	Supporting System	0 -	4 *(21,23,24 &25)*	2 *(22 & 26)*	6
6.	Feeding Mechanism	3 *(27,28 &30)*	1 *(29)*	0 _	4
7.	Transport System	2 *(31 &32)*	2 *(34 &35)*	1 *(33)*	5
8.	Gaseous Exchange	2 *(38 &40)*	2 *(37 &39)*	1 *(36)*	5
9.	Excretory System	2 *(41 &42)*	3 *(43,44 &45)*	0 -	5
	Total	29	24	7	60

3.6 Validity of the Instrument

The questionnaires were submitted to mysupervisor for review, correction and modification. Copies of the instruments were also given to some experts in the Institute of Education to determine the face and content validity of the instrument, and ensure that the instruments measure what it intended to measure.

3.7 Reliability of the Instruments

Fiveresearch instruments: Cultural Value Questionnaire,Socio-Economic Status Scale, Child Labour Questionnaire, Child Labour Participation Screening Scale, and School Participation Scalewere validated using Cronbach alpha reliability estimate to determine item which is internally consistent with other items. To validate the Biology Achievement Test, test blue print was constructed for the development of the items; opinion of experts was sought concerning the

appropriateness of the items. Its reliability was established using Kuder-Richardson Formula 20. After the validation of the test, 20 items that were found to have appropriate level of discrimination (<0.3) and moderate level of difficulty (0.3-0.6) in each of the topic in TOS were selected and these constituted the final test instrument. The reliability of the six instruments used for the data collection is shown in Table 3.3

Table 3.3 Reliability Coefficient of the Research Instruments

Instruments	Validation Approach	Reliability Coefficient	Remark
Cultural Value Questionnaire	Crombach Alpha	0.73	High
Socio-Economic Status Scale	Crombach Alpha	0.68	Moderate
Parental Involvement in Students' Academic Questionnaire	Crombach Alpha	0.711	High
Quality School Participation Scale	Crombach Alpha	0.78	High
Labour Participation Screening Scale	Crombach Alpha	0.85	High
Biology Achievement Test	Kuder-Richardson Formula 20	0.81	High

3.8 Procedure for Data Collection

A letter of introduction to the heads of the schools selected for the study wascollected from the Institute of Education. The approval to conduct the research was sought and obtained from the authorities of the schools to be used; the informed consent of the participants was alsosought (by telling them the purpose of the study and the fact that they were free to opt out at any point in time) before the administration of the questionnaire. Six research assistants were employed and trained for two days. Two research assistants were deployed to each state (after the training) for data collection exercise that lasted for a month.

The instruments were administered in two phases. At the first phase, child labour participation scalewasadministered to all the students in the sampled classes to identify those who engaged in

economic activities at home before selecting them for the second phase of the administration. At the second phase, the remaining five instruments were administered to those who have been found to engage in child labour activities. In other words, those who engaged in child labour activities were the eligible participants in the study.

The researcher and the trained research assistants administered the instruments to the students with the assistance of the class teachers. The instruments were retrieved and the information gathered was coded for appropriate analytical procedure.

3.9 Procedure for Data Analysis

Data were analysed using Path Analytical procedure of AMOS 23. This helped in estimatingparameters in the model as well as the total effects (direct and indirect) of independent variables. The following steps were taken:

1. Build the hypothesised causal model,
2. Identify the path of the model through structural equations,
3. Trim the paths of the model based on statistical significance, and
4. Validate the new model by comparing the fit indices of the hypothesised model with the parsimonious ones.

3.9.1 The Hypothesised Path Model

Path analysis provides the researcher the method for explicitly formulating a theory and exploring the tenability of causal linkages among the exogenous and endogenous variables of the hypothesised (theoretical) causal model. The model was developed based on extensive literature review and logical assumptions that helped the researcher in tracing the implications of a set of causal assumptions. The building of hypothesised recursive path model stands upon a number of assumptions that must be met (Kerlinger and Pedhazur, 1973; Mertler and Vannatta, 2005). These assumptions are:

i. There is a one way causal flow in the system. That is, reciprocal causation between variables is ruled out,
ii. The residuals are neither correlated among themselves, nor with the variables preceding them in the model,

iii. Each of the endogenous or dependent variables is directly related to all the variables preceding it in the hypothesised causal sequences, and

iv. The relationships among the variables in the model are linear, additive and causal.

3.9.2 Building the Hypothesised Recursive Path Model

The hypothesised recursive model presented in this study is not the only possible version.Considering the submission of Turner and Stevens (1979) that for a five-variable study, several thousand path diagrams are possible. The decision as to the most meaningful diagram is made in consideration of temporal order, research findings, theory, logic, expert opinions, as well as personal observations and experiences.

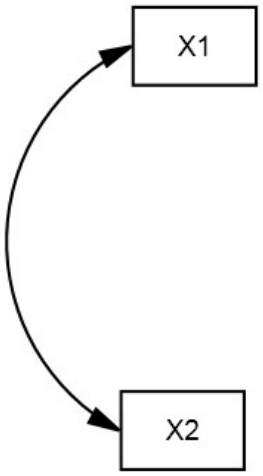

Figure 3.1 – Hypothesised Causal Linkages of Variables X_1 and X_2

Key:

X_1= Parents' Residential Location

X_2= Parents' Cultural Value

Figure 3.1 shows the hypothesised model of the two exogenous variables in the model.The two variables serve as covariates which variation cannot be explained by the model. But, logical reason suggests that location in most cases, especially in Nigeria, dictates cultural values and beliefs. This is observable acrossthe geographical setting of Nigeria. For example, most parents from the South East Nigeria tend to value business-oriented ventures more; those from the Northern part value vocational ventures more while their South West counterparts value education more.Literature also reportsthat it is more likely that children in rural areasaremore of

victims of economic activities than children in urban area. Okpukpara andOdurukwe, (2006) reportingthe regional differences in child labour in Nigeria, observedthat “more children in the North West and the North East did not go to school compared with those from the South East.They reported further thatmore children in South West go to school compared with those from the South East. This implies that the location variable has valuesexplainingbasis forchild labour.Thiscould be as a result of the influence of socio-cultural factors of such location” (Okpukpara and et.al, 2006).

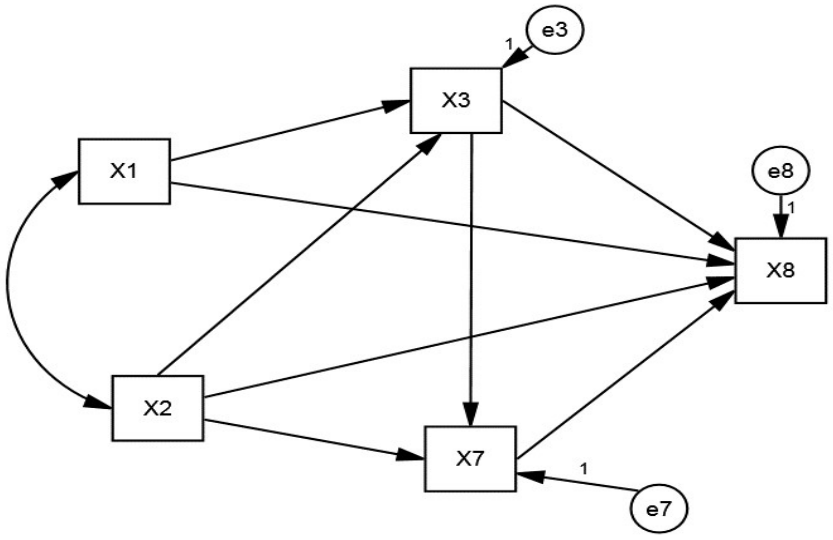

Figure 3.2: Hypothesised Causal Linkages of Variables X_1, X_2, X_3, X_4 and X_5

Key: X_1=Parents’ Residential Location

X_2 = Parents’ Cultural Value

X_3= Parental Educational Background (highest educational status)

X_7= Family Type

X_8= Family Size

Figure 3.2 shows the hypothesised model for five parental/home variables, holding location and cultural value to be constant.Experience reveals that level of parental education influences family type as well as family size in the South West Nigeria. This might probably be due to the fact that those parents with high level of education tend to be monogamous and are of the belief that it is better to marry few wives and give birth to few children who will be given qualitative education, than to give birth to many children who will only have low level of education. Empirical studies also revealed that education of parents influences students’ participation in child labour. A study

byPatrinos and Psacharopoulos(1995)found that working caused substantial negative aspects on school attendance, grade progression, participation in school activities, and educational attainment (Patrinos and Psacharopoulos, 1995; Akabayashi and Psacharopoulos, 1999; Heady, 2003). Buonomo (2011) noted that the number of hours worked above a specific threshold is detrimental to academic performance, particularly because work begins to compete with the educational context. Again, studies such as the one conducted by Behrman and Rosenzweig (1999) also suggested that increasing the educational status of the parents and indeed that of the mother to primary or post-secondary school level,reduces participation of children in economic activities. Similar results have been found elsewhere (Patrinos and Psacharapoulos, 1997; Psacharopoulos, 1997). Study by Okparakpa and Odurukwe (2006) reported that the educational attainment of the household head influenceschild labour in Nigeria. The result explains further that a mother's education has greater impact on encouraging children to participate in schooling and discouraging their participation in economic activities than the father's education. A possible explanation for this is that the mother's time is an input into the education (production of human capital) of her children, and that the mother's own level of education raises the productivity of this input.

According to this argument (Behrman et al., 1999), the mother's level of education increases her services as a home tutor rather than as a market labourer, and thus raises the return to the time that her children spend in education. This finding is supported by Cartwright and Patrinos (1999), who said that increased education of mothers implies that better educated mothers have greater opportunities for paid employment outside the home, hence, increasing household income, and has greater probability of a child attending school. By increasing family income, the mother's employment reduces the need to rely on the child's labour. The literature has clearly established that larger household sizes reduce children's school enrolment/achievement and increase their participation in economic activities (Grootaert, 1998). The possible explanation for this is that a larger household size reduces the income of the household, thereby increasing the chances of a child participating in economic activities, especially in paid work.

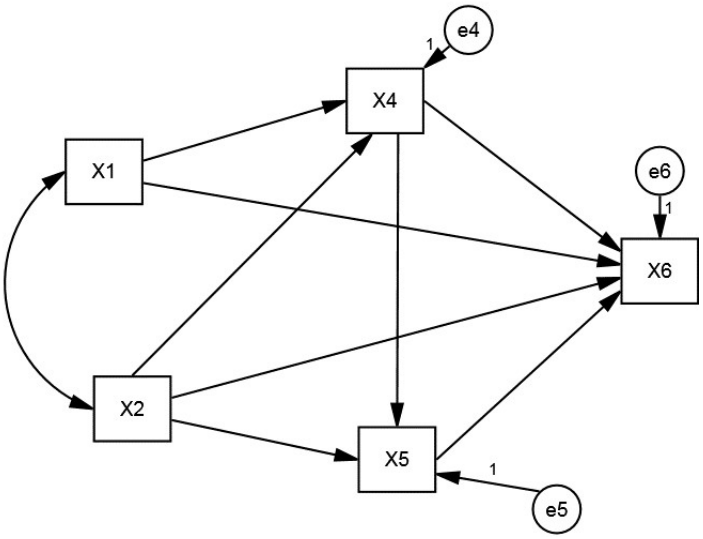

Figure 3.3: Hypothesised Causal Linkages of Variables X_1, X_2, X_4, $X_5$and X_6

Key: X_1=Parents' Residential Location

X_2 = Parents' Cultural Value

X_4= Parental Employment Status

X_5= Parents' Occupation

X_6= Parents' Income

Figure 3.3 shows the hypothesised model for five variables (parents' location, cultural value, employment status, occupation and income). The causal link among the variables is very clear as in a typical south-western community. Experiences have shown that a person's location (rural/urban) could suggest his cultural value as well as employment status. This could be due to the fact that most parents in the rural area seem to be self-employed and engage mainly in farming, while those in urban area or cities are mostly employed by government or private individuals with apparent good pay. In the same vein, employment status and type of occupation could suggest the level of parents' income. This might also probably be due to the fact that those parents engaged in white collar job seem to have better payment offer compared with those that are petty traders or employed for menial job. In the literary sense, a clear relationship exists

between poverty levels or low income and the participation of children and teenagers in labour related activities. Elevated poverty levels can force families to send their children to engage in income generating activities, thereby preventing the children from investing in the human capital development by attending school (Jensen and Nielsen, 1997). The poor quality of educational system (Ray, 2000; Mukherjee and Das, 2008; Kim, 2011) and low salaries and poor working conditions of parents (Kim, 2009) are also noted as other socio-economic factors that can drive a family to force children to work.

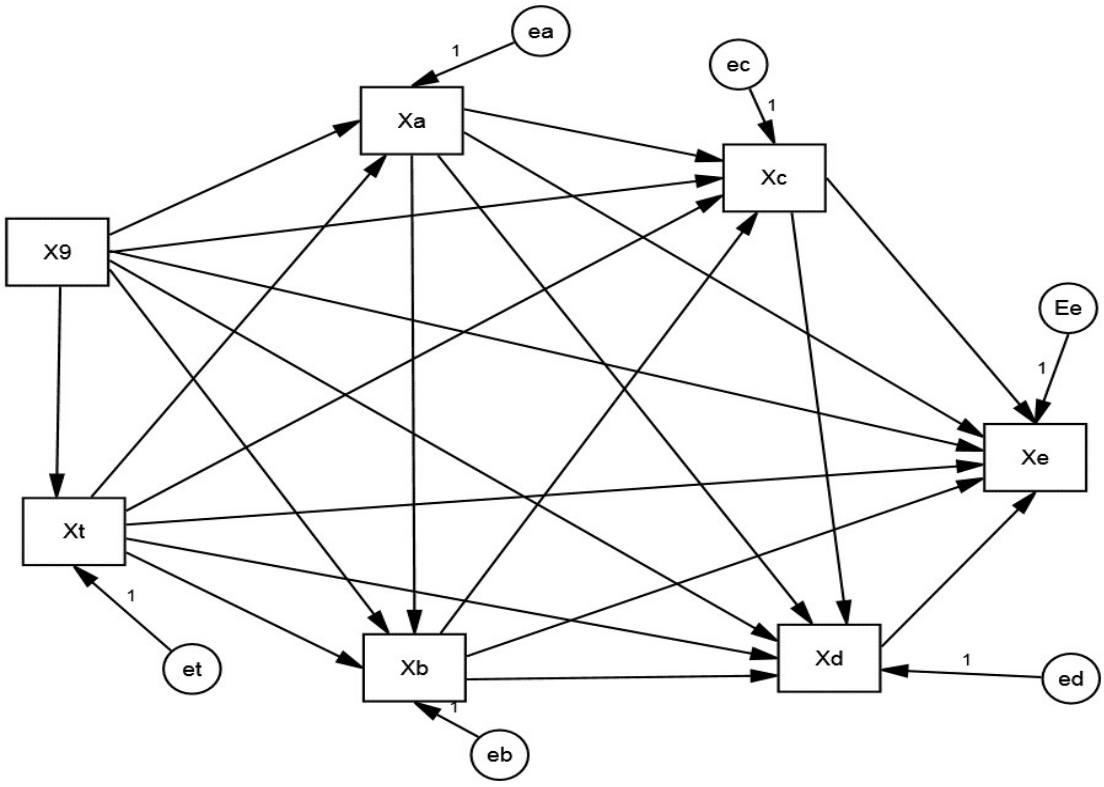

Figure 3.4: Hypothesised Model for Seven Variables

X_9= Parents' Attention to students' Educational Needs

X_t= Parents'Provision of Educational Material for the Students

X_a= Frequency of Participation in Child Labour

X_b= Timing of Participation

X_c=Students' Attendance in School

X_d= Students' Punctuality in School

X_e= Students' Commitment to Home and class Assignment

Figure 3.4 shows the hypothesised model for home variables (Family size and parents' attention to students' educational need), child labour(Frequency and timing of participation in child labour activities) and quality school participation variables (students' attendance, punctuality, commitment to home assignmentandto class assignment). Logical reason suggests that students' participation in child labour activities could influence students' quality school participation. This is because, students who engage in labour activities before going to school might probably be late or miss morning assembly, and might not fully participate in class activities due to fatigue produced by the labour. This is also in alliance with some findings in the literature that child labourers usually attend schoolbut lack active participation in school activities, suggesting that variables associated with academic performance are those that shows the impact of child labour on the students' classroom activities (Buonomo, 2011).

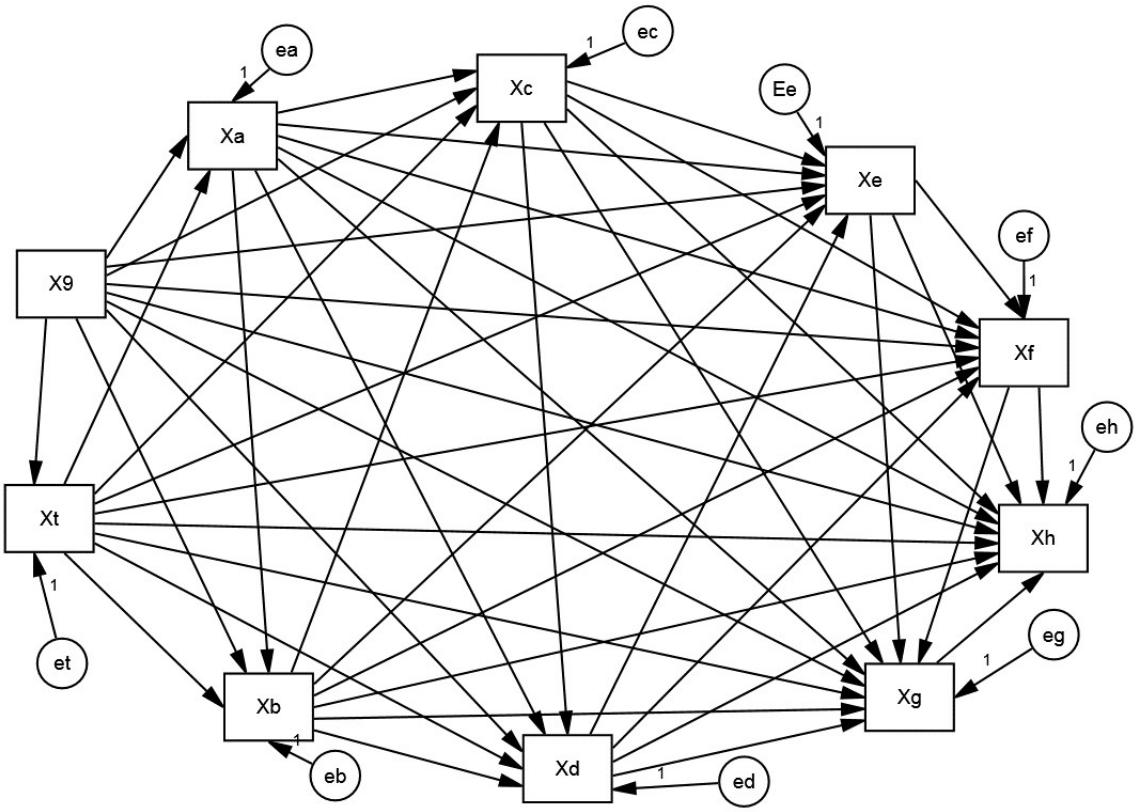

Figure 3.5: Hypothesized Model for Ten Variables

X_9= Parents' Attention to students' Educational Needs

X_t= Frequency of Participation in Child Labour

X_a= Timing of participation in Child Labour

X_b= Parents' Attention to Students' Needs

X_c= Students' Attendance in School

X_d= Students'Punctualityto School

X_e= Students' Commitment to Home Assignment

X_f= Students' Commitment toclass Assignment

X_g= Availability of Educational Materials for Student

X_h= Students' Achievement in Biology

Figure 3.5 shows the hypothesised model for child labour variables (Frequency of participation in child labour activities and parents' attention to students'educational need),quality school participation variables (Students' attendance in the school, Students' punctuality to school, Students' commitment to home assignment, Students' commitment to class assignment, availability of educational materials for student),and students' achievement in Biology. This model was also hypothesised based on logical reasoning and literature. Logical reasoning suggests that students who do not attend school regularly would not be committed to class and home assignment. Likewise, students who frequently participate in labour activities might also be worn out to do their assignment whether home or class assignment. Again, a child that engages in labour activities before school hours might be tired to do school activities and might not be able to perform well when it comes to examination or classroom test. Studies such as the one reportedby Dyer (2007)also observed that in most cases, child labour makes adequate child and youth inclusion in the educational system difficult, given that the time for work takes away from the time allocated to studies and that the attention to academic activities is reduced.As a resultof the fatigue produced by the labour, students may also perform poorly in written tests(Sabia, 2009).

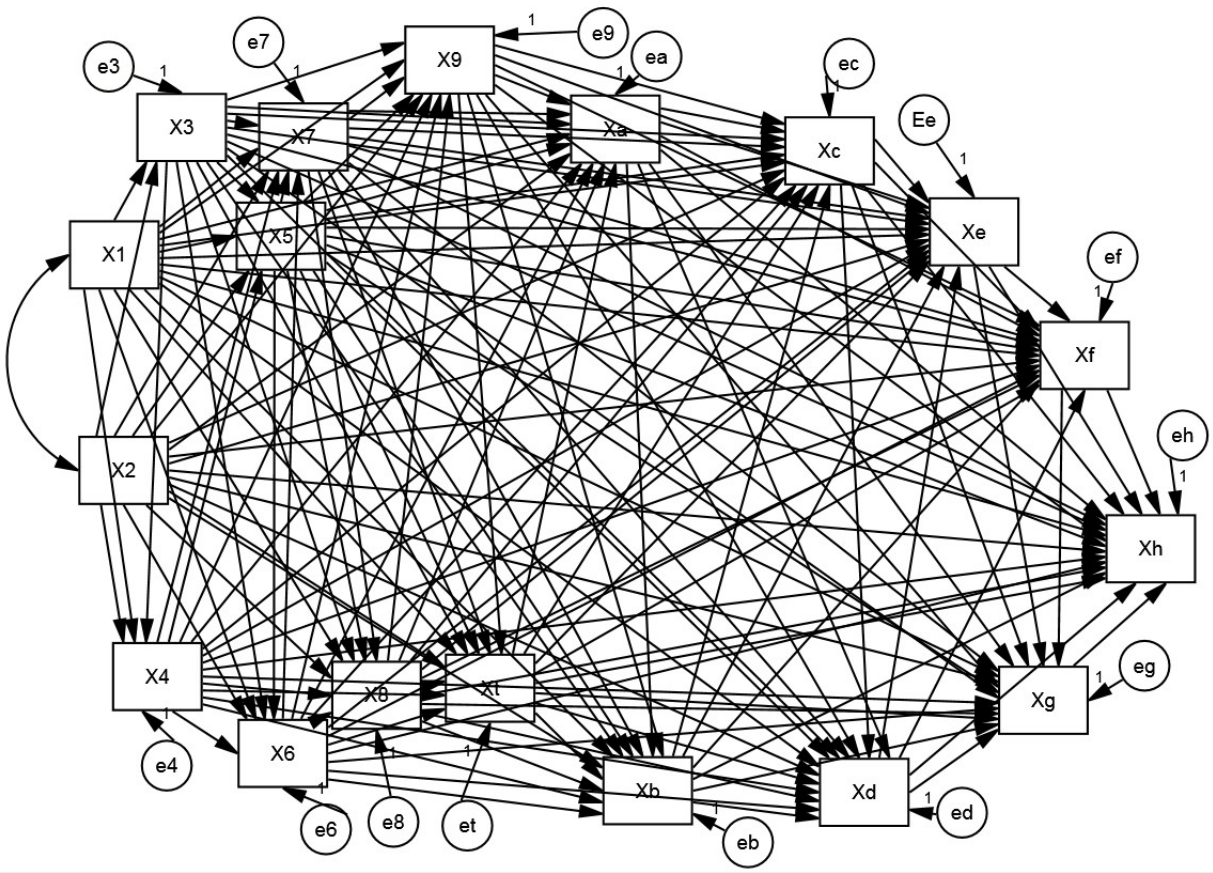

Figure 3.6: Hypothesised Model for Eighteen Variables in the Study

Exogenous Variables

X_1=Parents' Residential Location

X_2 = Parents' Cultural Value

Endogenous Variables

X_3= Parental Educational Background

X_4= Parents' Employment Status

$X_{5=}$ Parents' Occupation

$X_{6=}$Parents' Income

X_7= Family Type

X_8= Family Size

$X_{9=}$Parents' Attention to students' Educational Needs

$X_{t=}$Parents' Provision of Educational Material for the Students

$X_{a=}$Frequency of Students' Participation in Child Labour

$X_{b=}$ Timing of Participation in child Labour

$X_{c=}$Students' Attendance in School

$X_{d=}$Students' Punctuality to School

$X_{e=}$Students' Commitment to Home

X_f=Students' Commitment to Class Assignment

$X_{g=}$Availability of Educational Materials for Students

Criterion Variable

$X_{h=}$ Students' Scholastic Achievement in Biology

Figure 3.6 presents the hypothesised model for the causal relationship among home variables (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_t,), child labour ($X_{aand}X_b$), quality school participation (X_c, X_d, X_e, $X_f$and X_g) and achievement in Biology (X_h).

Structural Equations of the Hypothesised Model

$$X_3 = P_{31}X_1+P_{32}X_2+e_3 \quad \text{3.1}$$

$$X_4 = P_{41}X_1+P_{42}X_2+P_{43}X_3+e_4 \quad \text{3.2}$$

$$X_5 = P_{51}X_1+P_{52}X_2+P_{53}X_3+P_{54}X_4+e_5 \quad \text{3.3}$$

$$X_6 = P_{61}X_1+P_{62}X_2+P_{63}X_3+P_{64}X_4+P_{65}X_5+e_6 \quad \text{3.4}$$

$$X_7 = P_{71}X_1+P_{72}X_2+P_{73}X_3+P_{74}X_4+P_{75}X_5+P_{76}X_6+e_7 \quad \text{3.5}$$

$$X_8 = P_{81}X_1+P_{82}X_2+P_{83}X_3+P_{84}X_4+P_{85}X_5+P_{86}X_6+P_{87}X_7+e_8 \quad \text{3.6}$$

$$X_9 = P_{91}X_1+P_{92}X_2+P_{93}X_3+P_{94}X_4+P_{95}X_5+P_{96}X_6+P_{97}X_7+P_{98}X_8+e_9 \quad \text{3.7}$$

$$X_t = P_TX_1 + P_{T2}X_2+P_{T3}X_3+P_{T4}X_4+P_{T5}X_5 +P_{T6}X_6+P_{T7}X_7+P_{T8}X_8+P_{T9}X_9+e_{10} \quad \text{3.8}$$

$$X_a = P_{T1}X_1 + P_{T12}X_2+P_{T13}X_3+P_{T14}X_4+P_{T15}X_5 +P_{T16}X_6+P_{T17}X_7+P_{T18}X_8+P_{T19}X_9+ P_{T110}X_{10} +e_{11} \quad \text{3.9}$$

$$X_b = P_{T2}X_1 + P_{T22}X_2+P_{T23}X_3+P_{T24}X_4+P_{T25}X_5 +P_{T26}X_6+P_{T27}X_7+P_{T28}X_8+P_{T29}X_9+ P_{T210}X_{10} + P_{T211}X_{11+}e_{12} \quad \text{3.10}$$

$$X_c = P_{T3}X_1 + P_{T32}X_2+P_{T33}X_3+P_{T34}X_4+P_{T35}X_5 +P_{T36}X_6+P_{T37}X_7+P_{T38}X_8+P_{T39}X_9+ P_{T310}X_{10}+P_{T311}X_{11+} P_{T312}X_{12+}e_{13} \quad \text{3.11}$$

$$X_d = P_{T4}X_1 + P_{T42}X_2+P_{T43}X_3+P_{T44}X_4+P_{T45}X_5 +P_{T46}X_6+P_{T47}X_7+P_{T48}X_8+P_{T49}X_9+ P_{T410}X_{10}+P_{T411}X_{11+} P_{T412}X_{12+} P_{T413}X_{13+}e_{14} \quad \text{3.12}$$

$$X_e = P_{T5}X_1 + P_{T52}X_2+P_{T53}X_3+P_{T54}X_4+P_{T55}X_5 +P_{T56}X_6+P_{T57}X_7+P_{T58}X_8+P_{T59}X_9+ P_{T510}X_{10}+P_{T511}X_{11+} P_{T512}X_{12+} P_{T513}X_{13+} P_{T514}X_{14+}e_{15} \quad \text{3.13}$$

$$X_f = P_{T6}X_1 + P_{T62}X_2+P_{T63}X_3+P_{T64}X_4+P_{T65}X_5 +P_{T66}X_6+P_{T67}X_7+P_{T68}X_8+P_{T69}X_9+ P_{T610}X_{10}+P_{T611}X_{11+} P_{T612}X_{12+} P_{T613}X_{13+} P_{T614}X_{14+} P_{T615}X_{15}e_{16} \quad \text{3.13}$$

$$X_g = P_{T7}X_1 + P_{T72}X_2+P_{T73}X_3+P_{T74}X_4+P_{T75}X_5 +P_{T76}X_6+P_{T77}X_7+P_{T78}X_8+P_{T79}X_9+ P_{T710}X_{10}+P_{T711}X_{11+} P_{T712}X_{12+} P_{T713}X_{13+} P_{T714}X_{14+} P_{T715}X_{15+} P_{T716}X_{16+} e_{17} \quad \text{3.14}$$

$$X_h = P_{T8}X_1 + P_{T82}X_2+P_{T83}X_3+P_{T84}X_4+P_{T85}X_5 +P_{T86}X_6+P_{T87}X_7+P_{T88}X_8+P_{T89}X_9+ P_{T810}X_{10}+P_{T811}X_{11+} P_{T812}X_{12+} P_{T813}X_{13+} P_{T814}X_{14+} P_{T815}X_{15+} P_{T816} X_{16} \ldots + P_{T817}X_{17+}e_{18} \quad \text{3.15}$$

Note: P_T toP_{T8}represents path way 10-18, hence, it could be re-written as P_t,Pa, P_b, P_c, Pd, P_e, P_f,$P_g$and P_h.

Criteria for Theory Trimming

Paths whose beta values (path coefficients) are not statistically significant at 0.05 alpha levelwere deleted. Also, path coefficients with values less than 0.05 were treated as not meaningful.

Ethical Considerations

Prior to data collection, the researcher sought for permission from secondary school Principals concerned to carry out the research using students' sample. The essence of the study was explained andconfidentiality of all the information provided waspromised. Equally, the consent of all individual participantswas sought. They were informed that they can opt out of the research any time they felt uncomfortable to continue. During the data collection, the content of the instruments were fully explained to all the students that were involved.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Results

This chapter deals with the presentation of the research findings, analysis, interpretation and discussion of findings. The data used was collected from quantitative scale administered to senior science secondary school students in three South West States (Osun, Oyo and Ogun). The presentation of findings and discussions were carried out in the order in which the research questions were stated in chapter one. Variable X_{10} was represented as Xt while variables X_{11} to X_{18} were represented as X_a, X_b, X_c, X_d, X_e, X_f, $X_g$and X_h.

Research Question 1

What is the magnitude and direction of relationship that exist among home, child labour factors, school participation variables and students' achievement in Biology?

Table 4.1: Correlational Matrix for the Relationship amongHome, Child Labour, School Participation Variables

	X1	X2	X3	X4	X5	X6	X7	X8	X9	Xt	Xa	Xb	Xc	Xd	Xe	Xf	Xg	Xh
X1	1																	
X2	-.090**	1																
X3	.017	.087**	1															
X4	-.004	-.041	-.167**	1														
X5	-.026	-.030	-.058*	.125**	1													
X6	.000	.057*	.298**	-.101**	.030	1												
X7	-.123**	.094**	-.029	.040	.029	.084**	1											
X8	.032	.048	.041	-.008	-.027	.018	.091**	1										
X9	.018	.335**	.045	.018	.030	.040	-.029	.033	1									
Xt	-.017	.199**	.038	.048	.023	.029	-.016	.056*	.450**	1								
Xa	-.132**	.277**	.036	.000	-.081**	-.053*	.038	.062*	.013	-.020	1							
Xb	.090**	.049	.064*	.053*	-.317**	.060*	.015	-.018	.047	.126**	-.121**	1						
Xc	.004	-.071**	-.033	.018	.155**	-.003	-.019	-.032	.029	.037	.018	-.109**	1					
Xd	.010	.226**	.010	.010	.022	.044	-.027	.009	.811**	.394**	-.033	.038	.049	1				
Xe	.070**	.008	-.025	.025	.011	.040	.034	-.041	.145**	.174**	-.088**	.090**	.113**	.128**	1			
Xf	.032	.042	-.041	.063*	.018	.020	.024	-.029	.111**	.144**	-.058*	.087**	.084**	.111**	.582**	1		
Xg	.010	-.137**	-.072**	.002	.344**	-.010	-.057*	-.035	-.038	-.050	-.101**	-.530**	.134**	-.026	.024	.006	1	
Xh	.163**	-.34**	.066*	.007	-.075**	.037	-.047	-.007	-.013	.046	-.348*	-.158**	.448*	-.343*	.305*	-.002	-.416	1

Key: X_1=Parents' Residential Location,X_2=Parents' Cultural Value, X_3= Parental Educational Background,X_4=Parents' Employment Status, X_5= Parents' Occupation, X_6= Parents' Income,X_7=Family Type, X_8=Family Size,X_9=Parents' Attention to students' Educational Needs,X_t =Parents' Provision of Educational Material for the Student, Xa= Frequency of Students' Participation in Child Labour, Xb= Timing of Participation in child Labour,Xc= Students' Attendance in the School Xd= Students' Punctuality to School, Xe=Students' Commitment to Class Assignment, Xf= Students' Commitment to Home Assignment, Xg= Availability of Educational Materials for the Student, Xh= Students' Achievement in Biology.

Table 4.1 presents the result of Pearson Product Moment correlation coefficient for the relationship among home, child labour and school participation and students' achievement in Biology. It could be observed from the result that among home, child labour and quality school participation variables, parental location ($r=0.163$, $p<0.05$), cultural value ($r=-.34$, $p<0.05$), educational background ($r=0.066$, $p<0.05$) and occupation ($r=-0.075$,$p<0.05$) are four home variables that have significant impact on students' achievement in Biology. A low positive but significant linear relationship existed between parental residential location and students' achievement in Biology, which implies that influence of parental location on students' achievement in Biology was weak, while a low negative linear relationship existed between parental educational background and students' achievement which could probably be due to low parental educational background of the students sampled.

In the same vein, parental occupation also had significant negative relationship on students' academic achievement in Biology. The rationale behind this may be due to the fact that most parents are into businesses that encourage child involvement in economic activities. Child labour variables that have significant negative impact on students' academic achievement include timing of participation in child labour ($r=0.158$, $p<0.0$) and frequency of participation ($r=0.348$, $p<0.0$). Three out of four school participation variables (students attendance ($r=0.448$, $p<0.0$), punctuality ($r=-0.343$, $p<0.0$) and commitment to class assignment ($r=0.305$, $p<0.0$) have significant moderate relationship with students' achievement in Biology, whereas the relationship between achievement in Biology and students' commitment to home assignment is not significant.

Also, cultural value (r=-0.34, p<0.0), parents' level of education (r=-0.072, p<0.0),parents'occupation (r=0.344, p<0.05) and family type (r=-0.057, p<0.0) were four home variables that have significant relationship with availability of educational material for students' learning. Thus, provision of learning materials by parents for students depends largely on parents' cultural value, education, occupation and family type.

Moreover, it could also be observed that among school participation variables, students' attendance in the school (r=-0.101, p<0.05) and punctuality (r=-0.53, p<0.05) have negative but significant relationship with availability of educational materials for the students. Thus, inference could be made that for the students to attract their parents' attention in terms of materials provision; they tend to engage in economic activities to the extent that their attendance and punctuality in school is affected. In addition, it could also be observed that most home, child labour and quality school participation variables have correlated negatively with parents' provision of students' learning materials.

Furthermore, the result also revealed that only parents' employment status correlated positively with students' commitment to home assignment (r=0.063, p<0.05). Similarly, all child labour variables (parents' attention to students' educational needs (r=0.111, p<0.05), parents' provision of educational material for the students (r=0.144, p<0.05), frequency of students' participation in child labour (r=-0.058, p<0.05), timing of participation in child labour (r=0.087, p<0.087) and quality school participation variables (students' attendance in the School (0.084, p<0.05), students' punctuality to school (r=0.111, p<0.05) and students' commitment to class assignment (r=0.582, p<0.05) significantly related to students' commitment to home assignment.
This is an indication that students' commitment to home assignment could be influenced by child labour activities as well as their level of participation in school learning activities.

The result revealed further that students' commitment to class assignment significantly correlated with parental residential location (r=0.07, p<0.05), child labour variables (parents' attention students' educational needs (r=0.145, p<0.05), parents' provision of educational materials for the students (r=0.174, p<0.05), frequency of participation (r=-0.088, p<0.05) and timing of participation in child labour activities (r=0.113, p<0.05) and quality school participation variables (students' attendance in the school (r=0.113, p<0.05). This suggests that child labour activities reduced students' commitment to attend to basic school academic

activities, probablydue to fatigue or stress produced by the labour. It could also be inferred that students' attendance in school determined whether they are going to attempt their school work or not. As a corollary, students who attendedschool regularly tended to be committed to school assignment while those whodid otherwise, did not or showed less commitment.

Also, it could be observed from Table 4.1 that parents' cultural values had a significant positive relationship with students' punctuality in the school ($r=0.226$, $p<0.05$). In the same vein, parents' attention to students' educational need ($r=-0.71$, $p<0.05$) and parents' provision of children educational need ($r=0.394$, $p<0.05$) were significantly related to students' punctuality in the school. Moreover, timing of participation in child labour activities correlated positively with parents' residential location ($r=0.090$,$p<0.05$), parents' educational background ($r=0.064$, $p<0.05$), parents' employment status ($r=0.053$, $p<0.05$), parents' income ($r=0.060$, $p<0.05$) and parents' provision of students' educational materials ($r=0.126$, $p<0.05$) but had a negative relationship with parents' occupation ($r=-0.317$), family size ($r=-0.018$, $p<0.05$) and frequency of participation in child labour activities ($r=-0.02$, $p<0.05$). This implies that parents with sound educational background, who are gainfully employed and earn better income would restrict children's timing of child labour activities to a particular period while those with low socio-economic status (low income, employment status, and type of occupation) might not. Also, parents' with large family size and low status occupation will definitely increase their children's timing of participation in child labour.

In addition, students' frequency of participation in child labour activities significantly related with parental residential location ($r=-0.132$, $p<0.05$), parents' cultural values ($r=0.277$, $p<0.05$), parental occupation ($r=-0.081$, $p<0.05$), parental income ($r=-0.053$, $p<0.05$) and family size ($r=-0.062$, $p<0.05$). This suggests that frequency of participation in child labour activities depends mostly on parents' residential location, cultural values and socio-economic status.

Discussion

The result revealed that parental residential location, educational background, occupation and students' timing and frequency of participation in labour activities, attendance, punctuality and commitment to class assignment influenced students' achievement in Biology. The locational influence might be due to the fact that students in rural areasseemed to see most object (plants and animal) taught in Biology intheir natural environment while those objectsmay not be

available to teach students in urban schools. Also, in urban area, students might have access to texts (whether electronic or hard copy) that are not available to students in rural area. Also, most urban schools tend to have highly qualified teachers. This might account for the influence of location on students' achievement in Biology. Frazer, Okebukola, and Jegede (1992) reported locational difference in achievement in Biology in favour of urban students. Unlike most studies which reported effect of location in favour of urban students, the result of Okonkwo (2002) is in contrast to such. This is due to the fact that the effect of location on achievement in Biology is not absolute (may differ depending on setting).

Also, parental educational background significantly correlated with students' achievement in Biology. This might probably be due to the fact that significant number of parents in South West are educated. It might also be as a result of the fact that the number of the students sampled from the urban secondary schools was more than those sampled from the rural area. Notwithstanding, it is expected that the students whose parents were well educated should perform higher than those with low educational background. This is similar to the finding of Osuafor and Okonkwo (2013) which reported that the slight difference may be due to the fact that the highly educated parents belong to the upper and middle classes and are, therefore, economically buoyant to provide basic educational needs for their children.

More so, timing and frequency of participation in labour activities by the students also significantly related to students' achievement in Biology. This might probably be due to fatigue and psychological effect of labour on students' learning activities. For instance, students who engage in labour activities before school hours would suffer fatigue due to stress and might not be able to easily assimilate in the class, whereas students who engage in labour activities after school hours might save themselves from the effect of labour on their academic activities during school period. Notwithstanding, studies have also shown that child labour makes adequate child inclusion in the educational system difficult (Dyer, 2007), given the time work takes away from the time allocated to studies, and that the attention to academic activities is reduced due to the fatigue produced by the labour.

The result revealed further that parents' employment status and child labour factors, such as parents' attention to child's educational need and provision of students' educational materials

significantly correlated with students' attention to home assignment. This might be due to the fact that most parents who are gainfully employed would prefer to send their children to school without engaging them in labour activities that will negatively affect the assignment given in the school, while unemployed and self-employed parents would involve their wards in their business activities that would pre-occupy them after school. Also, literature had reported that the nature of parents' employment can influence the decision whether or not a child would be engaged in labour after school (Canagarajah and Coulombe, 1997). The study conducted by Wahba (2000) showedthat children whose parents work in the public sector have a greater probability of engaging in work that prevents them from doing the afterschool academic activities.

Again, the result revealed that parents' provision of educational materials and attention to students' educational needs have significant relationship with students' commitment to home assignment. This might be due to the fact that students who have basic learning resources tend to use them whenever the need arises, but students who are otherwise would be in want or might probably delay till they see from whom they will borrow. This also corroborates the result of Epstein and Sheldon (2002) that the behaviour students exhibit during learning process as well as students' completion of homework/assignment, depends largely on the availability of materials for them to learn.

It could be observed from Table 4.1 that parents' cultural values as well as parents' provision of students' educational need had a significant positive relationship with students' punctuality in the school. This suggests that students whose educational needs are met on time would be punctual in school, while those whose parents delay or deny their educational needs would be afraid of going to school on time or may even avoid being in the morning assembly. In addition, parents whose culture values educational activities and students' learning would hurry up their children to participate in before-lesson period activities such as moral talk and morning assembly, while those whose culture does not value education will do otherwise. This is in line with the report of Okpukpara and Odurukwe (2006) that cultural value influences students' attendance in school. However,their result was typically regional cultural differences,not based on all geo-political zones in Nigeria.

Generally, it could also be observed in Table 4.1 that most child labour variables significantly correlated with school participation variables. Also, child labour and school participation variables correlate either positively or negatively among themselves. This is an indication that child labour variables could predict students' quality school participation variables as well as students' achievement. This result is also in alliance with Buonomo(2011) who observed that students' engagement in some home activities such as buying and selling could hamper participation of students in school activities.

Research Question 2

Does the model which describes the causal relationship among home, child labour factors, school participation variables and students' achievement in Biology consistent with the observed correlations among them?

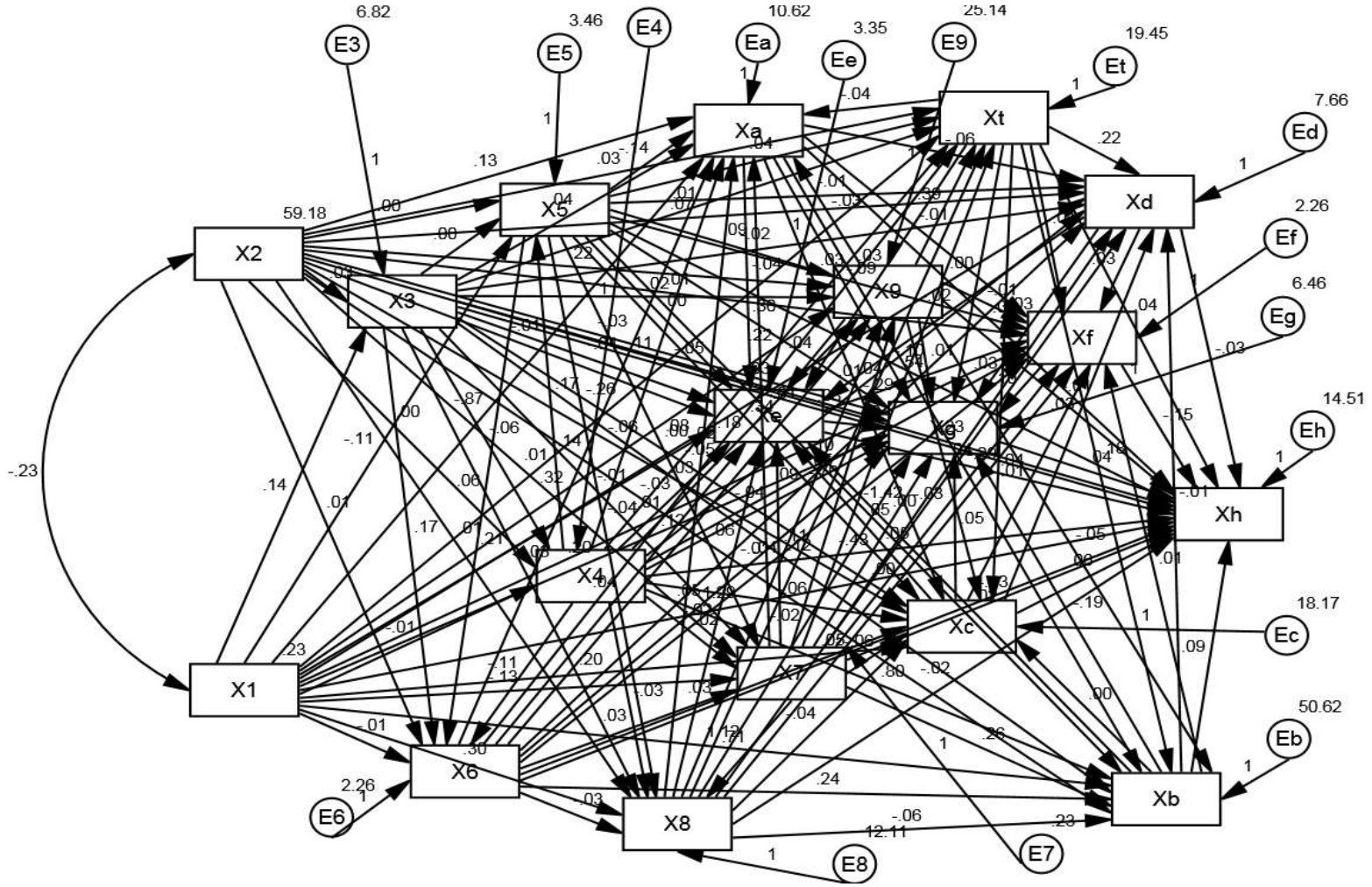

Figure 4.1: Hypothetical Paths for the Model to Provide Meaningful Explanation of Causal Relationship between Home, Child Labour and School Participation

Figure 4.1 presents the hypothetical model for explaining home, child labour and school participation variables and students' achievement in Biology. The results showed the beta weights and standard errors of the possible paths in the model. The model consists of significant paths and non-significant paths. The beta coefficients and correlation coefficients of the 58 significant and 92 non-significant pathsare presented in Table 4.2

Table 4.2: Correlation and Path Coefficients of the Model that Explain Home, Child Labour, School Participation Variables and Students' Achievement in Biology

Path			ß	r	Sig	Path			ß	r	Sig
X3	<---	X2	.032	0.087*	S	Xt	<---	X7	-.288	-0.016	NS
X3	<---	X1	.139	0.017	NS	Xt	<---	X8	.048	0.056*	NS
X4	<---	X2	-.003	-0.41	NS	Xt	<---	X9	.388	0.450*	S
X4	<---	X1	-.009	-0.004	NS	Xt	<---	X4	.220	0.048	S
X4	<---	X3	-.060	-0.004	S	Xt	<---	X2	.034	0.199*	S
X5	<---	X2	-.004	-0.030	NS	Xa	<---	X2	.127	0.277*	S
X5	<---	X1	-.106	-0.026	NS	Xa	<---	X1	-.867	-0.13*	S
X5	<---	X3	-.004	-0.058*	NS	Xa	<---	X3	.044	0.036	NS
X5	<---	X4	.170	0.125*	S	Xa	<---	X4	.109	0.00	NS
X6	<---	X2	.009	0.057*	S	Xa	<---	X5	-.139	0.08*	S
X6	<---	X1	-.011	0.001	NS	Xa	<---	X6	-.135	-0.05*	NS
X6	<---	X3	.166	0.298*	S	Xa	<---	X7	-.014	0.38	NS
X6	<---	X4	-.110	-0.101	S	Xa	<---	X8	.034	0.062*	NS
X6	<---	X5	.056	0.030	S	Xa	<---	X9	-.033	0.013	S
X7	<---	X2	.006	0.094*	NS	Xa	<---	Xt	-.035	-0.20	S
X7	<---	X1	-.131	-0123*	NS	Xb	<---	X2	.058	0.09*	S
X7	<---	X3	-.010	-0.029	S	Xb	<---	X1	1.119	0.049	NS
X7	<---	X4	.023	0.040	S	Xb	<---	X3	.120	0.64*	S
X7	<---	X5	.004	0.029	NS	Xb	<---	X4	.804	0.053*	S
X7	<---	X6	.031	0.084*	S	Xb	<---	X5	-1.42	-0.32*	S
X8	<---	X2	.012	0.048	NS	Xb	<---	X6	.244	0.06*	NS
X8	<---	X1	.300	0.032	NS	Xb	<---	X7	.260	0.015	NS
X8	<---	X3	.025	0.041	NS	Xb	<---	X8	-.060	-0.18	NS

X8	<---	X4	-.034	-0.008	NS	Xb	<---	X9	-.050	0.047	NS
X8	<---	X5	-.044	-0027	NS	Xb	<---	Xa	-.294	0.126*	S
X8	<---	X6	-.028	0.018	NS	Xb	<---	Xt	.177	-0.12*	S
X8	<---	X7	.714	0.091*	S	Xc	<---	X1	.204	0.004	NS
X9	<---	X2	.224	0.335*	S	Xc	<---	X3	-.051	-0.033	NS
X9	<---	X1	.318	0.018	NS	Xc	<---	X4	-.063	0.018	S
X9	<---	X3	.019	0.045	NS	Xc	<---	X5	.343	0.155*	NS
X9	<---	X4	.183	0.018	NS	Xc	<---	X6	.026	-0.003	NS
X9	<---	X5	.091	0.030	NS	Xc	<---	X7	-.058	-0.019	NS
X9	<---	X6	.119	0.040	NS	Xc	<---	X8	-.036	-0.032	NS
X9	<---	X7	-.699	-0.029	S	Xc	<---	X9	.037	0.029	NS
X9	<---	X8	.037	0.033	NS	Xc	<---	Xt	.029	0.037	NS
Xt	<---	X1	-.256	-0.017	NS	Xc	<---	Xa	.040	0.018	NS
Xt	<---	X3	.009	0.038	NS	Xc	<---	Xb	-.004	-0.11*	NS
Xt	<---	X5	.036	0.023	NS	Xc	<---	X2	-.061	-0.71*	S
Xt	<---	X6	.020	0.029	NS	Xd	<---	X2	.070	0.226*	S

Path			ß	r	Sig	Path			ß	r	Sig
Xd	<---	X1	.085	0.010	NS	Xf	<---	Xc	.013	0.084*	S
Xd	<---	X3	-.024	0.010	NS	Xf	<---	Xd	.033	0.111*	S
Xd	<---	X4	.006	0.010	NS	Xf	<---	Xe	.540	0.582*	S
Xd	<---	X5	-.006	0.022	NS	Xg	<---	X2	-.030	-0.14*	NS
Xd	<---	X6	.088	0.044	NS	Xg	<---	X1	.203	0.010	S
Xd	<---	X7	-.230	-0.027	NS	Xg	<---	X3	-.048	-0.07*	S
Xd	<---	X8	-.003	0.009	NS	Xg	<---	X4	-.037	0.002	NS
Xd	<---	Xt	.217	0.394*	S	Xg	<---	X5	.301	0.344*	S
Xd	<---	Xa	-.061	-0.03*	S	Xg	<---	X6	.054	-0.10	NS
Xd	<---	Xb	-.011	0.038	NS	Xg	<---	X7	-.432	-0.06*	S
Xd	<---	Xc	.034	0.049*	S	Xg	<---	X8	-.017	-0.038	NS
Xe	<---	X1	.214	0.070*	S	Xg	<---	X9	.009	-0.050	NS

Xe	<---	X3	-.040	-0.03*	S	Xg	<---	Xt	-.002	-0.10*	NS
Xe	<---	X4	-.029	0.025	NS	Xg	<---	Xa	-.088	-0.53*	S
Xe	<---	X5	-.004	0.011	NS	Xg	<---	Xb	-.192	0.134*	S
Xe	<---	X6	.042	0.040	NS	Xg	<---	Xc	.054	-0.026	S
Xe	<---	X7	.109	0.034	NS	Xg	<---	Xd	-.026	0.024	NS
Xe	<---	X8	-.020	-0.041	NS	Xg	<---	Xe	.096	0.006	S
Xe	<---	X9	.038	0.145*	S	Xg	<---	Xf	.104	0.32*	S
Xe	<---	Xt	.033	0.174*	S	Xh	<---	X2	-.026	-0.034	S
Xe	<---	Xa	-.041	-0.09*	S	Xh	<---	X1	0.288	0.163*	NS
Xe	<---	Xb	.023	0.090*	S	Xh	<---	X3	.077	0.066*	
Xe	<---	Xc	.050	0.113*	S	Xh	<---	X4	.050	0.007	NS
Xe	<---	Xd	-.017	0.128*	S	Xh	<---	X5	-.104	-0.075	NS
Xe	<---	X2	-.010	0.008	NS	Xh	<---	X6	.051	0.037	NS
Xf	<---	X2	.008	0.042	NS	Xh	<---	X7	-.129	-0.05*	NS
Xf	<---	X1	-.008	0.032	NS	Xh	<---	X8	-.022	-0.007	NS
Xf	<---	X4	.096	0.063*	NS	Xh	<---	X9	-.012	-0.013	NS
Xf	<---	X5	.027	0.018	NS	Xh	<---	Xt	.040	0.046	NS
Xf	<---	X6	-.006	0.020	NS	Xh	<---	Xa	.078	0.008	S
Xf	<---	X7	-.031	0.024	NS	Xh	<---	Xb	.088	0.158*	NS
Xf	<---	X8	-.004	-0.029	NS	Xh	<---	Xc	.060	0.048	S
Xf	<---	X9	-.012	0.111*	NS	Xh	<---	Xd	-.034	-0.013	NS
Xf	<---	Xt	.011	0.144*	NS	Xh	<---	Xe	.043	0.035	NS
Xf	<---	Xa	-.012	-0.06*	NS	Xh	<---	Xf	-.155	-0.002	S
Xf	<---	Xb	.011	0.087*	S	Xh	<---	Xg	.044	-0.036	NS

Key: S= Significant Path, NS= Non-Significant Path, (*)= significant correlation coefficient.

Table 4.2 presents the significant and non-significant paths for 150 paths that show the causal relationship among home, child labour, quality school participation variables and students' achievement in Biology. The 58 significant paths were retained and non-significant causal relationship was trimmed off to arrive at meaningful causal model to explain home, child labour, quality school participation and students' achievement in Biology as shown in Table 4.3 and Figure 4.2

Table 4.3: Significant Pathsof the Hypothesised Model

Path			ß	r	Sig	Path			ß	r	Sig
X3	<---	X2	.032	.087**	S	Xd	<---	Xt	.217	394**	S
X4	<---	X3	-.060	-.167**	S	Xd	<---	Xa	-.061	-.033*	S
X5	<---	X4	.170	.125**	S	Xd	<---	Xc	.034	.049*	S
X6	<---	X2	.009	.057*	S	Xe	<---	X1	.214	.070**	S
X6	<---	X3	.166	.298**	S	Xe	<---	X3	-.040	-.025*	S
X6	<---	X4	-.110	-.101**	S	Xe	<---	X9	.038	.145**	S
X6	<---	X5	.056	.030*	S	Xe	<---	Xt	.033	.174**	S
X7	<---	X3	-.010	-.029	S	Xe	<---	Xa	-.041	.070**	S
X7	<---	X4	.023	.040	S	Xe	<---	Xb	.023	.008*	S
X7	<---	X6	.031	.084**	S	Xe	<---	Xc	.050	-.025*	S
X8	<---	X7	.714	.091**	S	Xf	<---	Xb	.011	.042*	S
X9	<---	X2	.224	.335**	S	Xf	<---	Xc	.013	-.041*	S
X9	<---	X7	-.699	-.029*	S	Xf	<---	Xd	.033	.063*	S
Xt	<---	X9	.388	.450**	S	Xf	<---	Xe	.540	.582**	S
Xt	<---	X4	.220	.048*	S	Xg	<---	X1	.203	.010*	S
Xt	<---	X2	.034	.199**	S	Xg	<---	X3	-.048	-.072**	S
Xa	<---	X2	.127	.277**	S	Xg	<---	X5	.301	.344**	S
Xa	<---	X1	-.867	-.132**	S	Xg	<---	X7	-.432	-.057*	S
Xa	<---	X5	-.139	-.081**	S	Xg	<---	Xa	-.088	-.101**	S
Xa	<---	X9	-.033	.013*	S	Xg	<---	Xb	-.192	-.530**	S
Xa	<---	Xt	-.035	-.020*	S	Xg	<---	Xc	.054	.134**	S
Xb	<---	X2	.058	.049*	S	Xg	<---	Xe	.096	.024*	S
Xb	<---	X3	.120	.064*	S	Xg	<---	Xf	.104	.006*	S
Xb	<---	X4	.804	.053*	S	Xh	<---	X2	-.026	-.034*	S
Xb	<---	X5	-1.425	-.317**	S	Xh	<---	X3	.077	.066*	S
Xb	<---	Xa	-.294	-.121**	S	Xh	<---	Xa	.078	.008*	S
Xb	<---	Xt	.177	.126**	S	Xh	<---	Xc	.060	.048*	S
Xc	<---	X4	-.063	.018*	S	Xh	<---	Xf	-.155	-.002*	S
Xc	<---	X2	-.061	-.071**	S						
Xd	<---	X2	.070	.226**	S						

Table 4.3 presents the significant paths that provide the meaningful explanation for the variables in the study. It could be observed that only 58 paths were significant while 92 paths were not significant. The result in Table 4.3 was used to trim the model to arrive at meaningful path model for variables in the study as shown in Figure 4.2

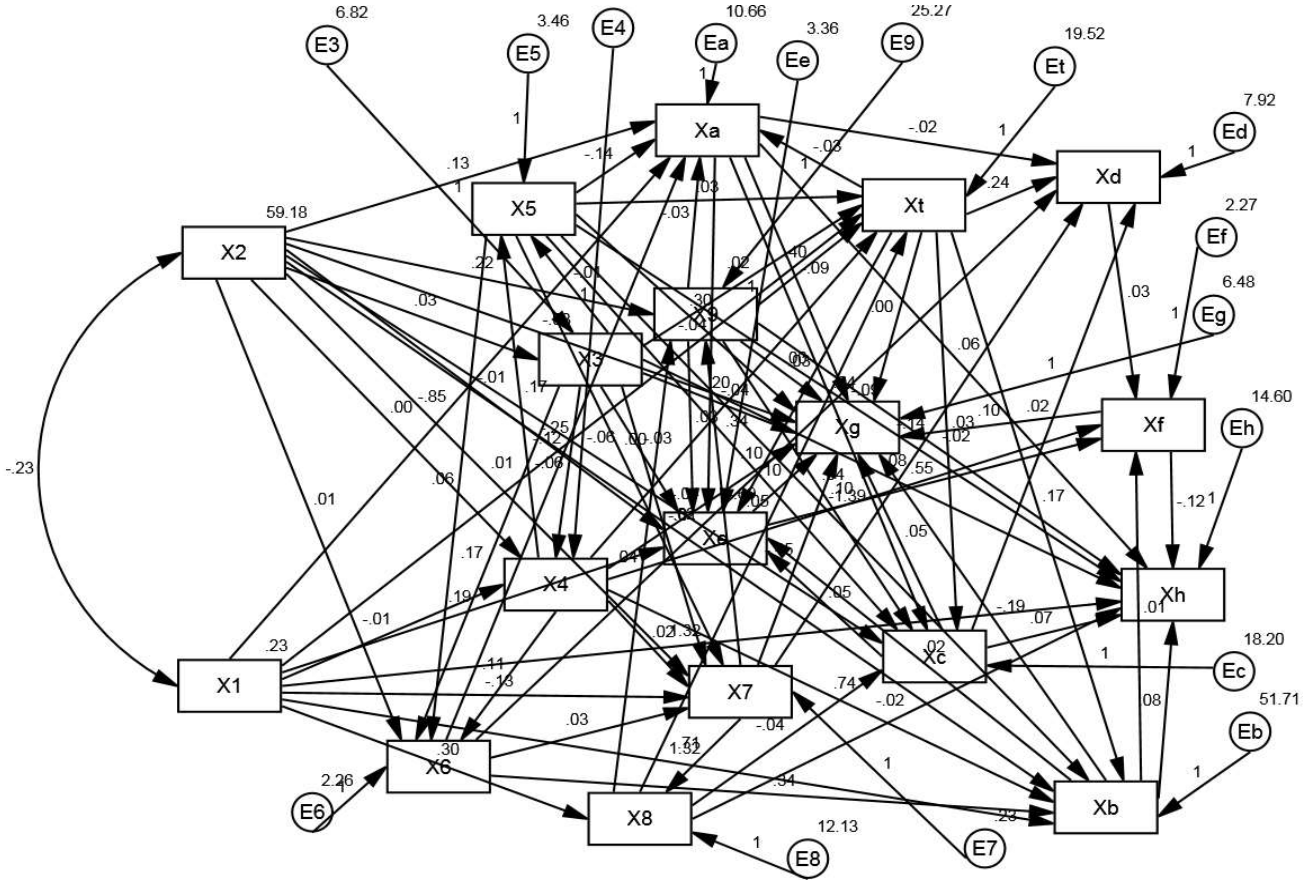

Figure 4.2: Validated Recursive Path Model for Meaningful Explanation of Home, Child Labour and School Participation

During trimming exercise, the variables that are not significant were removed from the model while the variables of impact were retained to produce a path model to explain students' achievement in Biology. The study used one of the criteria to determine whether a path is significant or not. The three criteria usually used in path trimming are:

1. Statistical significance
2. Meaningfulness
3. Statistical significance and meaningfulness

The study adopted the first criterion, that is, statistical significance for the trimming exercise. This was adopted because maximum likelihood approach takes into account the effect of sample during parameter estimation. Ordinarily, two criteria (Statistical significance and meaningfulness) are used to avoid a situation where path coefficient of lower magnitude would be found to be significant because of sample size. The new criteria for the significant path as recommended by Backblock (1961) cited in Kerlinger (2000) was that both path coefficient and zero order correlation must be significant at $p<0.05$. Hence, the term significant, with respect to this study, connotes statistical significance of correlation and path coefficient at 0.05 probability level. Therefore, the non-significant paths are trimmed out of the model to reproduce the following meaningful ones as shown in the Table 4.3 and Figure 4.2. The path between a pair of variables signifies that preceding variable has a significant causal effect on the immediate one, e.g. for the path P_{32} which also fulfill the criteria for trimming, indicated that cultural value has significant causal effect on parents' educational background. Thus, after removing non-significant path, the new structural equations were:

Structural Equations of the Validated Model

$X_3 = P_{32}X_2+e_3$ 3.1

$X_4 = P_{43}X_3+e_4$ 3.2

$X_5 = P_{54}X_4+e_5$ 3.3

$X_6 = P_{62}X_2+P_{63}X_3+P_{64}X_4+P_{65}X_5+e_6$ 3.4

$X_7 = P_{73}X_3+P_{74}X_4+P_{76}X_6+e$ 3.5

$X_8 = P_{87}X_7+e_8$ 3.6

$X_9 = P_{92}X_2 +P_{97}X_7+e_9$ 3.7

$X_t = P_{T2}X_2+P_{T4}X_4 +P_{T9}X_9+e_{10}$ 3.8

$X_{a=} P_{T1}X_1+P_{T12}X_2+P_{T19}X_9+P_{T110}X_{10}+e_{11}$ 3.9

$X_b = P_{T22}X_2+P_{T23}X_3+P_{T24}X_4+P_{T25}X_5+P_{T210}X_{10}+_{T211}X_{11+}e_{12}$ 3.10

$X_c = P_{T32}X_2+P_{T34}X_4+P_{T38}X_8 +e_{13}$ 3.11

$X_d = P_{T42}X_2+P_{T43}X_3+P_{T44}X_4+P_{T45}X_5+P_{T46}X_6+P_{T47}X_7+P_{T49}X_9+P_{T410}X_{10}+P_{T411}X_{11+}P_{T413}X_{13+}e_{14}$ 3.12

$X_e = P_{T5}X_1+P_{T52}X_2+P_{T53}X_3+P_{T59}X_9+P_{T510}X_{10}+P_{T511}X_{11+}P_{T512}X_{12+}P_{T513}X_{13+}P_{T514}X_{14+}e_{15}$ 3.3

$X_f = P_{T62}X_2+P_{T63}X_3+P_{T612}X_{12 +} P_{T613}X_{13+} P_{T615}X_{15+}\_e_{16}$ 3.13

$X_g = P_{T7}X_1 + P_{T73}X_3+P_{T74}X_4+P_{T75}X_5 +P_{T77}X_7+P_{T711}X_{11+} P_{T712}X_{12 +} P_{T713}X_{13+} P_{T714}X_{14+}P_{T716}X_{16+} e_{17}$ 3.14

$X_h = P_{T82}X_2+P_{T83}X_3+P_{T811}X_{11+} P_{T813}X_{13+} P_{T814}X_{14+} P_{T815}X_{15 +} P_{T816} X_{16+}e_{18}$ 3.15

From Table 4.1 and Figure 4.2, it could be observed that not all home variables had significant path that linked them to students' achievement in Biology, but their causal relationship significantly related with child labour and quality school participation variables.

Discussion

The results in Table 4.2 and 4.3 and Figures 4.1 and 4.2 showed the home variables accounts for engagement of children in child labour, as well as students' performance in some school participation variables. It may be as a result of the fact that students were more dependent on their family, and their parents control most of the activities. Another reason might probably be due to the cultural practices, especially in South West,where most people believe that entrenchment of child in labour activities is to prepare them for the world of work in the future. Others also are of the opinion that children working as domestic servants with wealthy families have the opportunities of learning to be good home keepers. Also, most students that work both in rural and urban settings, work to help their families to relieve their parents from untold indebtedness. Therefore, it cannot be absolutely said, as it was asserted in literature, that child labour occasionally perpetuates an inter-generational trap rooted in poverty and concluded that "child labour is both a cause and a consequence of poverty" (Wahba, 2001). The result further revealed that home variables directly influenced school participation variables. This is an indication that there is causal relationship between home and school participation variables, and that home variables could predict students' performance in some school activities. The result is in line with Buonomo (2011) that students' engagement in some home activities such as buying and selling could hamper participation of students in school activities. This is also evident in the result of this study as the relationship between home variables and school participation variables were mostly negative.

The result presented in Tables 4.2 and 4.3 and Figure 4.1 revealed that significant linkages are more concentrated at the middle of the model, suggesting that child labour variables and school participation variables were linked and also dependent on another. The logical inference that could be made from this is that child labour does not prevent students' participation in school activities but lessen their attention and retention. This corroborates the report of Admassie (2003) in Francophone countries that child labourers usually attend school but lack active participation in other school activities such as class and home assignment, suggesting that effects of students' economic activities on academic performance are linked to the influence of child labour on the students' classroom activities.

Influence of home variables on nearly all the variables in the model suggest the fact that culture and socio-economic background of the parents could explain present and future performance of students' in academic activities. For instance, parents who have strong inclination on the aspect of culture or believe that education is not the only way by which someone could make it in life, could ensnare children of such parents to perform less as regards class attendance, punctuality and commitment to home/class assignment. It may even increase their frequency and timing of participation in labour activities, and thereby achieve less in academic engagement. Similarly, students whose parents did not experience school activities beyond the four walls of primary schools may not be exposed or aware of some tips that are necessary for students to perform emotionally and academically in the school. Such students may be missing out on school activities because their parents do not ascribe any value to it, and may even be forced into the workforce early because their parents were also victim of such vices.

It is also germane to note that students' residential location explains larger percentage of students' level of participation in school, engagement in child labour, as well as students' achievement. This was predicated on the fact that students in the rural areas may be compelled to do some labour activities which ordinarily are not available in the urban setting if at all they were compelled to do them. Also, most schools in rural areas, especially in South-West, were sited at the remote area which may not enhance students' punctuality or attendance in school. Effect of location may also be visible on students' achievement as students in the urban area could be privileged to interact with some materials, objects and scenario that are educative in nature but beyond the reach of their rural counterparts. They may also be privileged to have experienced teachers which will be a plus to their academic performance because ordinarily, teachers tend to run away from schools in rural areas compared with those in urban because of social amenities. Hence, home variables could serve as valid links to variables of child labour, school participation as well as achievement in Biology.

Research Question 3

What are the fit indices of the hypothesised model for home, child labour factors, school participation variables and students' achievement in Biology?

The chi square values and fit indices for both hypothesized and validated models were presented in the Table 4.4 to know how fit the model that explains causal relationship among the variables in the model.

Based on the criteria for the goodness of fit; they are given as: Goodness of fit index (GFI): for a good model fit should exceed 0.9. Normed fit index (NFI): should range between 0 and 1, with a cutoff of .95 or greater indicating a good model fit. The comparative fit index (CFI): range from 0 to 1 with a larger value indicating better fit; a CFI value of .90 or larger is generally considered to indicate accepted model fit. Root Mean Square Error of Approximation (RMSEA). The RMSEA ranges from 0 to 1, while smaller values indicating better model fit with a value of .06 or less is indicative of acceptable model fit with non-significant χ2 GoF.

Table 4.4: Fit Indicators of Home, Child Labour, School Participation Variables and Students' Biology Achievement Model

Model	χ2	Df	P	GFI	NFI	CFI	RMSEA
Hypothesised Model	1370.51	2	0.000	.932	0.92	0.67	0.63
Validated Model	113.723	97	0.30	.938	.952	.998	0.010

Table 4.4 revealed that the initial (hypothesised) model has a value; $\chi 2$ (2) = 1370.51, $p<0.00$, but inferior to the validated model with $\chi 2$ (97) = 113.723, $p>0.05$. The non-significant Chi-square of the validated model indicates that the difference between the hypothesised model and the data is not significant. Hence, the validated model is fit. This inference is made based on the affinity goodness of fit estimate.

Normed fit index (NFI) = 0.00< 0.952 and Comparative fit index (CFI) = 0.998> .90 Chau (1997) statethat a CFI equal to or greater than 0.90 is acceptable, indicating that 90% of the covariation in the data can be reproduced by the proposed model, thus, 99.8% of the covariation in the data can be reproduced by the validated model. This implies that the validated model gained an incremental fitness over the initial (hypothesised) model, satisfying all the criteria for a good model. This indicates that significant paths are possible paths that predict the variation

observable in students' achievement in Biology. Therefore, the validated model is a true representation of the data as 99.8% (CFI=0.998) of the covariation in the data can be reproduced by the validated model.

Discussion

The result revealed that home variable, child labour, quality school participation and students' achievement in Biology are both linked and dependent on one another. Thus, assumption could be made that home variables could predict child labour and child labour could also explain much of the variances that occur in students' participation in school activities, and that home, child labour and school participation variables could explain larger percentage of the observed variation in students' performance in Biology. The result is also similar to the observation of Holgado, Jariego, Palacio, and Oviedo-Trespalacios (2014), though foreign and did not take home and child labour into consideration, reported that school participation indices (such as students' attendance, commitment to home/class assignment, availability of reading materials and students' punctuality) take into account a child's experience in some school activities (Buonomo, 2011), and are found to explain larger percentage of variances that occur in students' scholastic achievement.

Research Question 4

What are the estimated direct, indirect, and total causal effects of home, child labour, school participation variables and students' achievement in Biology?

Table 4.5 shows the decomposition of total effects of variable that explain students' achievement in Biology.

Table 4.5: Direct, Indirect and Total Effect of Home, Child Labour Variables, Quality School Participation Variables and Students' Achievement in Biology

	Path			Indirect Effect	Direct Effect	Total Effect
Parental Educational Background	X3	<---	X2	0.00	0.092	0.092
Parents' Employment Status	X4	<---	X3	0.00	-0.163	-0.163
Parents' Occupation	X5	<---	X4	0.00	0.089	0.089
Parents' Income	X6	<---	X2	0.028	0.043	0.071
	X6	<---	X3	0.010	0.276	0.285
	X6	<---	X4	0.006	-0.067	-0.062
	X6	<---	X5	0.00	0.067	0.067
Family Size	X7	<---	X3	0.021	-0.055	-0.034
	X7	<---	X4	-0.005	0.045	0.040
	X7	<---	X6	0.00	0.101	0.101
Family Size	X8	<---	X7	0.00	0.100	0.100
Parents' Attention to Students' Educational Needs	X9	<---	X2	-0.006	0.324	0.319
	X9	<---	X7	0.002	-0.064	-0.061
Parents' Provision of Educational Materials	Xt	<---	X9	0.00	0.437	0.437
	Xt	<---	X4	0.00	0.040	0.040
	Xt	<---	X2	0.139	0.000	0.139
Frequency of Students' Participation	Xa	<---	X2	-0.026	0.285	0.259
	Xa	<---	X1	0.001	-0.119	-0.118
	Xa	<---	X5	-0.004	-0.075	-0.079
	Xa	<---	X9	-0.021	-0.050	-0.071
	Xa	<---	Xt	0.00	-0.048	-0.048
Timing of Participation in child Labour	Xb	<---	X2	0.017	0.017	0.034
	Xb	<---	X3	0.013	0.00	0.013
	Xb	<---	X4	-0.030	0.093	0.063
	Xb	<---	X5	0.006	-0.335	-0.329
	Xb	<---	Xa	0.00	0.00	0.00
	Xb	<---	Xt	0.00	0.107	0.107
Attendance in the School	Xc	<---	X4	0.014	0.00	0.014
	Xc	<---	X2	0.026	-0.112	-0.086
Punctuality to School,	Xd	<---	X2	0.046	0.00	0.046
	Xd	<---	Xt	0.002	0.380	0.382
	Xd	<---	Xa	0.001	-0.021	-0.020
	Xd	<---	Xc	0.00	0.035	0.035
Commitment to Class Assignment	Xe	<---	X1	0.015	0.049	0.064
	Xe	<---	X3	0.002	-0.044	-0.042
	Xe	<---	X9	0.052	0.084	0.136
	Xe	<---	Xt	0.017	0.081	0.098
	Xe	<---	Xa	0.003	-0.077	-0.074
	Xe	<---	Xb	0.00	0.095	0.095

	Xe	<---	Xc	0.00	0.116	0.116
Commitment to Home	Xf	<---	Xb	0.053	0.039	0.092
Assignment	Xf	<---	Xc	0.067	0.00	0.067
	Xf	<---	Xd	0.00	0.049	0.049
	Xf	<---	Xe	0.00	0.559	0.559
Availability of Educational	Xg	<---	X1	-0.010	0.00	0.010
Materials	Xg	<---	X3	-0.009	-0.032	-0.040
	Xg	<---	X5	0.169	0.180	0.349
	Xg	<---	X7	0.00	-0.070	-0.071
	Xg	<---	Xa	-0.005	-0.100	-0.105
	Xg	<---	Xb	0.011	-0.465	-0.454
	Xg	<---	Xc	0.011	0.075	0.086
	Xg	<---	Xe	0.033	0.061	0.094
	Xg	<---	Xf	0.00	0.060	0.060
Achievement in Biology	Xh	<---	X2	0.008	0.00	0.008
	Xh	<---	X3	0.004	0.051	0.055
	Xh	<---	Xa	0.004	0.049	0.053
	Xh	<---	Xc	-0.004	0.075	0.071
	Xh	<---	Xf	0.00	-0.055	-0.055
		Total		**0.661**	**2.257**	**2.938**

The percentage direct and indirect effects were also calculated as shown in Table 4.6 and Figure 4.3

Table 4.6: Proportion of Direct and Indirect Effect of Independent Variables on Students' Achievement in Biology

Effect	**Magnitude**	**Percentage**
Indirect	0.66	23.0%
Direct	2.257	77.0%
Total	**2.938**	**100%**

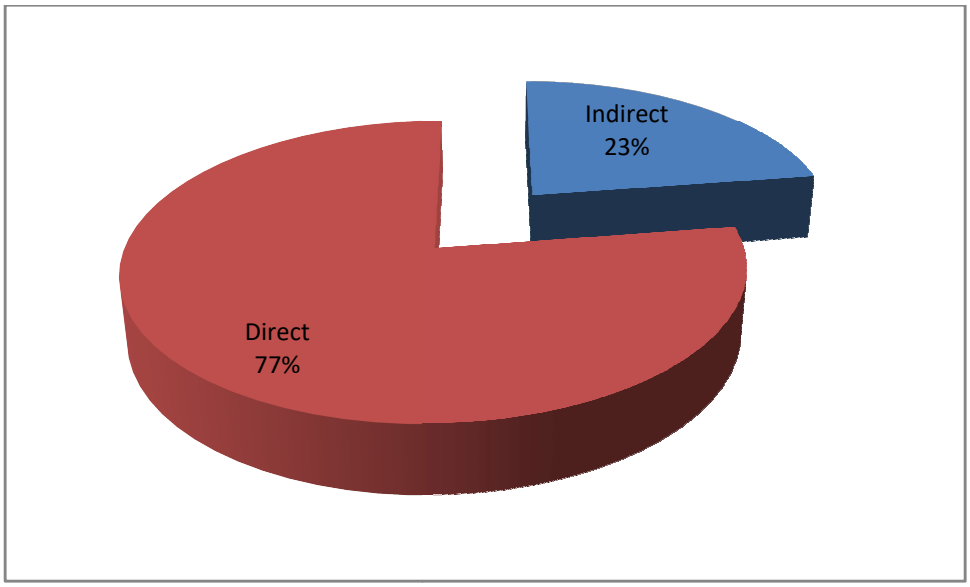

Figure 4.3: Proportion of Direct and Indirect Effect of Independent Variables on Students' Achievement in Biology

Table 4.6 and Figure 4.3 show the proportion of direct to indirect effect of indicators in the model. The result reveals that 77.0% of the causal effects among home variables, school participation variables and students' achievement in Biology are direct while 23.0% of the causal effects were indirect. This result is in line with the recommendation that, it is better for variables in the model to directly influence the criterion variable rather than their influence to be indirect (Blalock 1961 in Kerlinger and Lee, 2000).

Direct Effects

The direct effects presented in Table 4.5 are the changes in standard deviation unit of criterion variables (in the validated model). The coefficient give change (increase or decrease) in the criterion variable in standard deviation units when there is one full standard deviation (above the mean) change in the predictor. Table 4.5reveals that parents' cultural value has no direct effect on students' achievement in Biology (0.00). The Table reveals further that there waspositive direct effect (0.051) of parental educational background on students' Biology achievement. The direct effect of frequency of students' participation in child labour on achievement in Biology is 0.051. It could also be observed that students' attendance have positive direct influence on students' achievement in Biology, while parents' provision of educational materials for the

students had negative direct influence on students' achievement in Biology. This implies that for everyone standard deviation change in parents' cultural value, parental educational background, frequency of students' participation in child labour, and commitment to home assignment; there is corresponding 0.000, 0.051,0.049, 0.075 and -0.055 change in students' achievement in Biology. However, the direct effect of parents' provision of students' educational materials is negative. This implies that for a unit standard deviation change in students' achievement, there is corresponding -0.055 decrease in students' Biology Achievement. The Table 4.5 equally shows direct effect of home variables (parents' residential location, parents' educational background, parents' occupation and family type), child labour (frequency of participation in child labour, time of participation in child labour) and school participation variables (students' attendance in the school and commitment to home and class assignment) on parents' provision of students' educational materials. It could be observed that location has no direct effect on parents' provision of educational materials, while most home variables has negative direct effect on parents' provision of students' educational materials. However, most school participation variables have positive direct effect on parents' provision of students' educational materials. The result reveals that, although parents' socio-economic background may be poor, students that performed well on school participation variables (attendance in the school, punctuality, and commitment to home and class assignment) stand a chance of performing better in other areas of their academics.

In the same vein, it could also be observed from the result that there is direct effect of time of engagement in child labour activities and quality school participation variables on students' commitment to home assignment but it was not so for students' attendance. This is an indication that time of participation in child labour activities (e.g before, during, after school hours) influence students' punctuality in the school as well as commitment to class assignment which also directly influence students' commitment to home assignment. Whereas, students' commitment to class assignment is directly influenced by most home variables (parents' residential location, parents' educational background, parents' attention to students' educational need, parents' provision of educational materials), child labour factors (frequency and time of participation in child labour activities) as well as students attendance in the school. In general, inference could be made that students' commitment to home assignment is influenced mostly by

child labour activities whereas students' commitment to class assignment is directly influenced by home variables and child labour factors (frequency and time of participation in child labour). This implies that students who do their class assignment have tendency to do their home assignment, and students who come from poor home background and also participate in child labour activities are unlikely to be committed to their class assignment. This might probably be due to lack of learning materials or fatigue due to labour.

Again, the result also revealed that students' punctuality in school is directly influenced by parents' cultural values, parents' provision of educational materials, frequency of students' participation in child labour activities and students' attendance in school. It is also noteworthy that frequency of students' participation in child labour has negative direct influence on students' punctuality in the school. The result implies that students whose parents value education will be punctual in school, whereas students whose parents do not value education will not be punctual in school. It also implies that students who often engage in child labour activities will not be punctual in school, while those who do not frequently engage will do. Also, students whose parents provide their basic educational material will be eager to be punctual in school while those whose parents do not would not be punctual for the fear that they might be beaten by the teachers.

More so, the result revealed that students' attendance in the school was directly influenced by parents' cultural value and parents' employment status. This is an indication that parents whose culture support sound education for children would ensure that their children go to school, while those who value business and economic activities would allow their children to be missing out the school's activities. In the same vein, parents' employment status also directly influences students' attendance. This could be due to the fact that most students whose parents are self-employed tend to engage their wards in their economic activities, while those who are employed by government or private individuals release their children to attend school.

Table 4.5 also reveals that the timing of students' participation in child labour activities is directly influenced by parents' cultural value, parents' educational background, parents' employment status, parents'occupation, parents' provision of educational materials as well as frequency of students' participation in child labour. This implies that students' time (before,

during and after school hours) of participation in child labour activities depends on cultural value of the parents. This is an indication that parents whose culture value education will restrict their children fromparticipating in child labour at a particular period of the day, while those whose culture do not value education would not. Again, parents who are educated as well would restrict their children from participating in child labour activities at a particular period of the day, while those who are not educated would not. Also, parents' occupation and employment status could influence students' timing of participation in child labour activities as those parents who are employed by government (or engaged in white collar job) tend to keep their child more in the school and from child labour, and those who are self-employed or unemployed tend to demand for their children's time for labour activities.

Indirect Effect

The indirect effects are traced out from the validated model in figure 4.2. The tracing for the indirect effect of each variable on students' achievement in Biology are shown in Table 4.7.

Table 4.7: Path Tracing of the Indirect Effects

Determinants	Path tracing for the indirect effects on students Achievement in Biology
X_1=Parental Residential Location	$P_{41}, P_{54}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{51}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{81}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{91}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{a1}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$
X_2=Parents' Cultural Value	$P_{32}, P_{43}, P_{54}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{42}, P_{54}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{62}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{71}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{92}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{a2}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; P_{e2}, P_{fe}, P_{hf},
X_3=Parents' Educational Background	$P_{43}, P_{54}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{63}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{73}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{t3}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; P_{e3}, P_{fe}, P_{hf};
X_4= Parents' Employment Status	$P_{64}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{74}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{t4}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{d4}, P_{ed}, P_{fe}, P_{hf}$; P_{f4}, P_{hf}
X_5= Parents' Occupation,	$P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{75}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{dc}$,

	$P_{ed}, P_{fe}, P_{hf}; P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ba}, P_{hb}; P_{t5}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf};$ $P_{c5}, P_{ec}, P_{fe}, P_{hf}: P_{c5}, P_{dc} P_{ec}, P_{fe}, P_{hf};$
$X_{6=}$ Parents' Income	$P_{76}, P_{87}, P_{a8}, P_{ha}; P_{76}, P_{87}, P_{d8}, P_{fd}, P_{hf},; P_{76}, P_{a7}, P_{ha}$
$X_{7=}$ Family Type	$P_{d7}, P_{fd}, P_{hf}; P_{87}, P_{d8}, P_{fd}, P_{hf}; P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf};$
$X_{8=}$ Family Size	$P_{98}, P_{t9}, P_{at}, P_{ab}, P_{fb}, P_{fb}, P_{hb}; P_{d8}, P_{fd}, P_{hf};$
$X_{9=}$Parents' Attention to Students' Educational Needs	$P_{c9}, P_{ec}, P_{fe}, P_{hf}:; P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf};$
$X_{t=}$Parents' Provision of Educational Material for the Students	$P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}; P_{at}, P_{bt}, P_{fb} P_{hf};$
Xa= Frequency of Students' Participation in Child Labour	$P_{ac}, P_{ec}, P_{fe}, P_{hf}; P_{da}, P_{ed}, P_{fd}, P_{hf};$
Xb= Timing of Partipation in Child Labour,	$P_{eb}, P_{fe}, P_{hf};$
Xc= Students' Attendance in the School	$P_{dc} P_{ec}, P_{fe}, P_{hf}$
Xd= Students' Punctuality to School,	$P_{fd}, P_{hf};$
Xe=Students' Commitment to Class Assignment,	P_{fe}, P_{hf}
Xf= Students' Commitment to Home Assignment,	No indirect effect
Xg= Availability of Educational Materials for the Student,	No indirect effect

The criterion variable in the study is students' achievement in Biology. The paths of all the exogenous and endogenous variables were traced to students' achievement in Biology as shown in the Table 4.5. In the same vein, the values of the indirect effects of each of the variables on the others were spelled out in Table 4.7. The indirect effects of parents' cultural value on students' achievement in Biologyare given by the paths $P_{41}, P_{54}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$; $P_{51}, P_{65}, P_{76}, P_{87}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}; P_{81}, P_{98}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}; P_{91}, P_{t9}, P_{at}, P_{ac}, P_{ec}, P_{fe}, P_{hf}; P_{a1}, P_{ac}, P_{ec}, P_{fe}, P_{hf}$. Specifically, this shows that students' achievement in Biology was indirectly influenced by parental residential location through parental employment status, parents'

occupation, parents' income, family type, family size, parents' attention to students' educational needs, parents' provision of students' educational materials, frequency of students' participation in child labour activities, time of participation in labour, students' attendance in the school, students' punctuality, students' commitment to class assignment and then commitment to home assignment in the sub paths ($P_{41,}$ $P_{54,}$ $P_{65,}$ $P_{76,}$ $P_{87,}$ $P_{98,}$ $P_{t9,}$ $P_{at,}$ $P_{ac,}$ $P_{ec,}$ $P_{fe,}$ P_{hf}). Similarly, students' achievement in Biology could also be influenced by parents' residential location through tracing sub paths ($P_{51,}$ $P_{65,}$ $P_{76,}$ $P_{87,}$ $P_{98,}$ $P_{t9,}$ $P_{at,}$ $P_{ac,}$ $P_{ec,}$ $P_{fe,}$ $P_{hf;}$), ($P_{81,}$ $P_{98,}$ $P_{t9,}$ $P_{at,}$ $P_{ac,}$ $P_{ec,}$ $P_{fe,}$ $P_{hf;}$)($P_{91,}$ $P_{t9,}$ $P_{at,}$ $P_{ac,}$ $P_{ec,}$ $P_{fe,}$ P_{hf}) and paths ($P_{a1,}$ $P_{ac,}$ $P_{ec,}$ $P_{fe,}$ P_{hf}).

Discussion

It could be observed from Table 4.6 that parents' cultural values are the most prominent variable that had indirect influence on most of the variables. More so, it could also be observed from Table 4.6 that students' commitment to home assignment and availability of educational materials for the students have no indirect effect on students' achievement in Biology. This emphasised the role of school participation in variables in determining the students' scholastic achievement in students' academic endeavour. This implies that quality school participation directly influenced students' performance; as the literature has also revealed that scholastic achievement in any subject is the resultant performances in such school participation variables (Holgado, Jariego, Palacio and Oviedo-Trespalacios; 2014).

Logically, it could be said that students who are frequent in the school are likely to have basic learning materials,and partake in class activities, while those who miss classes and home assignment have much to loose when it comes to academic performance. Although school participation is an indirect measure of students' achievement, the reverse is the case for this study (its influence are direct on students' achievement). For example, students who do their assignments (home or class) standa chance of gaining more speed in answering questions during examination and of mastering steps for arriving at valid answer. Also, students with basic learning materials are likely to know different methods of solving problems arising from classroom discussion, beyond what they were taught in the class which may likely earn them more marks in the final examination. In the same vein, students' attendance in the class afford them the opportunity to interact with the teacher, get vivid explanation and ask questions which is impossible when they interact with textual materials. This could serve as clue for students to

have mental replay of what they have been taught during classroom interaction in the final examination.

Moreover, students' punctuality to school tends to afford students the opportunity of maintaining psychological and emotional balance before the classroom interaction. Personal observation revealed that most students who are tardy to class tend to spend more time of the lesson period in recovering from fatigue and stress incured during the transit from home to school, and thereby are unable to comprehend most of what had been taught in the class. Consequently, such students end up becoming "after-lesson" at the end of the period. From the foregoing, it could be observed that school participation is an indirect measure of students' achievement in academic activities, but its influence could be observed directly on students' academic achievement because students' performance in any of the school participation variable goes a long way in dictating their performance in the final examination.

It could also be observed that parents' cultural values appear to be more indirectly linked to other variables. This could be due to the fact that culture is a way of life and tends to indirectly influence every aspect of parents and students lives alike. It has been reported in literature that poverty (socio-economic background) and child labour are cultural problems and are even influencing socialisation processes for the child? In some communities, it is a norm that a child is not properly trained, if by the tenth year of life, he/she is not contributing to the family income (Oleribe, 2007).

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

Based on the result highlighted in chapter four, this chapter takes a step further to offer summary of the findings upon which the conclusion of the whole investigation was based. An attempt was made to tender some recommendations for education stakeholders' actionable strategy to manage various home problems alongside with students' school activities for better performance.

5.1 Summary

The study investigated the determinants of students' achievement in Biology by measuring the impact of home, child labour and school participation variables. The eighteen constructs hypothesized to have effect on students' achievement in Biology were: parents' residential location, parents' cultural values,parental educational background, parents' employment status, parents' occupation, parents' income, family type, family size, parents' attention to students' educational needs, parents' provision of educational material for the students, frequency of students' participation in child labour, timing of participation in child labour, students' attendance in the school, students'punctuality to school, students' commitment to class assignment, students' commitment to home assignment and availability of educational materials for the students.

No empirical study to date has attempted to integrate these variables to present a comprehensive analysis of factors that could explain students' achievement in Biology. Thus, this research was oriented towards a model building approach where home variables, child labour and school participation variables were integrated to explain students' achievement. Once the fit of the research model was evaluated, as illustrated in the previous chapter, the validated research model illustrated has a better fit than hypothesised model. The research design adopted for the study was expo-facto, correlational type approach with total population of all secondary school Biology students that engaged in child labour activities in the state capitals,which have distinct rural and urban area in South West Nigeria. Six developed and validated instruments were used to collect information for the study and information collected were subjected to path analysis. The result revealed that:

1. Child labour variables were significantly correlated with school participation

variables,suggesting that child labour activities could increase or decrease students' performance on school participation.

2. Significant relationship existed among school participation variables which are indications that students who performed less in particular school participation variables could also performless in other task like academic achievement.
3. Parents' cultural values explained larger percentages of observed variation in child labour activities and students' school participation.
4. Among child labour variables, it is only time of participation in child labour that had significant negative relationship with students' achievement.
5. Among home variables, parents' residential location, educational background and occupation were the variables that had significant relationship with students' achievement in Biology.
6. Larger percentage of variation observed in students' achievement in Biology in the model was directly caused by the home, child labour and school participation variables while the indirect causal relationship accounted for little.
7. Cultural valuesare the most influential variable that were indirectly related with all other variables in the model but had no direct relationship with students' achievement in Biology.

5.2 Conclusion

As stated in Chapter One, the goal of this study was to identify the home, child labour, and school participation factors that influence students' achievement in Biology. Based on the result of the findings, it could be concluded that cultural values underline the reasons why most parents' in South West Nigeria engaged their children in labour activities. Although cultural values has no direct influence on students' achievement in Biology, it influence could either be suppressed or enhanced through parents' educational background and socio-economic status to influence students' participation in child labour activities, and child experience in the school as well as students' achievement.

Also, most child labour activities directly influence child's experience in some school activities and these experiences could have predictive influence on one another.This might in turn affect

students' achievement in Biology. Students' achievement which had been established to be negatively related to child labour was found to be mostly and negatively influenced by the timing (whether before, during and after the school hours) of the labour. Parents' residential location, educational background and occupation could explain students' achievement in Biology better than any other home variables.

5.3 Recommendations

Based on the result of the findings, the following recommendations were made:

- Parents who engaged their children in labour activities should be mindful of the timing, as the choice of time of labour could reduce or aggravate the effect of labour on students' achievement.
- Students should try to increase their performance in school activities such as class assignment, home assignment, attendance and punctuality as deficit on one of these could lead to deficit in the other areas.
- Secondary school teachers should be conscious of the fact that not all students who are under-achievers have low intelligence. Under-achievementcould be due to their engagement in some labour activities that had reduced their performance in learning activities as well as academic.
- Government and other stakeholders should make policies that would restrict the labour activities among students to holiday periods so as to prevent students' under-achievement.
- Since the engagement of students in labour activities is entrenched in most parents' culture, parents should be enlightened on the negative impact of child labour on students' achievement.
- Since the effects of home, child labour and school participation variables are direct on students' achievement in Biology, stakeholders in secondary school education should be conscious of the factors such as location, timing of students' engagement in child labour activities and students' commitment to home or class assignment as prime factors that reduce or enhance students' academic achievement in Biology.

5.4 Contribution to Knowledge

The researcher successfully introduced another construct (school participation) that mediate the effect of child labour on students' achievement. In the proposed model, it was found out that most home and child labour variables do not have direct effect on students' achievement but they do so through school participation variables. It was also found that child labour is a cultural phenomenon because cultural values in the model indirectly influenced home variables as well as child labour variables and school participation variables to influence students' achievement. Besides, literature affirmed that the intensity and frequency of participation are the key variables of concern when relating child labour with students' achievement or performance. But it was found in this study that timing of students' participation in child labour (before, during or after the school hours) explained better the effect of child labour on students' performance/achievement.

5.5 Limitation of the Study

There are several limitations in Oyo, Ogun and Osun States in South West, Nigeria, and the results can only represent the viewpoint of the students in those states. Therefore, it might not be appropriate to generalize the findings to all the states in the South West or Nigeria as a whole. In the study, the approach of cross-sectional study is another limitation. It only studied the points of view present in certain moment of time. Meanwhile, the perspectives of students could change from time-to-time. Therefore, the result in that period might be different compared to the viewpoint developed by the approach of longitudinal study. Besides that, the limitation of answer options is another constraint to the study. The target respondents were restricted to certain range of answers provided in the distributed research instruments. They were required to select only the extent to which they agree or disagree with the questions raised in the surveys. Hence, the researchers might not be able to gather more precise data (extended view of the respondents) based on the fact that questionnaires were used without qualitative information.

5.6 Suggestions for Further Study

Study like this could be carried out in another part of the country. It is also advisable for the researcher to examine this topic on primary school pupils. Suggestion could also be made for the researcher to:

i. Disaggregate timing of students' participation in child labour to know which period of the day(before, during or after the school hours) should students engage in labour, and which period will reduce the effect of labour on their performances.
ii. Disaggregate the frequency of students' engagement in child labour to know the point at which the child labour hours/day become detrimental to students' academic achievement.

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APPENDIX I

INTERNATIONAL CENTER FOR EDUCATIONAL EVALUATION (ICEE)
UNIVERSITY OF IBADAN
Cultural ValueQuestionnaire

Dear Respondent,

I am a research student of the above institution conducting a study on child labour and quality participation variables as determinants of students' scholastic achievement in Biology;kindly assist me by indicating your opinion on the instrument. All information given will be treated with confidentiality.

Thank you for your cooperation.

Instruction: Indicate the extent to which the following statements concern you

S/N	My family	Very Frequently	Frequently	Sometimes	Not at all
1	Practices some aspect of their culture like farming and other traditional occupation				
2	Engages in business oriented enterprise popular among people from my town.				
3	Engages all siblings and relatives in economic activities				
4	Believes alongside with others that only the first son should be educated, while others should join the workforce				
5	Believes that for a child to be mentally and physically balanced, he/she has to engage in economic activities				
6	Believes that economic activities preparechildren for the world of work				
7	Supports the fact that knowledge is not only obtained from schooling but also through labour and hardwork				
8	Supports the fact that education is not the only way of making it in life.				
9	Promotes economic activities than going to school.				
10	Opts for scholarship for students who are willing to go to school in my home town.				
11	Takes education as a priority compared to other ventures.				
12	Believes that those in the business line rule the world.				
13	Believes that females are not to go to school but to work at home				
14	Believes that males are not to go to school but to engage in business.				

APPENDIX II

INTERNATIONAL CENTER FOR EDUCATIONAL EVALUATION (ICEE)

UNIVERSITY OF IBADAN

Socio-Economic Status Scale (SSS)

Dear Student,

This questionnaire is aimed at gathering information on your parents' socio-economic status. The information provided will be used for research purposes only. Kindly respond to the items as honest as you can. Your responses will be treated with utmost confidentiality.
Thank you for your cooperation.

Instruction: Indicate your opinion by ticking () inside the bracket

1. Family type: monogamous ( ) Polygamous ( )
2. Write the number of siblings you have in this box ( )
3. Father's highest educational level: Primary education ( ) Secondary education ( ) NCE/OND ( ) B.Sc/HND ( ) M.Sc ( ) Ph.D ( )
4. Mother's highest educational level: Primary education ( ) Secondary education ( ) NCE/OND ( ) B.Sc/HND ( ) M.Sc ( ) Ph.D ( )
5. Father's employment status: Employed by government ( ) Self-employed ( ) Unemployed ( )
6. Mother's employment status: Employed by government ( ) Self-employed ( ) Unemployed ( )
7. Can you give a rough estimate of your fathers' income range per month? Less than ₦10,000.00( ) Between ₦10,000.00 and ₦50,000.00 ( ) Between ₦50.000.00 and ₦100,000.00 ( ) above ₦100,000.00 ( )
8. Can you give a rough estimate of your mothers' income range per month? Less than ₦10,000.00 ( )Between ₦10,000.00 and ₦50,000.00 ( ) Between ₦50,000.00 and ₦100,000.00 ( ) Above ₦100,000.00
9. Father's Occupation; put (X) in appropriate box:

A	B	C	D	E
Professional e.g. Law, Engineering, Medicine, Senior Civil Servant, Professor, Lecturer, Manager, Graduate Teacher, Senior Army Officer, Bishop, Priest.	Clerk, Office worker, non-graduate teacher, Nurse, Police man, Soldier, Clergy.	Trader, Businessman	Craftsman, Artisan, Driver, Messenger	Farmer, Fisherman

10. Mother' Occupation; put (X) in appropriate box:

A	B	C	D	E
Professional e.g. Law, Engineering, Medicine, Senior Civil Servant, Professor, Lecturer, Manager, Graduate Teacher, Senior Army Officer.	Clerk, Office worker, non-graduate teacher, Nurse, Police woman, Soldier, Clergy.	Trader, Businesswoman	Craftsman, Artisan, Driver, Messenger	Farmer, Fisher

APPENDIX III

INTERNATIONAL CENTER FOR EDUCATIONAL EVALUATION (ICEE)
UNIVERSITY OF IBADAN

ParentalInvolvement in Students' Academic Questionnaire

Dear Respondent,

This is an instrument designed to obtain information on your parents' responsibilities for some actions regarding your education. You have been considered one of those whose responses will be of benefit to this study.Kindly be honest to provide useful information as much as possible. Thisis purely for research purpose.Your responses shall be treated with utmost confidentially.

Thank you for cooperation.

Bio-Data Information

Parents' residential location: Rural ( ) Urban ( )

Age: _____

Sex: Male ( ) female ( )

SECTION A: **Parents' Attention to Students' Educational Needs**

Instruction: Please indicate your view of the following statement.

S/N	My parents:	Very Frequently	Frequently	Sometimes	Not at all
1	Enjoy my following them to their business activities				
2	Attend my school PTA meeting				
3	Like hearing about what is going on in my school when we are working together				
4	Pay attention to my academic needs compared with other children who do not help them to work				
5	Give me incentive to school when am tired as a result of economic activities				
6	Look for those who will assist me in my school assignment whenever they cannot.				
7	Sometimes give me counsel on my chosen career whenever I work for them				
8	Advise me to be hardworking whenever my result is poor				

SECTION B: Parents' Provision of School Educational Material for the Student

S/N	My parents:	Very Frequently	Frequently	Sometimes	Not at all
1	Pay my school fees early whenever I help them to work				
2	Change my school uniform for me in due time as a result of helping them in their business				
3	Buy my textbooks without reminding them whenever I work for them				
4	Voluntarily help me buy sport materials when I sell or work for them				
5	Buy school materials (pen, textbooks, note books etc.) even if I do not work for them				
6	Pay my lesson fees				
7	Buy my school sandal/shoes in the due time				
8	Buy my school bag in due time				

APPENDIX IV

INTERNATIONAL CENTER FOR EDUCATIONAL EVALUATION (ICEE)
UNIVERSITY OF IBADAN

Quality School Participation Scale (QSPS)

This instrument was designed to collect some information on your school activities and exercise, please kindly assist by indicating how it applies to you on the instrument. All information given will be treated with confidentiality.

Thank you for your cooperation.

SECTIONA: **Students' Punctuality to School**

Instruction: Please indicate your frequency of arrival in the school with respect to these periods

S/N	Item	Always	Sometimes	Never
1	Before morning Biology lesson			
2	5 minutes before Biology lesson starts			
3	15 minutes after the start of the Biology lesson			
4	Less than 15 minutes before the end of the Biology lesson			
5	After the Biology lesson is over			

SECTION B: Students' Commitment to Home and Class Assignment

Instruction: Please indicate your frequency of the following activities on your class and home assignments

S/N	Item	Always	Sometimes	Never
1	Attempt my class assignment			
2	Completely do my class assignment			
3	Submit my class assignment on time			
4	Effect correction on my class assignment			
5	Attempt my home assignment			
6	Completely do my home assignment			
7	Submit my home assignment on time			
8	Effect correction on my home assignment.			

SECTION C: Students' Attendance in the School

Instruction: Indicate your frequency of being absent from school on the following days

S/N	Item	Always	Sometimes	Never
1	Every day of the week			
2	Market days of the week			
3	Examination days			
4	School's test day			
5	Festive days			
6	School's sport day			

SECTION D: **Availability of Educational Materials for the Student**
Instruction: Indicate how available the following items are for your learning activities in the school.

S/N	Item	Available	Not Available
1	Biology charts		
2	Mathematical sets		
3	Biology text books		
4	Biology work book		
5	Drawing book		
6	Four figure tables		
7	Past questions and answers series in Biology		
8	Calculators		

SECTION E:Frequency of Participation in Child Labour Activities

Instruction: Indicate your frequency of participation in your parents work through the listed activities in the Table with respect to the number of times you engage in the activities.

S/N	Item	Always	Sometimes	Never
1	Hawking			
2	Farming			
3	Going to pure water factory			
4	Going to bakery			
5	Staying in the shop			
6	Irrigating			
7	Fishing			
8	Cutting Block			
9	Animal husbandry			
10	Selling Food			

Section B: Timing of participation in Child Labour Activities

Instruction: Indicate your time of participation in the following activities that are applicable to you with respect to these periods

S/N	Item	Yes	No
	Hawking		
1	Before going to school		
2	During School period		
3	After school period		
4	During weekend		
5	During holiday time		
	Farming		
6	Before going to school		
7	During School period		
8	After school period		
9	During weekend		
10	During holiday time		
	Working in the Factory		
11	Before going to school		
12	During School period		
13	After school period		
14	During weekend		
15	During holiday time		

APPENDIX V

INTERNATIONAL CENTER FOR EDUCATIONAL EVALUATION (ICEE)
UNIVERSITY OF IBADAN

Child Labour Participation Screening Scale

Dear Respondent,

This is an instrument designed to obtain information on students' participation in child labour activities. You have been considered one of those whose responses will be of benefit to this study. Kindly be honest to provide useful information as much as possible. This is purely for research purpose. Your responses shall be treated with utmost confidentially.

Thank you for cooperation.

Bio-Data Information

Parents' residential location: Rural ( ) Urban ( )

Age: _____

Students' Participation in Child labour Activities

Instruction: Indicate the frequency of your engagement in the following activities

S/N	Item	Always	Sometimes	Never
1	Hawking of goods			
2	Trading activities beyond your community			
3	Farming for your family survival/commercial purposes			
4	Works that makes you to leave school before closing hours			
5	Working to get your school fees			
6	Engaging in household chores beyond your ability			
7	Being hired from your parents to perform some energy intensive house chores.			
8	working with a stranger who treats you like a servant			
9	Engaging in works that prevent you from going to school.			
10	Engaging in works that affects your health status.			
11	Involved in works that make you tired during classroom interaction.			
12	Working more than the hours you could bear.			
13	Participating in works that demoralise you			
14	Do work that reduces your chance of success in your academic.			
15	Being Involved in work in which you have no time for rest/relaxation.			

APPENDIX VI

INTERNATIONAL CENTER FOR EDUCATIONAL EVALUATION (ICEE)

UNIVERSITY OF IBADAN

Biology Achievement Test

Dear student,

This achievement test is designed for research purpose.Please, read each of the questions carefully before you select your answer. Give only one answer to each question by underlining the word you consider appropriate fromoptions A to D. Make all effort to avoid guessing in order to get a high mark.

Thank you for your cooperation.

QUESTIONS

1. Non-living things A. possess a high metabolic rate B. need intake of energy C. is able to respire D. show a low degree of organisation.
2. An example of level of organisation of life is A. organelle B. species C. genus D class.
3. Complexity in higher animals confers the following characteristics EXCEPT A. presence of coelomic cavity B bilateral symmetry C. radial symmetry D organ system.
4. Which of the following is NOT true of kingdom level of classification? A. organism in a kingdom can mate and produce fertile offspring B it contains all other categories C several phyla are made up of kingdom D example of kingdom is Animalia.
5. The following are examples of single-celled organism EXCEPT an/a A. amoeba B virus C. paramecium D. euglena.
6. The non-motile organisms compose of hyphae containing nucleus is known as a A. parasite B. bacteria C. fungus D. nematode.
7. Procaryote are single-celled organisms with A. no definite cytoplasm B. no nucleus C. absent of vacuole D. no definite nucleus.
8. An example of organism at the tissue level is an/a A. amoeba B. euglena C. hydra D. paramecium.
9. The following statements are true EXCEPT A. amoeba is a free living cell B.volvoxs live in colonies C. onion is at the tissue level of organisation D. example of filamentous organism is hydra.
10. Generally, a typical cell should haveA chloroplast B an outer covering otherwise known as cell membrane C central control organelle known as nucleus D. center for respiration known as mitochondria.
11. The difference between plant and animal is that; A.a plant cell does not havecell-wall B.an animal cell does not have chloroplast C. an animal cell has a small vacuole D the outer part of a plant cell is thick.

12. The following terms are used to describe solution that causes osmosis to occur in or out of the cellA. hypotonic B. isotonic C hydrotonic D hypertonic.
13. The following are the methods by which molecules enter or exit the living cells EXCEPT A. hypotonic B. osmosis C active transport D diffusion
14. Which of the following statements is NOT true? A. Haemolysis leads to loss of blood B. Osmosis is movement of liquid C. Plasmolysis leads to wilting D. Diffusion only occurs in gas.
15. The following are micro-nutrient EXCEPT A. hydrogen B nitrogen C potassium D phosphorus.
16. A drop of felling's solution was added to juice extracted from fresh maize grain and boiled. A red precipitate was formed indicating the presence of A. Alcohol B. Reducing sugar C. Non reducing sugar D. Starch
17. The peculiar problem of an arid land is A. high temperature B. extreme growth of grasses C. scarcity or frozen of water D. high rainfall.
18. The following are the examples of adaptation to desert life EXCEPT A. burrowing B. excretory system which eliminate water all the time C. nocturnal activities D. impermeable body covering.
19. The following are characteristics of dessert EXCEPT A. Low rainfall B. Tall trees C. High temperature D. Strong dry wind
20. Fewer number of trees is a characteristic of the savannah zone of Nigeria because A. there is too much sunlight B. there is limited amount of rainfall C. it is exposed to grazing animal D. they are covered by mountains.
21. The main types of materials found in the skeleton of an animal are A. femur, tendon and cartilage b. femur, radius and ribs C. chitin, cartilage and femur D. chitin cartilage and bone.
22. Hyaline cartilage is to trachea and bronchi, fibro- cartilage is to movable joints while elastic cartilage is to A. ribs B. bone C. nose D. intestine.
23. The vertebraterial canal is a common feature of A. cervical vertebra B. thoracic vertebra C. lumbar vertebrate D. sacral vertebra.
24. The importance of turgidity of the cell in herbaceous plants is that it A. provides mechanical support for the plant. B. enables absorption of more water C. enables intake of mineral salts from the soil D. prevents plasmolysis of the cells.
25. Muscles are attached to bones by means of A. ligament B. cartilage C. tendon D. synovial membrane.
26. The dental formula common to omnivore is A. $i\frac{2}{2}c\frac{1}{1}pm\frac{2}{2}m\frac{3}{3}$ B. $i\frac{2}{1}c\frac{0}{0}pm\frac{3}{2}m\frac{3}{3}$ C. $i\frac{3}{3}c\frac{1}{1}pm\frac{4}{4}m\frac{2}{3}$ D. $i\frac{2}{2}c\frac{3}{2}pm\frac{2}{4}m\frac{3}{3}$
27. The blood vessel that carries digested food from small intestine to liver is known as A. renin vein B. portal vein C. coronary vein D. hepatic portal vein.
28. The chime is converted to chyle in A. duodenum B. ileum C. bladder D. pancreas.
29. Diastema is common among A. carnivore B. herbivore C. insectivore D. omnivore.

30. The part of the alimentary system of a bird where grinding of maize occurs is A. crop B. cloaca C. gizzard D. stomach.
31. The two main vascular tissues in plants are A. sieve tubes and companion cells B. trachaeds and vessels C. xylem and phloem D. plate and sieve pores.
32. Transport in Xylem tissue is facilitated by the following EXCEPT A. root pressure B. transportation pull C. osmosis D. capillary action.
33. Amoeba obtains all its oxygen requirements A from oxidizing food substances. B. from air trapped in vacuoles. C. through diffusion of air into its body. D. Through an air cavity in the ectoplasm
34. The blood vessel that supplies oxygenated blood to the liver is known as A. hepatic vein B. renal vein C. hepatic artery D. coronary artery.
35. The main parts of blood that play important roles in the transportation of materials to the individual bossy cells are A. red and white blood cells B. water C. lymph and white blood cells D. intercellular fluid and lymph.
36. During expiration: A the internal intercostal muscles contrast and the external ones relax B. the diaphragm contract and curve downward C. the external intercostal muscles contract and the internal ones relax D. both internal and external intercostal muscles relax.
37. Cutaneous respiration is carried out by A. frogs B. snakes C. fishes D. birds.
38. The respiratory structure found in spider is A. tracheae B. gills C. vascularised skin D. lungbook.
39. Respiration occurs in the leaf of herbaceous plant through A. root hair B. lenticel C. stomata D. epidermis.
40. Gaseous exchange in unicellular aquatic organismsis through A. gill B. cell membrane C. mouth D. skin.
41. The organelle which eliminates water from the body of protozoa is A. plasma membrane B. contractile vacuole C. cell wall D. protoplasm.
42. Which of the following parts of the mammalian skill is involved in excretion? A. sweat gland B. sebaceous gland C. malphighian layer D. horny layer.
43. In which of the following groups of organisms does excretion take place only by simple diffusion through the body surface? A. worms, toad and Amoeba B. paramecium, grasshopper and snake C. grasshopper, toad and euglena D. paramecium, amoeba and euglena.
44. Which of the following is the correct sequence of movement of urea during urine formation? A Glomerulus-Bowmen's Capsule-Convoluted Tubule-Henle's loop-collecting tubule B. Glomerulus-Henle's loop-convoluted tubule-collecting tubule-Bowmen's capsule C. Glomerulus-Bowmen's capsule-collecting tubule-Henle's loop-convoluted tubule D. Glomerulus-convoluted tubule-Henle's loop-Bowmen's capsule-collecting tubule.
45. Which of the following is not an excretory organ? A. kidney B. urinary bladder C. contractile vacuole D. flame cell.

46. The following are adaptation of plant in grass land A. withstand long period of drought B. recover from fire C. shade loving D. be able to recover from being eaten.
47. Animal community in dessert should possess adaptation to A. extreme cold B. extreme rainfall and humidity C. periodic scarcity of water and extreme temperature D. change in salt concentration.
48. The method of reproduction in Amoeba is A. binary fission B. sexual reproduction C. binary fusion D. conjugation.
49. Sexual reproduction inparamecium is known as A. budding B. binary fission C. sucker D. conjugation.
50. Which of the following organisms only reproduce through asexual means? A. Paramecium B. Euglena C. Amoeba D. chlamydomonas.
51. The region of reproduction in earthworm is A. mouth B. cocoon C. cheata D. clitellum
52. Complete metamorphosis does not occur in A. housefly B. cockroach C. butterfly D. tsetse fly
53. The major important abiotic factor in terrestrial habitat are A. rainfall and sunlight B. temperature and humidity C. rainfall and temperature D. rainfall and humidity.
54. In tropical forest the tree above the canopy is called A. lower strata B. upper strata C. emergent D. middle strata.
55. Terrestrial habitat are recognised mainly by their A. vegetation B. rainfall C. sunlight D. land terrain.
56. Which of the following factors determine type of vegetation? A. biotic factors B. abiotic factors C. man D. agricultural activities.
57. The main important abiotic factor common to rain forest are the following EXCEPT A. sunlight B. temperature C. rainfall D. humidity.
58. The frequency of Andropogon in a grass lawn is 19.100 throws were made with 1 meter square quadrat. What is the density of Andropogon in the field A. 0.09 per M^2 B. 0.90 per M^2 C. 9.0 per M^2 D. 90 per M^2
59. Speed of flow of water in a river is faster in the middle than along the bank due to A. difference in turbidity at different parts of the river. B. the abundance of fishes and other organism along the bank. C. reduced force of gravity in the middle portion of the river. D. Resistance offered by the walls of the banks
60. Which of the following is not a type of marshes? A. salt water marsh B. fresh water marsh C. brackish marsh D. rain water marsh.