HOME FACTORS AND PERSONALITY TRAITS OF GIFTED AND AVERAGE JUNIOR SECONDARY SCHOOL STUDENTS IN KANO AND JIGAWA STATES

BY

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ATTESTATION

I, Martha B. Yusuf attest to the fact that this research work titled Home Factors and Personality of Gifted and Average Junior Secondary School Students in Kano and Jigawa States was carried out by me under the supervision of Prof. D. A. Maiwada. I also certify that to the best of my knowledge this work has not been presented wholly or partially for the award of any degree or for publication elsewhere.

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Martha B. Yusuf

Signature & Date

APPROVAL

This project has been read and approved as meeting the requirements of the Faculty of Education, Bayero University, Kano.

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DEAN POSTGRADUATE STUDIES

DEDICATION

I dedicate this research work to the Glory and Honour of God Almighty who has healed, sustained and enabled me to successfully finish the course of study. To Him alone be all the glory, honour, power, adoration, majesty and praise, forever and ever, amen.

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ABSTRACT

This research investigated differences in some Home factors and Personality of gifted and average Junior Secondary School students in Kano and Jigawa States. An Ex-post – facto design was used for the study. The population of the study comprised 114,749 JSS three students in the two states. The purpose of the study is to create awareness to the educational needs of the gifted that experience more than usual difficulties and problems in learning and training as normally offered in regular schools. They need closer attention, some modifications and adaptations of the school routines and approaches to teaching and learning in order to attain their optimum learning levels and development. Cluster sampling technique was used to select the 16 sample schools. Purposive sampling technique was used to identify the 48 gifted sample using Mental Abilities Test and Teacher Nomination Checklist, while systematic sampling technique was used to select the 48 average sample. In all, the sample comprised 96 gifted and average students drawn from 16 public (boys and girls) and co-educational junior secondary schools in the two states. Four hypotheses guided the research process. For data collection, two instruments - Home Factors questionnaire and a Fifty (50) – item Big Five Personality Test were administered to the samples to find differences. Descriptive statistics was used to report the demographic variables under investigation, while Chi-square was used to find differences in Home factors; ANOVA was used to find differences between the gifted and average samples with regards to their personality traits while Pearson r was used to find relationship between Mental Abilities test and Teacher Nomination Checklist as Criterion for identification of the gifted; and relationship between the Big Five Personality traits and Mental Abilities test. Findings showed that there is significant correlation between Mental Abilities Test and Teacher Nomination Checklist as criterion for identification of gifted students in junior secondary schools in Kano and Jigawa States. No significant difference was found in all but two Home Factors studied between the gifted and average samples. No significant difference was found in all the Five Personality traits of the gifted and average samples. Similarly, no significant correlation was found between Mental Abilities test and Big-Five Personality traits of the gifted and average learners. Since the gifted and talented though few are found in any given population, it was recommended that deliberate efforts should be made to identify them early enough, and provide for their educational needs at all levels of education. Also in the absence of adequate specialized programs for the gifted and talented at present, inclusive education as contained in NPE, 2013 should be emphasized and practiced to cater for the special needs of the gifted.

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OPERATIONAL DEFINITION OF TERMS

In this thesis the following have been operationally defined as follows:

- **Gifted:** refers to students who took the first three positions in their respective classes from JSS 1 – 3; and who were identified as gifted through administering the Mental Abilities Test and nomination by class teachers using Teacher Nomination Checklist.
- **Average:** in the context of this study is used to describe non-gifted students who took class positions from 20 to 30 or more depending on the class size. The average students do not require special services or activities outside the ones provided by the school like the gifted in order to satisfactorily learn. The average students are in the majority in the school system.
- **Home factors:** refer to occupation of parents, educational attainment/level of parents, reading materials available at home, type of reading materials, time to read at home, who normally helps subjects with their home work, what subjects they like best, what are their best three subjects, whether they would like to further their education, whether subjects like to use their hands to produce something and which occupation they would like to take up in the future.
- **Personality:** comprise the Big Five Personality traits which are five broad factors or dimensions of personality and they include Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness to experience.

ABBREVIATION

GSS – Government Secondary School

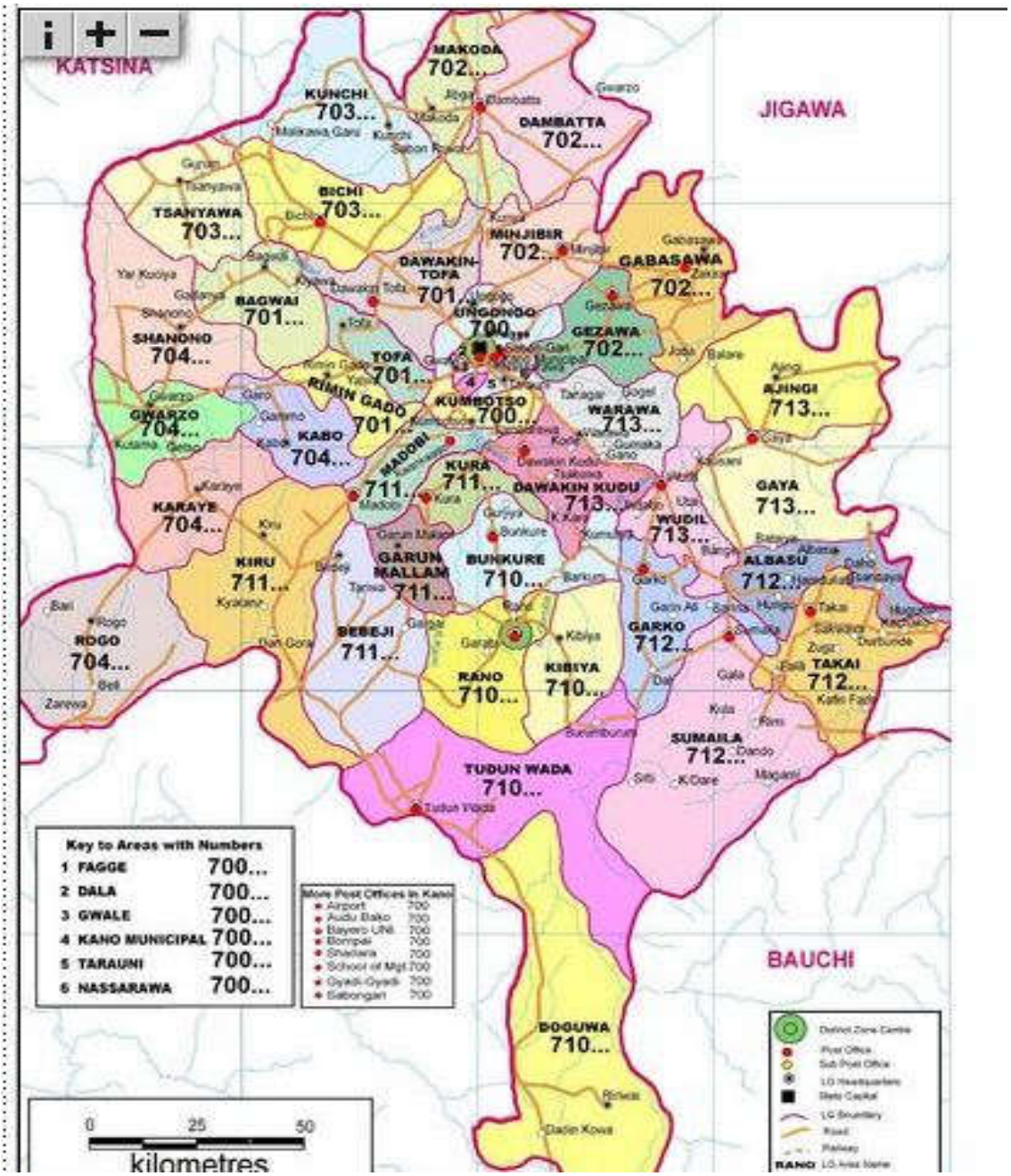
GGASS – Government Girls Arabic Secondary School

JSS – Junior Secondary School

GGSS – Government Girls Secondary School

GGC - Government Girls College

KANO STATE MAP



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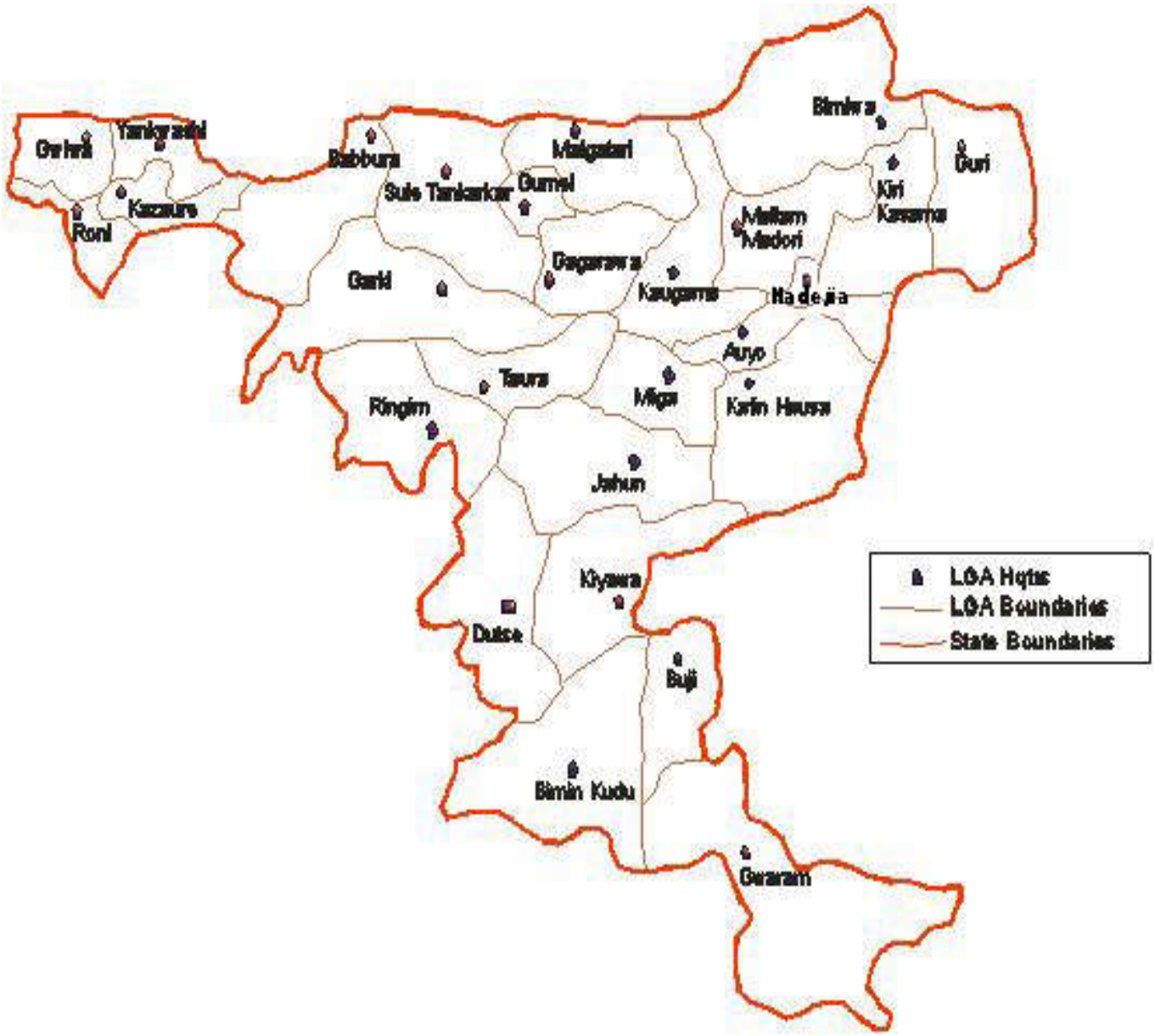
JIGAWA STATE MAP



Source: www.Jigawastate.gov.ng/contentpage.php?id=170

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

According to experts 2% to 5% of a given population are gifted (Heller, Monks, Sternberg and Subotri, 2000). Often the learning needs of this category of learners are not adequately provided; as a result some of the gifted or those who have potentials for giftedness go unrecognized or may have to drop out of regular school system because it does not cater for their learning needs. In Nigeria, the first stride towards providing special education for the gifted and talented, as a component of Universal Primary Education (UPE), was envisaged in the 1977 National Policy on Education (NPE). A Government White Paper in the same year endorsed the establishment of five pilot schools of the gifted and talented children across the country. The schools were amalgamated to form Federal Government Academy, Suleja in May, 1990. Thereafter, a similar school was established by the Federal Capital Territory (FCT) at Gwagwalada. Considering the proportion of gifted and talented children in a densely populated country like Nigeria, there is still a long way to go in attending to the educational needs of this category of learners.

Theoretically, the study of giftedness is related to the psychology of individual difference. Historically, the constructs and creativity and, to a lesser extent, motivation provided the psychological foundations for investigations which encompass both adults and children and the development of talents across the many different domains for example, the academic contents areas, the performing arts, or entrepreneurial pursuit. It involves the investigation of both cognitive and affective variables. Both retrospective and prospective studies form its research Lexicon (Robinson, 1998).

Robinson explained that at practical level, the study of giftedness is primarily concerned with issues related to the education and upbringing of children with gifts and talents. The field of gifted education is generally said to attract only researchers and school practitioners internationally whose interests and research programs are applied. Thus, the corpus of research in the field has been largely related to schooling and to family contexts that develop gifts and talents in children and youth.

No one doubts that normal child development requires a certain minimum level of responsive care. Severely deprived, neglectful, or abusive environments are said to have negative effects on a great many aspects of development, including intellectual aspects (Neisser, 1995). Bee (1992) alluded to this fact when he stated that "it is generally agreed that a supportive and enriched environment helps to move children toward the upper end of their intellectual reaction range". Research findings have severally revealed that home background factors especially socioeconomic status which is based on among others family income, parental education level, parental occupation and social status in the community do affect academic achievement positively or negatively (Woolfolk 2010). Families with high socioeconomic status often have more success in preparing their young children for school because they typically have access to a wide range of resources to promote and support young children's development. They are able to provide their young children with high-quality child care, books, and toys to encourage children in various learning activities at home.

On the other hand, families with low socioeconomic status lack the financial, social and educational supports that characterize families with high socioeconomic status. Slavin (2006) opined that, low achievement is not the inevitable result of low socioeconomic status; that parents participation in their children's education can improve student's achievement.

Environment affects both the development of intelligence and the level of achievement for all children. There lies tremendous energy and strength in all types of environmental forces. They can make or mar, build or destroy, help or obstruct any individual. This is why when two children of the same parent or identical twins are brought up in different environmental set up, they may turn up into two entirely opposite personalities. Thus, any attempt to understand the complete and causal chain associated with school attainment must include the effect of personality on the child's work in the school.

Personality is a core area of study for psychology and understanding persons. Together with intelligence, the topic of personality constitutes the most significant area of individual difference study (Carver and Scheier, 2000). It has in fact been established that there are consistent correlations of small effect size between personality and intelligence measures (Ackerman and Haggestad, 1997).

The main difference among individuals is their personality. One's personality consists in his/her general profile or in the special combination of psychological traits of character that refer to his/her unique nature. One's unique combination of psychological features leads to the way in which that specific person reacts and interacts with the others or the environment. Many specialists have asked themselves which is the main factor that determines personality: is personality genetically inherited or developed gradually through experience? Which is more important when developing one's personality; human nature or education? Does one's personality depend on heredity through genetic inheritance or on the environment in which someone leads his/her life?

According to psychologists, the most reasonable answer to all is neither one, nor the other, but the interaction of the two-the genetic and environmental factors (Woolfolk, 2010). Researchers have also over the years studied the personality traits and cognitive learning styles of intellectually gifted and academically talented students that distinguish them from the general population. Cognitive learning styles defined as "consistencies in the unique manner that a learner acquires and processes information" (Woolfolk, 2010) have been widely discussed and researched in an attempt to understand whether gifted and talented students learn differently than other students, or respond differently to particular teaching styles. While the focus of this research is not learning styles of the gifted, it lends to the fact that personality affect the manner in which children learn. Hence there is need to study the effect of personality on learning.

1.2 Statement of the problem

Children with special educational needs experience more than usual difficulties and problems in learning and training as normally offered in regular schools. They need closer attention, some modifications and adaptations of the school routines and practices, general curriculum and approaches to teaching and learning in order to attain their optimum learning levels and development. Among this group are the gifted and talented of varying types or degrees, who are relatively small in number with just a few in some classes. They face challenges of being misunderstood and are sometimes seen as rude, impudent, show-off etc to the extent that their special needs are never attended to. Teachers draw up lesson plans aimed at meeting learning needs of their students, but most often the gifted are not the main focus but the average ones.

In addition, it is generally assumed that, gifted children perform well and come top in a classroom. It may be so but they may have learning disabilities that can go undiscovered because they can easily compensate for them in early years. With time it may become harder for them to

excel which can lead to behavior problems. Another problem with the gifted especially the highly gifted is they grow up with and are often socialized by significant others who do not understand them well enough to guide their ideas and actions with valid feedback. Thus, people who are gifted, or at least have the potential for giftedness, can go through life unrecognized. They may seem unremarkable to their closest associates, and go undiscovered because their families and intimates simply place no particular value on their special abilities. Sometimes they are not recognized because they are not given the necessary opportunities or training. This is true of children who are poor or members of minority groups where they may be deprived of chances to demonstrate and develop their potential.

There are so many assumptions about gifted children which are not necessarily true and hence constitute a problem. Hallaham and Kauffman, (1986) noted that placing the gifted child with his own age mates in the same class so they could play and interact socially does not yield the desired result. This arrangement for the highly gifted child who may have a chronological age of six and mental age of eleven, being in a class with six year olds could be disadvantageous to such a child who learns at a faster rate than his peers.

Recognizing and nurturing giftedness in young children presents an important challenged to educators internationally and even here in Nigeria. Failure to respond to their educational needs may lead to their abilities diminishing or becoming less recognizable to those who can do something about them. Young gifted children are at risk for boredom, frustration, and depression; thus, recognizing and identifying giftedness is important because to persist, giftedness needs nurturing.

Differences exist among students in many areas of their lives; however, these differences may possibly be due to unfavourable conditions at home. Home factors are therefore important to study, especially for gifted children. Also, multiple studies have shown that academic achievement is strongly correlated with various measures of individual traits. Lack of proper understanding by teachers of the strong relationship between personality traits and academic achievement may hinder them from drawing up appropriate lesson plans that can take care of students' individual personality differences in the class. This research investigated whether gifted students differ from average ones in home factors and personality.

1.3 Objectives of the study

The objectives of the study are:

1. To determine the correlation between mental abilities test (MAT) and teacher nomination checklist (TNC) as criterion for the identification of gifted JSS 3 students in Kano and Jigawa States.

2. To find out if there are any differences in home factors between the gifted and average JSS 3 students in Kano and Jigawa States.

3. To determine if there are any differences in the personality traits of gifted and average JSS 3 students in Kano and Jigawa States.

4. To determine the correlation between mental abilities test and personality traits of gifted and average JSS 3 students in Kano and Jigawa States.

1.4 Research questions

1. Is there any significant correlation between mental abilities test (MAT) and teacher nomination checklist as criterion for the identification of gifted JSS students in Kano and Jigawa States?
2. Are there differences in home factors between the gifted and average JSS students in Kano and Jigawa States?
3. Are there differences in personality traits between the gifted and average JSS students in Kano and Jigawa States?
4. Is there any significant correlation between mental abilities test and personality traits of the gifted and average JSS students in Kano and Jigawa States?

1.5 Hypotheses

1. There is no significant correlation between Mental Abilities Test and Teacher Nomination Checklist as criterion for identification of gifted JSS students in Kano and Jigawa States?
2. There is no significant difference in home factors between the gifted and average JSS students in Kano and Jigawa States.
3. There is no significant difference in personality traits of gifted and average JSS students in Kano and Jigawa States.

4. There is no significant correlation between mental abilities test and the personality traits of gifted and average JSS students in Kano and Jigawa States.

1.6 Significance of the study

Special education for the gifted has become imperative as more countries and societies have accepted the idea of inclusive education and are practicing it. It is of special importance in a less-advantaged country like Nigeria to have the double – edged benefit of those more talented in our society. First, such people are the most valued asset of any society; they can contribute both to the welfare of many others; and to the economy of the country. Second, gifted children and youths need to fulfill their high potential in order to become highly qualified adults for their own physical, mental and financial well-being, sense of completeness, and satisfaction. Third, the gifted especially the highly gifted are rear in the population. Those with IQ's of 150 and above occur only about 5-7 times out of 10,000 persons (Powell and Haden, 1984). Though literature about this group is said to be rare, nevertheless, the attempt to understand them is valuable because it can help them achieve their potential.

Most people are unaware of the psychological factor of giftedness (Schwartz, 1994). Thus, the tendency to ignore the needs of the gifted has deep roots in the history of giftedness. Schwartz presented evidence that investing time, energy and money in the suitable educational opportunities for the gifted is not undemocratic. He stated that small initial commitment on the gifted will yield exceptional future leaders and argues that everyone will benefit from the rich return on such an investment.

Lack of awareness of the needs of the gifted among parents and teachers is one of the major problems facing education of the gifted in Nigeria. Studies like the present one, will help in

creating awareness about the needs of the gifted and talented in order to be able to nurture them emotionally and academically.

Studies that determine the differences that exist between gifted and average students can help to draw attention to their peculiar needs and challenges. Schools are better equipped to detect, through various tests, giftedness among students; parents can equally detect early enough children who manifest characteristics of giftedness and enroll them in suitable schools, and encourage them in every way possible.

1.7 Scope and delimitation of the study

The study covers students in Kano and Jigawa states of Nigeria, using as sample Junior Secondary School three students in sixteen public and private Junior Secondary Schools. Gifted students were identified in the sampled schools where differences if any, in home factors and personality of the gifted and average students were studied. The study is limited to only the gifted and average students in junior secondary schools in the two states. Hence, variables of creativity, problem solving ability and other personality characteristics of divergent and convergent thinking as well as pupils of kindergarten and primary and students of Senior Secondary schools and Tertiary institutions are delimited from this study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter reviewed some literature related to the topic of the research study. It provides some insight into previous writers' ideas as they relate in one way or the other to the current topic under investigation.

2.1 Conceptual framework

2.1.1 Concept of giftedness

Intelligence is believed to be responsible for giftedness. Many researchers agree that the concept "Intelligence" is broad and cannot be directly measured. Slavin (2006), stated that the concept of intelligence has been discussed since before the time of the ancient Greeks, but scientific study of this topic really began with the work of Alfred Binet, who devised the first measure of intelligence in 1904. The study of intelligence within psychology has been and continues to be a subject of debate. This is because intelligence is most complex practical property of the mind, integrating numerous mental abilities such as: the capabilities to reason, solve problems, think abstractly, comprehend ideas and language, and learn (Slavin, 2006).

Intelligence is seen as one of our most prized possessions, yet it is a concept that even the most intelligent people have not been able to agree on (Santrock 2008, p 411). Some experts, according to Santrock describe intelligence as having thinking skills, while others describe it as an ability to adapt to and learn from life's everyday experiences.

There is controversy over just what intelligence is, as well as over whether intelligence is more strongly influence by heredity or by environment, cultural bias in intelligence testing and whether intelligence tests are misused (Santrock, 2006). In the context of this study two major consensus definitions of intelligence have been proposed first by "Intelligence Knowns and Unknowns:

> *Individuals differ from one another in their ability to understand complex ideas, to adopt effectively to the environment, to learn from experience, to engage in various forms of reasoning to overcome obstacles by taking thoughts. Although these individual differences can be substantial, they are never entirely consistent: a given person's intellectual performance will vary on different occasions, in different domains, as judged by different criteria. Concepts of "intelligence" are attempts to clarify and organize these complex phenomena* (Neisser et al 1996, p 81).

A second definition of intelligence by 52 intelligence researchers states:

> *A very general mental capability thinks abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or task – taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings - "catching on", "making sense of things, or "figuring out" what to do* (Mainstream Science on intelligence, 1994, p A18).

Early definitions however ranged from conservative ones Terman's, (1925) use of the top 1% of general intellectual ability to Wittys, (1958) liberal conceptualization that giftedness is displayed by a child "whose performance in a potentially valuable line of human activity, is consistently remarkable." Sternberg and Davidson (1986) edited a collection in which 17 conceptualizations of giftedness were disclosed by researchers who proposed them.

The range of conceptualization was diverse, with some concentrating primarily on the psychological aspects of intellectual giftedness (Sternberg, 1986) and others including social context in which development of giftedness is culturally fostered in some domains, but not recognized in others (Csikzentmihalyi and Robinson 1986, Tannen Baum, 1986). Of those conceptualizations focusing on the psychological aspects, theories and definitions tended to include the constructs of intelligence, creativity and motivation either singly or in combination. For example, Feldhusen (1986) specifically included general intellectual ability and achievement motivation in his conceptualization of giftedness. Jackson and Butterfield (1986) concentrated primarily on variables that contribute to superior cognitive performance in children. Renzulli

(1987, 1986) proposed a three ring definition in which above average intellectual ability, creativity, and task commitment interact to produce giftedness.

More recently, Feldhusen and Jarwan (1993) reviewed the definitions of giftedness and talentedness and noted that they fell into six categories: psychometric definitions, trait definition, definitions focused on social needs, educationally oriented definitions, special talent definitions, and multi-dimensions definitions.

Psychometric definitions focus on attaining certain scores usually on intelligence tests. Terman's (1925) operational definition of an IQ score of 140 is an example of psychometric definitions. Trait definitions focus on psychological characteristics of able children and youth. Definitions that focus on social needs include statements that giftedness is defined by what society values. Educationally oriented definitions include statements about the need for special provisions; and in some cases use of a local norm referenced approach. For example a state or district may explicitly note a percentage of the school population to be served, usually ranging from the top 20% to top 5%. Special talent definitions are those that focus specific domains such as mathematics, the arts, and science. The language used in the 1993 Federal Report, National Excellence: A case for Developing America's Talent (Ross, 1993), is an example of a definition that crosses several categories: "These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided in the schools".

The move by Kano State Government to meet the scientific and technological manpower needs of the state which led to the establishment of Science Secondary Schools in early 1980's in

which the best students were put in one place and trained in sciences could be an example of special talent definition of giftedness.

Giftedness thus, refers to human aptitudes such as intellectual or creative abilities. Talent is demonstrated in an area of human activity such as: mathematics, literature and music. Giftedness is seen as only a label that gives those who have actualized their ability to an unusually high degree or give evidence that such achievement is imminent (Clark 2002). The term giftedness is a value judgement made using the numeric data from intelligence tests. It is generally accepted that individuals whose IQ scores above 130 qualify as intellectually gifted (Winner, 2007).

Terman distinguished giftedness from talent and creativity. He viewed talent as the potential for unusual achievement, but only when combined with high IQ scores. Creativity, he believed, was a personality factor, and thus differed from both giftedness and talent Wolff and Stephens (1982), in (Winzer 1999). Giftedness and talent are often used interchangeably; however, Gagne (1985, 1991) has differentiated between the two concepts by defining giftedness as above average competence in human ability, and talent as above average in performance in a particular field. Talentedness tends to be used when referring to a particular strength or ability of a person.

In differentiating giftedness and talent Gagne (2004, 2009) observed that, giftedness is the possession and use of inborn abilities, in at least one ability domain, which places a child at percentile 85 of his or her age peers. Talent on the other hand is the superior mastery of developed abilities and knowledge, in at least one field, that places a child's achievement at percentile higher than his peers. Gagne (1985) came up with some attitude domains model which includes: intellectual, creative, social, affective, sensorimotor and others. According to Gagne, it is necessary to be gifted in order to become talented. In order for a gift to become a talent,

training and practicing is necessary. He explains that, two catalysts, intrapersonal and environmental would make the difference between gifts that do or do not develop into talent. The interpersonal catalysts include motivation and temperament: the environmental; demography, sociology, person's e.g. family size, personality and parenting style, influencing others e.g. teachers, mentors etc. All these components are combined into the developmental process, and at the end of the process, depending also on chance, the person would either be labeled as "talented" or not (Gagne, 1985).

Gifted and talented children are referred to as those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance (Avoke 2008). These are children who require differential educational programmes and services beyond those normally provided by the regular school programme in order to realize their contribution to self and society.

The main thrust of this definition suggests that any child who demonstrates high ability in a specific area could be considered gifted or talented. The definition does not allude to IQ as the sole basis for determining intelligence. The concept of giftedness goes beyond academic powers and includes other talents and abilities. It could be deduced from the above definitions that giftedness/talentedness is not a single entity, but rather it manifests in a wide range of ways (Avoke, 2008).

There is no one agreed upon definition of giftedness or talent. However, most definitions, whether they are psychologically based or educationally driven, have moved away from equating giftedness with intelligence as defined by general IQ tests. Several current definitions are broadened in terms of the constructs they consider constituents of giftedness – creativity, and

motivation, for example. Others are broadened by enumerating specifically the fields or domains in which high performance may be observed. And some definitions are broadened by explicitly considering the societal or cultural context in which gifts and talents develop.

2.1.2 Concept of home factors

Family variables as well as variables which describe the parents style and degree of involvement in their children's school activities and the amount of support they provide or helping them with their school work all matter. School performance depends on a variety of factors. In addition to the obvious observation that it depends on the individual innate ability (giftedness) the amount of time and effort invested by parents in activities that help the child to develop are also crucial. The characteristics of the parent also matter because the quality of the investments made in children depends on them. Innate ability also depends on parental characteristics to the extent that it is inherited. School grades are a measure of performance and thus reflect the characteristics and endowments of the child as well as the variable inputs provided by both the parents and the child. For this, three indicators are used to characterize home factors: parent education, parent occupation, and resources in the home (Eggen and Kauchat, 2004). Within the context of this study, home factors are synonymous with socioeconomic status and are used interchangeably.

In general terms, SES describes an individual's or a family's ranking on a hierarchy according to access to or control over some combination of valued commodities such as wealth, power, and social status (Mueller & Parcel, 1981). While there is disagreement about the conceptual meaning of SES, there seems to be an agreement on Duncan, Featherman, and Duncan's (1972) definition of the tripartite nature of SES that incorporates parental income, parental education,

and parental occupation as the three main indicators of SES (Gottfried, 1985; Hauser, 1994; Mueller and Parcel, 1981).

Parental income as an indicator of SES reflects the potential for social and economic resources that are available to the student. The second traditional SES component, parental education, is considered one of the most stable aspects of SES because it is typically established at an early age and tends to remain the same over time. Moreover, parental education is an indicator of parent's income because income and education are highly correlated in the United States (Hauser and Warren, 1997). The third traditional SES component, occupation, is ranked on the basis of the education and income required to have a particular occupation (Hauser, 1994). Occupational measures such as Duncan's Socioeconomic Index (1961) produce information about the social and economic status of a household in that they represent information not only about the income and education required for an occupation but also about the prestige and culture of a given socioeconomic stratum. A fourth indicator, home resources, is not used as commonly as the other three main indicators. In recent years, however, researchers have emphasized the significance of various home resources as indicators of family SES background (Duncan and Brooks-Gunn, 1997; Entwisle and Astone, 1994). These resources include household possessions such as books, computers, and a study room, as well as the availability of educational services after school (McLoyd, 1998; Eccles, Lord, and Midgley, 1991; Entwisle and Astone, 1994).

2.1.3 Concept of Personality

Over the years, many different definitions have been proposed for personality. Most of the definitions refer to a mental system – a collection of psychological parts including motives, emotions, and thoughts (Santrock, 2008). The definitions vary a bit as to what those parts might be, but they come down to the idea that personality involves a pattern or global operation of

mental systems. Mayer, (2005) see personality as “An individual's pattern of psychological processes arising from motives, feelings, thoughts, and other major areas of psychological function. Personality is expressed through its influences on the body, in conscious mental life, and through the individual's social behavior." Personality is made up of the characteristic patterns of thoughts, feelings and behaviors that make a person unique (Cherry, 2011). In addition to this, personality arises from within the individual and remains fairly consistent throughout life.

Some of the fundamental characteristics of personality as presented by Cherry include:

- **Consistency** - There is generally a recognizable order and regularity to behaviors. Essentially, people act in the same ways or similar ways in a variety of situations.
- **Psychological and physiological** - Personality is a psychological construct, but research suggests that it is also influenced by biological processes and needs.
- **It impacts behaviors and actions** - Personality does not just influence how we move and respond in our environment; it also *causes* us to act in certain ways.
- **Multiple expressions** - Personality is displayed in more than just behavior. It can also be seen in our thoughts, feelings, close relationships and other social interactions.

2.2 Theoretical framework

2.2.1 Theories of Intelligence

In the past psychologists who studied intelligence often disagreed sharply as to whether intelligence is a single characteristic or several different components (Baron, 2007). In one camp are those who viewed intelligence as a single characteristic or dimension along which people vary. Spearman (1927) was one early supporter of this view. Spearman believed that performance on any cognitive task depended on a primary general factor (which he termed

giftedness) and one or more specific factor(s) relating to particular tasks. He based this view on the following: Although tests of intelligence often contain different kinds of items designed to measure different aspects of intelligence, scores on these items often correlate highly with one another. This fact suggested to him that no matter how intelligence was measured, it was related to a single, primary factor. Most of these giftedness-loaded tests typically involve some form of abstract reasoning. Therefore, Spearman and others have regarded giftedness as the (perhaps genetically determined) real essence of intelligence. This is still a common but not universally accepted view. Some psychometricians regard giftedness a statistical artifact. One of the best measures of giftedness is Raven's Progressive Matrices which is a test of visual reasoning (Neisser, 1997; Kauffman, 2009).

Other researchers in contrast believed that intelligence is composed of many separate abilities that operate more or less independently. According to this multi-factor view, a given person can be high on some components of intelligence but low on others and vice-versa. Thurstone (1993) in Baron (2007) is an early supporter of this view where he suggested that, intelligence is composed of seven distinct primary mental ability, some of which are: verbal meaning- understanding of ideas and word meanings; number - speed and accuracy in dealing with numbers; and space – the ability to visualize objects in three dimensions.

Most modern theories of intelligence however, adopt a middle position between the two extreme views. They recognize that, intelligence may involve a general ability to handle a wide range of cognitive tasks and problems, as suggested by Spearman, but also that intelligence is expressed in many different ways, and persons can be high on some aspects of intelligence but low on others.

Examples of this modern approach include:

1. **Gardner's theory of multiple intelligence**

There are eight types of intelligence according to Gardner (1983, 1993). These are described below, along with examples of the occupation in which they are reflected as strengths (Cambell, Campbell, and Dickson 1999).

- Verbal Skills: The ability to think in words and to use language to express meaning (author, journalist, speaker).
- Mathematical Skills: The ability to carry out mathematical operations (scientist, engineer, accountant).
- Spatial skills: The ability to think three-dimensionally (architect, artist, sailor).
- Bodily-Kinesthetic Skills: The ability to manipulate objects and be physically adopts (surgeon, craftsperson, dancer, athlete).
- Musical Skills: A sensitivity to pitch melody, rhythm, and tone (composer, musician).
- Interpersonal Skills: The ability to understand and effectively interact with others (successful teacher, mental health professional).
- Intrapersonal Skills: The ability to understand oneself and effectively direct one's life (theologian, psychologist).
- Naturalistic Skills: The ability to observe patterns in nature and understand natural and human made systems (farmer, botanist, ecologist, landscaper).

According to Gardner, the different forms of intelligence can be destroyed by brain damage, that each involves unique cognitive skills, and that each shows up in unique ways in both the gifted and idiot savants (individuals who are mentally retarded but have an exceptional talent in a particular domain, such as drawing, music, or numerical computation).

2. **Sternberg's triarchic theory of intelligence**

Another important modern theory of intelligence is one proposed by Robert Sternberg (Sternberg, 1985; Sternberg et al, 1995). According to this theory, known as "Triachic Theory of Intelligence", there are actually three basic types of human intelligence. The first, known as componential or abilities to think critically and analytically. Persons high on this dimension usually excel on standard tests of academic potential and make excellent students. The second type is experimental or creative intelligence which emphasizes insight and the ability to formulate new ideas. Persons who rate high on this dimension excel at zeroing in what information is crucial in a given situation, and at combining seemingly unrelated facts. This is the kind shown by many scientific geniuses and inventors like, Einstein, Newton etc. The third is contextual or practical intelligence. Persons high on this dimension are intelligent in practical, adaptive sense and they are adept to solving the problems of everyday life (Baron, 2007).

3. **Cattell's theory of fluid and crystallized intelligence:**

Psychologists in the past decades often made use of a statistical technique known as factor analysis in their effort to determine whether intelligence consists of one or several different components. This technique identifies clusters of items on a test that seem to be related to one

another and so can be viewed as measuring a common underlying factor – a specific aspect of intelligence (Baron, 2007).

This technique was used by many researchers. Spearman (1927), for instance, employed it as basis for his conclusion that there is a general or gifted factor that underlies all the others. Cattell (1963), however reached somewhat different conclusions. He concluded that two major clusters of mental abilities exist: fluid and crystallized intelligence. Fluid intelligence refers to people's inherited abilities to think and reason. In contrast, crystallized intelligence refers to accumulated knowledge – information stored over a lifetime of experience, plus the application of skills and knowledge to solving specific problems (Baron, 2007). In other words, crystallized intelligence is the outcome of experience acting on our fluid intelligence. The speed with which one can analyze information is an example of fluid intelligence, while the breath of one's vocabulary – how many words one can put to use – illustrates crystallized intelligence.

Crystallized intelligence is seen as the ability to apply problem solving method appropriate in one's cultural context (Woolfolk, 2010). Crystallized intelligence is said to increase throughout life span because it includes the learned skills and knowledge such as reading, facts, how to hail a cab etc. Thus, by investing fluid intelligence in solving problems, people develop their crystallized intelligence, but many tasks in life such as mathematical reasoning draw on both fluid and crystallized intelligence (Ferrer and McArdle, 2004; Finkel, Reynfolds, McAdle, Gatz and Pederson, 2003; Hont, 2000) in Woolfolk, (2010).

Many psychologists believe that Sternberg's and Gardner's approaches have much to offer. These approaches have stimulated people to think broadly about what makes a person's competencies, and they have motivated educators to develop programs that instruct students in

multiple domains. They have also contributed to the interest in assessing intelligence in innovative ways that go beyond conventional standardized paper-and-pencil memory tasks (Santrock, 2008). The present research is anchored on Stenberg's triachic theory of intelligence because of its relevance to the study of giftedness.

Intelligence: Heredity- environment (nature vs nurture) debate

A wide variety of individual differences in people's intellectual abilities exist. Some are more intelligent than others. The differences can be so much that some change the course of human civilization through their intellectual innovations while a few others even find it difficult to master a simple addition problem. In looking at the causes of individual differences in intelligence, a major issue is the relative contributions of genetics and environment. The pendulum of opinion on Nature and Nurture through history revealed that in the United Kingdom (UK), in the late 1800's, Darwinism took the role of genetically determined capability and was considered very important. In contrast, in the United States of America (USA) 1960's for example, were more in favor of a "tabularasa" (blank slate) view of human intelligence. In other words, all people are capable of much more, if given conducive environmental conditions in which to reach their potential. Currently the zeitgeist in the western psychological world is somewhere in-between – both genetics and environment are seen as playing important roles. The modern view about nature vs nurture in intelligence is interactionist.

> *Mother Nature has plainly not entrusted the determination of our intellectual capacities to the blind fate of a gene or genes; she gave us parents, learning, language, culture and education to program ourselves with (*Ridley, 1999, p 77).

Evidence in favour of nature

Evidence for heredity influence on intelligence comes from the following observations:

- Family studies shows that intelligence tends to run in families
- Twin studies show higher correlation between identical twins in IQ than between fraternal twins. This holds true even when identical twins reared apart are compared to fraternal twins reared together
- Adaptation studies show that children somewhat resemble their biological parents in intelligence (Ridley, 1999, p 83).

Francis Galton and other early researchers maintained that most human traits were passed down through the generations on "germ plasm." When the danger of the purely genetic view of development became obvious, the pendulum swung toward a strong emphasis on environmental conditions, especially after the 1930 (Winzer 1993). Nevertheless, it is now abundantly clear from the field of behavioural genetics that there is a significant role played by genetic transmission in the development of intelligence (Gallagher, 1991). Most authorities in the area of behavioural genetics hold that genetic factors are at least as important as environmental factors in determining intelligence (Bouchard and McGue, 1981). Plomin, Asbury, Dunn (2001), stated that some people have more inborn capabilities in music or visual perception or linguistic ability than others. This notwithstanding, the complex study of genetics has not yet revealed how genes influence giftedness.

Environmental influence

Evidence for environmental influences on intelligence comes from the following observations:

- Adoption studies demonstrate that children show some similarity in IQ to their adoptive parents

- Adoption studies also show that siblings reared together are more similar in IQ than siblings reared apart. This is true even when identical twins reared together are compared to identical twins reared apart.
- Biologically unrelated children raised together in the same house have similarity in IQ.
- IQ declines over time in children raised in deprived environments, such as understaffed orphanages or circumstances of poverty and isolation. Conversely, IQ improves in children who leave deprived environments and enter enriched environments.
- People's performance on IQ test has improved over time in industrialized countries. This strange phenomenon; which is known as the 'Flynn Effect' is attributed to environmental influences. It is argued that it cannot be due to heredity because the world's gene pool could not have changed in the seventy years or so since IQ testing began (Lupu, 2012).

Giftedness is not just a condition bestowed on some and denied to others. Rather, it is a set of traits that must be nurtured in order to reach full development (Gagne' 1985). The unique development of gifted traits can only occur through specific interactions within family units and later with appropriate training and education.

The importance of nurturing is clearly evidence by the many deprivation studies that have demonstrated the negative effects of malnutrition and lack of stimulation on infant functioning. The high proportion of first-borns among the gifted population further suggests the importance of environment to the full development of intellectual potential (Laylock, 1979).

No race, ethnic group, or culture holds monopoly on giftedness. However, the statistical probability of giftedness increases when a child's parents have higher than average intelligence and provides a better than average home environment. Other factors in the environment that

seem most clearly to affect the development of giftedness are the values and expectations of the culture, the socio-economic level of the family, with accompanying nutritional and health variables attitudes, and values, and the presence of environmental stimulation (Eysenck, 1979, Laylock, 1979). Many investigators have attempted to unravel the specific family variables associated with gifted level abilities in children. (example Colangelo and Pettman, 1983; Cornell, 1983, 1984). They found many favourable qualities in the families, particularly parental interest in child-rearing and a strong commitment to the development of the child's talents and abilities.

In examining the home environments and the early training of exceptional people in the arts, in athletics and in cognitive skill areas Bloom (1985); Bloom and Sosniak (1981) found that the home environment and the person's parents were almost entirely responsible for nurturing the child's early interests and the development of his or her skills.

Possible causes of the Flynn Effect

The precise cause of the Flynn effect (rise in IQ) is unclear. Researchers speculate that it may be due to environmental factors such as decreased prevalence of severe malnutrition among children, enhancing of skills through television and video games, improved schools, smaller family sizes, higher level parental education, or improvements in parenting. The evidence for the rise in IQ comes from: Adaptation studies, Nutrition studies and Educational intervention studies (Lupu, 2012).

Cultural and ethical differences

Studies have shown discrepancy in average IQ scores between whites and minority groups in the United States. Black, Native American, and Hispanic people score lower on average, than white

people on standardized IQ tests. Controversy exists about whether this difference is due to heredity or environment.

In this regard researcher Arthur Jensen, (1969) created a controversy by proposing that ethnic differences in intelligence are due to heredity. He based his argument on his own estimate of about 80 percent hereditability for intelligence.

Researchers Richard Hermstein and Charles Murray (1994) created a similar controversy with their book, "The Bell Curve". They also suggested that intelligence is largely inherited and that heredity at least partly contributes to ethnic and cultural differences.

Environmental explanations for cultural and ethnic differences

Many researchers believe that environment factors primarily cause cultural and ethnic differences. They argue that because of history of discrimination, minority groups comprise a disproportionately large part of the lower social class, and therefore cultural and ethnic differences in intelligence are really differences among social classes. The argument is, people in lower social classes have a relatively deprived environment. Children may as a result have: fewer learning resources, less privacy for study, less parental assistance, proper role models, lower quality schools and less motivation to excel intellectually. Some researchers argue that IQ tests are biased against minority groups and thus cause the apparent cultural and ethnic differences.

Environmental differences in intelligence are not yet well understood, but genetic studies show that they exist (Neisser, 1997). Based on this fact, Neisser opined that IQ must be subject to substantial environmental influences since heritability is well below 1.00 in any given child. The social factors include among others an overall cultural, social, school setting and a particular

family with a unique "Micro-environment" of experiences that are shared with no one else. Thus, differences in genetic endowment contribute substantially to individual differences while psychometric factors also contribute substantially to the development of intelligence.

This view was supported by many researchers who believed that there is a reaction range to IQ, which refers to the limits placed on IQ by heredity (Lupu, 2012). Heredity places an upper and lower limit on IQ that can be attained by a given person. The environment determines where within these limits the person's IQ will lie.

Commenting on factors contributing to giftedness, Winzer (1999) stated that children with gifts and talents are found at every economic level and in every stratum of society, throughout all ethnic, cultural, and racial groups. However, he argues no one yet understands what contributes most to giftedness, or why some gifted people achieve eminence and others fade in obscurity. The effects of heredity and environment are both important in the development of children who are gifted and talented, but also that the relative contribution of genetics & environmental factors is not clearly understood. Genes carry potential for various characteristics from parent to child down through the generations, but the genes alone cannot produce a human being. Each of us is born in a unique environment on which conditions act and react with one another. The individual human being is the total expression of all these complex and constantly interacting forces (Winzer, 1999).

A conservative seemly safe position about nature vs nurture as causal determinants of intelligence is that:

1. Both heredity and environment contribute to intelligence.
2. Heredity and environment interact in various ways.

3. Extremely poor as well as highly enriched environments can interfere with the realization of a person's intelligence, regardless of the person's heredity.
4. Although most people would accept a causal role of genetics, the exact genetic link and how it operates is very far from being understood – most psychologist agree that not a single gene but a complex combination of smaller genetic markers.
5. It is difficult to pin-down one single identifiable elements of the environment which directly influence IQ scores. Several environmental factors influence intelligence (Sternberg and Grigorenko, 1997).

2.2.2 Theories of Personality

Though numerous personality theories have been postulated over the years to account for individual differences in personality dimensions; ranging from type theories, psychoanalytic theories, behaviorist theories, social cognitive theories, humanistic theories, and biopsychological theories, the present work is anchored on trait theory proposed by Lewis Goldberg in 1992. This is because of its relevance in clustering personality in five (5) different subscales or domains known as the "Big Five." (Goldberg, 1992).

Trait theories

According to the *Diagnostic and Statistical Manual* of the American Psychiatric Association (1994), personality traits are "enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts." Theorists generally assume *a)* traits are relatively stable over time, *b)* traits differ among individuals (for instance, some people are outgoing while others are reserved), and *c)* traits

influence behavior. When people are describing a person, they constantly talk about traits to help define the person as a whole. Traits are said to be relatively constant; they do not usually change they are also bipolar; and they vary along a continuum between one extreme and the other for example friendly vs. unfriendly (American Psychiatric Association, 1994).

The most common models of traits incorporate three to five broad dimensions or factors. The least controversial dimension, observed as far back as the ancient Greek is simply extraversion and introversion (outgoing and physical-stimulation-oriented vs. quiet and physical-stimulation-averse).

Gordon Allport delineated different kinds of traits, which he also called dispositions. *Central traits* are basic to an individual's personality, while *secondary traits* are more peripheral. *Common traits* are those recognized within a culture and thus may vary from culture to culture. *Cardinal traits* are those by which an individual may be strongly recognized. In his groundbreaking book, Personality: A Psychological Interpretation, Gordon Allport (1937) both established personality psychology as a legitimate intellectual discipline and introduced the first of the modern trait theories (McAdams, 2009).

Raymond Cattell's research propagated a two-tiered personality structure with sixteen "primary factors" (16 Personality Factors) and five "secondary factors." For Cattell, personality itself was de ned in terms of behavioral prediction. He de ned personality as ‘‘that which permits a prediction of what a person will do in a given situation’’ (Cattell, 1963).

Hans Eysenck believed just three traits—extraversion, neuroticism and psychoticism—were sufficient to describe human personality. Differences between Cattell and Eysenck emerged due to preferences for different forms of factor analysis, with Cattell using oblique, Eysenck

orthogonal rotation to analyze the factors that emerged when personality questionnaires were subjected to statistical analysis. Today, the Big Five factors have the weight of a considerable amount of empirical research behind them, building on the work of Cattell and others. Eysenck, along with another contemporary stalwart in trait psychology **Guilford (1959)**, believed that the resultant trait factors obtained from factor analysis should be statistically independent of one another —that is, the factors should be arranged (rotated) so that they are uncorrelated or orthogonal (at right angles) to one another (McAdams, 2009).

In psychology, the Big Five Personality traits are five broad factor analysis/factors or dimensions of personality discovered through empirical research (Goldberg, 1992). These factors are Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience. Each factor consists of a number of more specific traits. For example, extraversion includes such related qualities as sociability, excitement seeking, and positive emotions.

The Big Five are a descriptive model of personality, and psychologists have developed theories to account for the Big Five. The Big Five factors and their constituent traits are summarized as follows:

Extraversion

Extraversion (also "extroversion") is marked by pronounced engagement with the external world. Extraverts enjoy being with people, are full of energy, and often experience positive emotions. They tend to be enthusiastic, action-oriented individuals who are likely to say "Yes!" or "Let's go!" to opportunities for excitement. In groups they like to talk, assert themselves, and draw attention to themselves. Introverts lack the exuberance, energy, and activity levels of extraverts.

They tend to be quiet, low-key, deliberate, and less dependent on the social world. (Costa and McCrae, 1992).

Agreeableness

Agreeableness reflects individual differences in relation to cooperation and social harmony. Agreeable individuals, value getting along with others, they are therefore considerate, friendly, generous, helpful, and willing to compromise their interests with others'. Agreeable people also have an optimistic view of human nature. They believe people are basically honest, decent, and trustworthy. Disagreeable individuals on the other hand place self-interest above getting along with others. They are generally unconcerned with others' well-being, and therefore are unlikely to extend themselves for other people. Sometimes their skepticism about others' motives causes them to be suspicious, unfriendly, and uncooperative.

Agreeableness is obviously advantageous for attaining and maintaining popularity. Agreeable people are better liked than disagreeable people. On the other hand, agreeableness is not useful in situations that require tough or absolute objective decisions. (Costa and McCrae, 1992).

Conscientiousness

Conscientiousness concerns the way in which we control, regulate, and direct our impulses. Impulsive individuals can be seen by others as colorful, fun-to-be-with, and funny. Conscientiousness includes the factor known as "Need for Achievement." Conscientious individuals avoid trouble and achieve high levels of success through purposeful planning and persistence. They are also positively regarded by others as intelligent and reliable. On the negative side, they can be compulsive perfectionists and workaholics. Furthermore, extremely

conscientious individuals might be regarded as stuffy and boring. Unconscientious people may be criticized for their unreliability, lack of ambition, and failure to stay within the lines, but they will experience many short-lived pleasures and they will never be called stuffy (i.e. dull, boring, unimaginative) (Costa and McCrae, 1992).

Neuroticism

Neuroticism, also known inversely as Emotional Stability, refers to the tendency to experience negative emotions. Those who score high on Neuroticism may experience primarily one specific negative feeling such as anxiety, anger, or depression, but are likely to experience several of these emotions. People high in Neuroticism are said to be emotionally reactive. They respond emotionally to events that would not affect most people, and their reactions tend to be more intense than normal. Their negative emotional reactions tend to persist for unusually long periods of time, which means they are often in a bad mood. These problems in emotional regulation can diminish a neurotic's ability to think clearly, make decisions, and cope effectively with stress. (Costa and McCrae, 1992).

At the other end of the scale, individuals who score low in Neuroticism are less easily upset and are less emotionally reactive. They tend to be calm, emotionally stable, and free from persistent negative feelings. Freedom from negative feelings does not mean that low scorers experience a lot of positive feelings; frequency of positive emotions is a component of the Extraversion domain. (Costa and McCrae, 1992).

Openness to Experience

Openness to experience describes a dimension of personality that distinguishes imaginative, creative people from down-to-earth, conventional people. Open people are intellectually curious, appreciative of art; they tend to be compared to closed people who are more aware of their

feelings. They therefore tend to hold unconventional and individualistic beliefs, although their actions may be conforming (see agreeableness). People with low scores on openness to experience tend to have narrow, common interests. They prefer the plain, straightforward, and obvious over the complex, ambiguous, and subtle. They may regard the arts and sciences with suspicion, regarding these endeavors as abstruse or of no practical use. Closed people prefer familiarity over novelty; they are conservative and tend to be resistant to change. (Costa and McCrae, 1992).

Consensus on the Big Five

In a 1981 symposium in Honolulu, four prominent researchers, Lewis Goldberg, Naomi Takemoto-Chock, Andrew Comrey, and John M. Digman, reviewed the available personality tests of the day. They concluded that the tests which held the most promise measured a subset of five common factors, just as Norman had discovered in 1963. This event was followed by widespread acceptance of the five factor model among personality researchers during the 1980s, as well as the publication of the NEO PI-R five-factor personality inventory by Costa and McCrae in 1985.

One of the most significant advances of the five-factor model was the establishment of a common taxonomy that demonstrates order in a previously scattered and disorganized field. What separates the five-factor model of personality from all others is that it is not based on the theory of any one particular psychologist, but rather on language, the natural system that people use to understand one another (Barrick and Mount, 1998).

A number of meta-analysis/meta-analyses have confirmed the predictive value of the Big Five across a wide range of behaviors. Saulsman and Page (2004) examined the relationships between

the Big Five personality dimensions and each of the 10 personality disorder categories in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). Across 15 independent samples, the researchers found that each disorder displayed a unique and predictable five-factor profile. The most prominent and consistent personality predictors underlying the disorders were positive associations with Neuroticism and negative associations with Agreeableness.

The Big Five contain important dimensions of personality. However, some personality researchers argue that this list of major traits is not exhaustive. Some support has been found for two additional factors: excellent/ordinary and evil/decent. However, no definitive conclusions have been established (Santrock, 2008).

A six dimensional HEXACO Model of Personality Structure was proposed by Ashton and Lee, (2008). The HEXACO personality traits/factors are: Honesty-Humility **(H)**, Emotionality **(E)**, Extraversion **(X)**, Agreeableness **(A)**, Conscientiousness **(C)**, and Openness to Experience **(O)**. The three dimensions - Extraversion, Conscientiousness and Openness to Experience are considered to be basically the same as their counterpart dimensions in the Big Five Model. However, in the HEXACO model, Honesty-Humility, Emotionality and Agreeableness differ from the Neuroticism and Agreeableness factors of the Big Five Model. Ashton and Lee especially emphasize the Honesty-Humility (H) factor as differentiating the HEXACO model from other personality frameworks. Specifically, the H factor is described as sincere, honest, faithful/loyal, modest/unassuming, fair-minded, versus sly, deceitful, greedy, pretentious, hypocritical, boastful and pompous. The H factor has been linked to criminal, materialistic, power-seeking and unethical tendencies.

Trait models have been criticized as being purely descriptive and offering little explanation of the underlying causes of personality. Eysenck's theory, however, does propose biological

mechanisms as driving traits, and modern behavior genetics researchers have shown a clear genetic substrate to them. Another potential weakness of trait theories according to Aston and lee is that they may lead some people to accept oversimplified classifications – or worse, offer advice – based on a superficial analysis of personality. Finally, trait models often underestimate the effect of specific situations on people's behavior.

2.3 Empirical Review

2.3.1 Giftedness and academic achievement

Many people equate giftedness with achievement, and this view of giftedness has been in focus from the very beginning, with Sir Francis Galton's 1869 study of eminent men. Today, educators are still looking for children who have the potential to be eminent men (or women). The eminent child in school is the winner of the competition for grades or awards. All the emphasis is placed on products, performance, portfolios – the external trappings urging the child to keep up the hard work throughout life, performing and achieving. In this context, giftedness has been labeled by schools as task committed hard working students, who get good grades. These students are seen as the greatest potential for achievement in our competitive society. Silverman (2007) however argued that when we equate giftedness with achievement in school, or with the potential for noteworthy achievement in adult life, we create an inequitable criterion for children of color, children who are economically disadvantaged, and females. Throughout history, those who attain eminence have been predominantly white, middle or upper class males (Silverman and Miller, 2007). It is found however by contrast, that giftedness is color blind, and is found in equal proportion in males and females (Silverman and Miller, 2007), and is distributed across all socio-economic levels (Dickinson, 1970). Zigler and Farber, (1985) also found that the percentage of gifted students among upper classes may not be higher but that the vast majority of

gifted children come from the lower classes. They maintain that throughout the world, there are more poor gifted children than rich ones.

2.3.2 Identifying the gifted

Identification of giftedness has been one of the main problems in gifted education since the beginning of the 20th century (David 2011). The most famous longitudinal study of giftedness has been the "Terman Studies of Giftedness." Terman had screened 1444 "Original Terman children" in California in 1921, and an "additional" 84 (altogether: 856 males and 672 females) whose average age was 10, and that group had been studied until the end of the 20th century (Terman and Oden, 1935, 1947, 1951, 1954; Terman et al; 1990). The first class for gifted children was opened by Leta S. Hollingworth in New York in 1922 (Stanley, 1990).

The formal identification of giftedness first emerged as an important issue for schools, as the instruction of gifted students often presents special challenges. During the 20th century, gifted children were often classified via IQ tests; however, recent developments in theories of intelligence have raised serious questions regarding the appropriate uses and limits of such testing. Colangelo and Davis, (2003), stated that most identification happens in schools and is for the purpose of selecting students to participate in the school's gifted program. However, the process of identifying the gifted person is not an easy one. The procedure used to identify children is determined by the type of giftedness one is concerned with; for instance, the instrument/method used to identify the intellectually gifted may be different from identifying gifted in sports.

Much of the success of programs for students who are gifted is contingent upon sound identification procedures (Winzer, 1993). Borland (1989) suggested that the process of selecting

students and placing them in appropriate programs is the most difficult, controversial, and thankless of all the tasks involved in developing and implementing programs for the gifted and part of the difficulty lies in the wide range of areas to be assessed. Outstanding ability comes in a number of different forms and requires a variety for ongoing identification procedures as well as a variety of special education programs. This has led to diversifying the process of identifying learners with gifts and talents, in terms of the instruments.

As generally accepted, a gifted child would have the potential to perform at a level that is significantly beyond that of the majority of children of the same age, in one or more skill and problem solving, physical, or interpersonal skills. Although, forms of giftedness may vary considerably between children, research shows that young gifted children may show a number of the following skills and abilities (Winzer, 1993):

1. Cognitive (thinking skills)

These include ability to master a new skill with unusual speed, quick and accurate recall and ability to recall skills and information presented in the past, remembering and making confidence and present experiences. Sometimes, the child may also exhibit a well advanced sense of humor and have increased alertness to features in the environment. Apart from being resourceful the child may also exhibit deeper knowledge than other children of the same age.

2. Learning style

The child may demonstrate uncommon and insatiable curiosity and desire to learn. Usually such children are highly motivated in their respective areas of interest and have a tendency being frustrated if not intellectually challenged. This child has an ability to concentrate for extended periods in areas of interest and may typically have advanced planning skills for their age and

may notice unusual imaginative ways of doing things. Such children are full of enthusiasm and excitement when learning new concepts or roles.

3. Motor (physical) abilities

This is the development of particular motor skills earlier than other children of same chorological age. Such a child is usually quick to learn new skills.

4. Speech and language skills

The child demonstrates well developed work knowledge and language skills compared to other children of the same age. He is able to make creative use of language- for example, a song or stories and having an advanced sense of humor. The child may be able to adapt and vary their language to match the understanding of older or younger children and adults in the ability to understand and carry out complicated instruction for their age. Other signs may include reading, writing, using numbers in ways that are advanced for their age and advanced behaviour.

5. Social skills

The child shows sensitivity to the needs or feelings of others and uses of verbal skills to handle conflict or to influence another child's behavior. He/she will often organize and direct an activity and may be seen as 'bossy'. He/she is likely to be seeking out and enjoy the company of other children and adults and usually gets on better with older children rather than children of his age. He/she may be able to take on responsibilities usually given to considerably older children and will usually demonstrate an early interest in social issues involving injustices.

6. Visual and spatial skills

Such children demonstrate advanced visual and spatial abilities, for example with puzzle, building and construction materials, drawing, design and or painting (National Association of Gifted Children, 2007).

Many schools in America use a variety of assessments of students' capability and potential when identifying gifted children. These may include portfolios of students' work, classroom observations, achievement tests and IQ test scores (Johnsen, 2004). Early identification posses hurdles that stops many educators from taking the first step to help their gifted students because physical, social, and cognitive development in young children is rapid and uneven. For this reason, identification demands alternative selection procedures, often combining testing with other methods (Smutny, 1999).

The process or method of identification of the gifted in advanced countries like Europe, America, Japan etc according to Mba (1995), are:

Teachers' observation and school records: Teacher's observation and nomination is based on their understanding of the students' ability and performance on intelligence tests. This method is said to have been frequently used with good measure of validity, especially when teachers use some rating scales and assessment. Chances are that teachers may fail to identify correctly children who are gifted and include those who are not. Infact, teachers are said to be successful only about 10% to 50% of the time in picking out the gifted children in their classes (Renzulli 1978, Obani 1987).

Parents' observation: Parents observation of giftedness in their children is based on comparison with other children in the family. This method could be reliable except for the tendency that parents rate their children's abilities more highly than they should.

Peer nomination: Classmates may be in good position to notice giftedness in their mates except that jealousy of the gifted may cloud their sense of judgement. This notwithstanding, they could along with other methods help in identifying giftedness.

Intelligence tests: In America and many other European countries, the primary and most commonly used method employed in identifying children with high cognitive abilities is the use of the Stanford Binet or Wechsler Intelligence Tests. These tests have come under severe criticism for failing to assess such aspect of intelligence as creativity and leadership ability. They are also considered inadequate for identifying giftedness in culturally disadvantaged communities. Regardless of these criticisms, intelligence tests are regarded as providing the most objective, if not reliable measure of intelligence.

Achievement tests: These are standardized tests that are sometimes used in schools to determine those children who perform at levels above their age norms or grades. These may serve as screening instruments and children who excel are selected for further assessment e.g. National Common Entrance Examinations, JAMB are forms of standardized tests.

Self-nomination: Gifted individuals can be identified through self rating scale. This can be achieved by presenting a set of characteristics on a scale and asking the children to tick the ones that they exhibit. Through the characteristics picked, the assessor would be able to infer into the child's behaviours.

Creativity measures: These are relatively newly designed tests designed to measure talent or creativity as an aspect of giftedness. The tests are based on civil Ford's divergent thinking and they attempt to identify children who have potentials for creativity as distinct from high

cognitive abilities. Such children are those who might eventually become great musicians, film stars, scriptors, artist etc.

A leader in testing issues, Sattler (1992, p 39) also noted that a typical system for identifying gifted children would most likely include parent and teacher's reports of the child's behaviour, a review of his/her creative work, direct observation of the child by a professional like trained school psychologist, and standardized tests.

In a Research "Toward a New Paradigm for Identifying Talented potential" Frasier and Passow (1994) found that:

- Youngsters with talent potential are found in cultural groups across all economic strata, and in all areas of human endeavor;
- New constructs of giftedness reflect a multifaceted, multicultural, multidimensional perspective and are defined by traits, attitudes and behaviors to be nurtured rather than by static test performance;
- There are absolute attributes of giftedness, traits, aptitudes, and behaviors which characterize high performance cross-culturally as well as specific attributes or behaviors which manifest themselves in particular cultural contexts or settings;
- Increased sensitivity to and understanding of culturally determined and environmentally affected behaviors will help educators to recognize and interpret performance indicators of talent potential in the context in which they are displayed;
- The use of multiple criteria and authentic assessment techniques – instruments and assessment tools other than intelligence and achievement tests – is widely advocated; and

- The provision of rich learning opportunities for all students provides a means for children to display their gifted behaviors and talent potential.

The researchers further suggested that group achievement and intelligence tests tend to underestimate the IQs of very bright children and explained that group tests may be appropriate for screening, but they are not appropriate for making placement decisions.

For effective identification many psychologists recommend a case study approach to identifying gifted students. This entails gathering many kinds of information about the student in different contexts: test scores, grades, example of work, projects, portfolios, letters or ratings from community or church members, self ratings, nominations from teachers or peers, and so on (Renzulli and Reis, 1991; Sisk, 1988). For recognizing artistic talent, experts in the field can be called in to judge the merits of a child's creations. Science projects, exhibition, performances, auditions, and interviews are all possibilities. Creativity tests may identify some children not picked up by other measures, particularly minority students who may be at a disadvantage on the other types of tests, (Renzulli and Reis, 1991).

2.3.3 Methods of identifying the gifted in Nigeria

In Nigeria, schools have generally and traditionally recognized exceptionally bright pupils through consistent high academic performance over a period of time (Mba 1995). Despite the high performance however, nothing is usually done to help such pupils to develop their gift or talent, apart from occasional verbal praise by teachers or their usual end-of-year token prizes by schools.

The situation is summed up thus:

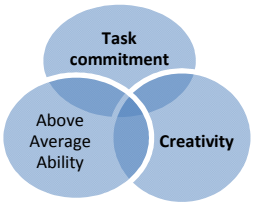
> *Gifted education, since its inception 10 years ago in Nigeria, is still an isolated and exclusive program. Although there are private schools existing in different parts of the country where academic excellence is emphasized, there is no evidence of any form of an articulated programming to meet the needs of gifted children who may be found in such schools. Even the two schools which currently offer provisions for gifted and talented children in the country do so only at the secondary level of education (*Kolo, 1997, p 80).

Kolo further explained that, at present, there are no articulated preschool gifted education programs in Nigeria; even when an important aspect of which determines the success of gifted education programs anywhere is the nature of the identification plan (Karnes, 1980).

2.3.4 Some basic giftedness models around the world.

There are many models for the identification and nurturing of the gifted, however, only the most well spread, discussed and perceived as effective American ones are described as follows:

1. Renzulli's Schoolwide Enrichment Model (SEM) Renzulli 1978; Renzulli & Reis, (1991).



Key: Renzuli's three rings conception of giftedness (Renzuli, 1978)

This conception encompasses three interrelated components and is described as follows:

Gifted behavior consists of behaviour that reflect an interaction among three basic clusters of human traits – above average ability, high levels of task commitment, and high levels of creativity. Individuals capable of developing gifted behavior are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Persons who manifest or are capable of developing an interaction among

the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs (Renzulli and Reis, 1997, p.8).

- 'Above average' meant among the top 15-20% of people in any area of human endeavour.
- 'Task commitment' meant 'perseverance, endurance, hard work, dedicated practice, self-confidence and a belief in one's ability to carry out important work'. Task commitment is a very specific form of motivation focused on the task in hand.
- High levels of creativity describes those aspects of human activity and involvement where a premium is placed on the development of original material and products that are purposefully designed to have an impact on one or more target audiences (Renzulli, 1986).

None of the three 'clusters' of traits noted above is *by itself* sufficient to define a child as gifted. It is the interaction among the three clusters that research has shown to be the necessary ingredient for creative/productive accomplishment (Renzulli, 1978, p. 182).

This model fits into the current study because it reflects the interactive influences of personality and environment which were examined as they relate to the gifted and average sample.

2. ***Tannenbaum's 'sea star' model of giftedness*** **1983** addresses the relationships between ability and achievement - 'the links between promise and fulfillment'– and clearly identifies the roles of both the child's personality and the environment in which he or she is brought up and educated. These include:
   - Relationship between ability and achievement
   - Identifies role of personality and environment
   - Based on highly able children and teenagers

- Giftedness of children is potential for adult activity
- Five (5) internal and external variables (points on star). All 5 must be present for ability to translate into achievement
- Producers (develop) Performers (interpret/recreate)
- Creativity or proficiency
- General ability: testable general intelligence, different levels for different accomplishments
- Special ability: capacity/affinity for particular work plus capacity to think
- Non-intellective factors: motivation, self-concept, persistence, mental health etc.
- Environmental: societal choices, family, peers, school, community, economic, social, legal,
- political institutions
- Chance: unpredictable events, teachers, job market
- Static and dynamic elements (Tannenbaum, 1983, p 208)

3. Gagné's Differentiated Model of Giftedness and Talent (Gagné, 2004, 2009). Gagné's model differentiates between giftedness and talent. According to him, giftedness is the possession and use of inborn abilities, in at least one ability domain, which places a child at percentile 85 of his or her age peers. Talent is the superior mastery of developed abilities and knowledge, in at least one field, that places a child's achievement at percentile 85 of his or her age peers.

According to Gagné, it is necessary to be gifted in order to become talented. In order for a gift to become a talent, training and practicing is necessary. Two types of catalysts, intrapersonal and environmental would make the difference between gifts that do or do not develop into talent. The

intrapersonal catalysts include motivation and temperament; the environmental catalysts include the surroundings: e.g. geography, demography, sociology; persons: e.g. family size, personality and parenting style; influencing others: e.g. teachers, mentors, and significant events: e.g. death in the family, moving to another country. All these components are combined into the "developmental process", and at the end of the process, depending also on chance, the person would either be labeled as "talented" or not. In addition, there have been programs for identifying and nurturing the gifted on all continents.

2.3.5 The purpose of identification

Implicit in any effort to define and identify a target group is the assumption that special services will be made available for such persons. For the gifted and talented, there are two generally accepted purposes for providing special education for high potential youth. Neag Centre for Gifted and Talent Education and Talent Development (1999) stated that, the first purpose is to provide young people with opportunities for maximum cognitive growth and self-fulfillment through the development of expression of one or a combination of performance areas where superior potential may be present. The second purpose is to increase society's reservoir of persons who will help to solve the problems of contemporary civilization by becoming producers of knowledge and art rather than mere consumers of existing information. The productive and creative work of scientists, authors, artists, and leaders in all works of life no doubt, provide benefits to society and also result in feelings of accomplishment, self-fulfillment, and a positive attitude about one's self.

The Federal Government of Nigeria, though far behind other nations of the world in providing special programs for the gifted stated:

> *Opportunities will be provided for exceptionally gifted and talented children to develop their talents, natural endowments/traits at their own pace in the interest of the nation's economic and technological development* (National Policy on Education 2013, p 66).

Furthermore, the Federal and State Ministry of Education/FCT education Secretariat shall, in collaboration with appropriate bodies, provide special programmes for gifted and talented persons as well as other categories of special needs persons, especially in:

- Early identification; intervention, placement and nurturance.
- Early admission into early childcare education, kindergarten, primary, secondary and tertiary institutions.
- Provision of the necessary facilities to effectively challenge and develop the intelligence of these persons.
- Monitoring the progress of these persons with special needs from early childcare education, kindergarten, primary, secondary and tertiary levels and out of school transition (NPE, 2013, p 67).

The Federal Ministry of Education shall in addition:

- Contribute to the funding of special education programmes across the country
- Be responsible for policy formulation and modification relating to special education programmes.
- Encourage national and international donor agencies/financial institutions to assist in funding and implementing special education programmes.

In Kano State, the establishment of science secondary schools from 1977 – 1993 for the explicit purpose of providing science education at secondary level with the following hope and aspirations among others can be viewed as an effort to recognize and encourage giftedness.

- That more secondary school leavers with science background will eventually be produced.
- That in the long run, a crop of high level manpower (doctors and engineers) will be available.
- That the expected insignificant few that might not necessarily be doctors and engineers might find themselves in the polytechnics for HND/OND courses in:
    - Engineering (civil and mechanical).
    - Agro-allied, food technology, lab-technology fields, Health and Nursing care (Adamu, 2002).

Students were selected on merit through a state organized science bias standardized tests administered to JSS three students. From its inception in 1977, a total of 6,587 science students were produced, with 1,195 of them obtaining university level examination success – 1,053 scientists, doctors, and engineers – the much needed manpower for technological development (Adamu, 2002).

Two of the science secondary schools – Taura and Kafin Hausa were transferred to Jigawa State when it was created in 1996.

Jigawa State as a young state compared to others, saw the need to extend the frontiers of quality basic education to include all category of learners so established Jigawa State Academy for the Gifted and Talented, Bamaina in 2011. (Report of the Technical Committee on the establishment of school for the gifted and talented, 2011). Some justification for the establishment of the school according to the committee report is:

1. Educators believe that gifted students require special education services because their learning needs differ significantly from those of the general population. They learn more rapidly, are able to understand more abstract and complex ideas, are able to transform existing knowledge into new and useful forms etc. Special service may enhance these abilities by allowing the individual children to develop at their own pace.

2. In addition, many educators advocate placing gifted students in regular classroom with students of diverse ability levels, known as inclusive education. Considerable evidence however, suggests that regular classroom teachers do not receive the training and support to appropriately modify the curriculum to meet the needs of gifted students.

3. The establishment of the school for the gifted and talented children can be justified in view of the limited quota (three per state) in the only existing institution for the gifted, the Federal Government Academy, Suleja.

Admission is based strictly on merit and students are drawn from within and outside the state on prorate basis of 80:20 for indigenes and non-indigenes respectively.

2.3.6 Classification of giftedness

There are no clear-cut demarcation in classifying gifted and talented children as classification may vary from country and even with regions and school district. These differences notwithstanding, giftedness has been classified by Avoke (2008) into six broad categories of:

- General intellectual ability
- Specific intellectual ability
- Creative or productive thinking

- Leadership ability
- Visual and performing arts
- Psychomotor ability

According to Avoke, it is expected that individuals should manifest or show giftedness or talentedness in either one area or more. For instance, a student could apart from being generally intellectually gifted can also show signs of leadership or can be considered a leader if a sociogram is taken of all his mates in class. In exceptional cases, this student can have high abilities in visual and performing arts as well. Also, a student can exhibit a highly exceptional productive thinking ability, which perhaps could be the single area where his/her giftedness shows up.

These examples suggest that it is common for individuals to be gifted in more than a single area while it is also possible for giftedness to manifest in only a single area (Avoke, 2008).

Gifted and talented children are classified into three groups namely: - talented, gifted and highly gifted (Garllagher 1975).

- Talented children are those with IQ range of 116+. Unlike the gifted and highly gifted, talented children excel in special areas such as language, grammar, music, arts or poetry.
- Gifted children who have the IQ rang of 132+ and are referred to as superior, brilliant or intelligent. They usually excel in almost all subjects and are referred to as all rounds: They have the ability to absorb, synthesize and evaluate abstract concepts.
- Highly gifted children are those associated with characteristics that have been used for those referred to as genius, precocious or prodigious children. They have an IQ range of

140+. Children in this group are usually very creative, which is the highest form of the application of intellect (Gardener, 1983).

Classification of the gifted according to levels (Wasserman 2003):

Level	IQ Range	Standard Deviations
Profoundly Gifted	above 175	+5 SD
Exceptionally Gifted	160 – 174	+4 SD
Highly Gifted	145 – 159	+3 SD
Gifted	130 – 144	+2 SD

Classification systems do not appear in relation to giftedness as they do in fields such as intellectual ability (Winzer 1999). She suggested that severity levels of giftedness would not make much sense; and that it would perhaps be better if we call a person mildly or moderately gifted instead of severely or profoundly gifted. Any classification she maintains should revolve around the varied components that contribute to giftedness.

2.3.7 Characteristics / signs of gifted children

Some characteristics of gifted students that parents and schools could use to see if they think a child is gifted (Silverman 1993) may include the underlisted.

- Gifted students are often perfectionist and idealistic.
- Gifted students may experience heightened sensitivity to their own expectations and those of others.
- Gifted students are asynchronous.

- Some gifted students are "mappers" (sequential learners). While others are "leapers" spatial learners.
- Gifted students may be so far ahead of their chronological age mates that they know half the curriculum before the school year begins!
- Gifted children are problem solvers.
- Gifted students often think abstractly and with such complexity that they may need help with concrete study and test-taking skills.
- Gifted students who do well in school may define success as getting an "A" and failure as any grade less than an "A".

Silverman further explained that, gifted students usually have unusual talent in one or occasionally two areas. Below are six areas of giftedness earlier cited by Avoke (2008), under classification where no child is said to be gifted in all six, but some may be in more than one area. Within specific academic ability, students again usually have one or two subjects that they are best in and passionate about:

Creative Thinking	-	Leadership
General Intellectual Ability	-	Psychomotor
Specific Academic Ability	-	Visual/Performing Arts

Each area has the following characteristics:

1. Creative thinking

- Independent thinker
- Exhibits original thinking in oral and written expression
- Comes up with several solutions to a given problem

- Possesses a sense of humor
- Creates and invents
- Challenged by creative tasks
- Does not mind being different from the crowd

Creative thinking manifest in fluent, flexible, original and elaborate ways of thinking. Many people have associated creativity with superior ability to generate, visualize or illustrate new ideas, concept or products (Avoke, 2008).

2. General intellectual ability

- Formulates abstractions
- Possesses information in complex ways
- Observant
- Excited about new ideas
- Enjoys hypothesizing
- Learns rapidly
- Uses a large vocabulary
- Inquisitive
- Self-starter

To have a general intellectual ability, a child would have the potential to perform at a level that is significantly beyond that of the majority of children the same age in one or more skill or problem solving, physical or interpersonal skills (Kirk, 1993).

3. Specific academic ability

- Good memorization ability
- Advanced comprehension
- Acquires basic skill knowledge quickly

- Widely read in special interest area
- High academic success in special interest area
- Pursues special interest with enthusiasm and vigor

A child with specific academic ability usually excels in almost all subjects and are referred to as all rounders (Gallaher, 1975).

4. Leadership

- Assumes responsibility
- High expectations for self and others
- Fluent, concise self expression
- Foresees consequences and implications of decisions
- Good judgement in decision making
- Likes structure
- Well-liked by peers
- Self-confident
- Organized

A child who has leadership giftedness has an extraordinary ability to organize people and lead them with charisma (Milgram, 1991).

5. Psychomotor

- Challenged by difficult athletic activities
- Exhibits precision in movement

- Enjoys participation in various athletic opportunities
- Excels in motor skills
- Well coordinated
- Good manipulative skills
- High energy level

Psychomotor abilities manifest in the development of particular motor skills earlier than other children of same chronological age. Such children are very good in sporting activities (Mba, 1995).

6. Visual/performing arts

- Outstanding in sense of spatial relationships
- Unusual ability in expressing self, feeling, moods, etc., through dance, drama, music, etc.
- Good motor coordination
- Exhibits creative expression
- Desire for producing “own product” (not content with mere copying)
- Observant

Children with visual and spatial skills demonstrate advanced visual and spatial abilities with puzzle, building and construction materials, drawing, design and painting (Mba, 1995).

It was found that perfectionism, sensitivity and intensity are three personality traits associated with giftedness (Silverman 2002). They are derived from the complexity of the child's cognitive and emotional development.

The general characteristics of the gifted are classified into two groups: positive and reticent as follows (Kolo 1993):

Positive characteristics

The following are above-average intelligence-based characteristics of gifted and talented children:

- Capacity for deep observation of phenomena or occurrences
- Ability and tendency for independent learning or academic work
- Tendency for persistent questioning, especially during learning situations
- Ability to understand difficult and abstract concepts and ideas
- Capacity for critical reasoning and thinking attitude
- Ability to concentrate for long periods in learning situations
- Demonstration of interest in seeking to understand relationships between causes, occurrences and effects
- Capacity for remembering a great deal of information
- Tendency for correctly predicting expectations, especially in learning situations
- Capacity for long periods of attentiveness
- Possession of high amounts of vocabulary and at levels higher than educational placement or expectation.

The creativity-based positive characteristics include the following:

- Demonstration of a liking for well-ordered situations and objects
- Very good use of verbal skills in oral communication or writing
- Liking for brainstorming or free debate sessions
- Very good sense of humour
- Tendency to express ideas that appear silly and wild (to the average individual)
- Tendency to fantasize or day dream
- Fondness for re-explaining or expressing situations differently from how everyone else perceives them
- Eagerness to learn to use experimental approaches
- Tendency to be outgoing

Positive characteristics of giftedness and talents that are based on motivation for task commitment include the following:

- Tendency to remain calm when under pressure
- Demonstration of conviction about own ideas
- Willingness to illustrate positive image of self
- Enjoys being involved in complex situations
- Tendency to be organized most of the time
- Tendency to have versatile attitudes in everything

- Demonstration of eagerness to achieve or complete assignment
- Tendency to be persistently goal-directed/goal-oriented
- Demonstration of eagerness to be involved in solving problems

Reticent characteristics

Hidden or latent characteristics of persons who have above-average intelligence include:

- Sticking to point of view when convicted and even when others reject them
- Non-conformity with the illogical
- Fondness for criticizing others and self
- Contempt for common or ordinary low-level knowledge

Creativity-based reticent characteristics include:

- Inappropriate social relations
- Occasional exhibition of negative attitude and performance
- Fondness for playing pranks on others
- Preference for own approaches or styles in doing things
- Fondness for resorting to resistance to directives and sameness
- Tendency to be gullible
- Poor coping abilities in routine and drill activities
- Disorganized personality traits

Reticent characteristics that are based on the trait of motivation for task commitment include:

- Non expression of a need for help in activities expected to be engaged in
- Rebelliousness
- Tendency for easily getting frustrated in the face of inactivity or when progress is not achieved in the face of all odds
- Dislike for interruptions or disruptive activities
- Preference for working or relating with those who can keep pace with self

These general characteristics (positive and reticent) are usually manifested in gifted and talented children broadly, selectively, occasionally, or most often, in daily life activities in the classroom, school and even the home Betts and Neihart, (1988).

Three types of characteristics of gifted children: general behavioral, learning, and creative characteristics are presented by Eric Clearinghouse on Handicapped and Gifted Children (2007) as follows:

General behavioral characteristics

Gifted children's behavior differs from that of their age-mates in the following ways:

- Many gifted children learn to read early, with better comprehension of the nuances of language. As much as half the gifted and talented population has learned to read before entering school.
- Gifted children often read widely, quickly, and intensely and have large vocabularies.
- Gifted children commonly learn basic skills better, more quickly, and with less practice.

- They are better able to construct and handle abstractions.
- They often pick up and interpret nonverbal cues and can draw inferences that other children need to have spelled out for them.
- They take less for granted, seeking the "hows" and "whys."
- They can work independently at an earlier age and can concentrate for longer periods.
- Their interests are both widely eclectic and intensely focused.
- They often have seemingly boundless energy, which sometimes leads to a misdiagnosis of hyperactivity.
- They usually respond and relate well to parents, teachers, and other adults. They may prefer the company of older children and adults to that of their peers.
- They like to learn new things, are willing to examine the unusual, and are highly inquisitive.
- They tackle tasks and problems in a well-organized, goal efficient manner.
- They exhibit an intrinsic motivation to learn, find out, or explore and are often vary persistent. "I'd rather do it myself" is a common attitude.

Learning characteristics

Gifted children are natural learners who often show many of these characteristics:

- They must show keen powers of observation and a sense of the significant; they have an eye for important details.

- They may read a great deal on their own, preferring books and magazines written for children older than they are.
- They often take great pleasure in intellectual activity.
- They have well-developed powers of abstraction, conceptualization, and synthesis.
- They readily see cause-effect relationships.
- They often display a questioning aptitude and seek information for its own sake as much as for its usefulness.
- They are often skeptical, critical, and evaluative. They are quick to spot inconsistencies.
- They often have a large storehouse of information about a variety of topics, which they can recall quickly.
- They readily grasp underlying principles and can often make valid generalization about events, people, or objects.
- They quickly perceive similarities, differences, and anomalies.
- They often attack complicated material by separating it into components and analyzing it systematically.

Creative characteristics

Gifted children's creative abilities often set them apart from their age-mates. These characteristics may take the following forms:

- Gifted children are fluent thinkers, able to generate possibilities, consequences, or related ideas.

- They are flexible thinkers, able to use many different alternatives and approaches to problem solving.
- They are original thinkers, seeking new, unusual, or unconventional associations and combinations among items of information.
- They can also see relationships among seemingly unrelated objects, ideas, or facts. They are elaborate thinkers, producing new steps, ideas, responses, or other embellishments to a basic idea, situation, or problems.
- They are willing to entertain complexity and seem to thrive on problem solving.
- They often are aware of their own impulsiveness and irrationality, and they show emotional sensitivity.
- They are extremely curious about objects, ideas, situations, or events.
- They often display intellectual playfulness and like to fantasize and imagine.
- They can be less intellectually inhibited than their peers are in expressing opinions and ideas, and they often disagree spiritedly with others' statements.
- They are sensitive to beauty and are attracted to aesthetic values.

At its 30th Anniversary, (1979 – 2009), the Gifted Development Centre summarized what they have learned about Gifted Children some of which include:

1. When parents fail to recognize child's gifts, teachers may overlook them as well. Dickinson (1970) found that half of the children she tested with IQs of 132 or above were referred for behavior problems and not seen as gifted by their teachers or parents.

2. Children and adults can be assessed at any age. However, the ideal age for testing is between 5 & 8 years. By the age of 9, highly gifted children may hit the ceiling of the tests, and gifted girls may be socialized to hide their abilities. Unless they are absolutely certain they are right, gifted girls are often unwilling to guess, which lowers their IQ scores.

3. IQ testing in childhood clearly demonstrates the quality of intelligence between males and females. Until the IQ test was developed, most of society believed in the "natural superiority of males." Even now, the fact that most of the eminent are men leads some to believe that males are innately more intelligent than females.

4. Gifted children are asynchronous. Their development tends to be uneven, and they often feel out-of-sync with age peers and with age-based school expectations. They are emotionally intense and have greater awareness of the perils of the world. They may not have the emotional resources to match their cognitive awareness. They are at risk for abuse in environments that do not respect their differences.

5. Gifted children may have hidden learning disabilities. Approximately one-sixth of the gifted children who come to the Centre for testing have some type of learning disability-often undetected before the assessment-such as central auditory processing disorder (CAPD), disabilities with visual processing, sensory processing disorder, spatial disorientation, dyslexia, and attention deficits. Giftedness masks disabilities and disabilities depress IQ scores. Higher abstract reasoning enables children to compensate to some extent for these weaknesses, making them harder to detect. However,

compensation requires more energy, affects motivation, and breaks down under stress or when the child is fatigued.

6. New constructs of giftedness reflect a multifaceted, multicultural, multidimensional perspective and are defined by traits, aptitudes and behaviors to be nurtured rather than by static test performance.

7. There are absolute distributions of giftedness, traits, aptitudes, and behaviors which characterize high performance cross-culturally as well as specific attributes or behaviors which manifest themselves in particular cultural contexts or settings.

8. Increased insensitivity to and understanding of culturally determined and environmentally affected behaviors will help educators to recognize and interpret performance indicators of talent potential in the context in which they are displayed.

9. The use of multiple criteria and authentic assessment techniques-instruments and assessment tools other than intelligence and achievement tests-is widely advocated.

10. The provision of rich learning opportunities for all students provides a means for children to display their gifted behaviors and talent potential.

2.3.8 Manifestations of giftedness and talents in regular classrooms and schools

Findings of a survey by Milgram (1991); cited by Kolo (2006) showed that talent identification and development on the basis of gifted education practices across the world revealed a number of ways in which giftedness and talents are manifested in regular classroom and schools as follows:

- **Linguistic talents**: This specifically refers to the extraordinary ability to acquire and use multiple languages. Apart from their first language, linguistically talented children

usually have the ability to acquire two or more other languages very quickly and use such languages proficiently.

- **Mathematical talents**: This talent is manifested in the form of a precocious aptitude for calculations and the mathematical sciences. Children who are mathematically talented are usually effective and efficient in the mathematical sciences, even at early school age.

- **Artistic talents**: This refers to the abilities of children who are very skilful in fine and applied arts. These abilities are manifested in very excellent painting, drawing, carving/sculpturing and designing skills.

- **Manual dexterity spatial talents**: This refers to proficiency in the use of the hands and fingers to manipulate objects and to use immediate space efficiently. Children with such talents have a sense of spatial orientation that enables them to handle objects and equipment in an extraordinary manner.

- **Motor-kinaesthetic talents**: Children, whose physique and ability are extraordinary, possesses a kind of giftedness referred to as motor-kinaesthetic talent. Such children demonstrate their talents in excellent performance in most or select sports.

- **Giftedness in science**: This refers to an excellent acumen and aptitude for understanding natural phenomena and occurrences in order to solve human and environmental problems. Children whose giftedness is in science possess superior aptitude for seeking and trying to understand the causal, relational and applicational context of natural, as well as non-natural occurrences in the world around them.

- **Verbal talents**: This has to do with proficiency in the use of oral language and the ability to put creative thoughts into writing. Innovative oral expressions may also include exceptional singing abilities. Children with verbal talents speak very well (oratorical skills), love telling or writing stories, express themselves orally in very creative ways. They are often prolific writers.

- **Performing art talents**: This refers to an extraordinary ability in stage acting, dancing and music production. Children with performing art talents are good at imitating others, dancing, acting and using different musical instruments.

- **Leadership giftedness**: The extraordinary ability to organize people and to lead them with charisma is referred to as leadership giftedness. In regular schools, children with such ability are noted to be purposefully domineering; they guide and help their peers with a sense of vision. Such qualities are essential for the political, religious or even social mobilization of others.

- **Technological talents**: This is the superb ability to understand modern technological functions and innovations for creative application. In regular schools, children with such talents demonstrate insightful tendencies for understanding technological phenomena (assembling and dismantling objects); they also tend to fantasize with imaginary machines.

- **Giftedness in social abilities**: There are some children who exhibit exceptional competence in fostering interaction with others and reaching out to others. In school, such children exhibit so much social competence that they become very popular among their peers.

- **General intellectual giftedness**: This refers to children who exhibit high achievement ability in most school subjects. They may exhibit giftedness in any group of school subjects which correspond to certain professions for which they have an aptitude and in which they are likely to become leaders. In regular schools, such children pass almost all subjects very well. This is a major characteristic which stands them out from everybody else.

Scholars like Smutny, Walker and Meckstroth (1997); Winebrenner (1992), highlighted similar ways in which gifts and talents are manifested in regular classroom and schools.

2.3.9 Problems limiting the potentials of the gifted in regular schools

A number of school-related factors are responsible for the dearth of gifted and talented persons who stand out distinctly from their peers (Kirk and Gallagher, 1989; Gallagher, Harradine and Coleman, 1997).

These includes:

1. Antagonistic or hostile attitude of teachers or even peers towards potentially gifted children who do not recognize what giftedness is all about. Such attitude could consequently stifle the gifted potential of the children.
2. Lack or absence of any specified program which can challenge the potentials of the gifted and talented child. The absence of challenging or stimulating programs or arrangements could lead to the gifted child becoming content with mediocre performance.
3. Absence of guidance and counselling that are focused on nurturing the personality of the gifted and talented child usually results in underachievement.

4. Gender discrimination in the regular school environment can stifle the potentials of gifted girls in particular. In schools where there is gender discrimination, boys are more recognized and treated as gifted and talented (than girls) even when there is no basis for such.

5. Prevalent use of pedagogical technique which are too repetitive to drill inclined contributes to making the gifted lose interest in school activities.

6. School rules and regulations which do not permit a reasonable level of freedom of choice and association can emasculate the creative abilities of the gifted and talented child. Such children are said to be either bolted up with their potentials in them or rebel against such recognitions, even at the risk of getting expelled.

7. Over-stigmatization of girl children in certain situations, because of their peculiar behaviours or characteristics can stifle their potentials. Labeling the gifted child's attitudes and making a mockery of efforts (which otherwise depict their abilities) can be frustrating to gifted children.

8. Unfortunate circumstances of life, such as disabilities, could destabilize the self-esteem of the gifted and talented child. Apart from coping with various limitations imposed on the child by such circumstances such children may also have to contend with the psychological feelings of inferiority which may go along with being limited in personal attributes. This may result in the gifted and talented becoming complacent about expressing or maximizing his/her exceptional abilities.

9. Cultural practices which inhibit the expression of giftedness and talents may exist in some regular schools which may prevent the gifted and talented child from expressing

his/her abilities. Cultural practices which do not allow an inquisitive child to express himself / herself or to question an adult, will severely curtail the child's natural curiosity to know and understand.

Most children who possess high potential for giftedness and talents are underachievers, conformists, or rebels when they find themselves having to face the above mentioned obstacles in the regular school environment. The abilities of such children are frustrated and un-nurtured in most regular school or classroom (Kolo, 2006).

National Association of Gifted Children (2007) also listed a number of difficulties faced by gifted children as follows:

1. Increased fear of failure and a sense of failure when not perfect.
2. Expectations that they will spend unusual amounts of time practicing their special skills such that they do have normal play and recreation time.
3. Developing high demand and expectations of others.
4. Frustration caused by having skills as different stages of development (example having advanced cognitive skills but only 'normal' for age handwriting skills).
5. Difficulties in gaining access to a challenging level of education appropriate to their needs.
6. Inappropriate preschool curriculum or placement.
7. Difficulties in relating to other children of the same age and finding same age friends.
8. Confusion in choosing a career for the child who is gifted in many areas.

The stresses sometimes experienced by gifted and talented children may lead to a number of problems including: -

1. Deliberately not doing as well as they can, in an effort to hide their differences.
2. Emotional difficulties such as depression, stress and anxiety.
3. Increased emotional intensity and sensitivity (including outbursts of temper or tears).
4. Boredom in normal classroom situation (which can lead to school refusal and/or behavior problems).
5. Limited social interaction and social development.

Inspite of research findings; it is noted that it would be incorrect to say that every gifted student is superior in adjustment and emotional health (Berk 2005). In fact, gifted adolescents, especially girls are more likely to be depressed and both girls and boys may be bored, frustrated, and isolated. It was further noted that gifted children may be impatient with friends, parents and even teachers who do not share their interests or abilities (Berk, 2005). And because their language is well developed, they may be seen as show-offs, when they are simply expressing themselves. They are sensitive to the expectation and feelings of others, so these students may be very vulnerable to criticisms and taunts. Because they are goal-directed and focused, they may seem stubborn and uncooperative. Their keen sense of humor can be used as a weapon against teachers and other students. Adjustment problems seem to be greatest for the most gifted, those in the highest range of academic ability (example above 180IQ) (Hardman, Drew, and Egan, 2005). Powell & Haden (1984) earlier observed that the higher the level of giftedness the greater the chances of psychological and social adjustment difficulties.

2.3.10 Educational programmes for the gifted and talented children

Attention is drawn to the fact that there is need to encourage specialized education for outstanding children who would eventually become leaders (Reynolds and Lee 1991). Reynolds and Lee argued that gifted children, like many others in special education, require differential provisions. Differential learning experiences or programs are important because they create challenging learning experiences.

It is opined that gifted students require gifted programs to develop and apply their talents (Clark 2002), because they learn in different manners and at an accelerated rate compared to their peers in the classroom. They need to expand their minds and become most useful to society and themselves. In a list of reasons compiled in fostering academic excellence, McLeod and Cropley (1989) described the specific advantages of placing gifted children in adequate programs:

- "Gifted children are a resource"; there is the need for inventive and intelligent minds who will improve the quality of life and advance in the new technological age.
- The gifted deserve special treatment corresponding to that received by the handicapped; the gifted ought to have the same financial support that is given to other groups that are far from the "norm".
- "Gifted children need adequate stimulation"; a debate is raised between the incentive that gifted children gain by being in an isolated class of the top five-percent and the argument that normal and slow children would benefit from being mixed with the gifted.
- "Special provision for the gifted will prevent dropouts, underachievement and delinquency"; gifted children may lose their zest for school when kept back from learning at their own pace and may almost strive to achieve "normally" to "have a quiet life in school".

The intellectually adept think and learn differently from others and it is important to teach them appropriately (Freeman 1999). Gifted children were also found to be more ambitious – both in the difficulty and effort put into task – in their school work than others their age. For this reasons, Freeman suggested that schools should bear some responsibility to nurture the talent of the gifted students in their charge. It is clear from evidence that excellence does not emerge without appropriate help. To reach an exceptionally high standard in any area, potentially gifted children need the means to learn; this includes the material to work with, challenging tuition, sometimes including tutoring or mentoring that is not provided in normal schools (Freeman, 1999). Freeman suggested two methods schools can use in teaching gifted children.

- Accelerating the learning of children, either by moving them up to an older age – group or compacting the material they have to learn.
- Enrichment, rounding out, and deepening the material to be learned.

It is not still very clear how best to educate the individuals who are gifted or talented however, methods of stimulating creativity and gifted thinking may include enrichment and acceleration (Avoke 2008). In enrichment programs according to Avoke, children are given opportunity of doing extra work in class apart from what is given to the rest of the children. Sometimes, the scope of enrichment can include extra-curricular activities. Acceleration can assume forms such as:

- skipping grades
- Telescoping grades
- Advanced placement
- Early college admission

Highlight of some of the advantages of acceleration as presented by Kulik and Kulik (1991) include:

- It enables students to face up to the challenges acceleration brings.
- It enables individuals categorized under the same ability grouping to record greater achievement gains.
- It enhances self concept to the extent that children believe that they are operating at their proper level.
- It is cost effective as the number of years spent in school is considerably reduced.

It is however argued that, acceleration which entails grade skipping places the gifted child with other children who are physically, emotionally and socially more mature (Surran and Rizzo 1979). Furthermore, students may burst out, end up having few friends, have some deficiency and retardation in psycho-social development, create gaps in knowledge, and renders the child unable to deal with the real world.

Other suitable programs which could eliminate monotony include:

Ability grouping: This method allows for grouping children of the same ability or cluster in subjects or courses to be grouped together for instruction. The essence is to create challenging environment which would enhance the learning of task.

Independent study: This involves assigning specific areas or topics to the children who examines them in greater depth. This does not mean the children work alone; but rather they learn to be self-directed to work on problems in which they have interest and assume ownership (Trelfinger, 1986).

Brainstorming: Brainstorming enables children to find out things for themselves. It enhances children's ability to reason and think divergently as well. Children are encouraged to generate answers and ideas without criticism. The ideas generated can be written on the chalkboard, and from these, a general discussion or the day's lesson can begin.

Mentorship: Mentorship is seen by many educators as a way forward to enhancing growth and development of young children. As a way of stimulating creativity and giftedness, children are paired with adults who may be specialists in the interest area of the child. Another approach to mentoring is through interaction with people in the community, who may have special knowledge in the areas of interest. Senior students, and retired professionals as doctors, engineers and civil servants can all serve as mentors as they are all invaluable resource persons in the identified areas. The underlying philosophy behind mentorship is to make it possible for these experienced professionals to share their ideas with children interested in their specific areas.

Other effective classroom approaches to educating gifted and talented children as suggested by Avoke (2008) are:

In-class grouping: In this approach, students are grouped for special instruction within the regular classroom wherever appropriate.

Resource Room Pull Out: In this set up, children leave the classroom for brief periods at a time to receive instruction from specially trained consultants. Gifted children as earlier noted can be a frustrated group of individual's in spite of their intelligence if their aspirations are not met, therefore special programs should be provided to meet their needs.

Additional forms of gifted education programs

Attempts to provide gifted education can be classified in several ways. Most gifted students benefit from a combination of approaches at different times which include:

Hobby: Activities such as reading, creative writing, sport, computer games, chess, music, dance, foreign languages, and art give an extra intellectual challenge outside of school hours.

Enrichment: On the primary school level, students spend all class time with their peers, but receive extra material to challenge them. Enrichment as earlier suggested by Freeman (1999) may be as modified assignment provided by the regular classroom teacher, or it might include formal programs such as Odyssey of the Mind, Destination Imagination or academic competitions such as Brain Bowl, Future Problem solving, Science Olympiad, National History Day, Science fairs, spelling bees. This work is done in addition to, and not instead of, any regular school work assigned. Critics of this approach argue that it requires gifted students to do more work instead of the same amount at an advanced level. On the secondary school level sometimes an option is to take more courses like English, Spanish, Latin, Philosophy, Science, etc., or to engage in extracurricular activities. Some perceive there to be a necessary choice between enrichment and acceleration, as if the two were mutually exclusive alternatives. However, other researchers see the two as complements to each other.

Compacting: The regular school material is compacted by pretesting the student to establish which skills and content have already been mastered. Pretests can be presented on a daily basis (pupils doing the most difficult items on a worksheet first and skipping the rest if they are performed correctly), or before a week or longer unit of instruction time. When a student demonstrates an appropriate level of proficiency, further repetitive practice can be safely

skipped, thus reducing boredom and freeing up time for the student to work on more challenging material.

Self-pacing: Self-pacing methods, such as the Montessori Method, use flexible grouping practices to allow children to advance at their own pace. Self-pacing can be beneficial for all children and is not targeted specifically at those identified as gifted or talented, but it allows children to learn at a highly accelerated rate. Directed Studies are usually based on self-pacing.

Pull-out: Gifted students are pulled out of a heterogeneous classroom to spend a portion of their time in a gifted class. These programs vary widely, from carefully designed half-day academic programs to a single hour each week of educational challenges. Generally, these programs are ineffective at promoting academic advancement unless the material covered contains extensions and enrichment to the core curriculum. The majority of pull-out programs include an assortment of critical thinking drills, creative exercise, and subjects typically not introduced in standard curriculums. Much of the material introduced in Gifted pull-out programs deals with the study of Logic, and its application to fields ranging from Philosophy to Mathematics. Students are encouraged to apply these empirical reasoning skills to every aspect of their education both in and outside the class.

Cluster grouping: Cluster grouping is the gathering of four to six gifted and talented and/or high achieving students in a single classroom for the entire school day. Cluster teacher are specially trained in differentiating for gifted learners. Clusters are typically used in upper elementary grades. Within a cluster group, instruction may include enrichment and extensions, higher-order thinking skills, pretesting and differentiation, compacting, an accelerated pace, and more complexity in content.

Summer enrichment programs (United States): These offer a variety of courses that mainly take place in the summer. Summer schools are popular in the USA. Entrance fees are required for such programs, and programs typically focus on one subject or class, for the duration of the camp. These classes are generally organized so that students have the opportunity to choose several courses they wish to participate in. Courses offered often vary between subjects, but are not typically strictly academically related to that subject.

Full-time separate classes or schools: Gifted students are educated in either a separate class or a separate school. Classes like this are sometimes called "Congregated Gifted Classes". Separate or independent schools are schools with a primary mission to serve the needs of the academically gifted. Such schools are relatively scarce and often difficult for families to locate. Such schools often need to work to guard their mission form occasional charges of elitism, support the professional growth and training of their staff, write curriculum units that are specifically designed to meet the social, emotional, and academic talents of their students, and educate their parent population at all ages.

Some gifted and talented classes offer directed studies, where the students lead a class themselves and decide on their own projects, tests, and all other assignments. These separate classes or schools tend to be more expensive than regular classes, due to the smaller number of kids in a classroom. They are in high demand and parents have to pay part of the costs.

Home schooling in the US: An umbrella term encompassing myriad education options for gifted children: part-time schooling; school at home; classes, groups, mentors and tutors; and un-schooling. In many states, the United State population of gifted students who are being homeschooled is rising quite rapidly, as school districts responding to budgetary issues and

standards-based policies are cutting what limited gifted education programs remain extant, and families seek educational opportunities that are tailored to each child's unique needs.

2.3.11 Some examples of global implementation of gifted education programmes

An overview of global implementation of gifted education programs by Wikipedia (2012) are presented as follows:

Canada

In Canada, the Peel District School Board has various high schools with Regional programs to provide students an opportunity to develop and explore skills in a particular area of interest. Among these Regional Programs is the "Regional Enhanced Program." Students identified as gifted (labelled as "enhanced" instead) may choose to attend these high schools instead of their mainstream school. In the Regional Enhanced Program, enhanced students take core courses (primarily, but not limited to English, Mathematics, and the Sciences) in an environment surrounded by fellow enhanced peers. The classes often contain modified assignments that encourage students to be creative.

Hong Kong

The mission of gifted education in Hong Kong is to systematically and strategically explore and develop the potential of gifted students. Gifted learners are provided with opportunities to receive education at appropriate levels in a flexible teaching and learning environment. The guiding principles for gifted education in Hong Kong are:

- Nurturing multiple intelligences as a requirement of basic education for all students and an essential part of the mission for all schools.
- The needs of gifted children are best met within their own schools though it is recognized that opportunities to learn with similarly gifted students are important. Schools have an obligation to provide stimulating and challenging learning opportunities for their students.
- The identification of gifted students recognizes the breadth of multiple intelligences.
- Schools ensure that the social and emotional, as well as the intellectual, needs of gifted children are recognized and met.

The Hong Kong Academy for Gifted Education, which is a non-profit organization, was set up to provide information, advice and support to gifted students (initially 10-18 years old), parents and teachers.

India

In India, Jnana Prabodhini Prashala started in 1968, is probably the first school for gifted education. The motto is "motivating intelligence for social change". The psychology department of Jnana Prabodhini has worked on J. P. Guilford's Model of Intelligence.

Iran

National Organization for Development of Exceptional Talents (NODET) also known as (SAMPAD), are national Middle and High Schools developed specifically for the development of exceptionally talented students in Iran. NODET was first established in 1976 and re-established in

1987. Admission to NODET schools is selective and based on a comprehensive nationwide entrance examination procedure.

Republic of Korea

Following the Gifted Education Promotion Law in the year 2000, the Ministry of Education, Science and Technology (MEST) founded the National Research Centre for Gifted and Talented Education (NRCGTE) in 2002 to ensure effective implementation of gifted education research, development, and policy. The centre is managed by the Korean Educational Development Institute (KEDI). Presently, twenty-five universities conduct gifted and talented education research in some form; for example at the Seoul National University Science-gifted Education Centre, KAIST Global Institute for Talented Education (GIFTED), the Korean Society for the Gifted and Talented and the Korean Society for the Gifted. Education for the scientifically gifted in Korea can be traced back to the 1983 government founding of Gyeonggi Science High School. In 2005, a program was undertaken to identify and educate gifted children of socioeconomically underprivileged people.

Gradually, the focus has expanded over time to cover informatics, arts, physical education, creative writing, humanities, and social sciences, leading to the 2008 creation of the government funded Korean National Institute for the Gifted Arts. To pluralize the need for trained professional educators, teachers undergo basic (60 hours), advanced training (120 hours), and overseas training (60 hours), to acquire skills necessary to teach gifted youth.

United States

Extracurricular services for the gifted and talented had started in the US almost 100 years ago, and became a national interest especially after the Soviet Union's launch of Sputnik in the late

1950s. Legislative efforts by the federal government have been implemented in the early 1970s; at about that time a variety of definitions of giftedness had been expanded, and optional programs were made available for gifted students (Marland, 1972).

Some of the best identification systems for giftedness have been developed in Europe (Heller, 2005; Heller et al., 2005) as well as programs for talented students in a variety of other areas (e.g. Reichert, 1993). Until now, sociological factors and small budgets have not allowed such services to develop for the gifted and talented students. Instead, special attention has been given to the disadvantaged, the handicapped, and the less gifted. It is only recently that societies have started to appreciate the benefits of gifted and talented child development/achievements and leadership. In contrast with special education, gifted education is not regulated on a federal level, although recommendations by the US department of education are offered. As such, funding for services is not consistent from state to state, and although students may be identified, the extent to which they receive services can vary widely depending upon a state or district's budget.

The USSR (before 1990) and the New Republics

Gifted education as such had not been practiced in the Soviet Union, where the dominating belief was that of equality. However, special programs for the nurturing of talented children and youth in all possible fields helped the ex-USSR and its partner countries, especially Poland and East Germany, be the habitat of the highest achieving people in mathematics, science and technology, sports and dancing, chess and even some of the most original theories in the humanities (e.g. Russian Structuralism) and social sciences (Dabrowski's Theory of Positive Disintegration, Dabrowski, 1964; Mendaglio, 2008).

After 1990

The very first program adopted by the new Russia was the Munich Model of Giftedness, which started in Moscow in 1989, and the first findings of it were published as early as in 1993. Since then both Russia and the new republics have learnt from the Western experience regarding gifted education. From a psychological point of view, there is no doubt that the students have benefited. The very rigid communist rules that had been applied for young children striving for excellence had had some excellent results in many areas (Grigorenko, 2000).

Nigeria

As earlier mentioned, the only two schools which currently offer provisions for gifted and talented children in the country do so only at the secondary level of education programs (Kolo, 1995). At present there are no articulated pre-school for gifted education programs in Nigeria. The Federal Government owned Academy, Suleja, was founded on 25th May, 1990. The objective of setting up the gifted program is to "provide opportunities for exceptionally gifted children to develop at their own pace in the interest of the nation's economic and technological development''. According to National Examination Council (NECO: 2012) who administers the selection of suitable candidates into Federal Government Academy; the gifted children program is designed to identify exceptionally talented children at the primary school level, bring them together in the same environment at the secondary school level where they can express their talent without being slowed down by the less gifted. Selection into the academy is by special examination administered to identify talented children in primary six in all the states of the federation and the Federal Capital Territory, Abuja. Results of the examination are used to select candidates primarily by merit, and to a lesser extent, by equal state quota (NECO, 2012).

2.3.12 Justification for having gifted education in Nigeria

Education for the gifted in Nigeria and elsewhere is said to be a win-win situation; and that the preliminary stages needed for starting a whole system of gifted education according to (David 2011) are:

1. Awareness of the necessity of gifted education being available to all suitable students.
2. Reasons for the special importance of having gifted education in Nigeria
3. Adopting an identification of giftedness system with minimal cost and maximum effectiveness
4. Starting teacher education courses in all aspects of giftedness for kindergarten, elementary, junior, high school and high school teachers.
5. Offer health and education experts to participate in a variety of activities for identifying and nurturing the gifted. These experts should include psychologists, school counselors, headmasters/headmistresses, nurses and pediatricians.
6. Building a dynamic evaluation system that will produce and supply advancement reports at every stage of work, in order to be able to make the needed changes immediately in case the results or outcomes do not reach the highest possible levels.

Special education for the gifted becomes necessary when a country or a society joins the club not only as a believer in compulsory education, but also as actively practicing it. Nigeria has obviously reached that point. Literacy rate in Nigeria is accelerating amazingly: while among people over 80 only 13% are literate, among persons aged 15 to 19 years – those who were of primary school age in the 1990s – the literacy rate is 70% (CIA Report, 2010). In just a few years more the literacy rate in Nigeria will close the gap with most developed countries. By preparing

the infrastructure of gifted education in the immediate future the more educated and more talented would be rewarded socially and financially, and the country would benefit from their fulfilled abilities in all areas.

Based on these arguments David, strongly believes that the gifted of Nigeria should benefit from special education exactly as has been done in so many other countries for up to ten (10) decades. Basically, gifted children are everywhere, of all ages, in all neighbourhoods, but it required a loving, caring and understanding adult to notice them let alone nurture them (David, 2011).

2.3.13 Instruments of measuring intelligence

As mention earlier, intelligence unlike some other characteristics like height, weight and age cannot be directly measured (Santrock, 2008). Despite this, quite a number of both foreign and to a lesser degree indigenous (Olatunji and Onofeghara, 2008), tests of intelligence and aptitudes have been developed which can predict general pattern of performance, identify the talents and discover the capabilities to solve problems and also the ability to adjust with the complex environment.

The first systematic attempt to develop a test of intelligence was made by Alfred Binet, a French man at the request of the French Ministry of Education, in 1904. He was asked to serve on a commission to discover the educationally backward children to segregate them and arrange special classes for them. This task led to the development of an object test of intelligence for measuring and categorizing school children in terms of the level of mental development. This effort started the movement in the field of mental testing and intelligence test construction which has resulted in quite a good number of objective, reliable, valid and standard of tests of intelligence.

Intelligence tests are not all alike (Woolfolk, 2010). Some tests can be administered on individual basis like the Standford Binet, Wechsler etc while some can be applied in group situations; like Otis-Lennon School Abilities Tests, Slosson Intelligence Test, Raven Progressive Matrices, Wide Range Intelligence Tests etc. Some of these tests are verbal while some are non-verbal performance.

The most influential approach to understanding intelligence (namely: that which has the most supporters and most published research over the longest period of time) is based on psychometric testing (Woolfolk 2010). These tests have been researched and analyzed to a great extent and while they do not lend themselves perfectly to some views of intelligence they have historically been fairly good predictors of school achievement. They are highly reliable – they provide similar results if taken, say, several months apart and they have been studied, refined over many years or decades with thousands of children. Intelligence tests provide valuable information regarding a child's abilities (Sattler, 1992).

Measures of intellectual abilities

1. Mental Age (MA)

In his first attempt to measure intelligence, Binet used the concept of Mental Age (MA) which refers to an individual's level of mental development related to the environment in which the individual lives. He compared Mental Age (MA) with Chronological Age (CA) or biological age/the age from birth. A bright child is said to have a MA above his CA, while a dull child has MA below his CA.

2. Intelligence Quotient (IQ)

In 1911, William Stern suggested that in order to better understand intellectual abilities in quantitative form, it is desirable to convert the level of mental development into a 'ratio' or quotient by converting the MA and CA qualities into proportional ratio values. In view of this suggestion, the concept of IQ was devised in 1912 (Mishra: 2008). Intelligence quotient or IQ refers to a child's mental age divided by chronological age e.g. MA/CA and multiplied by 100 – a constant ratio assumed to be normal or average level of intellectual development. Thus: IQ = MA/CA.

If the mental age is the same as the chronological age, then the individual's IQ will be 100 (normal or average). If mental age is above CA then IQ is more than 100, i.e. above average and if the mental age is below the chronological age, then IQ will be less than 100, i.e. inferior as compared to normal children of that age in the population.

The meaning of IQ then and now cannot be the same (Baron, 2007). The reason being that, at some point mental growth levels off or stops, while chronological age continues to grow. As a result, IQ scores begin to decline after the teen years! Partly because of this problem, IQ scores now have different definition. Based on this argument, IQ according to Baron simply reflects on individual's performance relative to that of persons of the same age who have taken the same test. Thus, an IQ above 100 indicates that the person has scored higher than the average in her or his age group, while a score below 100 indicates that the person has scored lower than average. For the general public, IQ is not identified with a particular type of score on a particular test but is often a shorthand designation for intelligence (Anastasi & Urbina, 2009). So prevalent has this usage become that Anastasi & Urbina suggested that when considering the numerical value of a given IQ, one should always specify the test from which it was derived. Also, that there is need to

reexamine the general connotations of the construct "intelligence", as symbolized by the IQ. Thus, tested intelligence should be regarded as a description rather than an explanatory concept, as IQ is an expression of an individual's ability level at a given point in time, in relation to the available age norm.

Individual verbal tests

Individual verbal tests are those which contain verbal problems and constructed through the use of language. These tests are so designed that they can be applied only on one individual at a time e.g.

Stanford – Binet scale

Stanford – Binet scale is the first test of intelligence designed to measure aptitude involved in primary education. In association with Simon, Alfred Binet published his first test called Binet – Simon test in 1905. The test contained various problems relating to verbal, perceptual and manipulative abilities. The scale consisted of 30 subtests which were arranged in order of increasing difficulties. The test was found most useful and caught the attention of American psychologists. In 1916, Terman came up with a revised version which came to be known as Stanford–Binet test (Olatunji & Onofeghara, 2008). Since Terman was working in Stanford University where he revised the scale, it was named after Stanford. This ultimately became a model for many tests of intelligence which were developed subsequently.

Terman's revision of the original Binet scale was based on Binet's idea of mental level and William Stern's concept of mental age (MA) in relation to chronological age (CA). Terman thus, employed wholly new concept and presented the idea of intelligence quotient (IQ). This test is so popular that it has undergone further revisions in 1936 and 1961. The fourth and latest revision

of the test was published in 1986. In the earlier revisions, only a general composite score was computed to reflect one's IQ. In the last revision, in addition to a composite score, the individual's responses in four content areas namely verbal reasoning, quantitative reasoning, abstract/visual reasoning and short term memory are also obtained (Olatunji & Onofeghara, 2008).

Wechsler adult intelligence scale (WAIS)

In 1930, David Wechsler provided another test of intelligence. This test differs from Binet's test on two events:-

(i) It provides more data. Wechsler created items measuring performance in verbal as well as non-verbal tasks.

(ii) He designed his first scale for adults and later on in the year 1956, he developed a separate test for children called Wechsler Intelligence Scale for Children (WISC) – revised version WISC – R and also for pre-school children called WPPSI. WAIS is also an individual test, i.e. taken by one person at a time under trained tester. It contains wide varieties of subtests like Stanford. The sub-tests are categorized into two groups -verbal and performance. There are six verbal and five performance or non-verbal sub-tests.

Wechsler's test also differs from Stanford test. Unlike Stanford – Binet scale, the sub-tests are not selected according to age. Wechsler had developed separate tests as follows:

(i) Wechsler Adult Intelligence Scale (WAIS) for use on adults with age range from 17 years to old age people.

(ii) Wechsler Intelligence Scale for Children (WISC) for use on children ranging from 6 years to 16 years of age.

(iii) Wechsler Pre-school and Primary Scale of Intelligence (WPPSI) for use on children ranging from 4 to 6 years of age (Olatunji and Onaghara, 2008).

Wechsler's sub-tests can be scored separately to enable the examiner to compare the examinee's abilities in various categories. Also, verbal and performance categories can be separately scored to obtain independent IQ's for each. The test is thus useful in measuring the intelligence of those who due to lack of opportunities, are poor in verbal abilities such as foreigners or poorly educated (Mishra, 2008).

Group intelligence tests

Group intelligence tests are more convenient and economical than individual tests (Santrock, 2008). For example, when World War I began, Binet's test was already popular, and the idea of using tests to measure intelligence was generally accepted. The armed services thought it was beneficial to know the intellectual abilities of its thousands of recruits, since all the recruits could not be tested individually. Also in schools and colleges the entering students needed to be tested in mass. The Army Alpha Test was then developed to measure the large number of individuals on a group basis in 1917. In the same year, the Army Beta Test, mainly a performance test given orally, was designed for illiterate individuals who could not read the Army Alpha Test. Santrock is however of the view that group tests though economical and convenient have some significant disadvantages.

The disadvantages include:- the examiner cannot establish rapport to determine the level of anxiety and so on; most testing experts recommend that, when important decisions are to be made about an individual, a group of intelligence tests should be supplemented by other information about the individual's abilities. For example, if a decision is to be made about

placing a child in a special education class, it is required that the decision should not be based on group intelligence test. In such cases it is advisable for the psychologist to administer an individual test, such as the Binet or Wechsler, and in addition obtain extensive additional information about the child's abilities outside the testing situation.

It is noted that though, group tests of intelligence serve good purposes, such tests suffer from certain flaws such as:

(i) In group situation, instruction given to examinees may not be well understood by some of them in the group. Such examinees are difficult to be located and therefore, are subjected to make errors. Thus, flaw occurs, scores obtained by such examinees suffer from content reliability.

(ii) Group tests of intelligence measure general intelligence ('g' factor). Therefore, a high score on such tests does not necessarily predict one's potentiality to succeed in all kinds of jobs requiring some special abilities ('s' factors). Each job requires some special abilities.

(iii) Some of the group tests scores are not compatible with individual tests. Hence, one's IQ on two kinds of tests are not comparable (Mishra, 2008).

Culture fair tests

Tests developed in the recent past few decades realized that the tests constructed had cultural impacts which were unlikely to be profitable in measuring intelligence of all individuals of all times and places. This realization led to devising intelligence tests in a new way which can be administered on all individuals of all societies all the time with fairness. Fairness in this context

refers to equality of opportunity or chance for all test takers i.e. that cannot deprive or penalize subjects coming from culturally different backgrounds.

Examples of some of such tests are those contracted by:

(i) Cattell (1949) called culture free test

(ii) Davis – Eells Games (1953) called culture fair test and

(iii) The Kaufman Assessment Battery for Children – K – ABC.

Cattell and his wife contracted the test in 1930's and was published by the institute of Personality and Ability testing (IPAT). Cattell agreed with Spearman's 'g' factor which he termed as fluid general ability. He holds that the existing intelligence tests such as Stanford – Binet Test measures Crystallized intelligence, and that such test measures subject's ability in English but not the general ability that lie behind learning all other languages (Mishra, 2008).

Cattell's (IPAT) was termed culture free test, but later realized that the test was in-fact not free from social fabrics. So, on subsequent modifications and revision, he termed it as culture fair test, i.e. the test can be fairly administered on subjects of all cultures and societies. The test has three levels one is for children from age 4 – 8 years and mentally retarded. Second level applies to children of age 8 – 14 years and average adults. The third level is for high school students and superior adults (Mishra, 2008).

Other published tests of intelligence

There exists a catalogue of other published intelligence tests apart from those already discussed. Olatunji and Onafeghara (2008) classified psychological tests into two-foreign and indigenous.

Foreign tests

Aptitude tests: which are most typically used to predict future behaviour, are designed to predict future performance in some activities. Group aptitude tests are widely used in Education, Industry, Civil Service and Armed Forces. Based on the types of test scores, aptitude tests may be grouped as:

1. Tests yielding a single score; they are wide spectrum test having specific aspects of mental ability (verbal, numerical, and abstract reasoning) blended together into one global measure of scholastic aptitude. Testing time is usually short and mixed together and arranged in increasing order of difficulty. Examples include: Otis Lennon Mental Ability Test (Grades K to 16) Henmon-Nelson Test of Mental Ability (Grades K to 12).

2. Tests with Verbal and Non-verbal scores. These are designed to yield both verbal and non-verbal scores. They help to identify testees learning ability at two different levels. Examples include the California Short-form Test of Mental Maturity, and the Short-Form Test of Academic Aptitude (Grades 1, 5 to 12).

3. Tests with Verbal and Quantitative Scores. These are used for diagnostic purposes, designed to provide differential scores obtained by testees in verbal and qualitative tasks. Examples of tests in this category include: Cooperative School and College Ability Tests (SCAT).

4. Multi-score Tests: These are designed to measure several mental abilities. They are arranged in a multi-level format and yield verbal, qualitative and non-verbal scores. Each battery consists of several sub-tests and results are presented on profile charts. They are used for diagnostic purposes and provide differential prediction of school success. Examples are:

(i) The Cognitive Abilities Test (CAT) (Grades 3 to 12) developed by Robert Thorndike and Elizabeth Hagen, 1978 (Graham and Lily, 1984). It consists of two components namely:

- The Primary Battery (Grades 1 and 2) for kindergarten and grade one and grade two respectively.

- The Multi-level Education (levels A–H) for grade levels 3–12) It measures scholastic aptitude and abstract reasoning. It is useful for determining students' strengths and weaknesses.

(ii) Academic Promise Test (APT)

This is a multi-score scholastic aptitude test for Grades 6 to 9. The test yields scores for verbal (V) Non-verbal (N), Abstract Reasoning (AR) and Language Usage (LU) abilities.

The various scores and combination of scores are useful for diagnostic purposes and they provide differential prediction of school success.

(iii) Differential Aptitude Test (DAT)

The test was first published in 1947, with the recent edition in 1982 (Graham & Lily, 1984). It has two alternate forms (V and W). It consists of eight sub-tests, each yielding a test score, which are usually combined to provide a composite score, verbal reasoning plus numerical ability (VR + NA). The composite score is similar to the single IQ scores. The DAT is useful in curriculum planning, counselling students in vocational and educational options and for predicting school success in various tasks.

(iv) Scholastic Aptitude Test (SAT)

This is a multi-choice test designed to measure general Verbal and mathematical abilities. It is designed to predict success in college and is part of the requirements for enrolment.

(v) American College Testing Program (ACT)

This is the second most widely used college aptitude test in the US. The test is designed to measure students' academic development and predict scholastic achievement.

Other Aptitude Tests developed for specific uses include: Graduate Record Examinations (GRE); Medical College Admission Test (MCAT); Law School Admission Test (LSAT); Graduate Management Admission Test (GMAT); Torrance Test of Creative Thinking; Seashore Measures of Musical Talents; Music Aptitude Profile; Meier Art Judgement Test and Meier Aesthetic Perception Test; Horn Art Aptitude Inventory; General Aptitude Test Batteries (GATB).

Many other standardized achievement tests also exist. These measure the results of a relatively specific set of school experiences. Standardized achievement test data are used to supplement and complement informal classroom tests and they are important tools for making appropriate educational decisions. They are particularly useful in instructional planning and management (Olatunji and Onafeghara, 2008).

These tests are used in most US elementary schools because there is considerable uniformity in the learning outcomes sought especially in basic skills. Some examples of Achievement Tests include:

1. Achievement Test Batteries at Elementary Schools level; there are two prominent types: (i) Tests of Basic Skills (ii) Tests of General Educational Development

2. Achievement Batteries at the High School Levels e.g.

   (i) The comprehensive Test of Basic Skills (STBS).

   (ii) The Test of Academic Progress (TAP).

   (iii) The Sequential Tests of Educational Progress (STEP, series II) and Iowa Test of Educational Development (ITED).

3. Achievement Battery Series Covering Elementary and High School Levels; e.g. Stanford Achievement Test (SACHT) (Grades 1 – 9). Graham & Lily (1984) explained that the SACHT is among the best available measures of educational achievement.

Achievement tests in specific areas: These tests are designed to measure achievement in specific areas. They include: tests of course content, reading tests, tests used in determining learning readiness and those used for diagnosing learning problems. Some examples of achievement tests in specific areas are:

(i) Content – Oriented Tests – Designed to measure the content of specific courses like English, Mathematics, Science, Foreign Language, Fine Art and Social Studies.

(ii) Reading Tests –These measures pupils level of reading ability. Some of the widely used reading tests include:

- At the Elementary School Level Gates Mac-Ginitie Reading Tests (Grade 1 – 12) Nelson Reading Tests (Grades 3 to 9).

- At the High School Level Davis Reading Test (Grades 6 to 14) Iowa Silent Reading Test (Grades 6 to 14) Reading Comprehension: Cooperative English Tests (Grades 9 to 14).

(iii) Early School Readiness and Achievement Tests: These have been designed for kindergartens, to measure those basic concepts and skills considered essential for effective learning in the early school years. They are equally useful in detecting deficiencies needs to be provided. Examples include the Boehm Test of Basic Concepts Tests of Basic Experiences, Stanford Early School Achievement Tests and Cooperative Pre-school Inventory.

(iv) Reading Readiness Tests: These are designed for kindergarten and first-grade level pupils to determine if they have the necessary skills and knowledge to begin reading. Prominent among this category include: the Gates Mac-Ginitie Reading Readiness Skills, Lee-Clark Reading Readiness Tests, Murphy-Durrell Reading Readiness Analysis and Metropolitan Readiness Test.

(v) Diagnostic Tests: These are designed to a pupil demonstrate all aspect of the skills being measured and to pinpoint his particular areas of weakness. For example, the Stanford Diagnostic Reading Test. (Grades 3 to 12), and the Stanford Diagnostic Arithmetic Test (Grades 2.5 to 8.5).

(vi) Criterion-referenced Tests: These consist of sets of test items that are designed to measure each of a series of behaviourally state objectives. They make norms unnecessary as a testee's performance is described without comparing his test scores to that of other pupils (normative group).

Indigenous intelligence tests

According to Olatunji and Onofeghara (2008), there has been a general dearth of valid and reliable instruments for assessing different dimensions of learning. They opined that though there has been a few tests developed by Tedro, Professors Obe, Iwuji, Bakare, Akinboye, Odoemelan, Onofeghara and Doctor Olatunji; valid and reliable instruments for use in education and counselling is yet to be developed. They explained that one common feature of almost all indigenous intelligence tests is inadequate information with regards to their psychometric properties (especially validity and reliability). Infact, many locally developed instruments according to them do not have enough guidelines on how to administer, score, interpret, and use the test data. They suggested that more studies that focus on the validity and reliability of existing indigenous intelligence tests are certainly and urgently needed.

In specific terms and in relation to the gifted Kolo (1994) also noted that there is no inventory checklist or rating scale specifically designed for nominating pre-school children who evidence traits of giftedness. He however, explained that existing scales and inventories have been developed for use in the country for identifying older gifted students. These include:

1. Adapted Scales for Rating Behavioural Characteristics of Superior Students – A – SRBCSS (Obani, 1989);

2. Scale for Identification of Major Special Education Categories (C) - SIMSEC – C (Kalu, 1993);

3. Scale for Rating Outstanding Traits in Children and Youths – SROTCY (Kolo, 1993);

4. Rating Abilities of Children and Youths – SRACY (Kolo, 1994).

These indigenous instruments are largely adaptations from those in the United States, and are reasonably effective for identifying gifted children of elementary and secondary schools age (Kolo 1995). He pointed out that these instruments do not have research results pointing to their utility in nominating pre-school gifted children who evidence trait of giftedness though there are no negative empirical research pointers as such; and that these instruments are available for possible pilot traits with teachers of pre-scholars in the country.

In Nigeria, the most commonly used aptitude tests at the elementary and secondary school levels are verbal, quantitative and vocational aptitude components of the National Common Entrance Examination for secondary schools and the Placement Tests, which are administered to pupils seeking admission into the Junior Secondary Schools and those in senior secondary class respectively. Gifted examination to Federal Academy Suleja is conducted by NECO. Selection is by special examination administered to identify talented children in basic six in all the states of the federation and the FCT (NECO, 2003).

Before this identification process, at the federal level, each state conducts some test to select the number assigned to them (three per state). In Kano State, the selection is done through pre-test in Maths, English and Aptitude tests administered to pupils from three model primary schools namely: Hausawa, Race Course and Gwale Model Primary Schools (SUBEB, 2012). Three best pupils are then picked and sent to sit for the special examinations administered by NECO for selection into the Federal Academy for the Gifted.

Jigawa State Academy for the gifted and talented, Bamaina, selects qualified pupils through the following process.

1. All schools (public/private) are given equal chance to screen and select one best pupil from primary six.

2. All states plus Federal Capital Territory (FCT) send in three best pupils by nomination.

3. At local government level, candidates are screened by administering tests in Maths and English using NORM Reference Test.

4. Five best from each of the twenty seven (27) local government areas are then picked for further screening.

5. Within five days, pupils are subjected to tests with different questions for each day – which starts at the same time and ends at the same time

6. The best are selected and then another instrument developed by experts like that of Suleja Academy in form of entrance exam is conducted for those going into primary six and JSS I. They are then subjected to English, Maths and Intelligence tests. Results are arranged from highest to lowest for both sections (primary 6 and JSS I). For both primary and JSS I, the top 40 are picked (20 per class – two streams). They are taught basic education subjects plus further Maths (Report of Technical Committee on the Establishment of school for the Gifted and Talented, Bamaina, 2011).

2.3.14 Reliability and validity of measuring instruments of intelligence

One of the most common problems with the use of assessments especially tests is misinterpretation of results (Woolfolk, 2010). This happens when people believe tests are precise measurement of a students' ability. No test according to Woolfolk provides a perfect picture of a person's abilities; a test is only one small sample of behaviour. Three factors are important in

developing good tests and interpreting results: reliability, validity and absence of bias (Woolfolk, 2010). In order to be of any use, measuring devices, whether they are bathroom scales or psychological tests, must have high reliability: they must yield the same result each time they are applied to the same quantity (Baron 2007). If they don't, they are essentially useless. He maintains that two basic forms of reliability are important. First, tests must possess internal consistency; all the items on the test must actually measure intelligence (or whatever the test is designed to measure). One way to assess such internal consistency involves dividing the test in two equivalents parts, such as the first and second halves of odd and even-numbered items, and then comparing people's scores on each part. If the test measures intelligence reliability, then the correlation between the two parts should be positive and high.

In this case, then the test is said to be high in split-half reliability. If it is not, then some of the items may be measuring different things, and the test may be unreliable in one important sense. Second, to be viewed as reliable, tests of intelligence must yield scores that are stable over time, the psychologists measure such test-retest reliability by having the same persons take the test at different times. The more similar a given person's scores on these occasions are, the higher is the test-retest reliability. High test-retest reliability is an important requirement of all tests of human intelligence, even though intelligence is a characteristic that would not change over time-unless something dramatic happened to the persons involved. Thus, reliability is the extent to which any measuring device (including psychological tests) yields the same result each time it is applied to the same quantity; and test-retest reliability is a measure of the extent to which scores on a test remain stable over time (Baron, 2007).

Validity

If test scores are sufficiently reliable, the next concern is whether the scores are valid, or more preciously, whether the judgement and decisions based on the test scores are valid. To have validity, the decisions and inferences based on the test must be supported by evidence. This means that validity is judged in relation to a particular use or purpose that is in relation to the actual decision being made and the evidence for that decision. A particular test might be valid for one purpose but not for another (Frisbie, 2005; Popham, 2008; Osterhof, 2009).

There are different kinds of evidence to support a particular judgement. If the purpose of a test is to measure the skills covered in a course unit, then the test questions must include all the important topics and not on extraneous information. If this condition is met, then there would be content related evidence of validity. Thus, an intelligence test is useful only to the extent that it really measures intelligence. Another type of validity is Criterion-related validity: If a test actually measures what it claims to measure, then persons attaining different scores on it should also differ in terms of behaviors that are relevant to the characteristics being measured (Baron, 2007). For example, one might expect that scores on an intelligence test would be related to such aspects of behaviour (i.e. Criteria) as grades in school success in various occupations, either presently or in the future (predictive validity).

In sum, any psychological test is useful only to the extent to which it has been carefully standardized and is both reliable and valid (Baron, 2007). Slavin (2006) alluded to this when he stated that standardized tests are usually commercially prepared for nationwide use and designed to provide accurate and meaningful information on students performance relative to that of others at their age or grade. That these tests are usually used to offer yardstick against which to compare individuals or groups of students that teacher made tests cannot provide. Because they

are standardized, it allows the test publisher to establish norms to which any individual score can be compared.

Absence of bias

The third important criterion for judging assessments is absence of bias. Assessment bias "refers to qualities of an assessment instrument that offend or unfairly penalize a group of students because of the students' gender, ethnicity, socio-economic status, religion, or other such group-defining characteristics (Popham, 2008, p. 73). Two forms of assessment bias are unfair penalization like in reading assessment with heavy sports content where girls may be penalized for their lack of boxing or football knowledge; and offensiveness like when a particular group might be insulted by the content of the assessment. In both cases, offended students may not perform at their best. There are also biases based on ethnicity and social class. Sattler (2001) explained that standardized tests predict school achievement equally across all groups of students. Despite this, many people believe that the tests still can be unfair to some groups, as tests may not have procedural fairness that is some groups may not have equal opportunity to show what they know on the test. For example: -

1. The language of the test and the tester is often different from the language of the students.

2. Answers that support middle-class values are often rewarded with more scores.

3. On individually administered intelligence tests, being very verbal and talking a lot is rewarded. This favour student's who feel comfortable in that particular situation.

Attention was drawn to the fact that many so-called culture – fair tests, the performance of students from lower SES backgrounds and ethnic groups has been the same as or worse that their

performance on the standard Wechsler and Binet Intelligence Scales (Woolfolk 2010). Sattler (2001) opined that, one cannot separate culture from cognition; and every students' learning is embedded in his or her culture and every test question grows from some kind of cultural knowledge.

In Nigeria, psychological testing as noted earlier has not been as popularized as in the United States of America. The scarcity of valid and reliable psychological test instruments is one of the problems yet to be overcome in Nigerian educational Institutions. The need to construct, standardize and distribute test instruments that are culture free and relevant to the Nigerian environment cannot be overemphasized.

2.3.15 The use of new IQ tests in selecting gifted students

The measurement of giftedness can best be achieved through the to use of new IQ tests in selecting gifted students because according to Silverman (in press), include: (i) different IQ tests no longer measure the same basic construct of intelligence. (ii) each test identifies a different population as gifted (iii) gifted students may obtain widely varying scores on different instruments (iv) full scale IQ score are not the unitary constructs they once were, and (v) often they are not the best representation of the child's intellectual capabilities. Silverman further argues that, the familiar verbal performance IQ scores are gone and that there are multiple ways of administering and scoring the new instruments and the designation of giftedness is unclear.

Under these circumstances the following recommendations among others were drawn from the symposium on "Assessment Techniques in the identification of Gifted learners" hosted by the "World council of Gifted Children 16th Biennial Conference" in New Orleans, Louisiana, August 7, 2005; the "National Association of Gifted children Task Force on Assessment", November 2,

2006; chapters in press in the "International Handbook on Alternative Assessment of Gifted Learners;" and several studies presented at National Association for Gifted Children Conferences:

1. Individual IQ tests provide better information for high-stakes decision making for gifted students than group tests. Group IQ tests are best used for general screening purposes (Rimm, Gilman and Silverman, in press).

2. Gifted students are a special needs population; therefore, comprehensive assessment is needed to determine strengths and weaknesses, information which should be used in their programming (Baska, 1983).

3. When students are selected for gifted programs on the basis of achievement tests, grades and teacher recommendations, programs are likely to miss children who are economically disadvantaged, who have few books in their homes, and fewer role models for achievement. Individual ability tests provide greater access to programs for diverse cultural groups and children of low socio-economic status (Silverman & Miller, in press).

4. The Wechsler Intelligence Scale for Children, Fourth Edition (WISC-iv) and the Stanford-Binet Intelligence Scale, fifth edition (SBS) are the two most popular individual IQ tests used in the selection of students for gifted programs. Both tests offer several methods of scoring. The full scale IQ scores generated on these tests are not as cohesive measures of general intelligence as in prior editions. When there was extreme discrepancies between composite scores on the WISC-IV (23 points or more), the full scale IQ score should not be derived (Flanagan & Kaufman, 2004). Therefore, the Full Scale IQ should not be the main score used to determine program selection (Rimm, Gilman & Silverman, in press).

5. It is not necessary to calculate a full scale IQ on the SBS; it is permissible to use either the verbal IQ or the Nonverbal IQ independently to locate gifted children with different strengths. The highest index, composite or factor score is often the best predictor of success in the gifted program, if the program is responsive to the learning strengths of the students (Silverman, in press, a).

6. In selecting an instrument to use for assessing the gifted, it is necessary to keep in mind that the WISC-IV and the SBS identify different students as gifted. As 30% of the WISC-IV measures abstract verbal reasoning, compared to 10% of the SBS, the WISC-IV is likely to find more highly verbal children. As 20% of the SBS measures mathematically gifted children, compared to 0 – 10% of the WISC (depending if arithmetic, an optional test, is administered), the SBS is likely to find more mathematically gifted children. While 20% of each test is devoted to the measurement of visual-spatial abilities, there may be more visual-spatial content in the SBS, so it may be preferable for locating spatially gifted children.

7. Those instructions or portions of instruments with the richest loadings on general intelligence (g) are the most useful for locating gifted children. Raven's Progressive Matrices, the Stanford-Binet scales and the Wechsler scales were all founded on the conception of intelligence as abstract reasoning (g). Abstract reasoning and general intelligence (g) are synonymous. Giftedness is high abstract reasoning. Therefore, g could as easily stand for giftedness as for general intelligence (Silverman, in press, a).

8. The two-step process employed in the Talent Searches for differentiating the most able students at 12 or 13 years of age is the best model for locating exceptionally gifted

children. Talent Searches provide out-of-level testing to children who score at or above the 95 or 97 in percentile in reading mathematics. Since 1989, younger children in these ranges have been found by using a combination of two different measures: one comparing them with others their own age and one with a higher ceiling, like the SAT, that compares their abilities to those of older children. Because it is organized by age levels, with increasing levels of difficulty, all the way to Superior Adult III, the "Binet-type age scale "might be considered the original examination suitable for extensive out-of-level testing" (Stanley, 1990, p. 167).

9. The Flynn Effect is the most frequently cited reason for not using a test with older norms. Newer studies suggest that the Flynn effect may have tempered off at the beginning of the 1990s. Recent studies show the Flynn Effect:

> *has not yet been adequately demonstrated for all levels of ability …. There is no substantive evidence for its validity with high ability individuals (particularly those who are intellectually gifted)* (Teasdale and Owen, 2006, p. 820).

2. 4 Home factors and giftedness

Socioeconomic status (SES) has long been known as a good predictor of academic achievement. A central conclusion of the Coleman Report (1966) was that family background accounted for the majority of the variation in student achievement. Since then, researchers have continued to demonstrate the importance of the relationship between family background and student achievement. Hoxby (2001) finds that family variables account for 90-93 percent of the variation in income, educational attainment, and 12th grade math scores. Currie and Thomas (2001) show that SES and early child test scores are positively and significantly related.

Most researchers agree that social class is one of the most meaningful culture dimensions in people's lives (Liu et al, 2004). Different terms are used to describe social class-socioeconomic status (SES), economic background, wealth, poverty or prestige. Some people consider only economic differences, others add considerations of power, influence, mobility, control over resources, and privilege. Liu et al, (2004), Sirin, (2005), explained that sociologists and psychologists combine variations in wealth, power, control over resources, and prestige into an index status or SES to express thoughts about differences commonly used in research.

Socioeconomic status is determined by several factors. No single variable is an effective measure of SES but most researchers identify four general levels of SES: upper, middle, working and lower class. The main characteristics of these four levels include: income, occupation, education, home ownership, health coverage, neighbourhoods, political power etc (Sirin, 2005).

American Psychological Association view Socioeconomic Status (SES) as a combination of education, income, and occupation. It is commonly conceptualized as the social standing, class of an individual or group. When viewed through a social class lens, privilege, power and control are emphasized. Furthermore, an examination of SES as a gradient or continuous variable reveals inequities in access to the distribution of resources. SES is said to be relevant to all realms of behavioural and social science, including research, practice, education, and advocacy (APA; 2007). Socioeconomic Status (SES) describes in addition to education, income and occupation, access to motor vehicles, telecommunications and labour force status (Ganzenboom et al, 1998). In fact, Eggen and Kauchat, (2004) opined that the most powerful factors relating to school performance is SES – the combination of income, occupation, and level of education that describes a family or individual.

2.4.1 SES and school achievement

It is generally agreed that SES and academic achievement are moderately correlated. In America, for instance, high SES students of all ethnic groups show higher average level of achievement on test scores and stay longer than low-SES students (Sirin, 2005). The longer the child is in poverty, the stronger the impact is on achievement. The explanation given for the correlation between SES and achievement is that Low-SES students may suffer from inadequate health care, teacher's lower expectation of them, low-Self-esteem, learned helplessness, under-stimulation, home environment among others.

In a study on family background, parental involvement, and academic achievement in Canadian schools, McIntosh (2008), found that family background variables, parental characteristics and attributes as well as how parents view the importance of education, and what they actually do in terms of helping and guiding their children are all important factors in the child's success in the primary and secondary school system. The most important contributing factors according to this research findings were how important the parent thought grade performance and getting further education were as objectives for their children. These two variables were found to be more important than parents' educational qualifications or whether the child came from low income or dysfunctional home. These were optimistic findings, as children from disadvantaged families are not condemned to be at the bottom of the grade distinction. In fact, children with poorly educated fathers can actually do better than average if their parents have positive attitudes on the importance of school grades and further education (Mclntosh, 2008).

On the impact of economic status on children's readiness for school, it was noted that:

> *The segregating nature of social class, ethnicity, and race may well reduce the variety of enriching experiences thought to be prerequisite for creating readiness to learn among children. Social class, ethnicity, and race entail a set of*

> *'contextual givens' that dictate neighborhood, housing, and access to resources that affect enrichment or deprivation as well as the acquisition of special value systems (*Crnic and Lamberty 1994, p 102).

On the relationship of family socioeconomic status to children's readiness for school, it was noted that

> *Across all socioeconomic groups, parents face major challenges when it comes to providing optimal care and education for their children. For families in poverty, these challenges can be formidable. Sometimes, when basic necessities are lacking, parents must place top priority on housing, food, clothing, and health care. Educational toys, games, and books may appear to be luxuries, and parents may not have the time, energy, or knowledge to find innovative and less-expensive ways to foster young children's development. Even in families with above-average incomes, parents often lack the time and energy to invest fully in their children's preparation for school, and they sometimes face a limited array of options for high-quality child care-both before their children start school and during the early school years. Kindergarten teachers throughout the country report that children are increasingly arriving at school inadequately prepared (*Ramey and Ramey, 1994, p 196).

Sixteen (16) factors that influence people's intelligence were presented by Krisna Psychology (2011) which are: heredity factors, environmental factors, prenatal environment, postnatal environment, home environment, parent-child interaction, social and environmental deprivation, socioeconomic status (SES), race and culture, personality dispositions and psychological dispositions. According to this source, children of the upper socioeconomic strata of the society are exposed to more intellectual stimulation, get better social opportunities, and are nurtured with better nutrition. All these are believed to influence their intellectual development in a positive direction. That is, the higher the socioeconomic status of the parents, the higher is the average IQ of children. The children of low socioeconomic status, score approximately to 15 IQ points below the middle-class and higher-class children (Mueller and Parcel, 1981.). Parental occupation is also said to be closely related to the IQ level of children.

It was found that many gifted persons have a better than average home life, better child-rearing practices and encouragement (Mcloyd, 1998). He explained that though giftedness can be found and should be looked for in all populations, it flourishes better in homes with good socio-economic background. Also those children of high SES performed significantly better than children from low SES on a variety of intellectual tasks. Even children from low SES performed poorly than the younger children of high SES. Poor families seldom have access to high quality pre-school care for their children that enhance cognitive and social development (Duncan and Brooks-Gunn; 1997). Those poor children read less and spend more time watching television; they have less access to books, computers, libraries, trips and museums (Evans, 2004).

One national study in America equally revealed that lack of cognitive stimulation in the home accounted for one-third to one-half of disadvantages in verbal, reading, and maths skills of poor children (Korenman, Miller and Sjaastad, 1995). However, not all low-income families lack the means of providing rich learning environments for their children. It is argued that when parents of any SES level support and encourage their children by reading to them, providing books, and educational toys, taking the children to the library, making time and space for learning, the children tend to become better, more enthusiastic readers (Marrow, 1993; Peng and Lee, 1992; Shields, Gordon and Dupree, 1983).

Although there are some differences among ethnic groups on tests of cognitive abilities, most researchers agree that the reasons of these differences are mainly the legacy of discrimination, language differences, or as a result of growing up in poverty (Peng and Lee, 1992). They suggested that because many students from minority groups are also economically disadvantaged, it is important to separate the effects of these two sets of influences on school achievement. For example, in an analysis of National Assessment of Educational Progress

(NAEP) mathematics test results, Byrnes (2003) found that less than 5% of the variance in math test scores was associated with race, but about 5% of the variance came from differences in SES, motivation, and exposure to learning opportunities (course work, calculator use, homework etc). These findings seem to agree with the position of Silverman (2002), earlier cited where she stated that giftedness is not elitist. It cuts across all socio-economic and national groups. In every culture, there are developmentally advanced children who have greater abstract reasoning and develop at a faster rate than their age peers (Dickson, 1970).

It is argued that low intelligence causes low SES, rather than the other way around (Herrstein and Murray 1994). According to these authors, while SES is correlated with IQ, it should be considered a consequence rather than a cause. However, adoption studies seem to indicate that SES has a strong, causal effect on intelligence:

> *Well-controlled adoption studies done in France have found that transferring an infant from a family having low socioeconomic status (SES) to home where parents have high SES improves childhood IQ scores by 12 to 16 points or about one standard deviation, which is considered to a large effect size to psychological research (Wahlsten, 1997, p. 76).*

Several recent US studies have also demonstrated improvements in children's IQs by improving the lives of infants in disadvantaged circumstances. These studies employed random assignment of children and families to treatment and control conditions.

These studies selected families with:

- Low parental IQ
- Low parental education
- Minimal financial resources

Experimental group received: Enriched educational day care outside the home every weekday from 3 months to start of schooling

Control group received nutritional supplements and pediatric medical care or crisis intervention but no educational day care.

Even though the children returned to their home environment every day and spent holidays and weekends with their families (mostly unemployed, single mothers) in poverty-stricken neighborhoods, there were large gains in IQ: almost as much as in the French studies previously mentioned. The main IQ of the enriched groups appeared to be quite typical of healthy American children; and the children continued to show higher IQ scores than controls at age 12 (Wanlsten, 1997). In these American studies, SES and education were being manipulated. There was a strong correlation between SES and education in both directions. Researchers comparing the behaviour of parents of gifted and average children have found significant differences in child rearing practices (Gale 1998). The parents of gifted children spend more time reading to them and encouraging creative types of play and are more involved with schooling. They are also more likely to actively encourage language development and expose their children to natural resources outside the home including those not restricted specifically to children, such as art and natural history museums. The case of Jelani Hyder Aliyu, a Nigerian who designed the Chevrolet volt, a state - -of – the art electric car in America aptly describes the effect of parental support on the development of gifts and talents. Jelani explained that his two biggest role models have been his parents, especially hi dad who loved reading a lot and provided a small Library that enabled him to read and understand what was happening in the world. He started drawing at an early age and his parents encouraged and mentored him to develop his talents (Omideletoba, 2014).

It is however, argued that SES is not the sole determinant of student achievement. In a study: "Against the Odds: A profile of academic achievers from urban underclass", Pollard (1989) talked about psychological factors as alterable variables, found in student's themselves or in their environments that are theoretically manipulatable, and that lead to successful outcomes. Several studies have identified resilience as a factor that enhances higher academic performance among students of a low SES background. Floyd (1996) noted that there are students who succeed despite economic hardships in their respective families. Floyd observed that there was limited money for extracurricular activities like football or basket ball but found that these students managed to continue focusing on and excelled in their education despite the occurrence of serious problems due to or related to socio-economic insecurity.

A face-value observation in Nigeria appears to align with this findings regarding resilience of children despite low SES. Despite numerous obstacles and challenges, there are some Nigerian children from poor and low-income families that seem to experience considerable success in school (Okafor, 2007).

2.4.2 Parents educational attainment and school achievement (giftedness)

Literature on achievement consistently has shown that parent education is important in predicting children's achievement (Klebanov, Brooks-Gunn and Duncan, 1994; Haveman and Wolfe, 1995; Smith, Brooks-Gunn, and Klebanov, 1997).

The mechanisms for understanding this influence, however have not been well studied (Davis-Kean, 2005).

Even though the majority of the literature on parents' education pertains to the direct, positive influence on achievement (Jimerson, Egeland, and Teo, 1999; Kohn, 1963; Luster, Rhoades, and

Heas, 1989), the literature also suggest that it influences the beliefs and behaviors of the parents, leading to positive outcomes for children and youth (Eccles, 1993). For example, Alexander, Entwisle, and Bedinger (1994) found that parents of moderate to high income and educational background held beliefs and expectations that were closer than those of low-income families to the actual performance of their children. Low-income families instead had high expectations and performance beliefs that did not correlate well with their children's actual school performance. Alexander et al, (1994) suggested that the parents' abilities to form accurate beliefs and expectations regarding their children's performance are essential in structuring the home and educational environment so that they can excel in post schooling endeavors. Halle et al (1997), using a sample of low-income minority families, also found that mothers with higher education had higher expectations for their children's academic achievement and that these expectations were related to their children's subsequent achievement in math and reading. Halle et al, found that these more positive beliefs and expectations predicted higher amount of achievement related behaviour by mothers in the home as well as more positive perceptions of achievement by the children.

Research on parenting has also shown that parental education is related to a warm social climate in the home. Klebanov, Brooks-Gunn, and Duncan, (1994) found that both mothers' education and family income were important predicators of the physical environment and learning experiences in the home but that mothers' education alone was predictive of parental warmth. Smith et al, (1997) found that the association of family income and parents' education with children's academic achievement was medicated by the home environment. The medication effect was stronger for maternal education than for family income. These authors posited that education might be lined to specific achievement behaviors in home (e.g. reading, playing).

Maternal education had the most consistent direct influence on children's cognitive and behavioral outcomes with some indirect influence through a cognitively stimulating home environment (Corwyn and Bradley, 2002). Corwyn and Bradley, however, examined only two, quite broad aspects of family mediators: learning stimulation and parental responsibility.

Parents' formal education may well influence children's well being by shaping parent-child interactions. When compared to less education parents, parents who have acquired more formal schooling tend to provide a more cognitively stimulating home learning environment and have a more verbal and supportive teaching style. These differences are considered very consequential in explaining why children of less-educated parents perform less well on measures of cognitive development than children of more highly educated parents (Harris, Terrel and Allen, 1999). Although most developmental researchers have pointed to parent-child interactions as the primary mediator of parental education's effects on children, the skills acquired through formal education may enhance parents' abilities to recognize their daily routines and resources in a way that enables them to effectively accomplish their parenting goals (Michael, 1972).

In sum, parents' years of schooling was found to have moderate relation to parents' educational expectations, which in turn, had a moderate direct relation to children's achievement, indicating that parent's education does relate to expectation beliefs. Secondly, the amount of schooling that parents receive influences how they structure their home environment as well as how they interact with their children in promoting academic achievement.

Also, it is possible that parents as "co-teachers" in the home may find better psychological balance of stimulation and demand for their children when they themselves were successful in academics (Davis-Kean, 2005).

Although poverty is a major threat for child development, a closer look at the underlying mechanisms may help explain why so many poor children in America perform well in school despite restricted material resources. It appears that, if parents are successful in providing an emotionally stable and stimulating environment, the negative effects of financial restrictions can be minimized. Parents' educational attainment to children's academic achievement is indirectly related through parents' educational expectations and specific parenting behaviors. Infact, parents' educational attainment has been found to be one of the most critical variables in the mortality of children across the world (Desai and Alva, 1998; Elo and Preston, 1996) and seems to be the major variable in children's well being in general (Chen, Mathews, and Boyce, 2002). Furthermore, for both African American and European Americans, the indirect link of parents' education expectations to parents' behavior is substantially related to parents' educational expectation for their children.

No matter how gifted, children do not develop their gifts without a parent or surrogate parent behind them encouraging stimulating, and pushing. But the parents do not create the gift. "The children are usually pushing the parents, sending out clear signals of their need for a stimulating environment…" (Winner, in Finn, 2007). Substantively, large and statistically significant positive correlations between parental schooling levels, parent teaching styles, home learning environment, and children's achievement and behavior are among the most replicated result from developmental studies. Review of published studies suggested that maternal educational attainment is more closely related to children's academic performance than fathers' educational attainment (Haveman and Wolfe, 1995, Sherraden, 1991, Wolff, 1995).

2.4.3 Family income/resources and educational achievement

In the last decades, studies have examined the possible impact of parental characteristic, such as family income and parental education, on children's educational outcomes, (Axinn, Duncan and Thornton, 1997; Duncan, Brooks and Gunn 2000).

Most studies on children's well-being have used income as the only measure of parental economic resources (Zhan, 2005). Within the small but now emerging area of wealth studies, income and assets are treated as two connected but distinct concepts (Oliver and Shapiro, 1995, Sherraden, 1991, Wolff, 1995). Empirical evidence is also generally supportive of the hypothesis that assets' holding has independent effects (Page-Adams and Sharraden, 1997; Scalon and Page-Adams, 2000). Additionally, there are important distinctions between income and wealth when considering basic empirical patterns. For instance, wealth inequality is generally more skewed than income inequality (Wolff, 2000). Based on these considerations, it is important to examine the impact of parental income an independent indicator of household economic status. A large body of work from an economic deprivation perspective suggests the importance of family economic resources in children's well-being (Becker, 1993).

Income refers to wages, salaries, profits, rents, and any flow of earnings received. Income can also come inform of unemployment or workers' compensation, social security, pensions, interests or dividends, royalties, trusts, alimony, or other governmental, public, or family financial assistance (Wolff 2000). Education plays a role in income in the sense that the highest degrees, professional and doctoral degrees, make the highest weekly earning while those without high school diploma earn less. Higher levels of education are associated with better economic and psychological outcomes (i.e. more income, more control, and greater social support and networking) (APA, Task Force on Socioeconomic Status 2007). Annette (2003) speaks on the idea of concerted cultivation, where middle class parents take an actual role in their children's

education and development by using controlled organized activities and fostering a sense of entitlement through encouraged discussion. Annette argues that families with lower income do not participate in this movement, causing their children to have a sense of constraint. A division in education attainment is thus born out of these two differences in child rearing. Lower income families can have children who do not succeed to the levels of the middle income children (Annette, 2003). In a paper, "Gifted potential and poverty" Kitano (2007) argues that income level, not race, produces social inequality. As to whether race has a role in producing social inequality, Annette stated that achievement data show a strong consistent relationship to socioeconomic status. Yet, evidence exists that social responses to race may affect achievement independent of income level. In America, a Task Force on Minority High Achievement reported that, while intense poverty limits the presence of Black, Hispanic, and relative American students among the highest achievers, inadequate school resources, racial and ethnic prejudice, families' limited educational resources, and cultural differences contribute to under representation. It is hypothesized that, as children reach school age, school and community environments have increasing influence that may equal or out-weigh the impact of family conditions (Kitano, 2007).

Yet, the home environment, including learning experiences in the home, accounts for 50% of the effect of income on cognitive ability. Parents and families are among the most important influences on children's academic performance, particularly in families most at risk for school failure based on poverty (Kitano, 2007). Parent factors contributing to academic performance vary by racial or ethnic and income level (Desimone, 1999, Okagaki & Fransch, 1998, Rosenzweig, 2001). Interventions with potentially gifted students from low-income backgrounds consistently identify the extent of parent interest in children's schooling and support of learning at home as critical factors in their children's success (Borland et al, 2000, Shumow, 1997).

Others identified by the general parent participation literature include parent's educational aspirations for their children, parenting approach, emotional support, and participation in school. Parent programs addressing specific learning strategies (e.g. monitoring, homework, tutoring, reducing television time, supporting development of good study habits, and high expectations) appear most likely to have positive effects on children's academic performance (Wang, Haertel and Walberg, 1993).

Experimental studies of family resources and children's development

Much of the literature on the causal effects of household income on parenting practices is said to have methodological shortcomings. Family income is not reported in many data sources that contain crucial information about child outcomes. Even in data sets containing measures of income, parenting, and developmental outcomes, it is usually the case that the income measurements cover only a portion of childhood, often adolescence. Moreover, even when the required data are available the analysis of such data rarely goes beyond using correlational technique to estimate causal impacts (Salkind and Haskins, 1982).

Experimental designs involving manipulation of family incomes, which might better establish the causal nature of associations between household income and child well-being, are extremely rare. In four income-maintenance experiments in the 1960s and 1970s, treatment families received an income supplement that varied with the family's income from work and other sources. Impacts on preschool children and parenting practices were not assessed. School performance and attendance were affected positively in some sites for elementary-school-age children, but not for high-school-age adolescents. In two sites reporting high-school completion and advanced education, these were higher for the experimental group (U.S. Department of Health and Human Services, 1983; Salkind and Haskins, 1982).

A number of experiments which begun in the early to mid-1990s implemented various packages of welfare-to-work programs, some of which augmented family economic resources and others did not, and whose evaluations tracked family process and child well-being (Morris et al., 2001). In all cases, participants were randomly assigned to a "treatment group" that received the welfare-reform package or to a "control group" that continued to live under the old AFDC rules.

Comparable analyses of these data by Morris, Huston, Duncan, Ciroby, Boss and Johannes (2001) revealed that welfare reforms that both increased work and provided financial supports for working families generally promoted children's achievement and positive behavior. In contrast, welfare reforms that mandated work but did not support it financially had few impacts – positive or negative – on children. Also of interest is the lack of consistent experimental impacts across all types of programs with respect to parents' reports of parenting practices across a range of measurement such as warmth and monitoring.

Nonexperimental evidence on the impact of poverty on child outcomes

Despite these experiments, whether family resources affect child development remains a controversial issue that has generated a large nonexperimental literature (Haveman and Wolfe, 1995). Duncan and Brooks-Gunn (1997) provide a recent look at links between poverty and development by coordinating analyses of 12 groups of researchers working with 10 different developmental data sets. Most of these datasets offer longitudinal measurement of parental family income as well as measurement of the achievement, behavior and health of individuals at various points in life. On the whole, the results suggest that family income may have substantial but decidedly selective associations with children's attainments. The selective nature of effects include the following: (i) family income had much larger associations with measures of children's ability and achievement than with measure of behavior, mental health and physical

health; (ii) family economic conditions in early childhood appeared to be more important for shaping ability and achievement than did economic conditions during adolescence; and (iii) the association between income and achievement appeared to be non-linear, with the biggest impacts at the lowest levels of income.

Human capital constitutes a second form of SES-based family resources, and includes the collection of parental skills acquired in both formal and informal ways that have value either in the labor market or at home (Becker, 1975). Formal schooling is the most familiar and most studied form of human capital, although it is not the only form. A large body of literature has attempted to gauge the labor-market value of skills acquired through additional years of schooling (Mincer, 1974) but less is known about the non-pecuniary returns to schooling (Michael, 1982). An individual's hourly earnings are presumed by economists to correspond to the value of the human capital that an individual brings to the labor market.

2.4.4 Parental occupation and academic achievement

Occupations are a much-studied component of socioeconomic status, with higher-status occupations typically conferring higher earnings, more control, and more prestige on workers holding them (Jencks, Perman and Rainwater, 1988). Research has focused on occupations as an important aspect of SES because they are closely related to education and earnings and, compared with single-year income, may better measure a family's "permanent" economic position. However, research on occupational transitions throughout the life course suggests that career mobility patterns are dynamic (Featherman and Selbee, 1988).

Of greatest interest is the fact that research has found that job conditions appear to shape workers' values and personalities. Characteristics of high prestige jobs such as highly complex

tasks and autonomy are associated with an orientation toward self-direction and intellectual flexibility, whereas low complexity jobs are associated with an orientation toward conformity. Based on correlational evidence, researchers have argued that job conditions determine worker's personality and values. Workers acquire values and skills on the job and generalize them to other areas of life (Kohn and Schooler, 1982). More recent work has also suggested that job characteristics shape employees cognitive skills, rather than or in addition to their personalities (Parcel and Menaghan, 1994; Parcel and Menaghan, 1998). In particular, low-prestige jobs with low autonomy, routinized tasks, and little opportunity for "substantively complex work" may erode parents' cognitive skills, whereas high-prestige jobs promote initiative, thought, and decision-making skills. Therefore, from the very beginning researchers argued that acquired values, orientations, or cognitive skills were passed on to children through parenting practices. For example in the case of values, class differences in the value of autonomy have been linked to class differences in parental goals, and subsequently parenting practices (Kohn, 1969; Luster et al., 1989). Higher SES parents are more likely than lower SES parents to use shame, guilt, and reasoning as disciplinary strategies, strategies that emphasize a child's autonomy, and less likely to use commands and imperatives, strategies that emphasize children's conformity (Kohn, 1969). In the case of cognitive skills, theory suggests that characteristics of parents' jobs influence children primarily through the home learning environment, because parents with lower cognitive skills provide a less cognitively stimulating home leaning environment (Parcel and Menaghan 1991).

2.4.5 Parental attitude and academic achievement

Home influence is identified as very important variable that have potential for promoting directly or indirectly student academic achievements (Bloom, 1984). The term parental involvement has

been given different meanings. It has been used to mean deliberate effort by the home to reinforce improved academic performance (Ferhrmann et al 1987; Fontana, 1981); general academic guidance and support (Bloom 1984); parental influence as determinant of attitude towards learning, contribution to children's activities home work, encouraging children to read, and promoting school and school based activities (attending parent teachers' association meetings, parent teachers conference and participating in fund raising activities).

Attitude is a concept, which arises from the attempt to account for the observed regularities in the behavior of individual persons, the quality of which is judged from the observed evaluative responses one tends to make (Oluwatelure and Oloruntegbe, 2009). An individual can show positive or negative attitude towards a particular object, subject or idea. Kind et al, (2007) viewed attitude as having different components which includes cognitive (knowledge, beliefs and ideas); affective (feeling, like, dislike,) and behavioural (tendency towards an action). The attitude that one has towards an object makes one to make judgment as to whether the object is good or bad, harmful or beneficial, pleasant or unpleasant important or unimportant (Crano and Prislin, 2006).

Six areas of parental involvement were identified by Epstein (1995) in their children's academic activities. These are parenting, communicating, mentoring, learning at home, decision making and collaborating with the school. According to her, if they are actively involved in all these area, no doubt it will stimulate learning in school and influence academic achievements.

Parental Involvement

Children who are academically successful are said to hold positive attitude to school and are well adjusted emotionally and socially. The academic success is due to the children's innate abilities

and reflects the advantage of being in the socio economic level (Machen, Wilson and Notar 2005). Children who are economically advantaged receive enough stimulation at home thereby enhancing their academic achievement. Parents' high aspiration does have additional benefit over and above the advantages children enjoy from being capable and receiving adequate stimulation and resources. One study found that higher level of parental aspiration lowered the likelihood of academic failure during primary school by 48% compared with equally poor but low aspiring parents (Machen et al., 2005; Stelios and Georgious, 2007; Zhao and Akiba, 2009). The fact that there is a positive relationship between parental influence, which is a indices of socio-economic status of parents and the academic progress of their children is established by Lee and Croninger (1994); Willms (1986); Sui-chu and Willms (1996); Oluwatelure (2009). Michigan Department of Education (2001), Identified three major factors of parental involvement in the education of their children

1. Parents' beliefs about what is important, necessary and permissible for them to and on behalf of their children;
2. The extent to which parents believe that they can have a positive influence on their children's education; and
3. Parents' perceptions that their children and school want them to be involved.

Type of Involvement

1. Although most parents do not know how to help their children with their education, with guidance and support, they may become increasingly involved in home learning activities and find themselves with opportunities to teach, to be models for and to guide their children.

2. When schools encourage children to practice reading at home with parents, the children make significant gains in reading achievement compared to those who only practice at school.
3. Parents, who read to their children, have books available, take trips, guide TV watching, and provide stimulating experiences contribute to student achievement.

Epstein developed a framework for defining six different types of parent involvement. (Epstein 1995). Epstein's framework defines the six types of involvement and lists sample practices or activities to describe the involvement more fully. Her work also describes the challenges inherent in fostering each type of parent involvement as well as the expected results of implementing them for students, parents, and teachers as follows:

1. **Establish a daily family routine.** Examples: Providing time and a quiet place to study, assigning responsibility for household chores, being firm about bedtime and having dinner together.
2. **Monitor out-of-school activities**. Examples: Setting limits on TV watching, checking up on children when parents are not home, arranging for after-school activities and supervised care.
3. **Model the value of learning, self-discipline, and hard work**. Examples: Communicating through questioning and conversation, demonstrating that achievement comes from working hard.
4. **Express high but realistic expectations for achievement.** Examples: Setting goals and standards that are appropriate for children's age and maturity, recognizing and encouraging special talents, informing friends and family about successes.

5. **Encourage children's development/ progress in school.** Examples: Maintaining a warm and supportive home, showing interest in children's progress at school, helping with homework, discussing the value of a good education and possible career options, staying in touch with teachers and school staff.
6. **Encourage reading, writing, and discussions among family members.** Examples: Reading, listening to children read and talking about what is being read.

2. 5 Personality and Giftedness

The main difference among individuals lies in their personality. One's personality consists in his/her general profile or in the special combination of psychological traits of character that refer to his/her unique nature. One's unique combination of psychological features leads to the way in which that specific person reacts and interacts with the others or the environment. One's personality includes a set of mental characteristics which reflect the way in which a person thinks, acts and feels. (Baron, 2007).

Many specialists have asked themselves which is the main factor that determines personality: is personality genetically inherited or developed gradually through experience?

Heritability studies of all five factors of the Big five Personality test show an influence from both heredity and environment. Twin studies suggest that these effects contribute in roughly equal proportion (Jang, Livesley and Vernon, 1996). As earlier mentioned, heredity establishes the limits of one's personality traits that can be developed, while the environment – represented by the cultural, social and situational factors – influence the actual development within the limits. Cultural factors are related to the cultural values earned by someone in the course of his/her life, especially during the period when his/her personality is formed. These cultural values have a

great impact upon an individual's behavior. Social factors are represented by family, religion and the groups of people one has made part of through the years. Situational factors emphasize or diminish some aspects of one's personality. For example, a person that has experienced recently one failure after another would not wish to be involved in another project – at least for a period of time – even if this particular one might be successful (Lupu, 2006).

2. 5. 1 Personality and Learning

Researchers have over the years studied the personality traits and cognitive learning styles of intellectually gifted and academically talented students that distinguish them from the general population. This line of research is important since a number of these traits have been shown to be related to high-level achievement, long-term social-emotional adjustment among others. In an article "Personality, learning and cognitive style, the profiles of Mathematically Talented students Mills (1993), compared academically talented students to a group of some-age peers of mixed ability and found that they differed on four important dimensions of cognitive style (Preferences for introversion – Extraversion, sensing – intuition, Thinking – Feeling, and Judging – Perceiving). Teaching/Learning process as we know it, is fundamentally an individual affair. That is, understanding individual differences in learning is essential.

Six personality types of gifted and talented children based on behavior, feelings, and special needs (Cork Education Support Centre 2006) are as follows:

1. Successful gifted child personality type

These children are usually successful academically, and identified as gifted at school. They are high achievers and perfectionists who seek for other people's approval. The problem, however, is that with time they often get bored and devote minimum effort to achieving.

2. Challenging gifted child personality type

This personality type includes very creative, but often frustrated or bored, gifted children. They question the systems around them and are often rebellious because their abilities are unrecognized. Impatient, direct, and competitive, such children have low self-esteem.

3. Underground gifted children personality type

Many of such children are never identified as gifted since they are usually quiet and insecure. They often hide their talents, resist challenges, and drop out of gifted school programs because of their shyness.

4. Dropout gifted child personality type

These gifted children are angry and depressed because the school system does not recognize their abilities, and does not address their special educational needs. That is why they resist the system by refusing to complete schools assignments or to attend school. Being considered average or below average, they have poor self-esteem, are defensive and self abusive.

5. Double-labeled gifted child personality type

This type of gifted child is often unrecognized because they have physical, emotional or learning disability. Adults fail to notice their giftedness due to being focused on the areas where the child is less able.

6. Autonomous gifted child personality type

These are self-confident and independent children that are successful academically, motivated, goal-oriented, and responsible. They usually like to assert their independence, in spite of their strengths and weaknesses. They generally like to do things their own way.

According to the authors, each subtype of giftedness can be strongly pronounced in one personality. At the same time, combinations are possible since the subtypes are not mutually exclusive. So, a gifted or talented child may possess the characteristics of more than one type of giftedness. Autonomous and successful personality types of a gifted child are usually easy to recognize and deal with. The achievements of these children cannot be unnoticed. Challenging, underground, double-labeled and dropout personalities of gifted children require special attention. They should be recognized as early as possible for the parents to know what measures be taken to address all the special needs of such children.

The importance of first considering what children's personality are before planning any educational program is stressed by Ruf (2007). This is because each individual has a social personality that is different from everyone else, and also have a learning personality that is deferent from everyone else.

Learning process is centered on three elements:

1. The learner whose behavior is to be changed or modified.
2. The type of experience or training required for modification in the learner's behavior.
3. The human and material resources needed for providing desired experience and training (Mangal, 2011).

What goes into the process of learning? How does an individual learn a set of facts and figures, skills, habits, interests, altitudes etc are questions that have always been a subject of inquiry and investigation for psychologists; resulting to a number of theories that have evolved.

Of importance in the learning process is the learner's personality type as well as the various emotional factors. There is a close connection between a person's personality type and their learning style. For example, many language learners are familiar with the Myers-Briggs Type Indicator (MBTI) - an instrument widely used to help people discover the way they tend to take in information, make decisions and relate to people. The Myers-Briggs Type Indicator identifies preferences in four areas:

a. **Extroversion vs. introversion**

   Extroverts are usually energized by being with people and interacting with them, and can often think best if they can talk over their ideas with other people. Introverts, on the other hand, think best by themselves by processing ideas in their own minds.

b. **Sensing vs. intuition**

   Sensing (or concrete-sequential) types tend to take in information in a sequential way through the use of their five senses, and tend to be interested in the concrete and here & now. Intuitive types are more interested in theories and possibilities, and often make good guesses without going through sequential steps of reasoning it out.

c. **Thinking vs. feeling**

   Thinking types tend to make decisions more objectively, on logical, impartial grounds. Feeling types, on the other hand, tend to come to a decision more subjectively on the basis of feelings as well as the effect of the decision on personal issues.

d. **Judging vs. perceiving**

Judging (or closure-oriented) types like things to be clear and settled, and strive for closure. Perceiving (or open-ended) types like matters to be open-ended for as long as possible. (Purnell 1998).

It was found that perfectionism, sensitivity and intensity as three personality traits associated with giftedness (Silverman 2002). They are derived from the complexity of the child's cognitive and emotional development. According to Dabrowski's theory, these traits—related to overexcitabilities—are indicative of potential for high moral values in adult life. The brighter the child, the earlier and more profound may be his or her concern with moral issues. But this potential usually does not develop in a vacuum. It requires nurturing in a supportive environment. Silverman stated that about 60% of gifted children are introverted compared with 30% of the general population. Approximately 75% of highly gifted children are introverted. Introversion correlates with introspection, reflection, the ability to inhibit aggression, deep sensitivity, moral development, high academic achievement, scholarly contributions, leadership in academic and aesthetic fields in adult life, and smoother passage through midlife; however, it is very likely to be misunderstood and "corrected" in children by well-meaning adults.

2.5.2 Personality assessment / measurement

Personality theories like all scientific theories require measurement of the contracts underlying the field. Regardless of whether one is developing theories of species typical behavior, of individual differences in behavior, or unique patterns of thoughts and feelings, one needs to be able to measure responses in question. The fields of psychometrics and personality assessment are devoted to the study of the measurement of psychological constructs associated with

personality (Lowman, 1996). Personality measurement and assessment procedures are useful in understanding individuals.

They include:

- Interviews
- Observations
- Rating scales
- Personality tests
- Projective tests

1. Interviews:

The interview is the most commonly used procedure in psychological assessment. Interviews provide an opportunity to ask people for their own descriptions of their problems. Interviews also allow clinicians to observe important features of a person's appearance and nonverbal behavior.

2. Observational procedures:

Observational skills play an important part in most assessment procedures. Observational procedures may be either informal or formal. Informal observations are primarily qualitative. The clinician observes the person's behavior and the environment in which it occurs without attempting to record the frequency or intensity of specific responses. Although observations are often conducted in the natural environment, there are times when it is useful to observe the person's behavior in a situation that the psychologist can arrange and control.

The Mental status examination

The mental status examination involves systematic observation of an individual's behavior. This type of observation occurs when one individual interacts with another. Mental status examination can be structured and detailed. It covers five categoris:

1. Appearance and behavior
2. Thought process
3. Mood and affect
4. Intellectual function
5. Perception of person, place and time

The mental status examination tells us how people think, feel and behave and how these actions might contribute to explain their problems. This behavioral assessment is done by using direct observation of an individual's thought, feelings and behavior in situations or context where the individual is having problems.

3. Rating scales:

A rating scale is a procedure in which the observer is asked to make judgments that place the person somewhere along a dimension. Ratings can also be made on the basis of information collected during an interview. Rating scales provide abstract descriptions of a person's behavior rather than a specific record for exactly what the person has done.

4. Personality inventories:

Personality inventories present an elaborate picture of an individual's overall personality including the traits, the characteristics, the tendency and the styles that are thought to underlie behavior. The questions in personality inventories are presented in form of statements. These statements are the items of personality test. Many personality inventories are available such as Minnesota Multiphasic Personality Inventory (MMPI). This test was developed in 1940 and

published in 1943. It is based on empirical approach i.e the collection and evaluation of data. The individual is presented with statements and the answers have options like true, false and cannot say. Some of the statements from MMPI are as follows:

1. I cry easily
2. I am happy most of the time
3. I believe, I am being followed

MMPI consisted of 550 items. MMPI consists of ten clinical scales, meaning that it diagnoses people on ten clinical disorders.

It has got four validity scales, which include:

1. Lie scale
2. The F scale, infrequency scale
3. K scale, The Defensiveness scale
4. The Cannot say scale

They consist of a series of straightforward statements; the person being tested is typically required to indicate whether each statement is true or false in relation to the individual.

Some personality inventories are designed to identify personality traits in a normal population, and others focus more specifically on psychological problems.

The most extensively used personality Inventory is the Minnesota Multiphasic Personality Inventory (MMPI). The inventory was revised several years ago, and it is currently known as the MMPI-2. (Lowman, 1996).

5. Projective personality tests:

Psychoanalytic personality theorists have developed several assessment measures known as projective tests. They include a variety of methods in which ambiguous stimuli, such as pictures of people, or things are presented to a person who is asked to describe what he or she sees. The theory here is that people 'project' their own personality, their needs, their wishes, their desires and their unconscious fears on other people and things such as ink blots, pictures, sometimes vague and sometimes structure. Projective testes are based on psychoanalytic theory. They have been and they still remain, controversial. Some of the most widely used projective tests are Rorschach Ink Blot Test, the Thematic apperception Test (TAT), House Tree Person (HTP) and the Rotter's Incomplete Sentence Blank (RISB).

In projective tests, the person is presented with a series of ambiguous stimuli. The known projective test, introduced in 1921 by Hermann Rorschach, a Swiss psychiatrist, is based on the use of inkblots. Projective techniques such as the Rorschach test were originally based on psychodynamic assumptions about the nature of personality and spychopathology and impulses of which the person is largely unaware.

A study: Current assessment practice, personality measurement, and Rorschch usage by psychologists; Musewicz, Marczyk, Knauss & York (2009), investigated current personality assessment practice and attitude toward Rorschach (Exner, 2003) usage by 215 psychologists. The researchers administered an internal survey to members of the Society for personality Assessment (SPA) and the American psychological Association. Majority of respondents reported using Rorschach and supporting efforts to standardize and psychometrically validate the test. SPA members agreed more strongly than non- members that the Rorschach is an effective test.

2.6 Summary and uniqueness of the study

The summary reveals in detail issues related to the home factors and personality of the gifted and average J.S.S Students in Kano and Jigawa states with a view to understanding differences if any between them. The literature reviewed severally revealed that identification of the gifted and talented students thought difficult is very necessary and important as they require gifted programs to develop and apply their gifts and talents. Because they learn in different manners and at an accelerated rate compared to their peers in the regular classroom; and because their percentage is few; most teachers who are themselves not competent to handle such individuals neglect their special needs. Apart from this, most people are ignorant of the psychological factor of giftedness, to the extent that even parents fail to recognize their gifts and talents.

As to nature-nurture debate on the cause of intelligence (giftedness), most psychologists have now agreed that intelligence results from both heredity and environment though the degree of influence by both is still a subject of debate. This means neither heredity alone or environment alone can produce giftedness-both play significant roles.

Personality characteristics also play significant roles in the way individuals learn. Research findings have revealed that there is a close connection between a person's personality type and their learning style. Understanding personality types of the gifted will greatly help in planning lessons that will be both appropriate and challenging for their special needs.

Various instruments have been developed by specialists to measure intelligence and personality characteristics of individuals. Some of these are employed to help understand differences in some home background factors and personality characteristics of JSS students in Kano and Jigawa States. From the literature reviewed it was evident that variables of home factors, personality and giftedness were intensively researched in several countries outside Nigeria. It is

however worth noting that the three variables of home background, giftedness and personality were not simultaneously studied within the Nigerian context which created a gap for this study to fill in. In this regard, this study is unique in the sense that it is the first of its kind in Kano and Jigawa states and Nigeria as a whole. It brings to light the importance of identification of the gifted students who have been neglected or given little attention even when they have much to offer the nation. It reveals the educational needs of the gifted and talented that may lead to all stake holders taking positive steps to address these needs.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This study sought to determine differences, if any in some home factors and personality of gifted and average Junior Secondary School students in Kano and Jigawa States.

In this chapter, the research design, population and sample, sampling technique, instruments for data collection, validity and reliability of the instruments, procedures for data collection and data analysis are presented.

3.2 Research design

The current study is based on ex-post facto design which compares two groups which are not equivalent from the beginning. The two groups in this context are the gifted and average students. The groups are usually selected intact and the treatment is not under the direct control of the researcher – none of the variables is manipulated; no treatment, intervention or exposure (Adeyanju, 2006). The variables have already manifested prior to this current study.

3.3 Population and sample

3.3.1 Population

The population of the study comprised all Junior Secondary three students (JSS 3) in Kano and Jigawa States. The population consisted of one hundred and fourteen thousand, seven hundred and forty-nine (114,749) students, according to Kano State Senior Secondary School Management Board Department of Planning and Statistics, 2013; and Jigawa State Universal Basic Education Commission schools statistics for 2011/2012 academic year. Kano has higher number of sample because the total number of the population in Kano is almost three times higher than that of Jigawa i.e 91,807 from Kano; and 22,942 from Jigawa. This figure was drawn from both public and private schools.

Table 3:3.2 Sample schools

SN	School	Public	Male	Female	Co-education
1	GSS Bichi	√	√		
2	GGASS Danzabuwa	√		√	
3	GSS Gwarzo	√	√		
4	GSS Rano	√	√		
5	GGSS Gezawa	√		√	
6	GGSS Kabo	√		√	
7	GSS D/ Kudu	√	√		
8	GSS Minjibir	√	√		
9	GGC Kano	√		√	
10	GSS S/Kofa	√	√		
11	Rochas Foundation College				√
12	Baba Alhamdu Secondary School				√
13	JSS Zarenawa	√	√		
14	JSS Shiwarin	√	√		
15	GGSS Kazaure	√		√	
16	Dutse Model International				√

Source: Kano State Senior Secondary School Management Board, Department of Planning and Statistics, 2011/2012; and Jigawa State Universal Basic Education Commission School Statistics 2011/2012.

3.3.2 Sample

The sample of the study was drawn from sixteen (16) schools from Kano and Jigawa States. The sample comprised 96 subjects- 48 gifted and 48 average JSS 3 students in their third term of the

session. Of this number (96); 49 were females and 47, males. Three (3) gifted per school were identified and used as sample because though found in any given population they are few and the selection / identification process is a tedious and difficult one. Thus for effective selection/identification, the number was limited to only three. For each school therefore six students made up the sample – 3 gifted and 3 average students.

3.3.3 Sampling procedure

Cluster sampling technique was adopted to select the sixteen schools where the sample was drawn. Of these 16 schools, twelve (12) are from Kano and four (4) from Jigawa State. According to Amin (2005) Cluster is a sampling technique where elements of the population are grouped into clusters. A simple random sample or other types of sampling could be performed on the cluster. Bichi (2004) asserted that cluster could be zonal education areas, where schools within the zonal education area could be selected, and within schools, classes could be sampled, and finally, individual students could be sampled within classes. For the selection of the sixteen (16) schools, simple random sampling technique was used. In this regard, Kano State was divided into five (5) geographical clusters (North, South, Central, East and West) where within the zones, the twelve schools were selected. Jigawa state on the other hand was divided into 3 clusters based on senatorial districts (North, Central, South) where the four schools were selected. Of the 12 schools randomly selected in Kano, 10 were public while 2 were private, 6 boys, 4 girls and 2 co-educational. In Jigawa, 3 were public schools 1 private; 2 boys 1 girls and one co-educational institution.

Thus, the selection was proportionate to give a fair representation. The selection of schools was also based on the number of students in public and private schools within the two states. This

was because of the giftedness characteristics and disposition of the students which the researcher was interested in.

Purposive sampling technique was used to select the gifted sample. In this respect, the students who consistently took the first three (3) positions in JSS 1 – 3 in three classes were selected based on their academic achievements for these periods. Nine (9) students (3 per class) along with three (3) average students were subjected to mental abilities test where the best 3 formed the gifted sample. Three (3) average students were also systematically selected per school as each class has several streams.

3.4 Instruments for data collection

Two instruments were used to collect data for this research; while two were used to identify the gifted sample. These include:

3.4.1 Mental Abilities Test (MAT): Comprised 25 items with six subscales; verbal subscale: 4 items; Performance subscale: 2 items; "Test of wiseness;" 4 Items; Multiple choice: 2 items; Computational (test questions): 6 items; and Fill in the blank: 7 items. Subjects were expected to attempt all questions based on their understanding. Question 4 under verbal subscale required a verbal response from subjects. This instrument was adapted from samples in Slavin (2009). It was used for identification of the gifted along with the teacher nomination checklist.

3.4.2 Teacher Nomination Checklist: Comprised of 25 items with no subscales. This process was based on the teachers' perception of what they observed as the characteristics of a gifted child. To be eligible, a subject must score at least 18 points. The instrument is a standardized free online teacher nomination checklist used for prek – 5^{th} grade: "Adapted from Region One Education Service Center, Jacob Javits Grant Materials (2011)" and used in the current study.

3.4.3 Home Factors Questionnaire: This instrument comprised 13 items originally developed by Maiwada (1983) to investigate the effects of schooling and environment on reading ability of 12-14 year old Hausa secondary school students. The researcher used it to examine the effects of home background factors among others on the reasoning ability of the subjects. The items in the questionnaire were found to be relevant to the current research hence its adaption.

For the current study, the home factors questionnaire was used to find out differences if any between gifted and average learners in some selected home factors: academic attainment/occupation of parents; availability of reading materials in the home; home support on academic issues, and aspiration of subjects.

Options were given where subjects were expected to choose the ones which best described their opinion. Some of the options included “Yes”; “No;” “Undecided”; and “Yes” or “No.”

3.4.4 The Big Five Personality Test

This instrument consists of 50 items and measures what many psychologists consider to be five fundamental dimensions of personality. A free online short version of the five factor model personality inventory by Myers (1992), developed by Goldberg (1992) retrieved from http://www.innovationmanagement.org/wiki/index. php? Title = The Big Personality Test on 9/10/2012 was adapted for use in the current study.

The test measures five personality traits: Extraversion, Neuroticism, Conscientiousness, Agreeableness and Openness to Experience. Each trait has ten (10) test items and consists of two descriptors (positive and negative): "I am interested in other people”; “I am not really interested in other people.” The traits are arranged in this order: test items 1–10; Openness to Experience; 11–20: Conscientiousness; 21-30: Extraversion; 31–40: Agreeableness; and 41–50: Neuroticism.

The items were rated on a 5 point Likert scale and were arranged based on Strongly Disagree 1; Disagree – 2; Undecided – 3; Agree – 4; Strongly agree – 5.

The instrument sought to find out if there were differences in personality traits between the gifted and average subjects under investigation.

3.5 Validation of instruments for data collection

A pilot study was carried out to validate four instruments, all adapted for identification of the gifted sample and for data collection namely: Mental Abilities Test (MAT) by Slavin (2009); Teacher Nomination Checklist (TNC) for gifted children by Jacob K. Javits Grant (2011) used for identification of the gifted sample; the Big Five Personality Test (BFPT) by Goldberg (1992); and Home Factors Questionnaire (HBFQ) by Maiwada, (1983) used to collect data for the pilot study. The sample of the study consisted of twenty four (24) subjects, - 12 gifted and 12 average JSS three students drawn from four schools: Government Secondary School Tarauni, Government Girls Secondary School, Shekara and ECWA Schools, in Kano State; and Junior Secondary school Ringim, in Jigawa State. Eight (8) class teachers filled the TNC – two per school. For the 24 subjects that made up the sample, 14 were males, and 10 females.

The four instruments were administered in two stages. In the first stage, two class teachers nominated 3 students each which they observed as having at least 18 characteristics of a gifted child.

For each school six students were nominated. Together with three systematically selected average students in the same class, the nine students attempted the mental abilities test. The best three constituted the gifted. The administration of the first two instruments was for the sole purpose of identification of the gifted. After this process, the two other instruments were

administered one after the other to the six subjects – 3 gifted, 3 average. This was to find out differences if any in personality and home factors of the gifted and average subjects.

To establish construct and face validity of the instruments, the researcher gave her supervisor the test items in order to make judgement about the degree to which the tests/questionnaire/checklist were a representative sample of the content of whatever objectives or specifications the items were originally designed to measure. The researcher equally consulted professors in the field of psychology and test and measurement and well trained and qualified colleagues to ascertain the degree to which the test items matched the test objectives or specifications. The experts then made their in-depth judgement which served as face validity. To determine reliabilities, expert judgement, alpha and test re-test after periods of two weeks were adopted.

The reliability coefficients of the four instruments were compiled using Cronbach alpha with the aid of SPSS statistical package. The correlation coefficient between Mental Abilities Test (MAT) and Teacher Nomination Checklist (TNC) correlated significantly at .830. The original Big 5 Personality Test developed by Goldberg (1992) using a sample of 501 in a research showed a reliability index of:

Extraversion	0.86
Neuroticism	0.86
Conscientiousness	0.86
Openness to experience	0.82
Agreeableness	0.77

The current research used 24 subjects as sample for validation study. The alpha level for the reliability of Big Five Personality test showed:

Extraversion	0.659
Neuroticism	0.592
Conscientiousness	0.519
Openness to experience	0.405
Agreeableness	0.857

Home factors questionnaire showed a coefficient reliability of .478. This instrument was compiled by the research supervisor from sample test items in Slavin (2009). The items were based on the conventional standardized scales including (a) an information test, (b) a general comprehension test and (c) an arithmetical reasoning test.

The Test was subjected to a Pilot study with a view to establishing its Psychometric properties. The outcome of the Pilot study is described in section 3.6 below.

Based on the above results of validation study, the internal consistency of the subscales of Mental Abilities Test has shown a positive correlation with Teacher Nomination Checklist. The Big 5 Personality traits also showed a strong alpha coefficient of reliabilities. Similarly the Home factors also possess adequate reliability coefficient. All the instruments have therefore shown adequate characteristics to generate information for the current research.

3.6 Procedure for data collection

Two of the four instruments – Mental Abilities Test and Teacher Nomination Checklist were administered by the researcher. This was to ensure that the gifted were properly and effectively identified before the other two instruments – Big Five Personality Test and Home Factors Questionnaire were administered. The gifted were thus identified through the use of the academic achievement records of students who consistently took the first, second and third positions from JSS 1-3 in three classes. Nine (9) students were picked. Similarly, three (3) average students who took class position 20 to 30 or more depending on the class size were systematically selected. The mental abilities test was administered to all 12 students (9+3). It was immediately scored. Among the nine, the best 3 constituted the gifted for each school, 6 subjects (3 gifted and 3 average) made up the sample.

The other two instruments – Big Five Personality Test and Home Factors Questionnaire were then administered to the two groups. Two research assistants were trained to handle the administration of these two instruments, after establishing rapport with the subjects in each school. For each instrument 96 copies were distributed and retrieved – without any missing.

The researcher concentrated on establishing rapport with school principals who then linked up the researcher with class teachers and in some cases vice principals and or senior masters who assisted in providing all that was required to identify the gifted, select the average subjects and arrange for suitable venues for administering the instruments. Because of the long standing good work relationship between the researcher and heads of sample schools in Kano and Jigawa states, minimal problems were encountered throughout the entire exercise. A whole day was devoted to each school to ensure adequate time and attentions were given for filling and retrieval of the instruments.

Three instruments - Big Five Personality Test, Home Factors Questionnaire and Teacher Nomination checklist were translated into Hausa language for better understanding of the English words and phrases used in the instruments. Mental Abilities Test was not translated, but the researcher explained the difficult words verbally to the subjects.

3.7 Procedure for data analysis

Data collected for this study was statistically analyzed using descriptive statistics; inferential statistics of Pearson Product Moment Correlation (r), Chi-square and ANOVA. Descriptive Statistics was used to report the demographic variables of the independent sample; correlation was used to test hypotheses 1and 4 which sought relationship between variables of interest. Chi-square and ANOVA were used to test hypotheses 2 and 3, which sought for differences among variables of interest in the study.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents analysis and interpretation of the data collected from the field. The data was interpreted based on simple frequency count to explain the demographic variables. Pearson Product Moment Correlation (PPMC) was used to find relationship between Mental Abilities Test and Teacher Nomination Checklist as criterion for the identification of the gifted while, Chi-square and ANOVA were used to analyze the hypotheses.

4.2 Summary of the data

Table 4.2.1 Distribution of sample by gender

Variables	Frequency	Percentage
Male students	47	49.0
Female students	49	51.0
Total	**96**	**100.0**

The table above presents the distribution of the sampled students by gender. Male students were (47) 49%; while female students were forty nine (49) 51%. A total of ninety-six (96) students were studied from 16 selected schools.

Table 4.2.2 Distribution of students' home factors by fathers' occupation

Fathers Occupation	Gifted		Average	
	Frequency	%	Frequency	%
Business man	17	45.9	20	54.1
Civil servant	20	46.5	23	53.5
Farmer	11	68.8	05	31.7
Total	**48**	**50.0**	**48**	**50.0**

The table above presents distribution of students by their fathers' occupation. Seventeen (17) 45 .9% gifted learners and (20) 54.1% of the average learners are of "Business men parents".

Twenty (20) 46.5% of the gifted learners come from parents who are "Good Servant" (Civil Servant) while; twenty-three (23) 53.5% of the average learners come from same type of parents. Eleven (11) 68.8% of the gifted students come from parents who are "Farmers", five (5) 31.2% of the average students come from the same parents. This shows majority of the gifted students were from good servant parents while majority of the average sample have business men as parents.

Table 4.2.3 Distribution of students' home factors by mothers' occupation

Mothers Occupation	**Gifted**		**Average**	
	Frequency	**%**	**Frequency**	**%**
House wife	16	33.4	24	50.0
Civil Servant	22	45.8	13	27.0
Petty Traders	10	20.8	11	23.50
Total	**48**	**50.0**	**48**	**50.0**

The table above presents distribution of students by their mothers' occupation. The result showed gifted students from house wife mothers were (16) 33.4%; while (24) 50% students were recorded from the same type of mothers. Students who are gifted from civil servant mothers were (22) 45.8%; while students from the same type of mothers were (13) 27%. Students whos mothers were petty traders were (10) 20.8%; while average students from the same type of mother were (11) 23%. This shows most mothers of the gifted are civil servants; while majority of the mothers of average sample are house wives.

Table 4.2.4 Distribution of students' home factors by fathers' educational attainment

Fathers educational attainment	Gifted		Average	
	Frequency	%	Frequency	%
Quaranic education	17	54.8	14	45.2
Primary education	12	63.2	07	36.8
Secondary/ICT II	15	50.5	22	59.5
OND / HND	01	50.0	01	50.0
University Graduate	03	42.9	04	57.1
Total	**48**	**50.0**	**48**	**50.0**

The table above presents distribution of students' home factors by educational attainment of their fathers. Seventeen (17) 54.8% of the gifted students indicated their parents attended Quranic school while fourteen (14) 45% average students showed their fathers have similar qualification. Students from parents who attended primary school were twelve (12) 63.2 and seven (7) 36.8% for gifted and average students respectively. Fathers who attended Secondary/TC II schools are fifteen (15) 40.5% and twenty-two (22) 59.5% of gifted and average learners respectively. Parents who possessed OND and HND were found to be one (1) 50% each, for gifted and average learners. Parents who are university graduates were found to be three (3) 42.9% and four (4) 57.1% for gifted and average learners respectively.

Table 4.2.5 Distribution of students' home factors by mothers' educational attainment

Mothers educational attainment	Gifted Learners		Average Learners	
	Frequency	%	Frequency	%
Quranic education	14	40	24	60
Primary education	03	30	07	70
Secondary / TC II	09	75	03	25
Technical	01	33.3	03	66.7
Judiciary	03	100.0	00	00.0
OND/HND	08	66.7	04	33.3
University graduate	09	56.2	07	43.8
Master degree	01	20	01	4.80
Total	**48**	**100.0**	**48.0**	**100.0**

This table presents distribution of students' based on educational attainment of their mothers. Students who come from mothers with quranic education are fourteen (14) 40% for gifted and twenty (24)60% average learners respectively. Mothers who attended primary education are three (3) 30% and seven (7) 70% gifted and average learners respectively. Nine (9) 75% and three (3) 25% of gifted and average learners come from mothers who attended secondary/TC II schools. Mothers who attended technical colleges is one (1) 33.3% and three (3) 66.7% of gifted and average learners respectively. Three (3) 100% of students come from mothers who attended judiciary school. Students from mothers who possess OND/HND are eight (8) 66.7% and four (4)

33.3% of gifted and average learners respectively. Nine (9) 56.2% of gifted learners and seven (7) 43.8% of average learners come from mothers who are graduates. One (1)% each for gifted and average mothers posses masters' degree.

Table 4.2.6 Distribution of students' home factors by available reading materials

	Gifted students		**Average students**	
Available reading materials at home	**Frequency**	**%**	**Frequency**	**%**
Yes	23	46.0	27	54.0
No	25	54.3	21	45.7
Total	**48**	**50%**	**48**	**50%**

The table above presents distribution of students by their home background and reading materials they have at home. Twenty-five (25) 54.3% of the gifted students and twenty-one (21) 45.7% of the average students indicated they have no reading materials at home. Twenty-three (23) 46% of gifted students and (27) 54% of the average students showed they have reading materials at home. This shows more average students have reading materials at home than the gifted.

Table 4.2.7 Distribution of students' home factors by types of available reading materials

	Gifted learners		**Average learners**	
Types of reading materials	**Frequency**	**%**	**Frequency**	**%**
Arabic & Islamic	48	50.5	47	49.5
Comb of some	00	00.0	01	100.0

Total	**48**	**50**	**48**	**50**

The table above presents distribution of students' home background by types of available reading materials at home. Gifted students who indicated there are arabic and islamic studies books at home were forty eight (48) 50.5% while; average students who have the same type of books were forty-Seven (47) 49.8%. None of the gifted students indicated they have combination of other books (0) 0%. Only One (1) 100% average learner indicated he had a combination of such books at home.

Table 4.2.8 Distribution of students' home factors by time to read at home

	Gifted learners		**Average learners**	
Time to read at home	**Frequency**	**%**	**Frequency**	**%**
No	37	54.4	31	45.6
Yes	11	39.3	17	60.7
Total	**48**	**50.0**	**48**	**50.0**

The table above presents students home factors and time to read at home. Thirty-seven (37) 54.4% of the gifted students showed they have no time to read at home. Thirty-one (31) 45.6% of the average learners also indicated they do not have time to read at home. Gifted learners who indicated "YES" they have time to read at home were eleven (11) 39.3%. Average learners who showed they have time to read at home were seventeen (17) 60.7%.

Table 4.2.9 Distribution of students' home factors by who normally helps them with school work at home?

Who normally helps with school work at home	**Gifted learners**		**Average learners**	
	Frequency	**%**	**Frequency**	**%**

No one	35	54.7	29	45.3
Father	03	37.5	05	62.5
Mother	03	30.0	07	70.0
Siblings	03	30.0	07	70.0
Relatives	04	100.0	00	00.0
Total	**48**	**50.0**	**48**	**50.0**

The table above presents student's home factors and who normally help them at home. Gifted students who indicated "No One" helps them were thirty-five (35) 54.7% while average learners were twenty-nine (29) 45.3%. Gifted students who showed they were helped by their "Fathers" were three (3) 37.5% while five (5) 62.5% of the average learners were also helped by "fathers". Gifted students who showed they were helped by their "Mothers" were three (3) 30% while seven (7) 70% average learners showed they were helped by "Mothers". Gifted students who showed they were helped by siblings were three (3) 30% while seven (7) average learners showed they were helped by siblings. Four (4) 100% gifted learner showed they were helped by their relatives. None of the average learners showed they were helped by relatives.

Table 4.2.10 Distribution of students' home factors and what they like doing best

	Gifted learners		**Average learners**	
Subject liked best	**Frequency**	**%**	**Frequency**	**%**
Reading	06	46.2	07	58.3
Writing	21	47.7	23	52.3
Playing	11	57.9	08	42.1
Doing nothing	10	50.0	10	50.0

Total	**48**	**100.0**	**48**	**100.8**

The table above present students' background and what they like doing best. Gifted and average learners who showed they like reading were six (6) 46.2% and seven (7) 58.3% respectively. Gifted and average learners who showed they like writing best were twenty-one (21) 47% and twenty-three (23) 52.3% respectively. Gifted and average students who showed they like playing best were eleven (11) 57.9% and eight (8) 42.1% respectively; while gifted and average learners who showed they like doing nothing were ten (10) 50% in each case.

Table 4.2.11: Distribution of students' home factors and how much they like school

	Gifted learners		**Average learners**	
How much do you like school	**Frequency**	**%**	**Frequency**	**%**
Very little	0	0	3	100
Little	1	100	0	0
Not at all	0	0	1	100
Much	7	70	3	30.0
Very much	40	49.4	41	50.6
Total	**48**	**100.0**	**48**	**100.0**

The table above presents students' home factors and how much they like school. None of the gifted showed they liked school very little at (0)% while only three (3) 100% of the average

learners showed they liked school very little. Only one (1) 100% of the gifted learners showed they liked school a little while none of the average students showed they liked school a little. Only one (1) 100% of the average learners indicated he liked school very little. Gifted and average learners who indicated they liked school much were seven (7) 70% and three (3) 30% respectively. Gifted and average who indicated they liked school very much were forty (40) 49.9% and forty-one (41) 51.6% respectively. This concludes majority of the students in respect to their factors like school very much.

Table 4.2.12 Distribution of students' home factors by subjects they like best

	Gifted learners		**Average learners**	
Subject liked best	**Frequency**	**%**	**Frequency**	**%**
Science based courses	29	56.9	22	43.1
Art based courses	15	44.1	19	55.9
Commercial based courses	04	36.4	07	63.6
Total	**48**	**50.0**	**48**	**50.0**

The table above presents students home factors and the subjects they like best. Gifted and average learners who showed they liked "Science based courses" were twenty-nine (29) 56.9% and twenty-two (22) 43.1% respectively. Students who showed they liked "Art based courses" from gifted and average learners were fifteen (15) 44.1% and nineteen (19)55.9% respectively. Gifted and average students who showed they liked "commercial based courses" were four (4) 36.4% and seven (7) 63.6% respectively. This showed majority of both the gifted and average students like science based courses.

Table 4.2.13 Distribution of students' home factors by aspiration for higher education

	Gifted learners		Average learners	
Aspiration for higher education	**Frequency**	**%**	**Frequency**	**%**
Yes	43	51.8	40	38.2
No	03	50.0	03	50.0
Undecided	02	28.6	05	71.4
Total	**48**	**50.0**	**48**	**50.0**

The table above presents students home factors and aspiration for higher education. Three (3) 50% students from both gifted and average learners who showed "YES" they would like to further their education were forty-three (43) 51.8%, and forty (40)48.2% respectively. Students who indicated they were "Undecided" for further education were two (2) 28.6% and five (5) 71.4% respectively. This shows majority of both gifted and average students aspire to further their education.

Table 4.2.14 Distribution of students' home factors by using hand to produce something

	Gifted learners		Average learners	
Do you like using your hand to produce something?	**Frequency**	**%**	**Frequency**	**%**
No	02	66.7	01	33.3
Yes	46	49.5	47	50.5

Total	**48**	**50.0**	**48**	**50.0**

The table above shows gifted and average learners home factors and using their hand to produce something. Students who indicated "NO" they don't want to use their hand to produce something were two (2) 66.7% and one (1) 33.3% for gifted and average learners respectively. Gifted and average students who indicated "YES" they like using their hands to produce something were forty-six (46) 49.5% and forty-seven (47) 50.5% respectively. Conclusively, majority of both gifted and average students like using their hands to produce something.

Table 4.2.15 Distribution of students' home factors by occupation they want to take up in future

	Gifted learners		**Average learners**	
Occupation students want to	**Frequency**	**%**	**Frequency**	**%**

take up in future

Farming	09	45.0	11	55
Teaching	03	75.0	01	25
Skilled craft manship	01	50.0	03	50
Medical doctor	05	25.0	03	75
Engineering	13	29.4	12	70.6
Social worker	03	50.0	13	50.0
Mechanic	03	60.0	02	40
Actor	02	60.0	02	40.0
Computer analyst	01	50.0	01	50.0
Lawyer	01	100.0	00	00.0
Professional athlete	02	100.0	00	00
Journalist	02	100.0	00	00.0
Editing	01	100.0	00	00.0
Others	02	100.0	00	00.0
Total	**48**	**50.0**	**48**	**50.0**

The table above presents students' responses based on their home factors and the occupation they want to take up in the future. Gifted and average students who want to take up farming in future were nine (9) 45% and eleven (11) 55% respectively. Gifted and average students who showed they preferred teaching were three (3) 75% and one (1) 25% respectively. Students from both gifted and average students who prefer skilled craftsmanship were one (1) 25% and three (3) 75%. Five (5) 29.4% gifted and three (3) average learners were found to be interested in medicine (Doctor). Gifted and average students who showed they want to be engineers were

thirteen (13)50% for gifted and twelve (12) for average. Only one (1) 100% gifted learner, prefer to be an actor. One student each from gifted and average learners (1) 100% indicated they preferred to be computer analyst, while one (1) gifted learner want to be a lawyer, editor, professional athlete and other professions respectively, with none (0) 0% from average students. Only two (2) 100% gifted showed they were interested in journalism.

Table 4.2.16 Distribution of students' personality traits

Variables	Frequency	Percentage
Gifted learners	48	50.0
Average learners	48	50.0
Total	**96**	**100.0**

This table presents the distribution of students by their personality traits. Forty-eight (48) 50% each from both the gifted and average learners were selected to form the sample of the study respectively.

4.3 Testing Hypothesis I: There is no significant correlation between Mental Abilities Test and Teacher Nomination Checklist as criterion for identification of gifted JSS 3 students in Kano and Jigawa States?

Pearson r was used to test this hypothesis.

Table 4.3.1 Correlation Matrix between Teacher Nomination Checklist and Mental Abilities Test for selecting the gifted

Variables	1	2	df	rcal	rcri	Sig
Teacher Nomination	1					
Checklist			94	.569	.195	0.05
Mental Ability Test	.569*	1				

The table above presents a correlation matrix of selection criteria for gifted students in Kano and Jigawa States. Two Scales TNC and MAT showed r calculated value .569 is more than r critical value .195 (rcal .569 > r cri .195) at df 94. TNC and MAT showed a strong correlation between mental abilities test and teacher nomination checklist as criterion for identification of the gifted in Kano and Jigawa States at r.569.

4.4 Testing Hypothesis II

Hypothesis II: There is no significant difference in home factors between the gifted and average learners.

Chi-square was used to test this hypothesis.

Hypothesis II: Factor 01.

Table 4.4.1: Home factors and fathers' occupation

Variables		**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec.**
Parental occupation						
Gifted learners	48	2	2.703	.599	0.05	Reject
Average learners	48					HO1

Total	**96**

The table above presents Chi-square test of gifted and average learners according to their home factors. The test showed chi-square calculated value 2.703 is greater than chi-square critical value .599. (X^2cal 2.703 > X^2cri .599) at df 2. Since the calculated X^2 is greater than critical X^2 we therefore conclude there is significant difference in home factors between gifted and average learners in relation to their fathers' occupation.

Hypothesis II: Factor 02

Table 4.4.2: Home factors and mothers' occupation

Mothers Occupation		**df**	**X^2cal**	**X^2Cri**	**P-value**	**Dec.**
Gifted learners	48	2	2.736	.599	0.05	Reject
Average learners	48					HO1
Total	**96**					

The table above presents Chi-square test of students' home background and mothers' occupation. The test showed Chi-square calculated value 2.736 is greater than chi-square critical value .599 (X^2 cal2.736>X^2cri.599) at df 2. Since the calculated chi-square is greater than critical chi-square, we therefore reject the null hypothesis and conclude there is significant difference between gifted and average students based on their mothers' occupation.

Hypothesis II: Factor 03

Table 4.4.3: Home factors and educational attainment of father

Variables		**df**	**X^2cal**	**X^2cri**	**P-vaule**	**Dec.**
Educational attainment of father						
Gifted learners	48	4	3.073	9.49	0.05	Accept

Average learners	48					HO1
Total	**96**					

The table above present's chi-square test difference between fathers' educational attainment. The X^2 test showed chi-square calculated value 3.073 is less than chi-square critical value 9.49. (X^2cal 3. 073 < X^2cri 9.49) at df 4. Since the calculated X^2 value is less than critical X^2 value we conclude there is no significant difference in the educational attainment of fathers of gifted and average learners.

Hypothesis II: Factor 04

Table 4.4.4: Home factors and educational attainment of mother

Educational attainment of mother		**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec**
Gifted learner	48	7	12.717	14.07	0.05	Accept
Average learner	48					HO1
Total	**96**					

The table above presents chi-square test of mothers' educational attainment. The chi-square calculated value 12.717 is less than chi-square critical value 14.07. (X^2cal 12.717 < X^2cri 14.07) at df 7. Since the calculated X^2 value is less than critical X^2 value we therefore conclude there is no significant difference between the level of educational attainment, of mothers of gifted and average learners.

Hypothesis II: Factor 05

Table 4.4.5: Home factors and availability of reading materials at home

Are there reading materials at house	**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec.**

Gifted learners	48	1	.668	3.84	0.05	Accept
Average learners	48					HO1
Total	**96**					

The table above presents Chi-square test of students' home factors and availability of reading materials among students. The chi-square calculated value .668 is less than chi-square critical value 3.84 (X^2cal .668 < X^2cri 3.84) at df 1. Since the calculated value is less than the critical value we therefore conclude there is no significant difference between gifted and average learners in the availability of reading materials in their homes.

Hypothesis II: Factor 06

Table 4.4.6: Home factors and type of reading materials.

Variables		**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec.**
reading materials						
Gifted learners	25	6	8.313	12.59	0.05	Accept
Average learners	25					HO1
Total	**50**					

The table above shows chi-square test between gifted and average learners on the issue of reading materials they possess at home. Chi-square calculated value 8.313 is less than chi-square critical value 12.59 (X^2cal 8.313 < X^2 cril 12. 59) at df 6. Since the calculated chi – square is less than chi-square critical value we therefore conclude there is no significant difference between gifted and average learners in type of reading materials available at home.

Hypothesis II: Factor 07

Table 4.4.7: Home factors and time to read at home

Do find time to read at home?		df	X^2cal	X^2cri	P-Value	Dec.
Gifted learners	48	1	1.815	3.85	0.05	Accept
Average learners	48					HO1
Total	**96**					

The table above presents Chi-square test of students' availability of time to read at home. The chi-square calculated value 1.815 is less than chi-square critical value 3.85. (X^2cal 1.815 < X^2cri 3.85) at df 1. Since the calculated X^2 value is less than critical X^2 value we therefore conclude there is no significant difference between gifted and average learners in the availability of time to read at home.

Hypothesis II: Factor 08

Table 4.4.8: Home factors and who normally helps with school work at home?

Variables		df	X^2cal	X^2cri	P-Value	Dec
Gifted learners	48	4	8.262	9.49	0.05	Accept
Average learners	48					HO1
Total	**96**					

The table above presents chi-square test between gifted and average learners on who helped them (students) with school work at home. The test showed chi-square calculated value is less than – chi-square X^2 critical value (X^2cal 8.262 < X^2cri 9.49). at df 4. Since the calculated value is less than critical value we therefore accept the null hypothesis and conclude there is no significant difference in home factors between gifted and average learners on who normally helped them to study at home.

Hypothesis II: Factor 09

Table 4.4.9: Home factors and what students like doing best.

Which do you like best?		df	X^2cal	X^2cri	P-value	Dec.
Gifted learners	**48**	3	.462	7.82	0.05	Accept
Average learners	**48**					HO1
Total	**96**					

The table above presents chi-square test of students on the issue of what students like to do best when it comes to school work. The chi-square calculated value .462 is less than chi-square critical value 7.82 (X^2cal .467 < X^2cri 7.82) at df 3. Since calculated X^2 is less than critical X^2 value we therefore conclude there is no significant difference between gifted and average learners' home factors as to what they like doing best.

Hypothesis II: Factor 10

Table 4.4.10: Home factors and how much students like school

How much do you like school?		df	X^2cal	X^2cri	P-value	Dec.
Gifted learners	48	4	6.612	9.49	0.05	Accept
Average learners	48					HO1
Total	**96**					

The table above present Chi-square test of students on the issue at the level of which they like school. The chi-square calculated value 6.612 is less than chi-square critical value 9.49. (X^2cal 6.612 < X^2cri 9.49) at df 4. Since the calculated X^2 is less than the critical X^2 value we therefore

conclude there is no significant difference between gifted and average learners in the level of how much they like school.

Hypothesis II: Factor 11

Table 4.4.11: Home factors and subjects students like best.

Which subjects do you like best		**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec.**
Gifted learners	48	2	2.250	5.99	0.05	Accept
Average learners	48					HO1
Total						

The table above presents chi-square test of students on the issue of which subjects they like best. The chi-square calculated value 2.250 is less than chi-square critical value 5.99. (X^2cal 2.250 < X^2cri 5.99) at df 2. Since the calculated X^2 is less than the critical X^2 we therefore conclude there is no significant difference between gifted and average learners in choice of subject they like best.

Hypothesis II: Factor 12

Table 4.4.12: Home factors and aspiration for further education.

Do you like to go for further education		**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec.**
Gifted learners	48	2	1.394	5.99	0.05	Accept
Average learners	48					HO1
Total	**96**					

The table above presents chi-square test of students on the issue of further education. The chi-square calculated value 1.394 is less than chi-square critical value 5.99. (X^2cal 1.394 < X^2cri

5.99) at df 2. Since the calculated X^2 is less than critical X^2 we therefore conclude there is no significant difference between gifted and average learners in their aspiration to further their studies.

Hypothesis II: Factor 13

Table 4.4.13: Home factors and using hand to produce something

Variables		**df**	**X^2cal**	**X^2cri**	**P-value**	**Dec.**
Using hand to produce something						
Gifted learners	**48**	1	.344	3.84	0.05	Accept
Average learners	**48**					HO1
Total	**96**					

The table above presents X^2 test of gifted and average learners on the issue of using their hand to produce something. The chi-square calculated value .344 is less than chi-square critical value 3.84. (X^2cal .344 < X^2cri 3.84) at df 1. Since the calculated chi-square is less than critical chi-square we therefore accept the null hypothesis and conclude there is no significant difference between gifted and average learners in using their hand to produce something.

Hypothesis II: Factor 14

Table 4.4.14: Home factors and occupation to take up in future

Variables		**df**	**Xcal**	**Xcri**	**P-value**	**Dec.**
Occupation						
Gifted learners	**48**	14	12.482	23.68	0.05	A
Average learners	**48**					
Total	**96**					

The table above presents Chi-square test between gifted and average learners on the type of occupation they want to take up in future. The chi-square calculated value 12 .482 is less than

chi-square critical value 23.68. (X^2cal 12.482 < X^2cri 23.68) at df 14. Since the calculated chi-square is less than calculated chi-square we therefore conclude there is no significant difference between gifted and average learners in the type of occupation they want to take up in future.

4.5 Testing Hypothesis III: There is no significant difference in personality traits between the gifted and average learners.

ANOVA was used to test this hypothesis.

Table 4.5.1 ANOVA of students types and personality traits

Variable	Source of V	Sum of Squares	df	mean Square	fcal	fcri	sig	dec.
Openness to	Between groups	157.594.	1	157.594	3.029	4.66	NS	A
Expression	Within groups	4890.146	94					
	Total	5047.740	95					
Conscientiousness	Between Groups	31.570	1	31.570	.637	4.66	NS	A
	Within Groups	4648.479	94					

	Total	4679.990	95					
Extraversion	Between Groups	54.000	1	54.000	.935	466	NS	A
	Within Groups	5431.339	94	57	.780			
	Total	485.333	95					
Agreeableness	Between Groups	10.010	1	10.010	.171		NS	A
	Within Groups	5491.979	94	58.425				
	Total	5501.990	95					
Neuroticism	Between Groups	42.667	1	42.667	.827	466	NS	A
	Within Groups	4847.292	94	51.567				
	Total	4889.958	95					

The table above presents ANOVA test of Personality traits of gifted and average sample. The test showed openness to experience fcal 3.029 is less than fcri 4.6. This showed there is no difference between the gifted and average learners in their openness to experience. In consciousness the test showed fcal .637 is less than fcri 4.66. This shows gifted and average learners do not differ in consciousness. Extraversion test showed f cal .935 is less than f critical value 4.66; this concludes students (gifted and average) learners do not differ in their extraversion. Agreeableness Test showed f calculated .171 is less than f critical value 4.66 which indicates the gifted and average do not differ in agreeableness. Test of Neurotism equally reveals no significant difference between the two groups of students as f cal .827 is less than f cri 4.66. The Null hypothesis which states, there is no significant difference between gifted and average learners in personality traits is therefore accepted.

4.6 Testing Hypothesis IV: There is no significant correlation between mental abilities test and personality traits of the gifted and average learners.

Pearson r was used to test this hypothesis

Table 4. 4.1 Correlation matrix between mental abilities test and personality traits of the gifted and average learners.

Traits	**df**	**rcal**	**rcri**	**sig**	**dec**
Openness to experience	94	.106	.205	NS	A
Conscientiousness	94	-.003	.205	NS	A
Extraversion	94	-.051	.205	NS	A
Agreeableness	94	- .053	.205	NS	A
Neurotism	94	.065	.205	NS	A

The table above presents correlation matrix between mental abilities test and personality traits of the sample under study. The test showed openness to experience correlate weakly but positively with academic achievement at r .106, consciousness, extraversion and agreeableness showed negative correlation of - .003; - .051; and - .053 respectively. Neurotism showed no correlation with mental abilities test at r .065. All the calculated value were lower than critical values at df 94. Since the calculated r is less than critical r we therefore accept the null hypothesis and conclude that personality traits do not significantly correlate with mental abilities test.

4.7 Summary of the Findings

The findings of the study are summarized as follows:

- There is significant correlation between mental abilities test and teacher nomination checklist as criterion for identification of the gifted at r.569.
- There is significant difference in occupation of fathers of the gifted and average learners.
- There is significant difference in occupation of mothers of gifted and average learners.

- There is no significant difference between the students' parental level of education at X^2cal 3.073 and 2.717 for fathers and mothers respectively.
- There is no significant difference in availability of reading materials in homes of gifted and average learners at X^2cal .668; type of reading materials in their homes at X^2cal 8.313; and availability of time to read at X^2cal 1.815 respectively.
- There is no significant difference between the sample on what they like doing best at X^2cal .462.
- There is no significant difference on how much subjects like school X^2cal 6.612.
- There is no difference between the sample in relation to the subjects they like best at X^2cal 2.250.
- There is no significant difference between the sample on their aspiration for further education X^2cal 1.394.
- No significant difference was found between the sample on using their hands to produce something X^2cal .344
- No significant difference was found between the sample on type of occupation they will like to take up in the future.
- No significant difference was found between gifted and average learners in all facets of personality traits i.e fcri 4.66 for openness to expression; fcri 4.66; for conscientiousness; fcri .205 for extraversion; fcri 4.66, for agreeableness; and fcri 4.66, for neuroticism.

- No significant correlation was found between the Big five Personality traits and mental abilities test of the gifted and average sample at r .205.

4.8 Discussion on Findings:

The findings of this work revealed that Teacher Nomination Checklist and Mental Abilities Test which were used to identify gifted children had significant correlation at r.569. This showed the instruments used for identifying the gifted children are valid and reliable. Mba (1995) stated that one of the best approaches to selecting gifted children is through teachers' observations and school records. This approach is synonymous with Teacher Nomination Checklist and Mental Abilities Test used in this work. The two findings are similar owing to the nature of identifying giftedness which can best be realized through teachers' closeness to the learners and the test that prove the level of learners intelligence. The findings of the mental abilities test was supported by practices around the world (Mandelman, Tan, Aljughaim & Gringorenko, 2010) who indicated that conventional tests of intelligence and academic achievement are still the major vehicles of gifted identification. Researchers with notable exception Lubinski, Benbow, Webb & Blesk-Rechek, (2006) however keep promoting varying and diverse approaches to identifying gifted and talented children. Thus, development of diversifying, theory-based, and yet portable and efficient assessments suitable for purposes of the identification of gifted and talented children, is and will remain one of the main directions of research in the field of gifted education (Jolly & Kettler, 2008).

This work revealed, there is significant difference between gifted and average learners in their parental occupation at X^2 2.703 for fathers and X^2 2.736 for mothers respectively. Parcel and Menagham (1994) found that in the case of cognitive skills, theory suggests that characteristics of parents' jobs influence children primarily through the home learning environment, because

parents with lower cognitive skills provide less cognitively stimulating home learning environment. Based on correlation evidence, researchers have also argued that job conditions determine workers personalities and values; and that workers acquire values and skills on the job and generalize them to other areas of life (Kohn and Schooler, 1982). More recent work has also suggested that job characteristics shape employees cognitive skills, rather than or in addition to their personalities (Parcel and Mangham, 1998). In particular, it is argued that low – prestige jobs with low autonomy, routinized tasks, and little opportunity for " substantively complex work" may erode parents' cognitive skills, whereas high-prestige jobs promote initiative, thought, and decision making skills. In this study, parents occupation is the only home background factor where significant difference was found between the gifted and average sample.

The study revealed that there is no significant difference between gifted and average learners based on their parental level of education at X^2 3.073. The above findings was similar to that of Ogunshola & Adewale (2012) who found no significant effect of parental socio-economic status (synonymous with home factors) in this study and parental educational attainment on academic achievement among students in selected schools in Edu Local Government of Kwara State of Nigeria. But contrary to the findings of Hill et al (2004), Rothstein (2004) who posited that illiterate and semi-illiterate parents with feeling of inadequacy may not be able to help their children out of different academic problems. They posited, this may significantly hinder the academic performance of such children. Literature on achievement has howevers consistently shown that parental education is important in predicting children's achievement (Haveman and Wolff, 1995; Klebanov, Brooks – Gunn and Duncan, 1994), though the mechanisms for understanding this influence have not been well studied (Davis Kean, 2005). It was particularly found that parents as co-teachers in the home may find better psychological balance of

stimulation and demand for academics (Davis Kean, 2005). Other research findings (Michael, 1972; Ducan, Brooks – Cunn and Klebanon, 1994) suggest that the amount of schooling that parents receive influences how they structure their home environment as well as how they interact with their children in promoting academic achievement. Mothers' educational status especially had a statistically significant link with children's academic performance (Zan, 2005), compared to children whose mothers did not have a high school degree, especially in maths and reading scores.

No significant difference was found between gifted and average learners in the availability of reading materials at $X^2 = .668$. Availability of books and reading materials however are found to contribute to students academic achievement (Omideletoba, 2014). It was also found that parents who read to their children, have books available and provide stimulating experiences, contributes to students academic achievements (Epstein, 1995). This is contrary to the findings of Evans (2004) who reported that poor children read less and have less access to books, computers, libraries and make trips to museum.

No significant difference was found between gifted and average learners as to availability of time to read at home at $X^2 = 1.815$. This finding is similar to the findings of Marrow (1993), Peng and Lee (1992); Shields, Gordon and Dupree (1983) who asserted that when parents of any home background support their children by reading to them, encourage and making time and space for learning they tend to become better more enthusiastic readers. Contrary to the findings of this study, Korenman, Miller and Sjaastad, (1995) found lack of cognitive stimulation in the home accounted for $^1/_3$ to ½ of disadvantages in verbal, reading and maths skills of poor children.

No significant difference was found between the gifted and average sample as to who normally helps them with school work at home. Contrary to the findings of this research, Bortland et al (2000); Shumow, (1997) reveal that the extent of parent's interest in children's schooling and support of learning at home has been identified as critical factors in their children success. Similarly, Mcloyd (1998) found that many gifted persons are found to have better than average home life, better child-rearing practices and encouragement. Gale, (1998) also found that parents of gifted spend more time reading and encouraging creative types of play and are said to be more involved with schooling than parents of non-gifted children. Parents programs (eg. Monitoring, tutoring, supporting good study habits etc) appear to most likely have positive effects on children's academic performances (Wang, Haertel and Walberg, 1993). Recent studies however, indicate that while overall it appears that parent involvement in school was associated with academic outcomes, parent involvement in the home was not (Barnard, 2004). Nyarko, (2011), however found that home based parent involvement has positive association with academic performance, while school based parental involvement has negative association. A possible explanation for no difference inspite of the significant role home support plays in enhancing gifts and talents could be innate ability and resilience as factors that enhance higher academic performance among the sample investigated. This view seem to find support from findings by Okafor (2007) who reported despite numerous obstacles and challenges due to some unfavourable home factors, Nigerian children seen to experience considerable success. In view of the important role home support plays in developing gifts and talents; Epstein (1995) suggests that parents should try to maintain supportive home by showing interest in their children's progress at school, helping them with homework, discussion the value of a good education and possible career options etc.

No significant difference was found between the gifted and average sample as to what the students like doing best (eg. reading, writing, playing, doing nothing). Contrary findings were reported by Silverman (1993) where the gifted are said to read widely in special areas, exhibit original thinking in oral and written expression; and have very good use of verbal skills in oral communication or writing than their peers (Kolo, 1993). Contrary findings were also reported by Eric clearing house on gifted and handicapped Children (2007) where marked differences were observed as the gifted are said to often read widely, quickly and intensely, have large vocabularies; are often seemingly having boundless energy which sometimes leads to a misdiagnosis of hyperactivity. They read a great deal on their own, preferring books and magazines written for people older than they are and; if stressed they can be bored in normal classroom situation (which can lead to school refusal and /or behavior problems) (National Association of Gifted Children, 2007). In their creative characteristics, the gifted unlike the non-gifted often display intellectual playfulness and like to fantasize and imagine. Milgram (1991), also reported difference in verbal talents, where the gifted excel over the non gifted in terms of proficiency in the use of oral language and ability to put creative thought into writing. Their verbal talents enable them to speak very well, tell and write stories; they are often prolific writers.

No significant difference was found between the gifted and average sample in relation to the choice of subjects. Several factors do influence the choice of subjects among Nigerian Students whether gifted or non-gifted. First, parental influence especially the educated ones who are known to dictate which subjects their children should take regardless of the student's interest or potential. Students choice of subject is known to be influenced by the aspiration of peer groups or through the expectation of that group (Davies, Jelhaj, Hutton, Adnetta and Coe, 2004). Peer

group effects on pupils' achievement in school have been reported (Hoxby, 2000; Robertson and Symons, 2003). These effects on achievement may have a spill effect on subject choice as evidenced in this study. In fact pupil's subject choice is said to be more influenced by the peer group than any other factor. The reason could be a strong feeling that once their friends offer a given subject they should be able to offer the subject without any consideration being given to their innate capabilities. A third reason could be ignorance on the part of the students as to the subject combinations that will prepare them for further education and the right career in the future. These reasons could have accounted for both the gifted and average opting more for science based courses.

In using hand to produce something no significant difference was found between the gifted and average sample. Differences were however reported where the gifted tend to love assembling and dismantling objects (Milgram, 1996); they also differ where the gifted are said to be extremely curious about objects, ideas and events (Silverman, 1993) and that they love to create and invent (Avoke, 2008). They also demonstrate advanced visual and spatial abilities with puzzles, building and construction materials, drawing, design and or painting (National Association of Gifted Children, 2007). A review of research literature (Neisser, 1997; Reis and Renzulli, 1982; Renzulli, 1978, 1986, 2005) reveal that there is much more to identifying human potential than the abilities revealed on traditional tests of intelligence, aptitude, and achievement; that the creative and productive people of the world, the producers rather than consumers of knowledge are those who have been recognized in history as 'truly gifted' individuals. The gifted are thus recognized as creative as against the non-gifted. A face value assessment of no difference may be due to fewer opportunities in the environmental setting in the area of study and the homogeneous nature of the sample studied.

No significant difference was found between the sample with regards to the occupation they would like to take up in the future. Both the gifted and average showed preference for being a medical doctor, engineer and farmer. These choices seem to find support from what the Nigerian Society values – highly paid and prestigious jobs as revealed by the result of the findings of the current research. Stanley (1996) similarly observed that prestige of a profession was a strong motivating factor influencing students in making choices. Career choice is grounded in the perceptions of the ideal job which serves as a filter for job opportunities. Salami, (1999) found that although personal philosophy, achievement and self image are important factors, in this decision, the environment is also very influential in characterizing career and shaping aspirations. These career choices can be influenced by interest as students often indicate that they would like an interesting job; influenced by the feeling of a sense of pride in the chosen career. Since Nigerians value highly paid and prestigious jobs, this may have had an effect on the choice of jobs by the sample investigated. Unfortunately, career choice children make during secondary school education is usually influenced by family and community sometimes without considering the ability and interest of the child as in the case of choice of subjects. In testing Holland's theory of career choice to identify relationship between measured career interest and academic achievement in BDS students at Rawal Institute, Nawabi (2004) found that positive relationship exists between academic achievement and career choice according to basic personality type. Also though no significant difference was found between the sample of the study, personality of students has positive relationship with academic achievement, when there is congruence between their personality and chosen career. This position finds support from Ginsberg et al (1951); Tiedman and O'hara (1953) and Galatt decision mode (1962), where career choice among

students was influenced by personality, intests, self-concept and cultural identity, family and social support.

Results from this study found no significant difference in all the five dimensions of Big five personality between the gifted and average samples. It has been assumed over the years that gifted individuals differ from the norm not only in terms of their cognitive capacities, but also with their personality disposition (Altaras, 2006). Since the inception of the field in 1920s, Terman (1926) found that the intellectually gifted outscored the controls on a battery of 7 character tests (e.g. probing into trustworthiness and emotional stability), as well as on teacher and parent ratings of conscientiousness, truthfulness, self-confidence, will power, and leadership.

Subsequent (quantitative) research tended to confirm that there are certain peculiarities in the personality profile of gifted samples when compared to nongifted peers. Hawkin's (1997) comprehensive survey, Sak's (2004) more recent synthesis of research, the latest inquiries into psychological types of the gifted by Tracy Cross and his colleagues (Cross, Cassady, & Miller, 2006) research using Myers-Briggs Type indicator (MBTI) has consistently found gifted samples to display a particular pattern of preferences for Extraversion/Introversion (E/I), Sensing/Intuition (S/N), Thinking/Feeding (TF), and Judging/Perceiving (JP).

Similar findings by Mills (1993) where he compared academically talented students to a group of some-age peers of mixed ability revealed that they differed on four important dimensions of cognitive style (Preferences for introversion – Extraversion, sensing – intuition, Thinking – Feeling, and Judging – Perceiving).

The current research focused on differences in personality traits between gifted and nongifted (average) samples to the exclusion of other personality constructs. However, findings of no

difference between the two groups have been observed by Olszewski-Kubilus, Kulieke, and Krasncy, (1988). Heller, Perleth and Lim (2001) also reported lack of differences between the gifted and nongifted (average) group on most of the employed non-cognitive measures in the Munich Longitudinal study.

A recent study by Zeidner and Shani (2011), as well as earlier findings by McCrae et al, (2002) and Altaras, (2006) found a higher Openness in gifted samples and non revealed significant differences with respect to Extraversion or Conscientiousness. McCrae et al, and Zeidner & Shani found significantly lower levels of Neuroticism for the gifted groups; while Altaras (2006) on the other hand found that the gifted scored lower on Agreeableness.

The current study found no significant correlation between all but one personality trait (openness) which correlated weakly but positively with mental abilities test at r.106. Other researchers however found significant correlations between some personality traits and intelligence test (Chamorro-Premuzic, Furnham and Mautafi 2004). For instance, openness to experience is one personality trait which is considered to correlate most strongly with intelligence (Zeider and Mathews, 2000).

Like the findings of the current research, conscientiousness was found to be only weakly but positively related to ability (Ackerman and Heggestad, 1997; Kyllonen, 1997; Zeider and Mathews, 2000). However, conscientiousness, more than any other personality trait was found to be consistently related to performance, both work and academic (Barrick and Mount, 1993; De Raad, 1996; Blickle, 1996; Goff and Ackerman, 1992). Moutafi, Furnham, and Paltiel (2004) however found consistent evidence of a negative correlation between test of intelligence and conscientiousness, which supports the findings of the current research as results show r - .003.

However, in a study of adolescents, Lynn, Hampson, and Magee (1984) found correlations between intelligence and Extraversion of r = .21 for males and r = .19 for females. A smaller, but significant correlation between intelligence and extraversion was found at r = /08 (Ackerman and Heggestad, 1997). The Current research found negative correlation between personality traits and mental abilities test at r - .51. Of all the Big Five Personality traits, Agreeableness seems to be the least related to ability (Ackerman and Heggestad, 1997). The authors reported a near zero correlation coefficient between intelligence and agreeableness (r- .01). The current research showed negative correlation between agreeableness and mental abilities test at r - .53. A similar finding was reported by Furnham and Thomas (2004).

On Neuroticism, Ackerman and Heggestad. (1997) reported a significant, but modest, correlation between intelligence and Neuroticism (r = - .15). According to Zeidner (1995), at least three neuroticism facets – i.e; anxiety, anger, and depression are related to intelligence. Anxiety has been found to impair intellectual functioning in variety of contexts, ranging from intelligence tests to school achievement. Research on the effects of anger revealed that there is a general tendency for low intelligence to be associated with increased aggression and delinquency (Zeidner, 1995).

The current study sought to investigate differences in home factors and personality traits of gifted and average Junior Secondary Schools students in Kano and Jigawa States. Even though the data from this study and conclusions drawn from this study do not agree with other empirical findings that suggest there are significant differences between the gifted and average learners except in parental occupation, there are still valuable implications for practice that can be drawn from the findings.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a general summary of the study, conclusion drawn from testing the research question and hypotheses, as well as recommendations for professional practice and for further study.

5.2 Summary

Chapter one was the introduction and background to the study. The background segment dwelt on the gross neglect by government and all stakeholders on issues related to the education and upbringing of children with gifts and talents. In a country with over 140 million people according to 2006 National census, establishing only one Federal Academy in 1990, and one additional one in Jigawa State in 2011 for the gifted and talented is too inadequate. Experts on gifted education generally agree that some percentage of any given population is gifted, so Nigeria cannot afford to continue to ignore the special needs of the gifted even if they are few.

The need to create awareness to this very important but neglected area of educational need led to this study. To this end, four (4) hypotheses were posed with a view to establishing whether the selection (identification) criteria for the gifted is valid and reliable; and whether there are differences in home factors and personality traits between the gifted and average learners; and whether there is any correlation between Mental abilities test and personality traits of the sample investaged. The likely contributions of the study to both theory and practice were briefly explained, as well as the scope of the study.

Chapter two reviewed the works of recognized authorities on the research problem. In this regard, various works in the field of psychology and special education were highlighted. Since intelligence is believed to be responsible for giftedness, literature reviewed centered on the contributions of heredity (nature), and environment (nurture) on giftedness.

How ones personality affects learning was also discussed as well as the various testing techniques in identifying the gifted. Since identification demands alternative procedures combining testing with other methods, it is posited that both heredity and environment; and personality all affect the way individuals learn. Early identification is however crucial if the

gifted were to benefit from any special educational program. Many identification methods were discussed but only two were selected and used for this study. Problems limiting the potentials of the gifted and talented in our regular classroom and schools were also highlighted.

Chapter three addressed the methodology used in carrying out the research; which includes research design where the researcher opted for Ex-post-facto design, population and sample, approach to data collection procedure and tools used for data analysis.

Chapter four discussed instruments of data collection, where the two instruments were administered and results of each was analysed and interpreted based on appropriate statistical tools. Summary of the major findings were written and discussions were based on similar or different findings from other researchers.

5.3 Conclusion

A number of conclusions are derived from the analysis of the results of the study as follows:

Though several methods of identification of the gifted exist the current study used only two – Mental Abilities Test and Teacher Nomination Checklist. The study revealed that the conventional IQ Test along with teacher nomination is still a reliable method of identifying the gifted.

Even though no significant difference was found between the sample in all but two home factors, parents should not overlook this fact as research has shown that parents' participation in their children's education can improve students achievement (Woolfolk 2010). Furthermore, the child's rearing environment should be descent and warm to facilitate the child's personality and educational potentialities (gifts and talents).

Similarly, though intelligence and personality constitute the most significant area of individual differences in psychology, this study had not found any difference in the big five personality traits between the samples investigated. Many foreign studies show extraversion has impact on giftedness, but the reverse is the case in this study. This may be due to differences in child rearing practices which is entirely different from that of western culture.

Though several foreign research findings reported positive correlation between personality traits and intelligence (Barrick and Mount, 1993; Blickle, 1996; Lynn, Hamson and Magee, 1984; Ackerman and Heggestad, 1997); no significant correlation was found between personality traits and intelligence of the sample studied. This may be due to some variables not investigated which calls for further investigation to establish the reason(s) for no correlation.

The gifted are found in our public schools if appropriate methods are used to identify them. This is deduced from the findings of the present study which showed that there are absolute distributions of giftedness, traits, aptitudes, and behaviours which characterize high performance cross-culturally and manifest themselves in particular cultural contexts or settings. (Frasier and Passow, 1994).

High academic performance over a period of time by a student could be indicative of giftedness as results of students performance especially those who took the 1st three positions from JSS one to three were used as a first step to successfully identify the gifted sample.

5.4.1 Recommendations from the study

Based on the findings of the study, a number of recommendations are proffered for better educational practices.

1. Since there is positive correlation between mental abilities test and teacher nomination checklist as criterion for identifying the gifted, practicing teachers should be encouraged to use them with a view to identifying the gifted in their classes and draw up suitable learning experiences that will help develop gifts and talents in the students.
2. Though no significant difference was found in home factors between the gifted and average learners, considerable evidence show that favourable and conducive environment enhances academic achievement. For this reason, parents should endeavour to provide stimulating home environment for their children so they could develop their gifts.
3. Evidence from research findings show that significant correlation between some personality traits and intelligence exist though no significant correlation was found between the samples of this study. Based on this fact traits that affect intelligence should not be overlooked, for example conscientiousness, extraversion and agreeableness.
4. The Federal Government should implement the policy statement as contained in the NPE (2013: Section 7:117) that "the federal government is committed to providing special programs for gifted and talented people e.g. early age identification and nurture; early age admission into primary, secondary and tertiary institutions; early completion of educational programs at the three educational levels."
5. In the absence of adequate specialized programs for the gifted and talented at present, inclusive education should be emphasized and practiced to cater for the needs of the gifted, even though considerable evidence suggest that regular classroom teachers do not possess

the training and support to appropriately modify the curriculum to meet the needs of gifted students.

6. Relevant agencies can organize workshops for practicing teachers the purpose of which is to enlighten and equip them on how to handle students who manifest characteristics of giftedness and talent in their classes. This move would hopefully minimize the problems limiting the potentials of the gifted and talented in our regular schools.
7. Parents Teachers Association meetings can be a good avenue where workshops can be organized for parents and teachers to educate them on how to recognise, encourage and nurture the gifted and talented. Without proper knowledge of the characteristics of giftedness, parents and teachers will continue to be ignorant and ill equipped to help such children develop their gifts and talents.
8. The use of a variety of assessments of students' capability and potential when identifying gifted children is advocated as these yield better results (Johnsen, 2004).

5.4.2 Recommendations for further research

1. The current research investigated only differences in some home factors and personality traits of the gifted and average sample in JSS in Kano and Jigawa States; it is recommended that similar and further studies should be carried out to provide empirical data in gifted studies across the country.
2. Also, further studies should be carried out at the kindergarten, primary and senior secondary and tertiary institutions in the country with a view to identifying the gifted who are human assets.
3. Empirical studies from other countries reveal that there is a positive correlation between personality traits and intelligence (giftedness); though no significant correlation was

found between the sample of this study. It is thus recommended that further and similar study be conducted to find out the cause(s) of no difference so that they could be minimized or eliminated to enable teachers take care of individual differences based on personality traits of students.

4. Similarly, studies should be carried out in public schools only and private schools only as the current study focused on both public and private schools in Kano and Jigawa states.
5. Similar studies on children of foster parents who are gifted compared to average students need to be conducted.

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APPENDIX I

Department of Education
P.M.B. 3011
Kano State
Head: Dr. Talatu M. Garba
Email: tmgarba64@yahoo.com
Date: 25th November 2011

B.U.K.
Bayero University, Kano

TO WHOM IT MAY CONCERN

This is to introduce --- MARTHA ---- YUSUF ----------

With Registration No. -SPS/10/PED/00003--as a Ph.D

(EDUC. PSYCHOL) student.

He/She is preparing to write his/her Ph.D thesis and may require your assistance.

Kindly render any such assistance as requested.

Thank you.

Yours sincerely,

Prof, D.A. Maiwada
Ph.D Students Coordinator

APPENDIX II

MENTAL ABILITIES TEST (MAT-A) (ADAPTED)

The "Mental Abilities Test" (MAT-A) is designed for the purpose of identifying gifted students in Junior Secondary Schools in Kano and Jigawa States. Your response will be used for research purpose only and will be treated with confidentiality.

School:_____ Class_____

Age_____ Gender _____

Attempt all questions

A. Verbal Subscale

1. General comprehension

Why do people buy fire insurance?_____

2. Arithmetic reasoning

If eggs cost N60 a dozen, what does one egg cost? _____

3. Similarities

In what way are wool and cotton alike? _____

4. Digit span

Listen carefully, and when I am through, say the numbers right after me.

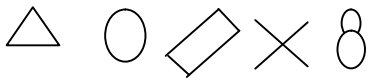
7 – 3 – 3 – 1 – 8 – 6

Now I am going to say some more numbers, but I want you to say them backward.

3 – 8 – 4 – 1 – 6

B. Performance Subscale

5. Digit-symbol substitution

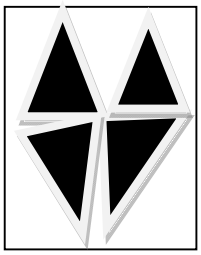
Code 

1 2 3 4 5

Test 

6. Block design

Using the four blocks, make one just like this:



C: A test of "Test Wiseness"

The following test is about a made-up country, Saudi Arabia. Use your test wiseness to guess the answers to these very bad items.

7. What is the main currency used in Saudi Arabia?

   a. Dollar ☐

   b. Dinar ☐

   c. Riyal ☐

   d. Pound ☐

8. Describe the pattern of annual rainfall in Saudi Arabia?

   a. mostly rainy in the highlands, dry in the lowlands ☐
   b. Rainy ☐
   c. Dry ☐
   d. Snowy ☐

9. How many children are there in Saudi Arabian families?

   a. Never more than 2 ☐
   b. Usually 2-3 ☐
   c. Always at least 3 ☐
   d. None ☐

10. How would you describe the dress of a Saudi Arabian?

   a. Big gown with trouser and a cap ☐
   b. Long sleeved shirt with trouser and a cap ☐
   c. Short kaftan with trouser and a cap ☐
   d. Long kaftan with trouser and a turban ☐

D. Multiple-Choice Items

11. What color results from mixture of equal parts of yellow and blue paint?

a. Black ☐

b. Gray ☐

c. Green ☐

d. Red ☐

12. The actual election of the U.S. president to office is done by

a. All registered voters ☐

b. Our congressional representatives ☐

c. The Electoral College ☐

d. The supreme Court ☐

E. Computational (test questions)

13. A1.	237	14. A2.	412	15. A3.	596
	- 184		- 298		- 448
	_____		_____		____

16. Whose photograph appears on

(i) ₦5 currency _____

(ii) ₦100 currency? _____

17/18. Write the chemical formulas for the following:

17. C1. Water _____

C2. Carbon dioxide _____

18. C3. Coal _____

C4. Table salt _____

F. When there is clearly only one possible correct answer, an attractive format is completion, or "fill in the blank," as in the following examples:

19. The largest city in Germany is _____

20. What is 15 percent of N198.00? _____

21. The measure of electric resistance is the _____

22. The capital of Liberia is

a) Brazaville ☐

b) Winneba ☐

c) Manrovia ☐

d) Accra ☐

23. 4037

– 159

a. 4196 ☐

b. 4122 ☐

c. 3878 ☐

d. 3978 ☐

24. Nigerian civil war ended in which year?

a) 1967 ☐

b) 1968 ☐

c) 1969 ☐

d) 1970 ☐

25. "H2O" represents _____

(Water or two parts hydrogen and one part oxygen?)

APPENDIX III

JACOB K. JAVITS GRANT

TEACHER NOMINATION CHECKLIST (ADAPTED)

The "Teacher Nomination checklist" is designed for the purpose of identification of gifted students by class teachers in public and private Junior Secondary Schools in Kano and Jigawa States. Your response will be used for research purpose only and will be treated with confidentiality. Please complete this form for each student in your class who displays most of the characteristics of giftedness indicated on this form.

School _____ Class _____

Age_____ Gender _____

Directions: Please tick (✓) by the characteristics you have observed for this student.

Characteristics

1. Learns rapidly
2. Creative or inventive
3. Defends own ideas
4. Independent
5. Responsible
6. Excellent memory
7. Concerned with fairness
8. Asks for information
9. Leader
10. Prefers older friends or adults
11. Wide range of interests
12. Large vocabulary in dominant language
13. Thinking is more mature than others his or her age
14. Artistic
15. Reasons well
16. Understands jokes
17. Good with numbers
18. Good with riddles
19. Long attention span in areas of interest
20. Chosen by others to help
21. Communicates well with adults
22. Usually shows mature judgment
23. Is a quiet thinker
24. Learned second language quickly
25. Early reader

A student needs to exhibit 18 or more characteristics to be nominated.

JACOB K. JAVITS GRANT

FAMDIN FAHIMTAR MALAMAI DA AKAI AMFANI DAITA KAN KOWANE DALIBI

Makaranta _____ Aji _____

Shekaru _____ Jinsi _____

Ka/ki cike wannan fam ga kowane dalibi a cijinka/ki wanda yake da wadannan siffofi na hazaka ta musamman kamar yadda aka bayyana a wannan fam din.

Abubuwan la'akari: Don Allah kayi (✓) ga dukkan siffofin da ka/ki lura dasu ga wannan dalibin/daliban.

Siffofi Yana/tana:

1. Koyo nan da nan
2. Kirkira ko samar da sabon abu
3. Kare ra'ayi
4. Dogaro da kai
5. Sanin yakamata
6. Tuna abu sosai
7. Tausayi da damuwa ga wasu
8. Neman bayanai
9. Shugabanci
10. Son abota da na sama ko manya
11. Bukatu da dama
12. Sanin kalmomi mayalwata a harshen mu'amala
13. Tunaninsa ita ya wuce na sa'oinsa ita
14. Fasaha
15. Dalili mai hujja
16. Mai bandariya/mai barkwanci
17. Sanin kidaya
18. Sanin wasa kwakwalwa/kacici-kacici
19. Bayar da cikakken lokaci a bangarorin da yake sha'awa
20. Yan uwansa/ta dalibai sukan bukaci taimakonsa/ta

21. Iya Magana da manya

22. Takan yanke hukunci a nutse

23. Mai tunani ne a nutse

24. Saurin koyon harshe na biyu

25. San karatu

Ana bukatar dalibi ya samu akalla siffofi sha takwas (18) ko sama da haka kafin a ambace shi da cewa yana da hazaka.

APPENDIX IV

HOME BACKGROUND FACTORS QUESTIONNAIRE (ADAPTED)

This questionnaire is designed to assess home background factors affecting children's level of intelligence in public and private JSS schools in Kano and Jigawa States.

Please fill the blank spaces and tick (✓) the option that best describes your response for each question below. Note that all responses will be treated with utmost confidentiality and used for research purpose only.

School _____ Class_____

Age _____ Gender _____

1. Occupation of parent

   a) Father _____

   b) Mother _____

2. Educational attainment of father

   a) Qur'anic education ☐

   b) Primary education/First school leaving certificate ☐

   c) Secondary/Teachers' certificate ☐

   d) Technical ☐

   e) Judiciary ☐

   f) Diploma (OND, HND) ☐

   g) University graduate ☐

   h) Masters degree ☐

   i) Ph.D ☐

   None of the above (specify) _____

3. Educational attainment of mother

a) Qur'anic education ☐

b) Primary education/first school leaving certificate ☐

c) Secondary/Teachers' certificate ☐

d) Technical ☐

e) Judiciary ☐

f) Diploma (OND, HND) ☐

g) University graduate ☐

h) Masters degree ☐

i) Ph.D ☐

None of the above (specify) _____

4. Are there reading materials in your home?

a) Yes ☐ b) No ☐

5. If yes, what type are they?

a) Arabic and Islamic ☐

b) Christian literature ☐

c) Story books in hausa ☐

d) Story books in english ☐

e) General education ☐

f) A combination of some of the above ☐

g) A combination of all the above ☐

6. Do you find time to read at home?

   a) Yes ☐ b) No ☐

7. Who normally helps you with your studies or home work?

   a) No one ☐

   b) Father ☐

   c) Mother ☐

   d) Siblings ☐

   e) Relatives ☐

8. Which do you like best?

   a) Reading ☐

   b) Writing ☐

   c) Playing ☐

   d) Doing nothing ☐

9. How much do you like school?

   a) Very little ☐

   b) Little ☐

   c) Not at all? ☐

   d) Much ☐

   e) Very much ☐

10. Write your three (3) best subjects

a) _____

b) _____

c) _____

11. Do you like to go for further education?

a) Yes ☐ b) No ☐ c) Undecided ☐

12. Do you like producing something with your hands?

a) Yes ☐ b) No ☐

13. Which occupation will you like to take up in future?

a) Farming ☐

b) Teaching ☐

c) Nursing ☐

d) Skilled craftsmanship ☐

e) Medical doctor ☐

f) Engineering ☐

g) Social work ☐

h) Mechanic ☐

i) Actor ☐

j) Computer analyst ☐

k) Legal practitioner (Lawyer) ☐

l) Professional athlete ☐

m) Journalism ☐

n) Editing ☐

o) Accountant ☐

p) Auditor ☐

q) Any other _____

TAMBAYOYIN DA SUKA SHAFI ASALIN DALIBI

Makaranta: _____ Aji: _____

Shekaru: _____ Jinsi: _____

Don Allah cike wadannan gurabe ta yin alamar (✓), kan zabi da ya bayyana mafi dacewar bayananka kan kowace tambaya a kasa. A lura duk bayanan da aka bayar za a yi amfani dasu a matsayin sirri da kuma manufar yin bincike kawai.

1. Sana'ariyaye
    a. Mahaifi _____
    b. Mahaifiya _____
2. Matsayin Ilimin mahaifi
    a. Ilimin alkur'ani ☐
    b. Takardar shaidar kamala firamare ☐
    c. Makarantar sakandire/Takardar shaidar kamala makaranta horon malamai ☐
    d. Makarantar koyon sana'a ☐
    e. Makarantar horan masu shari'a ☐

f. Takardar shaidar Difloma (Karama ko babba) ☐

g. Digirin kamala jam'I'a na farko ☐

h. Digiri na biyu ☐

i. Digiri na uku ☐

Ba ko daya da aka ambata a sama (kawo shi) _____

3. Matsayin ilimin mahaifiya

a. Ilimin alkur'ani ☐

b. Takardar shaidar kamala firamare ☐

c. Makarantar sakandire/Takardar shaidar kamala makaranta horon malamai ☐

d. Makarantar koyon sana'a ☐

e. Makarantar horan masu shari'a ☐

f. Takardar shaidar Difloma (Karama ko babba) ☐

g. Digirin kamala jam'i a na farko ☐

h. Digiri na biyu ☐

i. Digiri na uku ☐

Ba ko daya da aka ambata a sama (kawo shi) _____

4. Akwai kayan karatu a gidanku

a. Ee ☐

b. A'a ☐

5. Idan da akwai wadanne iri ne?

a. Na harshen Larabci da na musulunci ☐

b. Na adabin addinin Kirista ☐

c. Littattafan Labarai cikin harshen Hausa ☐

d. Litattattafan labarai cikin harshen Ingilishi ☐

e. Na ilimi ne gaba daya a dunkule ☐

f. Hadakar wasu daga cikin wadanda a ka ambata ☐

g. Hadakar dukkan wadanda aka ambata ☐

6. Kana samun lokacin da kake karatu a gida?

a. Ee ☐

b. A'a ☐

7. Waye yake taimakon ka wajen karantun darrussanka ko aikin gida?

a. Ba kowa ☐

b. Mahaifina ☐

c. Mahaifiyata ☐

d. Dan'uwa/Yar'uwa ☐

e. Dangi ☐

8. Me ka fi sha'awa/so?

a. Karatu ☐

b. Rubutu ☐

c. Wasa ☐

d. Hutawa ba tare da yin komai ba ☐

9. Ya ya kake san makaranta?

a. Dan kadan ☐

b. Kadan ☐

c. Ba na so ☐

d. Kwarai/sosai ☐

e. Kwarai da gaske ☐

10. Rubuta darrussan da ka fi so guda uku

a. _____

b. _____

c. _____

11. Kana son ka ci gaba da karatu?

a. Ee ☐

b. A'a ☐

c. Ban shirya ba ☐

12. Kana/kina son yin wani abu da hannunka/ki?

a. Ee ☐

b. A'a ☐

13. Wacce sana'a kake son kayi a nan gaba?

a. Noma ☐
b. Koyarwa ☐
c. Maijiyya/rainon marasa lafiya ☐
d. Mai sana'ar hannu ☐
e. Likita ☐
f. Inginiya ☐
g. Aikin Jama'a ☐
h. Bakanike ☐
i. Jarimi ☐
j. Masanin kwamfuta ☐
k. Lauya (masanin Sharia) ☐
l. Masanin wasannin motsa jiki ☐
m. Aikin Jarida ☐
n. Mai tace Labarai ko Littafi ☐
o. Ko wata sana'ar daba a ambata ba (a kawo ta) ……

APPENDIX V

THE BIG FIVE PERSONALITY TEST (ADAPTED)

The "Big Five Personality Test" is designed to measure the personality traits of gifted and average learners in public and private Junior Secondary Schools in Kano and Jigawa States.

The statements below concern your perception about yourself in various situations.

There are no right or wrong answers, so select the number that most closely reflects you on each statement. Take your time and consider each statement carefully.

Note that responses will be treated with utmost confidentiality and used for research purpose only.

School _____ Class _____

Age _____ Gender _____

Tick (✓) the option you select using the scale below:

1. Strongly disagree
2. Disagree
3. Neither disagree or agree
4. Agree
5. Strongly agree

S/No	Response	1	2	3	4	5
1.	I have a rich vocabulary.					
2.	I have a vivid imagination.					
3.	I have excellent ideas.					
4.	I am quick to understand things.					
5.	I use difficult words.					
6.	I spend time thinking on things.					
7.	I am full of ideas.					
8.	I am not interested in unrealities					

9.	I do not have a good imagination.					
10	I have difficulty understanding unreal ideas.					
11	I am always prepared.					
12	I pay attention to details.					
13	I get duties done right away.					
14	I like order.					
15	I follow a schedule					
16	I am detailed in my work.					
17	I leave my belongings around.					
18	I make a mess of things.					
19	I often forget to put things back in their proper place.					
20	I dodge my duties					
21	I am the life of the party					
22	I don't mind being the center of attention					
23	I feel comfortable around people.					
24	I start conversations.					
25	I talk to a lot to different people at gatherings					
26	I don't talk a lot.					
27	I keep in the background.					
28	I have little to say.					
29	I don't like to draw attention to myself.					
30	I am quiet around strangers.					
31	I am interested in people.					

32	I sympathize with others' feelings.					
33	I have a soft heart.					
34	I take time out for others.					
35	I feel others emotions.					
36	I make people feel at ease.					
37	I am not really interested in others.					
38	I insult people.					
39	I am not interested in other people's problems.					
40	I feel little concern for others.					
41	I am easily disturbed.					
42	I change my mood a lot.					
43	I get irritated easily.					
44	I get stressed out easily.					
45	I get upset easily.					
46	I have frequent mood swings.					
47	I often feel blue.					
48	I worry about things.					
49	I am relaxed most of the time.					
50	I seldom feel blue.					

HANYOYI BIYAR (5) NA GWAJIN DAN'ADANTAKA

Makaranta _____ Aji_____

Shekaru _____ Jinsi_____

Abubuwan La'akari: Wadannan bayanai sun kunshi fahimtar da ka/ki yiwa kanka/ki kan wasu al'amurra. Ba wata amsa da take daidai ko ba daidaiba. Don haka ka/ki zabi lambar wadda zata kusan wakiltar ka/ki a kowane batu. Bi a hankali ka/ki zabi kowane batu a tsanake.

A lura duk bayanan da aka bayar za a yi amfani dasu a matsayin sirri da kuma manufar yin bincike kawai.

Yi alamar (✓) ga mafi dacewar zabin ka/ki ta yin amafani da magwajin da yake biye.

1. Sam ban yarda ba
2. Ban yarda ba
3. Ko rashin yarda ko yarda ban damu ba (duk daya)
4. Na yarda
5. Kwarai na yarda

LAMBA	**Jawabi (bayar da amsa)**	**1**	**2**	**3**	**4**	**5**
1.	Ina da tarin sanin kalmomin harshe					
2.	Ina tunano abu garai-garai					
3.	Ina da zurfin tunani					
4.	Ina fahimtar abubuwa nan da nan					

5.	Ina amfani da tsaura'run kalmomi					
6.	Ina dadewa tunanin abubuwa					
7.	Ina cike da fahimi					
8.	Ba ni da sha'awa akan abinda bana zahiri ba					
9.	Ba ni da kyakkyawan tunani					
10.	Ina wahala wajen fahimtar abinda ba na hakika ba.					
11.	Ko da yaushe a shirye nake					
12.	Ina da lura kan abubuwa					
13.	Ina yin ayyukana a kan lokaci					
14.	Ina san tsari					
15.	Ina bin tsarin aiki					
16.	Aiki na a kammale yake					
17.	Ina kauwame abinda na mallaka a tare dani					
18.	Ina hargitsa abubuwa (kaya)					
19.	Nakan manta mayar da abubuwa a muhallinsu					
20.	Ina wasa da aikina					
21.	Ina daukar hankali a taro					
22.	Ban damu na zama abin kulawaba					
23.	Ina jin dadi in na kasance tare da jama'a					
24.	Ina fara magana					
25.	Nakan yi magana da mautane da yawa a taro					
26.	Ban cika magana ba					

27.	Nakan tsaya baya-baya a taro					
28.	Ban faye yin magana da yawaba					
29.	Bana son in ja hankalin mutane					
30.	Ni mai shiru-shiru ne ga baki					
31.	Ina kaunar jama'a					
32.	Ina tausayawa halin da wasu suka samu kansu					
33.	Ina da tattausan hali					
34.	Ina bayar da lokaci na dan wasu					
35.	Ina jin yadda wasu suke ji.					
36.	Ina kwantarwa da mutane hankali					
37.	Ban damu da wasu ba					
38.	Ina wulakanta jama'a					
39.	Ban damu da matsalolin jama'a ba					
40.	Ban cika damuwa da jama;a ba					
41.	Ina da saurin damuwa					
42.	Ina da saurin sauya yanayi					
43.	Nakan yi fushi nan da nan					
44.	Ba wuya na gaji ko kosawa					
45.	Ba wuya na fusata					
46.	Ina da yawan jin ba dadi					
47.	Ina yawan samun bacin rai					
48.	Ina damuwa da abubuwa					
49.	Galibi ina cikin nutsuwa					

50.	Da wuya na samu bacin rai					

APPENDIX VI
FIELD DATA

	GN	FO	EAF	EAM	REA	WTA	FTR	WHY
1	2	1	6	3	0	1	0	1
2	1	2	3	7	0	1	0	1
3	1	2	3	7	0	1	0	1
4	1	2	3	6	0	1	1	2
5	1	3	1	1	1	1	0	1
6	1	1	7	3	0	1	0	1
7	1	2	1	7	0	1	0	1
8	1	1	2	2	0	1	0	4
9	1	2	2	7	0	1	0	1
10	1	2	1	1	1	1	0	4
11	1	1	3	1	1	1	0	1
12	1	1	1	3	1	1	0	1
13	1	2	2	7	0	1	1	1
14	1	3	1	3	0	1	0	1
15	1	2	1	6	0	1	0	3
16	1	2	7	7	0	1	0	1
17	1	3	1	1	1	1	0	1
18	1	3	1	1	1	1	0	1
19	1	1	7	3	0	1	0	2
20	1	1	2	1	0	1	1	1
21	1	1	2	6	0	1	0	1
22	1	1	3	7	1	1	0	5

23	1	2	2	3	0	1	0	1
24	1	3	3	6	1	1	0	1
25	1	3	3	1	1	1	0	1
26	1	2	2	7	0	1	0	1
27	1	3	2	1	1	1	1	5
28	1	2	2	2	0	1	0	1
29	1	2	1	2	0	1	0	1
30	1	2	2	3	0	1	0	1
31	1	1	1	1	1	1	0	3
32	1	3	3	1	1	1	0	5
33	1	1	1	5	1	1	1	1
34	1	1	3	1	1	1	0	4
35	1	1	3	5	1	1	1	1
36	1	1	1	3	0	1	0	1
37	1	3	1	5	1	1	1	1
38	1	3	1	1	1	1	0	1
39	1	2	1	6	0	1	0	2
40	1	2	3	4	1	1	1	1
41	1	1	1	6	1	1	0	1
42	1	3	3	1	0	1	1	1
43	1	2	2	6	0	1	0	5
44	1	2	3	6	1	1	0	1
45	1	1	3	3	1	1	1	1
46	1	2	1	1	1	1	1	1

	WDL	DLS	SLB	LFE	LUH	OYL	BF	OPE
47	3	4	3	1	1	3	12	37
48	2	5	2	1	1	6	5	39
49	3	4	3	1	1	7	5	13
50	2	5	2	1	1	2	5	36
51	2	5	1	1	1	5	5	35
52	4	5	1	3	1	1	5	36
53	4	5	1	1	1	15	3	39
54	2	5	1	1	1	5	5	36
55	2	5	3	1	1	6	15	44
56	4	4	2	1	1	14	14	35
57	2	5	1	1	1	5	5	35
58	4	5	1	1	1	6	5	42
59	4	5	2	1	1	13	3	27
60	4	5	1	1	1	2	5	42
61	2	5	1	1	1	1	15	40
62	2	5	1	1	1	12	6	38
63	2	4	1	1	1	8	5	40
64	2	5	2	1	1	6	5	29

65	1	5	2	1	1	11	15	39
66	3	5	2	3	1	6	3	45
67	1	5	1	1	1	3	5	42
68	1	5	1	1	1	1	5	36
69	4	5	2	1	1	10	5	33
70	4	5	2	1	1	8	15	44
71	2	5	2	1	1	6	5	34
72	3	5	1	1	1	9	15	39
73	4	5	1	1	1	1	3	46
74	2	5	1	1	1	8	6	34
75	1	5	2	1	1	6	11	39
76	2	5	1	1	1	7	5	34
77	1	5	1	1	1	7	6	34
78	1	5	2	2	1	1	15	46
79	3	5	2	1	1	6	6	34
80	2	2	1	1	1	6	5	33
81	3	5	1	1	1	6	3	30
82	2	5	3	1	1	5	3	47
83	2	5	1	1	1	1	5	46
84	3	5	1	1	1	6	3	44
85	2	4	1	1	1	4	5	25
86	4	5	1	1	1	6	5	40
87	3	5	1	1	1	5	6	28
88	3	4	2	2	0	1	5	46
89	2	5	1	1	1	3	5	34
90	3	5	1	1	1	6	5	33
91	2	5	1	1	1	13	5	30
92	2	5	1	2	0	1	9	47

	CON	EXT	AGR	NEU	CA	MA	TN	PT
93	32	30	33	34	13	21	20	1
94	43	40	42	38	12	21	19	1
95	11	7	8	8	15	21	20	1
96	36	35	30	28	12	21	19	1
97	34	30	27	34	14	21	19	1
98	30	24	36	33	18	21	20	1
99	34	43	35	29	15	20	18	1
100	33	37	40	31	14	20	18	1
101	44	24	28	41	15	20	19	1
102	29	29	31	29	15	19	19	1
103	42	31	37	29	14	19	20	1
104	33	33	31	30	13	19	18	1
105	34	29	34	35	14	19	18	1
106	38	27	38	46	12	18	17	1

107	42	34	28	31	13	18	17	1
108	32	34	31	27	13	18	17	1
109	38	39	34	18	14	18	17	1
110	19	31	27	29	13	18	18	1
111	32	42	38	34	15	18	17	1
112	34	34	3	37	15	18	18	1
113	34	25	25	26	14	18	18	1
114	34	39	29	40	15	18	16	1
115	50	29	30	27	16	18	17	1
116	38	39	45	22	15	18	17	1
117	32	36	30	28	16	18	17	1
118	36	27	41	25	16	18	16	1
119	43	42	38	36	13	17	16	1
120	35	37	36	21	13	17	18	1
121	36	29	36	28	15	17	18	1
122	35	43	34	30	15	17	17	1
123	40	38	40	32	16	17	16	1
124	40	47	42	36	15	17	19	1
125	34	40	40	40	14	17	17	1
126	40	27	41	29	15	17	16	1
127	31	31	34	36	13	17	17	1
128	42	46	40	23	14	17	17	1
129	47	46	42	40	14	16	16	1
130	34	42	32	22	13	16	16	1
131	38	45	27	38	15	16	16	1
132	36	37	40	34	13	16	16	1
133	39	31	35	37	15	16	18	1
134	40	47	42	36	15	16	16	1
135	34	40	40	40	12	16	16	1
136	40	27	41	29	15	16	17	1
137	31	31	34	36	13	16	16	1
138	42	46	40	23	14	23	16	1

	GN	FO	EAF	EAM	REA	WTA	FTR	WHY
139	1	1	3	7	1	1	0	1
140	1	2	2	8	0	1	0	3
141	2	2	1	7	0	1	0	3
142	2	2	2	8	0	1	0	2
143	2	1	2	2	0	1	0	2
144	2	3	1	2	1	1	1	1
145	2	2	3	8	1	1	1	4
146	2	2	3	6	0	1	0	1
167	2	1	6	1	0	1	1	3
148	2	1	2	3	0	1	0	1
149	2	1	1	2	0	1	0	4

150	2	2	3	6	1	1	1	1
151	2	2	1	1	1	1	1	2
152	2	1	3	3	1	1	0	1
153	2	2	3	7	1	1	0	3
154	2	1	1	1	1	1	1	1
155	2	1	3	1	0	6	0	4
156	2	1	1	1	1	1	0	1
157	2	1	3	1	1	1	0	3
158	2	1	3	1	1	1	0	1
159	2	1	7	1	1	1	0	1
160	2	3	3	1	1	1	0	1
161	2	2	1	7	1	1	0	4
162	2	2	3	2	1	1	1	1
163	2	2	3	7	0	1	0	1
164	2	3	2	6	0	1	0	3
165	2	2	3	2	1	1	0	1
166	2	1	7	7	1	1	0	2
167	2	2	3	7	0	1	0	1
168	2	2	1	2	0	1	0	1
169	2	1	3	1	1	1	0	1
170	2	2	3	1	0	1	0	4
171	2	2	1	1	1	1	1	1
172	2	1	1	1	1	1	1	1
173	2	2	3	8	1	1	1	3
174	2	1	3	2	0	1	0	1
175	2	2	3	4	1	1	1	1
175	2	3	7	1	0	1	1	1
176	2	2	1	1	0	1	0	1
177	2	1	3	1	1	1	0	2
178	2	1	3	4	1	1	1	1
179	2	1	2	6	0	1	0	4
180	2	1	1	1	0	1	0	1
181	2	2	3	1	1	1	1	1
182	1	2	1	1	1	1	1	1
183	2	1	1	1	1	1	1	1
184	2	2	7	3	0	1	0	3

	WDL	DLS	SLB	LFE	LUH	OYL	BF	OPE
185	2	5	1	1	1	2	5	46
186	3	4	2	1	1	1	5	44
187	2	5	1	1	1	1	7	36
188	4	5	1	1	1	7	12	32
189	4	5	1	1	1	6	12	40
190	1	4	2	3	1	5	6	36

191	4	5	1	1	1	6	5	29
192	2	3	1	1	1	6	15	41
193	3	1	3	1	1	1	2	36
194	2	5	2	1	1	5	2	36
195	1	5	2	1	1	6	3	35
196	2	5	3	3	1	3	15	30
197	1	5	2	1	1	1	2	38
198	1	5	1	1	1	4	3	31
199	2	5	3	1	1	6	15	30
200	4	5	2	2	1	5	5	42
201	4	5	2	1	1	1	11	40
202	4	1	1	3	1	3	5	45
203	4	5	2	1	1	1	5	28
204	3	5	2	1	1	5	8	17
205	4	5	2	1	1	2	11	36
206	1	5	3	2	1	6	11	41
207	2	4	1	1	1	6	2	33
208	2	5	1	1	1	1	5	39
209	2	5	3	1	1	8	5	31
210	2	5	1	3	1	3	5	35
211	4	5	2	1	1	5	5	40
212	3	5	1	1	1	6	3	32
213	3	5	2	1	1	4	3	30
214	2	5	1	1	1	1	6	28
215	4	5	2	1	1	5	5	40
216	2	5	2	1	1	9	10	44
217	2	5	2	1	1	5	13	43
218	2	5	3	3	1	6	1	47
219	2	5	2	1	1	8	5	39
220	3	5	1	1	1	5	5	38
221	2	5	1	2	0	1	3	36
222	2	5	1	1	1	7	6	31
223	3	5	1	1	1	5	5	42
224	2	5	2	1	1	6	5	39
225	2	5	1	1	1	6	1	38
226	3	5	2	1	1	6	13	0
227	3	5	1	1	1	1	5	31
228	2	5	2	1	1	5	2	37
229	2	5	1	1	1	5	1	35
230	2	1	1	1	1	6	3	26
	CON	EXT	AGR	NEU	CA	MA	TN	PT
231	47	46	42	40	13	14	16	1
232	34	42	32	22	14	13	18	1
233	39	35	23	39	16	18		2
234	31	25	27	25	16	17		2

235	35	38	38	46	16	16	2
236	34	40	41	33	16	16	2
237	39	38	40	32	15	16	2
238	29	32	27	28	14	16	2
239	41	31	43	27	14	16	2
240	36	42	33	28	16	16	2
241	33	33	41	35	16	15	2
242	37	32	37	40	16	15	2
243	34	36	31	25	15	15	2
244	30	35	34	30	15	15	2
245	26	36	34	30	16	15	2
246	41	36	40	35	15	15	2
247	38	33	38	37	14	15	2
248	30	37	29	26	15	15	2
249	42	33	30	33	14	15	2
250	22	18	43	35	15	15	2
251	31	34	29	34	15	15	2
252	38	42	31	33	14	15	2
253	41	32	32	33	16	15	2
254	38	46	38	32	16	15	2
255	33	30	31	24	15	15	2
256	32	38	34	21	18	15	2
257	39	25	25	34	16	15	2
258	33	42	31	27	16	15	2
259	46	38	44	36	14	14	2
260	34	28	27	32	14	14	2
261	39	36	36	28	15	14	2
262	34	26	33	24	14	14	2
263	41	42	41	18	14	14	2
264	47	35	40	36	17	14	2
265	46	36	39	31	13	14	2
266	44	30	35	38	16	14	2
267	31	37	39	31	14	13	2
268	32	33	32	37	13	13	2
269	38	32	34	26	12	13	2
270	37	40	37	25	15	13	2
271	28	32	29	26	16	13	2
272	0	0	0	0	17	13	2
273	38	36	19	24	13	12	2
274	37	38	37	32	15	12	2
275	32	31	34	21	14	12	2
276	26	26	34	33	16	13	2

	GN	FO	EAF	EAM	REA	WTA	FTR	WHY

277	2	3	1	1	1	1	1	1
278	2	2	2	7	1	1	1	1
279	2	2	2	8	0	1	0	1
280	2	2	3	1	0	1	0	4
281	1	5	2	1	1	4	2	37
282	2	4	3	1	1	1	4	28
283	2	5	1	1	1	5	5	37
284	1	5	1	1	1	1	10	37
285	37	38	39	35	14	13		2
286	42	32	34	32	14	14		2
287	34	35	31	20	14	15		2
288	32	36	34	26	14	16		2

KEY:

GN	-	Gender	FO	-	Fathers Occupation
MO	-	Mothers Occupation	NA	-	Nature of Achievement
EAF	-	Educational Attainment of Father	EAM	-	Educational Attainment of Mother
REA	-	Reading Materials at Home	WTA	-	What Type Are they
FTR	-	Finding Time to Read	WHY	-	Who normally helps you with school Work
WDL	-	What do you like best	DLS	-	Do you like school
SLB	-	Subjects you like best	LFE	-	Do you like to go for further education
LUH	-	Do you like to use your hand to produce something?	OYL	-	Occupation you like to take up in future
BF	-	Big Five	OPE	-	Openness to Expression
CON	-	Conscientiousness	EXT	-	Extraversion
AGR	-	Agreeableness	NEU	-	Neuroticism
CA	-	Chronological Age	MA	-	Mental Age
TN	-	Teacher Nomination	PT	-	Personality Test