# Cognitive Styles, Moral Reasoning, Pro-Social Behaviour as Correlates of Academic Achievement among Senior Secondary School Students in Jigawa State, Nigeria

**BY**

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## APPROVAL PAGE

This research report on the cognitive styles, moral reasoning, Pro-Social behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria has been read and approved as meeting the requirements of the Department of Education for the award of Doctor of Philosophy Degree in Educational Psychology

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## DEDICATION

This research work is dedicated to my mother Hauwa`u  Abubakar and my father Dauda Al-Hassan, May their souls rest in peace and be counted as one of the occupants of Jannatul Firdausi Ameen.

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## *ABSTRACT*

*The study examines the cognitive styles, moral reasoning and pro-Social behavior as correlates of academic achievement among senior Secondary School students in Jigawa state, Nigeria. Four research objectives were formulated to guide the study. Correlational research design was employed to conduct the study. The population of the study consisted of 25,800 SS3 students of 2017/ 2018 academic session. The sample of the study was 378 students selected through multi-stage sampling techniques. Three validated instruments were used for data collection. The reliability index of the Group Embedded Figures Test (GEFT) was found to be 0.83, the Cronbach`s alpha for the Defining Issues Test (DIT2) was found to be 0.88 and the Cronbach`s alpha for the Pro-social Tendencies Measure (PTM) was 0.89. These indicate that the instruments were reliable and adequate for the study. Data collected were analyzed using Pearson Product Moment Correlation Coefficient and Regression Analysis The result showed that a positive correlation was found between cognitive styles and academic achievement (r = .614, p =0.00), indicating that cognitive style influences academic achievement. The result showed positive correlation between moral reasoning and academic achievement (r = .687, p =0.00), indicating that moral reasoning influences academic achievement. The result showed moderate correlation between pro-social behaviour and academic achievement (r = .538, p =0.00), indicating that pro-social behaviour influences academic achievement. Furthermore, cognitive styles contributed Beta weight of 0.208 and the t-value of 3.885. moral reasoning contributed Beta weight of 0.452 and the t-value of 8.283. But prosocial behaviour also contributed Beta weight of 0.37 and the t-value of 2.78 of academic achievement. Based on the results some recommendations were made, which include that teachers should emphasize on the use of cognitive styles and moral reasoning as a means of achieving better academic achievement. Attention should be given to pro-social behaviour to promote positive social behaviours and reduce anti social behaviour*

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**Abbreviations**

| | |
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| **DIT2** | Defining Issues Test |
| **FD** | Field Dependent |
| **FI** | Field Independent |
| **G .S. S** | Government Secondary School |
| **GEFT** | Group Embedded Figure Test |
| **Ho** | Null Hypothesis |
| **JSMEST** | Jigawa State Ministry of Education, Science and Technology |
| **NECO** | National Examination Council |
| **NPE** | National Policy on Education |
| **PPMC** | Pearson Product Moment Correlation Coefficient |
| **PTM** | Pro-social Tendencies Measure |
| **SPSS** | Statistical Package of Social Science |
| **SS** | Senior Secondary |
| **SSCE** | Senior Secondary Certificate Examination |
| **SSCQE-RF** | Senior Secondary Certificate Qualifying Examination Result Form |
| **WASCE** | West African Senior School Certificate Examination |

***Operational Definitions of terms***

For the purposes of this study, the following terms were defined:.

**Academic Achievement:** This refers to the students average score in Qualifying Examination result

**Cognitive style** refers to a person's style of processing information which can either be field-dependent or field-independent thinking as measured using Group Embedded Figure Test (**GEFT**)

**Field-dependent:** students with scores 39 and below from Group Embedded Figure Test (**GEFT**)

**Field-independent:** students with scores 40 and above from Group Embedded Figure Test (**GEFT**)

**Moral reasoning:** in this context means how individuals reason and justify their behaviours in different situations and with the passage of time as measured by Defining Issues Test **(DIT2).**

**Pro-social behaviour** in this study refers to those behaviours that are performed voluntarily rather than under duress as measured by The Pro-social Tendencies Measure (**PTM**).

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Everyone deserves education that should focus on the development of whole human personality. The broader aim of education of course is to develop the individual physically, mentally, and morally. This all-round development covers personal, intellectual and social aspects of human personality. According to the National Policy on Education (2014), the national educational goals derived from the philosophy is the acquisition of appropriate skills and the development of mental, physical and social abilities and competencies as equipment for the individual to live in and contribute to the development of the society (NPE 2014).

The idea of cognitive styles is derived on the basis of the statement "people do not all think the same way." The use of cognitive styles has become popular in educational settings for that same reason. If students do not all think the same way, how can they be expected to all learn the same way? Through the use of differentiated instruction, based on cognitive styles, all students are given the opportunity to explore topics and concepts through their own cognitive styles.

Cognitive style is the control process or style which is self generated, transient, situational determined conscious activity that a learner uses to organize and to regulate, receive and transmit information. It has a particular importance as it determines the way information is processed when solving problems or making decisions or in the interpretation of stimuli and response. Every Individual has his/ her own style in the organization of perception and memory. Therefore, psychologists are interested in

studying cognitive style as an important dimension of the individual differences. Cognitive style is the basis of discrimination between individuals during their interaction with the elements of the situation, and also is an important approach to understanding a personal way of thinking (Dwyer & Moore, 2015).

The study of cognitive style also helps in identification of the potential of the individual preparations, in order to be considered when designing educational programme, academic and vocational guidance. Jantan (2014) indicates that one of the most important guidelines that prescribe the form of learning and how to deal with the elements of the position of learning is cognitive style, and there is a relationship between cognitive style and academic achievement. Each student has his own way or style of learning. There are students who are more interested in analytical subjects such as Mathematics and science, while others are interested in social sciences, and language. With regard to socializing, some students like to be alone and others like to be groups.(Tinajero & Paramo, 2014).

Moral reasoning entails thinking that students display when deciding whether an act is right or wrong. It is an indisputable reality that our students face great challenge on issues to do with moral reasoning. Nowadays, immoral attitudes and certain wrong acts keep growing unabated to the extent that they have become part of the society since they are no longer condemned by us. The social situation that happens to be threatening the background of the present day societies is the general decline and deterioration of human character and the apparent lack of moral reasoning, more especially among children and youth of our contemporary societies. The most devastating is that, children and youth are being drawn into these crises. Persistently, they are becoming involved in various anti

social and immoral activities such as sexual assaults, bribery, corruption, fraud, stealing, robbery, and Boko Haram terrorism (Bichi, 2014).

The issue of morality has become abused as a concept, twisted and misinterpreted as (typically) the stubbornness, arrogance and imposition of one set of prejudices on the entire society. Moral reasoning today is believed to be at a decrease as a result of the influence of the interaction between mankind and modern development, in terms of industrialization, globalization and the effects of the modern ways of information technology such as the internet, Facebook Whatsapps, BB chats and so on, when used inappropriately.

Prosocial behaviours are behaviours that seeks to fulfill another person`s need to promote and maintain a positive benefit for them. People exhibit prosocial behaviour from time to time. Giving gifts to a sibling or helping a lost child find his parents are just two examples to illustrate the extent to which people try to help others. Individuals develop cognitive abilities that allow them better phenomenological process and psychologically mediate life experiences that may facilitate (e.g., completing household chores and caring for siblings) or hinder (e.g., interpersonal conflict and perceptions of institutional discrimination) prosocial development. Students express more intentionality in the activities they engage in and become selective in where they choose to devote their energies. Students are afforded more opportunities to express helping behaviours in other social spheres beyond the family context, such as in schools, communities, and civic society (Brittian, & Humphries, 2015).

As students attain higher cognitive styles, they become capable of more complex moral reasoning about moral issues and their tendencies toward prosocial behaviour increases

as well. However, good moral reasoning is the valued outcome of prosocial behaviour and it can be instrumental in the acquisition of knowledge and development of knowledge. This study therefore, attempts to explain cognitive styles, moral reasoning, prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria

**1.2 Statement of the Problem**

The outcry on the incessant failure of students in the Senior Secondary Certificate Examination (SSCE), West African Senior School Certificate Examination (WASCE) and National Examination Council (NECO) has increased over the years. The mass failures of students in public examination constitute wastage on investment in secondary education. It puts a big question mark on the quality of secondary education in the country. In fact, the high percentage of candidates who failed WASCE or NECO yearly is reflected in the low percentage of candidates that meet the university admission requirements. Each time the results of students in WASCE or NECO and other external examinations are released, it has remained a tale of woes and national embarrassment.

The Daily Trust of Wednesday, August 25, 2010 reported that "seventy-five per cent of candidates who sat for May/June WAEC 2010 examinations failed to meet the minimum entry requirement into tertiary the institutions. Again, the WAEC its May/June 2014 WASSCE results, recorded mass failure in Mathematics and English language. In 2009 only 25.99% made five credits and above including Mathematics and English and in 2010 it declined to 23.36%. In 2011 the percentage of students who pass in WAEC rose to 30.9% and fortunately continued to rise to 38.81% in 2012. However, in 2013, the

performance declined to 36.57%, and unfortunately continued to decline to 31.28% in 2014 Jigawa state took the35th position oin the WAEC ranking of 2017.

In 2011, the rate of failure continued unchecked. In fact, more candidates failed the NECO examination in its 2011 edition. Out of 1,169,951 candidates who sat for the exam, only 8.06% totaling 94,369 candidates had credit passes in the English Language. However, there seemed to be a substantial reduction in the number of candidates who failed NECO examination in its 2012 edition. During the year under review (2012), 32.22% (355, 266) candidates' scored credit in English Language out of 1,102,608 candidates who sat for the exams. In 2013 edition, 1,034,263 sat for the exam out of which 493,154 (47.68%) candidates had credit in the English Language. Another increase in the number of students who had credit in the English Language in the previous year (2012); yet, more than half of the students still failed the English Language. In 2014, 72.58%, that is, 718267 students passed at credit level in the English language. The Statistics of result released by the West African Examinations Council for the May/June WASSCE 2014 shows that, Jigawa recorded 7.47% students who scored five credits and above in Math and English.

The education system in Jigawa state has been facing these aforementioned problems and various governments have initiated programme of reforms that have achieved less than attaining the desired goals, thus crippling the system instead of enhancing it. The problems highlighted have made the students to be academically, morally and socially backward. Hence the researcher intends to assess cognitive styles, moral reasoning, prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria.

## 1.3 Objectives of the Study

The objectives of the study were set to find out:

1. The relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state
2. The relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state
3. The relationship between pro-social behaviour and academic achievement among senior secondary school students in Jigawa state
4. To determine the relationship among cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school students in Jigawa state

## 1.4 Research Questions

The study addresses the following research questions:

1. Is there any relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state?
2. Is there any relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state?
3. Is there any relationship between pro-social behaviour and academic achievement among senior secondary school students in Jigawa state?
4. What is the relationship among cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school students in Jigawa state?

## 1.5 Research Hypotheses.

The following hypotheses were postulated for testing in the study:-

**$H_{O1}$** There is no significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state.

**$H_{O2}$** There is no significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state.

**$H_{O3}$** There is no significant relationship between pro-social behaviour and academic achievement among senior secondary school students in Jigawa state.

**$H_{O4}$** There is no significant relationship amog cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school students in Jigawa state.

## 1.6 Significance of the study

The reason behind undertaking any research in education is to help towards finding solutions to already identified problems for the society to progress. The findings of this study were of significant importance to students, parents, teachers, guidance and, educational administrators, and policy makers. The research findings contribute in enhancing the cognitive style and moral reasoning by encouraging students to develop healthy prosocial behaviour. The result of the study also provide parents, teachers, counselors and health educators with the necessary rich data that would enable them map out strategies of assisting students to have higher cognitive style and moral reasoning level.

The findings of this study are of significant importance to teachers as it reveal students' cognitive styles, moral reasoning and prosocial behaviour in class-rooms, and to make teachers to understand the levels at which their students are functioning and ascertain their students cognitive levels, cognitive style, moral reasoning and prosocial behaviour in order to adjust their teaching accordingly. By emphasizing on methods of reasoning, they provide critical direction that will help the learner to discover the concepts through investigation. The result of this study further helped teacher's patterns which enhanced sequence of activities that would provide an environment in which equilibrium occurs in learners minds.

It is hoped that the result of this study may enable the Curriculum Planners to design a curriculum that allows students to develop skills that will lead to expertise in problem solving, create an environment that nurture the capabilities of students and develop learners potential to the fullest. It encourages Curriculum Planners to focus curriculum studies on depth and understandings rather than on breath of coverage of syllabuses and scheme of work. Course content should be restructured to match student's levels of cognitive reasoning abilities.

In addition, it would be of great importance to the Psychologist because it may enable him to know areas which the learner needs to improve on and to find a remedy for it .Curriculum Planners and Psychologist should work together to find ways of extending Piaget's clinical approach with individuals and groups to development of academic achievement. To Guidance Counselors, the findings of this study may help to categorize students into cognitive styles, for career choice according to their brain make- up irrespective of their gender. This might be of importance to Guidance Counselors, who

from time to time have to guide and counsel the students both in academics and other areas of life.

The findings may also add to the body of knowledge in line with the theories of some Psychologists like Kohlberg, Bandura, and Witkin who are of the view that meaningful learning occurs when there is interaction between the students prior knowledge and the new materials to be learned.

It may serve as a source of vital information for policy makers, and school administrators to design ways and strategies for improving cognitive styles and moral reasoning of students, which may foster prosocial behaviour and enhance academic achievement.

It allows students to develop their process skills that may lead to expertise in problem solving. This study provided ground for the improvement of students' achievement since it is directed at finding out the appropriate way students learn which help to improve students achievement as it facilitates learning and inculcate positive attitude in students. Further, it is hoped that the recommendations if judiciously applied to classroom situation, will improve which will go a long way to solve perennial poor achievement. A clear understanding of students' cognitive style, moral reasoning and prosocial behaviour are be important in order to determine their strength and weakness in various areas of learning. Teachers are not left out in the race for the indispensability of this study.

## 1.7 Scope and Delimitation of the Study

The study was limited to Senior Secondary three (SS3) students in three educational zones of Jigawa State. The scope of the study was limited to the cognitive styles, moral reasoning and prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria. The intention was to cover all senior secondary school students in Jigawa state. But the geographical area and the number of schools and subjects that will be involved in the study are so large that it would not be easy for the researcher to cover the whole secondary schools in the study area. This was largely so because of the financial involvement and time frame, within which the research was carried out. The study was limited to public senior secondary school. Junior secondary school, primary school and higher institutions were delimited from the study. The senior secondary schools used by the researcher are government-owned schools.

# CHAPTER TWO
# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

For a research work to be reliable and be of good quality, knowledge of recent ideas must be rooted in past efforts and findings of different scholars in relevant literature is discussed. Therefore, the researcher reviewed the literature of the past researches on the concepts of cognitive styles, moral reasoning, prosocial behaviour and academic achievement. From the theoretical framework Witkin theory of cognitive styles, Kohlberg theory of moral reasoning and Bandura theory of Reciprocal Determinism of prosocial behaviour theory were explained in detail. Empirical studies on relationship between cognitive styles, moral reasoning, prosocial behaviour and academic achievement and Summary and uniqueness of the study on the thematic were explained. This literature review, therefore, highlighted the relationship between cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school students.

## 2.2. Cognitive Styles.

Cognitive educators (teachers) and Psychologists (Ausubel, Brunner ,Piaget) have long been interested in understanding the individual difference in cognitive styles and their impact on learning and instruction (Altun & Cakan, 2006). Educationist proposed various factors explaining different levels of learning Mathematics, among which age, sex, learning strategies, and cognitive styles can be referred. Therefore, this work is going to deal with one of the most examined ones` the one concerned with individual's perspective about a problem that is cognitive in nature.

According to Allyn and Chastain (1988), "cognitive style refers to the predisposition an individual has for using their intellect in specific ways to learn''. Style refers to individuals' consistent preferences in learning situations which differentiates him or her from someone else. Hall (2000) added that cognitive style includes one`s perceptual and intellectual capabilities. Hall states that cognitive style is an individual way of responding to an educational experience with consistent performance. Hence it is used to diagnose students learning ability and abilities. An analysis of these definitions reveals the following:

1. Cognitive style focuses on student's individual characteristic ways by which they process information.
2. Cognitive style refers to learner's action and not ability
3. Cognitive style is an important factor in individual differences
4. Cognitive style is a psychological aspect of learning.
5. The concept of Cognitive style is based on the theory that an individual responds to educational experiences provided to him with consistent behaviour and performance.

Cognitive style is bipolar and exists along a continuum, ranging from one extreme to another with each pole having adaptive value and judge positively when seen as necessary in relation to a particular circumstance. Example at one end of the pole is clustered the competence articulation plus an impersonal orientation (FI) while at the other end is clustered a social orientation but less articulation competence (FD). From these different orientations come the cognitive forces that provide individual personality with requirements to do specified tasks. The Field Dependent and Field Independent

dimension is to be viewed as “bipolar” cognitive style because individuals at the two ends are different, not more or less of the same characteristics”.

The views of various researchers (Witkin, 1981& Hudson 1969) on cognitive style are expressed differentially especially in the field of education. The term cognitive style has been used to describe and explain individual differences in the strategies used for representing and processing information (Riding & Rayner, 1998). Similarly, cognitive style refers to the preferred way an individual processes information as well as the consistent ways in which an individual memorizes and retrieves information (Witkin & Goodenough, 1981).

Cognitive styles can generally be described as the manner in which information is acquired and processed. Cognitive style measures do not indicate the content of the information but simply how the brain perceives, learn, processes the information and relate to others. Cognitive style is frequently included under the umbrella term ‘learning style’, but as a construct it is much more pervasive, stable and deep seated than learning style. Unfortunately, the field of cognitive style has been made difficult to interpret from a human resource development perspective because of the wide variety of definitions of the term used by different authors’. These are: Impulsive-reflective (Kegan, 1965), Divergent –convergent (Hudson,1966), global-analytic (Kefee,1979) and field dependant– field independent (Witkin, 1962).

It has been suggested in extensive views of research literature that learners differ in learning process. Educational Psychologists have emphasized different aspects of cognitive style. Kegan (1965) introduces the concept of conceptual tempo, a consistent difference between children with regard to their tendency to delay their responses. Kegan

identifies two types of cognitive style namely: Impulsive – Reflective Cognitive style. Kegan went further to explain that those children who are inclined to respond quickly and inaccurately were categorized as impulsive and the slow accurate ones as reflective. The reflective ones are biased towards accuracy, since they take their time in other task situations.

Hudson (1969) also found that there are two different forms of learning, thinking or ability, which he classified into Divergent and Convergent cognitive style. Convergent learners tend to rely on abstract conceptualization and active experimentation to process information. Those who possess a convergent learning style are often thought of as the '' Scientist and Technologist''. They are more practically oriented. According to Hudson, convergent learners are easily identified based on the ability to find practical application for concepts, ideas and theories while the divergent learners tend to be more inclined to Arts and Humanities .They rely on abstract conceptualization and reflective observation to process information.

Limon, (2001) states that cognitive style tells how information is being processed. The global – analytic dimension of cognitive style describes the habitual way in which an individual organizes and structures information. Some will deconstruct information to its component parts, and others will retain a global or overall view of information (described as wholestic). He also describes Global styles as tendencies to process the information and understand the input from a totality and achieve an overall interpretation of them by analyzing each part respectively. While analytic styles refer to tendencies to process information from the details and obtain a complete understanding by integrating the separate part into a whole. It was observed that global learners process information

simultaneously and look for patterns. However, when analytical learners process the information, they pay great attention to the details instead of the connection between different parts.

This study focuses on only one of the cognitive style constructs: field dependent and independent. According to Riding and Cheema (1991), field dependent, (FD) and independent (FI) constructs entail the way individuals attend to recognize and structure perceptual patterns. FD and FI reflect the way or pattern recognition is processed and retained in memory. The Whole approach involves an individual's ability to perform perceptual analytic type tasks and it is derived from the substantive work (FI) of Witkin, Raskin and Oltman (1971). According to Witkin, et.al, (1971), an individual pattern recognition is strongly dominated by holistic (FD) organisation of the total perceptual field with its parts being perceived as ''fused''. In contrast, in the field independent mode of perceiving, the individual is more likely to see the parts of the field as distinct from the organized ground. These researchers went on to argue, based on their research evidence that the individual who performs in a relatively field-dependent way tends to follow the presented visual field structure. The field-independent individual tends to break up a given field's organizational structure and locate a nominated structured part. Witkin, et.al. (1971) found out that FI individuals, when compared to FD ones, were more capable of restructuring the perceptual field or imposing a structure if one is missing. They also tended to act more autonomously than the FD individuals. Field-dependant interpersonal oriented enjoy co-operative learning while FI individual tend to be intrinsically motivated and enjoy individualized learning.

Further distinction between field-dependent and field independent was given by Tinajero and Paramo, (2014), as follows:

Field independent (FI) learners can separate the relevant elements from distracting or confusing background; they can encode information quickly and accurately. Field independent (FI) learners are more analytic, solve complex problems and isolate facts. They are reflective, task-oriented and concerned with mastery concept and they prefer working alone instead of in group. Field dependent learners have difficulty in separating the relevant elements from distracting or confusing background. Field dependent learners have a slow encoding process and often encode inaccurately because of difficulty in separating facts. Field dependent learners (global) have difficulty in breaking information into isolated facts used in solving problems. Field dependent learners are impulsive, people-oriented and concern with relationships. Field dependent learners need direct instruction; prefer to work within small groups.

### 2.3. Moral Reasoning

Moral is defined as rights conduct as guided by or defined by the respective society. Morality is viewed as the "system of rules that regulate the social interactions and social relationships of individuals within societies and is based on concepts of welfare (harm), trust, justice (comparative treatment and distribution) and rights". This is how humans determine their actions based on their cognitive abilities to interpret a social situation. Issues of reasoning, problem solving skills, self-control and adaptability are components in exhibiting key components of the moral process. For some individuals, issues of values, personal feelings and social norms are constructs for discussion and therefore can be seen as being influenced by the way in which morality is taught or experienced in

schools, mosques, churches and other social institution settings. In order to fully understand the development of morals, one has to consider the various domains that exist within the morality framework. For many, it is seen as a part of nature (Smetana, 1999,). Morality is a system of beliefs, values, and underlying judgments about the rightness or wrongness of acts which the Psychologists call conscience. Conscience is an internalized set of moral values, According to Piaget (1965), morality is an individual's respect for the rules of social order and his sense of justice, where justice is a concern for reciprocity and equality among individuals ( Zimbardo, 1988).

Santrock ( 2008) defines Moral Reasoning as a process of determining right from wrong and the criteria used to asses circumstances and make decision regarding this determination varies widely across population as well as gender. Moral reasoning is defined as the aspect of moral judgments specifically the cognitive process through which one determines the differences between right and wrong in a given circumstances and makes decision accordingly. Part of the process includes determining the morality as well as the consequences of the decisions repercussions (Raaijmakers, Engels & VanHoof 2005). Moral reasoning can also be defined as the process in which an individual tries to determine the difference between what is right in a personal situation by using logic. This is an important and often daily process that people use in an attempt to do the right thing. Every day for instance, people are faced with the dilemma of whether or not to lie in a given situation. People make this decision by reasoning on the morality of the action and weighing that against its consequences. Morality is "the process by which a person determine how to resolve a specific moral (ethical) conflict regardless of the magnitude or triviality of the dilemma (Bichi, 2014).

According to Piaget (1958), in his monograph, the moral judgment of the child presented the idea that the development of moral thinking evolves through a sequence of stages; each stage differs from one another in terms of qualitative thinking. Piaget suggests theory of two moralities:

1) **Heteronomous morality.** The first stage of moral development in Piaget theory, occurring at 4 to 7 years of age justice and rules are conceived of as unchangeable properties of the world, removed from the control of people. At the stage of heteronomy a child feels an obligation to comply with rules because they are sacred and unchangeable. He believes in emanating justice that is violation of social rules followed by automatic physical accident or misfortunes.
2) **Autonomous morality**. The second stage of moral development in Piaget theory, occurring at 10 years of age and older. The child becomes aware that rules and laws are created by people and that, in judging an action, one should consider the actor`s intention as well as the consequences. At an autonomous stage the child does not consider rules as rigid. He maintained that rules are formulated through social agreement and they can be modified according to the human needs (Santrock, 2008).

The sense of right and wrong is no longer determined by the consequences of the acts; he uses intention as an important determinant of moral judgment. He asserts that both maturation and experience play significant roles in the transition from lower to higher stage of moral development. According to Piaget, cognitive development and peer interaction have significant facilitative effects on moral maturity; both cognitive and moral development move parallel to each other. Peer interaction contributes to both

cognitive and moral development. He suggests that with an increasing age, the child attains a great sense of autonomy because of his interaction with partner which helps him in Lessing his unilateral respect for adults. Piaget lays emphasis on social experience as to transition from heteronomy to autonomy. According to him, moral judgment of children living in primitive societies should differ from those living in modern society (Santrock, 2008).

### 2.3.1 Factors That Contribute To Moral Reasoning

Rest now contends that four factors contribute to moral behaviour—moral reasoning, moral sensitivity, moral motivation, and moral character (1994,).

1) Component I, **moral sensitivity** which refers to the awareness of how our actions affect other people. Therefore, failures to act morally may be the result of insensitivity and a misinterpretation of what is going on;
2) Component II, **moral reasoning** refers to Kohlbergian stages of moral development, and the failure to act morally may be the result of educational or developmental factors;
3) Component III, **moral motivation** has to do with "the importance of moral values in competition with other values" (Rest, 1994), and failure to act morally may be in part the result of compromising moral values for the sake of other highly held values; and
4) Component IV, **moral character,** "involves ego strength, perseverance, backbone, toughness, strength of conviction and courage", and failures to act morally may be the result of lack of strength to endure under pressure. Although numerous studies using the DIT have shown that moral judgment is significantly

related to indices of behaviour, no study to date has conclusively tracked this interaction in a way that has conclusive predictive value across all four components (Rest, 1994)

## 2.4 Prosocial Behaviour

Davis and Palladino (2004) define prosocial behaviour as a behaviour that benefits society or helps others. One of the most widely studied forms of prosocial behaviour is altruism, or helping behaviour that is performed voluntarily for the benefit of another, with no anticipation of reward. Baron, Byrne and Branscombe ( 2008, p.379) define prosocial behaviour as a helpful action that benefit other people without necessarily providing any direct benefits to the person performing the act, and may even involve risk for the person who help. Prosocial behaviour refers to "voluntary actions that are intended to help or benefit another individual or group of individuals". These prosocial behaviours comprise a broad spectrum of activities, like sharing, comforting, rescuing, and helping. Although prosocial behaviour can be mistaken with *altruism*, these are two different concepts. Baron, Byrne and Branscombe (2008, p. 379) also define altruism as a behaviour that is motivated by concern for the welfare of others. "Whereas prosocial behaviour has to do with a pattern of activity, altruism is considered as the motivation to help others out of pure regard for their needs rather than how the action will benefit oneself" (Knickerbocker, 2004). This description of altruism, concerning actions driven by other-oriented motivations, has been questioned by several researchers. Batson, Ahmad and Tsang (2002) points out a distinction between other-oriented and self-oriented motivations, as other researchers inferred from their investigations in real-life helping behaviours, that people have both self-oriented and other-oriented motivations

(Clary, Snyder, Ridge, Copeland, Stukas, ,Haugen,.& Miene,1998. P. 1516). These findings may be the reason why we use the term 'prosocial behaviour' and not 'altruistic behaviour' to describe actions like donating blood/money, volunteering ... For these actions, the decision to help is made in advance. However, there are plenty of decisions to help that are made spontaneously like lending money to a friend, helping a relative with homework or giving money to a homeless person. It may be obvious that these examples are of a different type. Smith (2003) as cited in Zaman (2010 p.16) developed the General Social Survey (GSS), where he classifies these voluntary actions that come under prosocial behaviour in three categories:

· **Formal help:** volunteer work, charity and blood donation come under this category.

· **Informal help to other close people***:* talking to a depressed person, helping someone with homework or to find a job are some examples.

· **Informal help to distant others***:* e.g. give someone directions, give money to a homeless person or give up one's seat,

### 2.4.1 Types of Prosocial Behaviour

There are six 6 types of prosocial behaviours: altruistic prosocial behaviours, compliant prosocial behaviours, emotional prosocial behaviours, and public prosocial behaviours and anonymous and dire prosocial behaviours(Carlo, McGinley, Hayes, Batenhorst, & Wilkinson,2007, p.149).**.** Descriptions of each type are presented below.

1) **Altruistic Prosocial Behaviours :**

Altruistic prosocial behaviours were defined as voluntary help motivated primarily by concern for the needs and welfare of another, often induced by sympathy responding and internalized norms/principles consistent with helping others (Eisenberg & Fabes, 1998,).

Moreover, because the helper is primarily concerned with the needy others' welfare, these behaviours sometimes incurs a cost to the helper. Although scholars have debated whether altruistic behaviours exist, there are at least 3 lines of evidence that support the existence of altruism. First, researchers have presented evidence of the heritability of sympathy which is deemed evolutionarily adaptive. Second, there is longitudinal evidence of stability in the tendency to behave in a prosocial manner across childhood and adolescence and third, researchers have found significant associations between personality variables and prosocial behaviours across different contexts (Eisenberg, Guthrie,, Murphy, Shepard, Cumberland,& Carlo,1999 p.1361).

As mentioned previously, the two primary motives for altruistic actions are sympathy and internalized norms/ principles. Empathy is an emotional reaction that stems from another's emotional state and is congruent with that state. Theorists have argued that empathy can lead to either sympathy, which is concern with a sense of feeling sorrow for another based on the perception and understanding of their emotional state (the focus orientation is on the other), or personal distress, which is an aversive emotional reaction based on the perception and understanding of another's emotional state (the focus orientation is on the self) (Eisenberg & Fabes, 1998, p. 722). Researchers have hypothesized that sympathy results in a motivation to relieve the other person's distress, while personal distress results in a motivation to relieve one's own distress (Batson, 1991; Hoffman, 1991). Several investigators have demonstrated that sympathy is associated with altruistic response while personal distress is associated with egoistic response. A related variable associated with sympathy and altruistic responding is perspective taking, or the tendency to take the point of view of another (sometimes

referred to as empathic accuracy). Perspective taking has been hypothesized to encourage sympathy and the performance of prosocial behaviour, and there is substantial evidence to support these assertions across childhood and adolescence (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson,2007,).

Another primary motive associated with altruistic response is internalized norms or principles concerning helping. According to theorists, internalized norms and principles are often exhibited at higher levels or stages of moral reasoning when individuals are capable of higher order formal operations thinking, a characteristic of adolescents. Because these principles are strongly internalized (and often become part of the individual's self concept), individuals with principles concerning helping are likely to engage in behaviours to primarily benefit others in need. Furthermore, individuals who demonstrate high level moral reasoning are likely to engage in behaviours consistent with their reasoning because they have acquired a sense of responsibility to conform to their principles, and are less likely to be influenced by extrinsic motivators. Several investigators have demonstrated that high levels of moral reasoning (reasoning that often depicts internalized norms, principles, or empathic-based concerns) are related to prosocial behaviours. (Eisenberg, Guthrie,, Murphy, Shepard, Cumberland,& Carlo,1999 p.1380). In addition, a number of investigators have shown that altruistic prosocial behaviours are associated with social responsibility (an obligation or duty to act in a manner that benefits society) and ascription of responsibility (a duty or obligation towards the needs and welfare of others). Thus, adolescents who ascribe responsibility to themselves and who believe they have an obligation to act responsibly towards society

were expected to be more likely to endorse altruistic prosocial behaviours. (Eisenberg, Guthrie,, Murphy, Shepard, Cumberland,& Carlo,1999).

**2) Compliant Prosocial Behaviours :**

Eisenberg and Fabes, (1998, p. 732) defines Compliant prosocial behaviour as helping others in response to a verbal or nonverbal request. Compliant helping is more frequent than spontaneous helping and much of the research on this type of helping has been conducted with children rather than adolescents. Children (especially boys) who comply frequently tend to ask for adult help more often, are unlikely to defend toys, and are less likely to respond positively to peers' prosocial behaviours. However, teachers tended to respond positively to girls, rather than boys, who comply with requests for prosocial action. The unique characteristics associated with compliant helping are not confined to the preschool years; elementary school children who frequently engage in compliant prosocial behaviour have been found to be relatively non assertive (Eisenberg & Fabes, 1998 p. 732 ). However, additional research is needed on the characteristics of older individuals who engage in high levels of compliant helping. Conceptually, higher levels of compliant helping would be expected to be associated with greater use of approval-oriented modes of moral reasoning and would not be expected to be associated with perspective taking, sympathy, or higher levels of moral reasoning. (Eisenberg & Fabes, 1998).

**3) Emotional Prosocial Behaviours**

Carlo, McGinley, Hayes, Batenhorst, and Wilkinson,(2007) explain Emotional prosocial behaviours were conceptualized as an orientation toward helping others under emotionally evocative circumstances. Some helping situations can be characterized as

highly emotionally charged. For example, an adolescent who has hurt his or her arm, is crying and is bleeding, is more emotionally evocative than an adolescent who has hurt his or her arm but shows little or no distress or injury. A number of other factors (e.g., relationship to the needy other, perceived similarity) might influence the level of emotional evocativeness and, in turn, perceived emotional evocativeness might influence the observer's emotional responses. For some individuals, highly emotionally evocative situations are likely to lead to over arousal and personal distress; whereas, for other individuals, the response might be sympathy (Eisenberg & Fabes, 1998; Hoffman, 1982). These emotional responses have been linked to emotion regulation skills and to selfless and egoistic modes of helping (Eisenberg & Fabes, 1998). In general, however, helping in highly emotionally evocative situations would be expected to be strongly associated with sympathy responding and other-oriented personal tendencies (e.g., perspective taking, higher level, empathic modes of moral reasoning(Carlo, McGinley, Hayes, Batenhorst, & Wilkinson,2007, p.149)

**4) Public Prosocial Behaviours**

Prosocial behaviours conducted in front of an audience are likely to be motivated, at least in part, by a desire to gain the approval and respect of others (e.g., parents, peers) and enhance one's self-worth. One common manipulation in research on prosocial behaviour is to alter whether others serve as witnesses to the potential prosocial act (Buhrmester, Goldfarb, & Cantrell 1992 .p,62.). Researchers have shown that helping conducted in front of others is sometimes associated with self-oriented motives, although researchers have pointed out that social desirability concerns are not necessarily incompatible with prosocial behaviour. Furthermore, helping is more likely to occur when one's actions are

conducted in front of an audience (but see the research on bystander intervention in emergency situations for exceptions, Schroeder, Penner,, Dovidio,, and Piliavin ,2005 p.67). Because gaining others' approval is often a concern for adolescents, it was hypothesized that public prosocial behaviours would be related positively to approval-oriented modes of moral reasoning and to social desirability (i.e., tendency to present one's self in a positive light). Moreover, public prosocial behaviours were expected to be related negatively (or unrelated) to higher levels of moral reasoning and other-oriented personal tendencies (e.g., sympathy, perspective taking) (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson,2007, p.152)

**5) Anonymous Prosocial Behaviours**

Based on exploratory factor analyses from 3 pilot studies, the public prosocial behaviours subscale loaded into 2 distinct factors, public and anonymous prosocial behaviours. Anonymous prosocial behaviours are defined as helping performed without knowledge of whom you helped. A tendency to perform prosocial acts in front of others was defined as public prosocial behaviours. (Carlo,et.al,2007,).

**6) Dire Prosocial Behaviours**

In addition, the emotional prosocial behaviours subscale loaded into 2 distinct factors, dire and emotional prosocial behaviours. Respondents distinguished between helping in crisis or emergency situations (i.e., dire prosocial behaviours) and situations that contain emotionally evocative cues (Carlo,et.al,2007,)

### 2.4. 3 Prosocial Behaviour during Adolescence

Adolescence is a period of human development marked by several biological, cognitive, and social transitions. Physical changes, such as the onset of puberty and rapid changes in

body composition (e.g., height, weight, and sex characteristics) prompt adolescents to engage in greater self-exploration (McCabe & Ricciardelli, 2003). Enhanced cognitive abilities permit adolescents to engage in more symbolic thinking and to contemplate abstract concepts, such as the self and one's relationship to others. Furthermore, adolescence is marked with increased responsibilities at home and in the school context, opportunities for caregiving within the family, and mutuality in peer relationships (Yates & Youniss, 1996). Moreover, society demands a greater level of psychosocial maturity and expects greater adherence to social norms from adolescents compared to children (Eccles, Brown and Templetion 2008 p.210). Therefore, adolescence presents itself as a time of major life transitions. In light of these myriad transitions, adolescents are further developing prosocial behaviours. Although the emergence of prosocial behaviours (e.g., expressed behaviours that are intended to benefit others) begins in early childhood, the developmental transitions described above allow adolescents to become active agents in their own developmental process. Behaviour that is motivated by adolescents' concern for others is thought to reflect optimal social functioning or prosocial behaviours (American Psychological Association, 2008). While the early literature focused primarily on prosocial behaviours among young children, there are several reasons to track prosocial development into adolescence. First and foremost, individuals develop cognitive abilities that allow them to better phenomenological process and psychologically mediate life experiences that may facilitate (e.g., completing household chores and caring for siblings) or hinder (e.g., interpersonal conflict and perceptions of institutional discrimination) prosocial development. Adolescents express more intentionality in which activities they will engage in and become selective in where they

choose to devote their energies. Finally, adolescents are afforded more opportunities to express helping behaviours in other social spheres beyond the family context, such as in schools, communities, and civic society. (Mahoney, Vandell, Simpkins & Zarrett, 2009)

### 2.4.4 Origins of Prosocial Behaviours

Since the turn of the twenty-first century, there has been growing interest in understanding the relationships that exist between the strengths of individuals and resources within communities in order to identify pathways for healthy development, or to understand how adolescents' thriving can be promoted. This line of thinking is commonly described as the positive youth development perspective. Although adolescent literature still predominantly focuses on problematic development (e.g., delinquency and risk-taking behaviours), studies on adolescents' prosocial development have increased substantially since the 1990s, paralleling the paradigm shift from a deficit-based model of development to one focusing on positive attributes of youth. Generally described as the expression of voluntary behaviours with the intention to benefit others (Carlo,et.al,2007). prosocial behaviour is one aspect among others of positive adolescent development that is gaining greater attention in the literature. Theory on prosocial development is rooted in the literature on moral development, which includes cognitive aspects of moral reasoning (e.g., how individuals decide between moral dilemmas; Kohlberg, 1978), moral behaviours (e.g., expression of behaviours that benefit society; Eisenberg & Fabes, 1998), and emotions (e.g., empathy; Eisenberg & Fabes, 1990). Empirical studies on adolescents' prosocial development have found that different types of prosocial behaviours may exist.

### 2.4.5 Antecedents to Prosocial Behaviour.

Adolescents' prosocial behaviours do not develop devoid of contextual influence. Youth are part of a larger system, involving family, peers, school, societal values, and the historical context (Bronfenbrenner, 2005). Indeed, research describes two major contextual factors that foster prosocial behaviours: socialization and cultural orientations.

### 1) Socialization.

Socialization is the process through which individuals acquire beliefs, values, social norms, and practices that allow them to successfully interact with society (Göncü and Gauvain, 2012; Rogoff, 2003). Parents represent a key socializing agent through which adolescents learn to express prosocial behaviours. One direct way that socialization relates to prosocial behaviours is through parenting practices. Carlo,et.al,(2007)found that parents' socialization, measured as parental inductions (e.g., degree of positive reasoning and explanations that parents use with their adolescent) played a significant role in promoting sympathy among adolescents, consequently promoted prosocial tendencies indirectly. However, no significant ethnic differences in these associations were found between Mexican-American and Caucasian adolescents who participated in the research. Researchers noted that more studies are needed across cultural groups to understand why these cultural differences were observed.

### 2) Cultural Orientations

It has been well documented that culture influences children and adolescents' development (Rogoff, 2003). However, less is known about the relationship between culture and positive aspects of adolescent development, such as prosocial behaviours. Systematic research on the development of prosocial behaviours among youth from

diverse cultural backgrounds is underdeveloped and rarely explored (Humphries and Jagers, 2009). The use of a cultural framework or perspective to understand adolescents' prosocial development acknowledges that human development is situated in and is influenced positively by cultural values, traditions, and institutions (Brittian & Humphries 2015, p. 222).

**(a) communal/collective orientations and**

**(b) religious/spiritual orientations.**

Both cultural orientations have been examined in relation to prosociality. First, the authors will discuss the literature on communalism/collectivism, followed by religiosity/spirituality. Communal/Collective Orientations Research on collective and communal orientations and prosocial behaviours among minority youth dates back to the 1970s. Knight and Kagan (1977) observe that Mexican- American children (ages 5–9 years) express more prosocial behaviours compared to Anglo-American children who exhibited higher levels of individualism and competitiveness. Researchers currently posit that collaboration, a group or communal orientation, is a central feature of Mexican-American cultural orientation that promotes prosocial behaviours (Knight and Carlo, (2012). Several contemporary studies have sought to understand how cultural factors relate to the development of prosocial tendencies among Latino adolescents. Calderón-Tena, , Knight, and Carlo (2011) found that Mexican-American cultural values, assessed as familism (e.g., respect for elders and family obligations), were positively related to Mexican-American adolescents' prosocial ideas. Moreover, (Knight and Carlo, (2012) observed that Mexican-American cultural values (assessed as types of familism values) were positively related to several types of prosocial tendencies (e.g., compliant,

emotional, dire, and anonymous) compared to mainstream American values (assessed as self-reliance, material success, and personal achievement) that related to more public helping and less altruistic helping. Knight, and Carlo (2011) contended that the dominant culture in the United States negatively impacts African-American adolescents' positive development. Mainly, she asserted that the excessive focus on autonomy of the individual and the preoccupation with and competition for consumption of materialism is thought to erode prosocial behaviours among African-American adolescents.( Brittian & Humphries 2015, p. 223)

**a) Communalism** implies an awareness of the fundamental interdependence of others with a premium being placed on social bonds and group obligations. This specific cultural orientation places the needs of the group before those of the individual. Studies on African-Americans have found that communalism is related positively to correlates of African-American adolescents' prosocial behaviours, including empathy and moral reasoning . Brittian & Humphries 2015, p. 223) observed that communalism emerged as a significant predictor of moral reasoning among African-American fifth and eighth grade boys, but not among African-American girls. This gender by culture finding was surprising given that African- American girls in the study reported higher communalism scores and seemed to resonate to a communal orientation more so than their male counterparts. Therefore, more research is needed to understand the intersection between aspects of culture, such as communalism, and gender among African-American youth.

**a) Religious/Spiritual Orientations**

Many studies have acknowledged the positive association between religious/spiritual orientation and prosocial behaviours. Some research indicates that religious orientation serves as a type of social control by discouraging risky behaviours among adolescents, including substance use and delinquency. Most religions encourage adolescents to think beyond themselves, bolster concern for others well-being, and promote development of a broader worldview (Furrow King,& White., 2004 p.19). Moreover, it has been suggested that many religions are associated with prosocial behaviours due to an emphasis on helping others, service to the community, and promoting a collective orientation. Furthermore, a spiritual or religious orientation requires the belief in a higher being and a conceptualization that connects the individual to this higher being. Therefore, this relationship requires perspective taking, a skill that is necessary for optimal social development and implementation of prosocial ideas and behaviours.

### 2.4.5 Five crucial steps that determine helping versus not helping

A prosocial response to emergency has been conceptualized as the end point of the serial of five steps or choice points. At each step, an individual either becomes less likely or more likely to engage in a prosocial responses ( Latane & Darley, 1970 as cited in Baron, Byrne & Branscombe 2008,)

1) **Step 1. Noticing Or Falling To Notice That Something Unusual Is Happening.**

An emergency is obviously something that occurs unexpectedly, and there no sure way to anticipate that it will occur or to plan how to respond. We are ordinarily doing something else and thinking about other things when we hear a scream outside our window, observe that a fellow student is coughing and unable to speak, or observe that some of the other

passenger on our airplane are standing up with box cutter in their hands. Darley and Batson (1973 as cited in Baron, Byrne & Branscombe 2008) conducted a fied study to test the importance of first step in the decision process. Their research was conducted with students in training for the clergy, individual who should be especially likely to help a stranger in need. Baron, et,al. (2008) suggest that a person who is too busy to pay attention to his surrounding is very likely not to notice even an obvious emergency. Under these conditions, little help is given because the potential helper is not even aware that an emergency exist.

2) **Step 2. Correcting Interpreting An Event As Emergency**

Even after we pay attention to an event, we have only limited and incomplete information as to what exactly is happening. Most of the time, whatever catches our attention does not turn out to be am emergency and need not be a concern of ours. Whenever potential helpers are not completely sure about what is going on, they tend to hold back and wait for further information. Baron,et.al (2008).

3) **Step 3. Deciding That It Is Your Responsibility To Provide Help**

In many instances, the responsibility is clear. Fire fighter are the ones to do something about a blazing building, Police officer take charge when cars collide and medical personnel deal with injuries and illness. If responsibility is not clear, people assume that anyone in leadership role must take responsibility- adult with children, professors with undergraduates, and so on( Baumeister et al.,1988).

4) **Step 4. Deciding That You Have The Necessary Knowledge Or Skill To Act**

Baron,et.al. ( 2008) opine that even if a bystander progresses as far as step 3 and assume responsibility, a prosocial response cannot occur unless the person knows how to be

helpful. Some emergencies are sufficiently simple that almost everyone has the necessary skills. (2008,). When emergencies require special skills, usually only a portion of the bystanders are able to help. For example only good swimmers can assist a person who is drowning. With a medical emergency, a registered nurse is more likely to be helpful than a History Professor. (Cramer etal., 1988 as cited in Baron, Baron,et.al 2008)

5) **Step 5. Making The Final Deciding To Provide Help**

Baron, et.al. suggest that once a bystander processes through the four steps in the decision process, help still does not occur unless he or she makes the ultimate decision to engage in a helpful act. Helping at this final point can be inhibited by fear (often realistic ones) about potential negative consequences. (2008)

### 2.4.5 Situational Factors that Enhance or Inhibit Helping

Among the cues that affect the likelihood of helping are the attribute of the victim that determine attraction, detail of the situation that indicate whether or not the problem is responsibility of the victim, and expose to prosocial models either in the immediate situation or in the bystander`s past experience. Baron,et.al (2008, p.389).

1) **Helping Those You Like**

Most of the research interest has centered on providing help to strangers, because it it obvious that people are very likely to help their family members and friends. If a close friend were being attacked by the killer, or your brother were choking during an experiment, would you be likely to act? Of course, you would. Baron,et.al (2008).

### 2) Helping Those Who Mimic Us

A seemingly unlikely determinant of prosocial behaviour is mimicry- the automatic tendency to imitate the behaviour of those with whom we interact. Humans are found to mimic the accent, tone, and voice of speech of those around them. They also mimic the postures mannerisms and moods of other. ( chartrand & Bargh, 1999; Van Baaren, 2004 as cited in Baron,et.al 2008,).

### 3) Helping Those Who Are Not Responsible For Problem

Baron, Byrne and Branscombe opine that if you were walking down the side early one morning and passed a man lying unconscious by the curb, would you help him? You know that helpfulness would be influenced by all the factors we have discussed from the presence of other bystanders to interpersonal attraction. There is additional consideration. Why is the man lying there? If his clothing is stained and torn and empty wine bottle in the paper sack is by his side, what would you assume about his problem? You might well decide that he is a hopeless drunk who passed out on the sidewalk. (2008, p. 390)

**Exposure To Prosocial Models Increases Prosocial Behaviour**

You are out shopping and come across representatives of the charity organization collecting money for good cause. Do you decide to help by making contribution? An important factor in this decision is whether you observe someone else make donation. If the other give money, you are more likely to do so. In an emergency, we know that the presence of bystanders who fail to respond inhibits helpfulness. It is equally true, however, that the presence of the helpful bystander provides a stronger social model, and

the result is an increase in helping behaviour among the remaining bystanders. (Baron,et.al 2008,).

**Emotion And Prosocial Behaviour.**

A person`s emotional state is determined by both internal and external factors. On any given day one`s mood can be happy or sad, angry or loving, as well as many other possibilities. Emotions are often divided into two major categories - positive and negative. It might seem that being in a good mood would increase the tendency to help other. While being in bad mood would interfere with helping. (Baron,et.al 2008,).

1) **Positive Emotion And Prosocial Behaviour.**

Children seem very quick to pick up the idea that it`s better to request something from children (or teacher) when that person is in a good mood rather in a bad one. Most often, this is true, and the effect extends to prosocial acts as well. Emotions are influenced by smell. A pleasant fragrance makes us feel better, and this positive mood affects our behaviour. (Baron,et.al 2008,). A bystander in a very positive mood who encounters an ambiguous emergency tends to interpret the situation as non emergency. Even if it clear that an emergency exists, people in a good mood tend to reset helping if that involves doing something difficult and unpleasant. It seems that a good mood gives us a feeling of independence, and this includes the power to turn our backs on someone in need. Baron,et.al, 2008).

2) **Negative Emotion And Prosocial Behaviour**

Again, it is commonly assume that someone in a negative mood is less likely to help others. And it is true that an unhappy person who is focusing on his or her own problem is less likely to engage in prosocial acts. Amato(1986, as cited in Baron,et.al 2008,). A negative emotion most often has a positive effect on prosocial behaviour if the negative feelings are not too intense, if the emergency is clear-cut rather than ambiguous, and if the act of helping is interesting and satisfying rather than dull and unrewarding.

**Development of Prosocial Behaviour**

Sachet ( 2013) opines that Prosocial behaviour across childhood is associated with successful peer relationships, high levels of social competence, mature self-regulation skills, advanced social problem-solving skills, less conflict with friends, low levels of aggression and externalizing problems. In adulthood, prosocial behaviour (e.g., engaging in volunteer work) is related to lower levels of depression, greater life satisfaction, higher self-esteem, and having quality social relationships. It is clearly important to identify the factors that are related to individual differences in the development of prosocial behaviour, which is one of the goals of this dissertation. The early precursors of prosocial behaviour are observed in the rudimentary empathic responses of young infants (e.g., crying when they hear another baby crying. By 8 months of age, babies engage in basic prosocial behaviour, such as sharing objects and by 12 months, they often provide positive contact (e.g., a hug) or verbal reassurance in reaction to another person's emotional distress. Infants this age also offer objects as support for others in distress, but the objects tend to be ones that the child himself or herself would find comforting (e.g., the child's pacifier or teddy bear. Between 14- and 36- months of age, empathic concern and prosocial behaviour increase in reaction to an experimenter or mother's feigned

distress. During this time, younger toddlers are capable of instrumental helping (i.e., helping someone to complete an interrupted action), whereas older toddlers are able to engage in empathic helping (i.e., helping in order to alleviate someone else's distress). By 30 months of age, children are beginning to show signs of altruistic helping (i.e., helping someone at one's own cost). Further increases in prosocial behaviour develop between the preschool and elementary school years as children gain better perspective taking skills and have more opportunities for social interactions with same-age peers (Eisenberg & Fabes, 1998).

### 2.5 Academic achievement

Achievement can be regarded as something very good and difficult, which was carried out successfully. Stiggins (2001) describes it as something which has been accomplished successfully, especially by means of exertion, skill, practice or perseverance. Anastasi and Urbina (2005) define achievement as a performance in school or college in a standardized series of educational test. They have it as the aspect of measuring the effects of relatively standardized sets of experience. Stiggins (2001) regards achievement as a change in behaviour exhibited at the end of a given period of time. Thus, academic achievement may be seen as the level of mastery, proficiency and knowledge shown by an individual after learning has taken place.

Achievement test result enables one to obtain information on the extent to which a student has attained the criterion performance. It also enables one to determine the relative position of an individual student with respect to their test performance. Achievement has to do with mental effort and skill acquisition. It is usually affected by

several variables, including cognitive styles and gender. Students, teachers, parents, and the society are more interested in the academic achievement of students. Academic achievement means achievement level of the students. It can be defined as what a student does or achieve at his school. It is a common practice to promote students from a lower class to a higher class on the basis of his academic achievement. It helps in declaring students successful or unsuccessful, choosing students for various courses and selecting students for different jobs. It is the level of learning in a particular area of subject in terms of knowledge, understanding, skill and application usually evaluated by teachers in the form of test scores in their annual examination. It is the extent to which a learner is profiting from instructions in a given area of learning i.e. Achievement is reflected by the extent to which skill or knowledge has been imparted to him.

Academic achievement reflects the knowledge attained or skills developed in the school subjects, usually designated by test scores or by marks assigned by teachers, or by both. In fact, it has become an index of future in today's highly competitive environment. Academic achievement of students is affected by many factors that may reduce it as academic anxiety is one of them ( Anastasi, & Urbina, 2005,)

According to Cohen, Manion and Morrison (2008) academic achievement is measured in relation to what is attained at the end of a course. Since it is the accomplishment of medium or long term objective of education, what is important is that the test should be a standard test to meet national norms. For a test to be standardized, it must be valid for over a period of time. Achievement is regarded as action of completing or attaining by exertion. It subsumes anything won by exertion, a feat, a distinguished and successful action. Owens and Vicki (2005) contends that achievement test intends to measure

systematic education and training in occupation towards a conventionally accepted skills or knowledge. Several subject may be combined into achievement battery for measuring general school proficiency either score or achievement age and perhaps achievement quotient. In the United States of America (U.S.A), to qualify for recognition of undergraduate academic achievement, a certain courses achieve certain grade point average for a given semester. In other words, it is just one point observation of measurable behaviour of a person that constitutes his academic achievement (Cohen, Manion & Morrison, 2008)

Academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals after a given training of activities in instructional environments, or include the acquisition of knowledge and understanding in a specific intellectual domain (e.g., numeracy, literacy, science, history). Academic achievement is being considered as a multifaceted construct that comprises different domains of learning. Among the many criteria that indicate academic achievement are general indicators such as procedural and declarative knowledge acquired in an educational system, more curricular-based criteria such as grades or performance on an educational achievement test. All criteria have in common that they represent intellectual endeavours and thus, more or less, mirror the intellectual capacity of a person. Academic achievement determines whether a student will have the opportunity to continue his or her education or repeat a certain level. Besides the relevance for an individual, academic achievement is of utmost importance for the wealth of a nation and its prosperity. Given the individual and societal importance of academic achievement, it is not surprising that

academic achievement is the research focus of many scientists; for example, in psychology or educational disciplines (Cohen, Manion & Morrison, 2008).

Academic achievement should be considered to be a multifaceted construct that comprises different domains of learning. Because the field of academic achievement is very wide-ranging and covers a broad variety of educational outcomes, the definition of academic achievement depends on the indicators used to measure it. Among the many criteria that indicate academic achievement, there are very general indicators such as procedural and declarative knowledge acquired in an educational system, more curricular-based criteria such as grades or performance on an educational achievement test, and cumulative indicators of academic achievement such as educational degrees and certificates. All criteria have in common that they represent intellectual endeavors and thus, more or less, mirror the intellectual capacity of a person. In developed societies, academic achievement plays an important role in every person's life. Academic achievement as measured by the GPA (grade point average) or by standardized assessments designed for selection purpose such as the SAT (Scholastic Assessment Test) The strong association between a society's level of academic achievement and positive socioeconomic development is one reason for conducting international studies on academic achievement, such as PISA (Programme for International Student Assessment), administered by the OECD (Organisation for Economic Co-operation and Development). The results of these studies provide information about different indicators of a nation's academic achievement; such information is used to analyze the strengths and weaknesses of a nation's educational system and to guide educational policy decisions. Given the individual and societal importance of academic achievement, it is not surprising that

academic achievement is the research focus of many scientists; for example, in Psychology or Educational disciplines. This article focuses on the explanation, determination, enhancement, and assessment of academic achievement as investigated by educational psychologist.

Academic achievement is one of the most important aspects of a student entire school life. It shows the overall performance of how well the student has performed or how low the student has performed. Education is an honored right as it is associated with social and economic benefits. It also gives freedom in context to social mobility and transforming their levels of life in the future. The academic achievement dream still exists in all human minds as it grants a life of prosperity and wealth. Academic achievement is the distinctiveness of the capability to acquire knowledge and skills efficiently and effectively. It is the overall judgment of academic or learning performance. Educator's top priority is student's academic performance as it is believed to make a difference locally, regionally, nationally and globally. Owens, & Vicki, (2005) states that "Academic achievement is important for the successful development of young people in society. Students who do well in school are better able to make the transition into adulthood and to achieve occupational and economic success."

Academic achievement refers to level of success in completing or completion of acquiring and attaining the curriculum studies in the formal environment of schooling. According to Duman (2010) academic achievement defines as, "A measure of knowledge gained in formal education usually indicated by test scores, grade, grade points, average and degrees. Here, the achievement level of the student is judged by the marks that the students score in the quarterly examinations." Students spend most of their time in

schools which exerts an influence on performance through curricula and teaching techniques. Student's academic performance can increase or decrease by the learning styles of individuals. There is a close relationship between academic achievement and teaching and learning techniques used in the class.

Academic achievement refers to the observed and measured aspect of a student's mastery of skills and subject contents as measured with valid and reliable tests (Joe, Kpolovie, Osonwa & Iderima, 2014). Achievement is defined as measurable behaviour in a standardized series of test (Simpson & Wainer, 1989). Achievement test is usually constructed and standardized to measure proficiency in school subjects. In most cases, according to them, "accomplishment" is sometimes used in place of achievement.

Some of the purposes of academic achievement are itemized according to Ukwuije, cited in Eze (2009) as follows:

1. To determine the relative effectiveness of the programme in terms of students behavioural output.
2. To identify students growth or lack of growth in acquiring desirable knowledge, skills ,attitudes and societal values.
3. To help teachers determine the effectiveness of their teaching technique and learning materials.
4. To help motivate students to want to learn more as they discover their progress or lack of progress in a given task.
5. To make reliable decision about educational planning .
6. To encourage students to develop a sense of discipline and systematic study habits.

7. To provide educational administrators with adequate information about teachers' effectiveness and school needs.

8. To acquaint parents or guidance with their children's performance

## 2.6 Theoretical Framework

A theory can be prescribed as a symbolic representation of structures, objects or operation use to show the sizes, shape and relationship of various parts of an object or a process to demonstrate how a system operates (Adamu, 2012). A theory also, exists to serve as a guide or an outpost to gather information that will help in understanding a problem or situation.

### 2.6.1 Cognitive Style Theory by Witkin

The origins of this theory are linked to the work of Witkin (1962) and associate researchers going back to the late 1940s. The predominant theory to subsets of cognitive style has been the construct of "field-dependence (FD) and field-independence (FI)" and this research is focused on it. field-dependence (FD)/independence (FI) constructs entail the way individuals attend to, recognize and structure perceptual patterns, FD and FI reflect the way pattern recognition is processed and retained in memory. The whole theory involves an individual's ability to perform perceptual analytic type tasks and it is derived from the substantive work of Witkin, Raskin and Oltaman (1962).

According to Witkin, Raskin and Oltaman, in a field dependence mode, an individual's pattern recognitiori is strongly dominated by the holistic organization of the total perceptual field with. In contrast, in the field independence mode of perceiving, the individual is more likely to see the parts of the field as distinct from the organized

ground. These workers went on to argue, based on their research evidence, that the individual who performs in a relatively field-dependence way tends to fellow the visual field structure. On the other hand, the field-independence individual tends to be able to break up a given field's organizational structure and locate a nominated structured part. Witkin, Raskin and Oltaman found out that FI individuals, when compared to FD ones, were more capable of restructuring the perceptual field or imposing a structure if one is missing. They also tended to act more autonomously than the FD individuals. Field-dependent interpersonal orientation, tend to be extrinsically motivated and enjoy co-operative learning while FI individual tend to be intrinsically motivated and enjoy individualized learning.

Herman Witkin is credited with the earliest research in FDI. In his review of this work, Witkin (1976) explained how he studied and developed his theory of these dimensions of cognitive style. His earliest research dealt with how an individual locates the upright in space. The perception of "up" is based on the visual information received as well as the sensations from within the body as it adjusts itself to the pull of gravity: Ordinarily, the standard derived from the body coincides in direction and complement each other to give us an accurate sense of the location. In our early experiments we eliminated the complex visual world in which we live and substituted for it a simpler, more manipulable visual frame work; at the same time we separated the visual and bodily standards. Witkin and his associates carried out their experiments using two tests:

1. The Rod-and Frame Test (**RFT**) and
2. The Body-Adjustment Test (**BAT**)

**1) The Rod and Frame Test (RFT)**

In the rod-and-frame test, the visual framework became a luminous square that could be rotated clockwise and counterclockwise. A luminous rod was at the same center of the frame and could also be tilted clockwise and counterclockwise. The subject saw the framework in a darkened room. The frame and the rod were presented in different tilted positions, and the subject had to try to adjust the rod to an upright position while the frame remained tilted. Some people could align the rod in a true upright position regardless of the frame's tilt; others could not find the true alignment and based the position of the rod upon the tilt of the frame.

**2) The Body-Adjustment Test (BAT)**

The body-adjustment test used the body of the individual instead of an external object to determine just how one positioned the body in space. The subject was placed in a chair in a small room constructed so that both the chair and/or the room could be tilted clockwise and counterclockwise. Then the subject was blindfolded, and the chair and/or the room tilted. When the subject looked into the room, he/she was asked to tilt the chair to an upright position. Some individuals found the true upright position regardless of the tilt of the room; others tilted the chair so that it was aligned with the tilted room, in which the tilted positions ranged from 32-52 degrees from the true upright (Witkin, 1976).

**Creation of the Embedded-Figures Test (EFT)**

An individual who aligns the rod or the body based upon the external referents is said to be field dependent; the individual who aligns the rod or body based upon his or her

internal referent is said to be field independent. Witkin (1977) noted that when subjects closed their eyes, most could accurately determine the body's upright position, thus articulating the perceptual conflict created in many individuals by their dependence on external cues of the surrounding field (environment). Simplifying these tests led to the creation of the Embedded-Figures Test (EFT). This test, which correlates with the RFT and the BAT (Witkin, 1976), presents the individual with a simple figure; the subject then is shown a complex, geometric figure with the instructions to find the simple figure which is the same size and in the same position within the complex figure during a certain period of time. The subject is also allowed to look back at the simple figure.

Those subjects who are at one end of the dimension (field independent) can readily see the simple figure within the complex one; those at the other end of the dimension (field dependent) cannot find the simple shape as easily (or sometimes not at all) during the time limit. Witkin (1976) also stated that the common denominator underlying

> individual differences in performance in these various tasks is the extent to which the person perceives part of the field as discrete from the surrounding field as a whole, rather than embedded in the field; the prevailing field determines perception of its components; or, to put it in everyday terminology, the extent to which a person perceives analytically.

Because of the consistency of the performance on these tests, the labels field dependent and field independent reflect a tendency toward one or the other mode of perception that is maintained by the individual over a period of many years (Witkin, Goodenough, and Karp, 1967).

As cited in Korchin (1982), Witkin and Goodenough also stressed that the FDI dimension is to be viewed as a "bipolar" cognitive style "because individuals at the two ends have different, not only more or less of the same, characteristics" (p. 603). The personality characteristics that are associated with the FDI dimensions are also quite different: Field-independent individuals have a greater aptitude for cognitive restructuring. They also function autonomously and are likely to be impersonal and often described as cold, manipulating, and distant (Korchin, 1982).

### 2.6.2 Kohlberg's Theory of Moral Reasoning

Lawrence Kohlberg, a Psychologist belonging to the University of Harvard is known for putting forward a theory of the development of moral judgments in the individual, right from the years of early childhood. He based his theory of moral development on the findings of his studies conducted on hundreds of children from different cultures. He differs from the popular view that children imbibe the sense and methods of moral judgment from their parents and elders by learning. According to him,"As soon as we talk with children about morality, we find that they have many ways of making direct internal or cognitive process like thinking and reasoning also play a major role in one`s moral development i.e. the way children make moral judgment depends on their level of intellectual development as well as their upbringing and learning". (Mangal, 2010, p. 112). For estimating one`s sense of justice, he concentrated on one`s views on morality with the help of moral judgment consisting of a set of moral dilemmas. For instance should a man who cannot afford the medicine his dying wife needs, steal it? Should a doctor mercy-kill a fatally ill person suffering terrible pain? Is it better to save the life of one important person or a lot of unimportant pain? With the help of the responses he got

from his subject he came to the conclusion that like the Piagetial stages of cognitive development, there also exist universal stage in the development of moral values and the movement from one stage to another depend on cognitive abilities rather than the simple acquisition of moral values of one`s parents, elders and peers. He then identified three level of moral development, each containing two stages (Mangal, 2010, p 113). Ishida, 2006 as cited in Zaman (2010 p , 40) opines that Kohlberg's theory evolved from a longitudinal study and are grouped into three levels, the pre-conventional level (stages 1 and 2), conventional level (stages 3 and 4), and post-conventional (stages 5 and 6). People are generally assumed to progress through the stages as a result of personal development (aging) and interaction with the outside world, particularly through the social environment. Theories of moral development tend to conform to the ideal of enlightening brought forth by the rationalistic philosophers. They are consistent with the view of ascending path towards social reciprocity and responsibility that comes with rational enlightening and internalization of moral principles. At the pre-conventional level, rules and social expectations are external to the people. At the conventional level, the self has identified with or internalized the rules and expectations of others, especially with authority. This is the level on which most adults are found to have reached. At post conventional level, people differentiate their self-esteem from the rules and expectations of others and define personal values in terms of self-chosen principles. Kohlberg perceives progression to the post-conventional level as ideal (Wright, 1995). He extended Piaget's three-stage model to six stages, each reflecting a progression from the previous stage in increasing understanding of the nature of moral obligations in complex social system.

Kohlberg's theory of moral development comprises of six stages through which individual progress and with passing time their reasoning becomes more complex and abstract over time. This progression is linked to general cognitive development, and particularly to social perspective Palmer (2005, p. 359). This theory was worked upon and some developments have been introduced by Gibbs (2003) in his theory of 'socio-moral' reasoning. He conceptualized the first two stages as immature moral reasoning, where reasoning is superficial and egocentric in nature. Individuals who reason at these stages beyond adolescence are considered to be showing a developmental delay in their moral reasoning. As such, mature moral reasoning reflects 'the cognitive – structural norm for any culture, (including both the formal laws and informal values of the society. There is a lot of work on moral development but the major contribution in this field is of Kohlberg ( Zaman 2010, p.15).

The main idea behind Kohlberg's theory of moral development is that children and adolescents do not merely soak up or internalize the morals and values of the adults around them, but through situations of moral conflict, children construct their own values and morals (Stantrock, 1996; Kohlberg, 1958; 1975) Rosenzwig poignantly states Kohlberg's ideas. She wrote:

> The Kohlberg theory suggests that rather than attempt to indoctrinate or socialize students, moral education should seek to stimulate the natural process of development toward more mature reasoning. Hence the role of the educator ought to be that of a supportive but questioning guide—a Socratic teacher—who encourages the articulation and examination of students' own reasoning about

ethical issues and facilitates exposure to higher stages of reasoning (Munsey, 1980 p.360).

Kohlberg conducted a longitudinal study with seventy boys over an eighteen-year period. Kohlberg's methods of research included presenting the boys with a moral dilemma and then asking the boys a series of questions (Kohlberg, 1958). He was interested in the moral reasoning behind each boy's answer. He interviewed the boys every three years over the eighteen-year period. He found that although there were variations of levels of moral reasoning, all boys passed through similar levels and stages and they did not skip over or revert back to a particular level of reasoning (Kohlberg, 1958, 1975)

**Kohlberg`s Level 1: Pre Conventional Reasoning** the child begins to make judgment about what is right or wrong, good or bad. However, the standard by which he measure the morality are those of the others. He is persuaded to take such judgment either to avoid punishment or to earn rewards (Mangal, 2010, p 113). Children act under external controls. They obey rules to avoid punishment or reap reward, they act out of self-interest. This level is typical of children ages 4 to 10 ( Papalia, Olds & Feldman,2009, p. 375). Development of morality at this level usually follows two stages:

1) Stage 1. **Heteronomous morality** is the first stage in Kohlberg`s theory. At this stage . Morality thinking is often tied to punishment. For example, children and adolescents obey adults because adults tell them to obey. The child`s morality is controlled by the fear of punishment. He tries to obey his parents and elders purely to avoid reproof and punishment (Mangal, 2010, p 113).

2) Stage 2. **Individualism, instrumental purpose, and exchange** is the second Kohlberg stage of moral development. At this stage, individual pursue their own interest but also let others do the same. Thus, what is right involves an equal exchange. People are nice to others so that they will be nice to them in return.

**Kohlberg`s Level 2: Conventional Reasoning**. Conventional reasoning is the second or intermediate level of kohlberg`s theory of moral development. This level of internalization is intermediate. Individual abide by certain standards ( internal), but they are standard of others (external) such as parent or the laws of society. people have internalized the standards of authority figures. They are concerned about being good, pleasing others and maintaining the social order. This typically reached after age 10; many people never move beyond it. Even in adulthood ( Papalia, Olds & Feldman,2009, p. 375).

1) Stage 3. **Mutual interpersonal expectations, relationships and interpersonal conformity** is Kohlberg`s third stage of moral development. At this stage, individual value trust, caring and loyalty to others as a basis of moral judgments. Children and adolescents often adopt their parents` moral standard at this stage. Seeking to be thought of by their parents as a "good girl" or "good boy".
2) Stage 4. **Social system morality** is the fourth stage in Kohlberg`s theory of moral development. At this stage, moral judgments are based on understanding the social order, law, justice and duty. For example, you may say that, for a community to work effectively, it needs to be protected by laws that are adhered to by its member. Majority of people 16 years old and older have internalized society's rules about how to behave. They feel obligated to conform, not any

longer to just family and friends, but also to society's laws and customs. They see it as important to do one's duty to maintain social order. Leaders are assumed to be right; individuals adopt social rules without considering the underlying ethical principles involved. Social control is, therefore, exercised through guilt associated with breaking a rule; the guilt in this case is an automatic emotional response, not a rational reaction of conscience based on moral principles (as in stage 6). People at this stage believe that anyone breaking the rules deserves to be punished and "pay their debt to society." **Motto: "I'll do my duty."**

**Kohlberg`s Level 3: Post Conventional Reasoning.** Post Conventional reasoning is the highest level in Kohlberg`s theory of moral development. At this stage, morality is completely internalized and is not based on others` standards. The individual recognizes alternative moral courses, explores the options, and then decides on a personal moral code. Papalia, Olds and Feldman (2009, p. 375) opines that people recognized conflicts between moral standards and make their own judgment on the basis of principles of right, fairness and justice. People generally do not reach this level of moral reasoning until at least early adolescence or more commonly in young adulthood, if ever.

1) Stage 5. **Social contract or utility right** is the fifth Kohlberg stage. At this stage, individual reason that values, right, and principles undergird or transcend the law. A person evaluated the validity of actual laws, and social system can be examined in terms of the degree to which they preserve and protect fundamental human rights and values. People at this stage recognize the underlying moral purposes that are supposed to be served by laws and social customs. Thus, if a law ceases to serve a good purpose, they feel the people in a democracy should get active and

change the law. Thought of in this way, democracy becomes a social contract whereby everyone tries continually to create a set of laws that best serves the most people, while protecting the basic rights of everyone. There is respect for the law and a sense of obligation to live by the rules, as long as they were established in a fair manner and fulfill an ethical purpose. **Motto: "I'll live by the rules or try to change them."**

2) Stage 6. **Universal ethical principles** is the sixth and highest stage in Kohlberg`s theory of moral development. At this stage, the person has developed a moral standard based on the universal human being. When faced with a conflict between law and conscience, the person will follow conscience, even though the decision might involve personal risk (Santrock, 2008). These rather rare people have considered many values and have decided on a philosophy of life that truly guides their life. They do not automatically conform to tradition or others' beliefs or even to their own emotions, intuition, or impulsive notions about right and wrong. Stage 6 people carefully choose basic principles to follow, such as caring for and respecting every living thing, feeling that we are all equal and deserve equal opportunities, or, stated differently, the Golden Rule. They are strong enough to act on their values even if others may think they are odd or if their beliefs are against the law, such as refusing to fight in a war. **Motto: "I'm true to my values."**

**Relevance of Kohlberg's Theory of Moral Reasoning to this Study**

One way to apply Kohlberg's ideas to classroom discipline would be by allowing the students an opportunity to be part of the creation of classroom procedure and policy. In Kohlberg's

"Just Community" School, students were given opportunity to participate in the creative process of school policies and procedures. The students had a voice in what policies and procedures were adopted (Kohlberg, 1975). Kohlberg admitted that the process was long and tedious and worked best in a small group setting. Yet, these techniques worked in that the students cooperated with teachers in following the policies and procedures they helped create (Kohlberg, 1975). Student within the first couple of days of class can be engaged in deciding what type of classroom atmosphere they desire.

Another way that classroom disciplinary procedures could be used to afford students an opportunity to develop and strengthen the abilities to reason morally would be through writing assignments. In many high schools, students are given a detention when they misbehave. A detention in many high schools usually consists of the student having to remain after school for approximately thirty minutes. They are assigned to sit in a room with other students who also have to serve detentions and they may do homework or sleep. By adapting Kohlberg's Socratic question method, combining them with school policies, and developing writing assignments for students to complete during detention, students are then afforded opportunity to analyze and evaluate their own behaviour.

Kohlberg's Socratic questioning method could also be applied in the classroom by using writing assignments and interview sessions when rules are broken. Students who break the rules could be afforded the opportunity to explore their actions in the context of the classroom setting with the teacher acting as guide. For example, an adolescent is angry at the grade she received on a test. She then begins to make snide remarks to the teacher in earshot of the whole class. Following the disciplinary procedures set in place at most high schools, the adolescent is given a warning. If this does not prompt her to stop her behaviour, she is

then issued a detention with the teacher. When the adolescent arrives to serve the detention, the teacher hands her a writing assignmentSchemrich (2013, p.15)

### 2.6.3 Bandura`s Social Cognitive Theory- Reciprocal Determinism

Essentially, the framework that guides the present study is social cognitive theory of moral thought and action (Bandura, 1986). Within this theory, Bandura ( 1986) acknowledge two dimensions of moral behaviour, defined in terms of the consequences for others ( Bandura, 1999). The present study will look into proactive morality , also known as prosocial behaviour. (Baundinet, 2013, p.12).

In the 1970`s Developmental Psychologists examined children`s prosocial behaviour in relation to social learning and cognitive processes. There was specific interest in the link between prosocial behaviour and negative social behaviour. Personality theorists such as Rogers ( 1978) accounted for behaviour in term of internal motives, with little regard for external motivation. In a similar way, psychologists with an interactionist perspective have recorded the person and environment in unidirectional relationships where personality has an effect on the environment in a consistent manner ( Allport,1927 as cited in Baundinet, 2013, p.12). However, with the purpose of examining the behavioural link, social learning theory was proposed by Miller and Dollard ( 1941) and later Bandura ( 1986) took control with the aim of broadening the theory (Baundinet, 2013, p.12).

Bandura`s ( 1977b) social learning theory has been highly influential in the field, and was built on earlier theories of social development. Behaviouraist Skinner (1938) (operant conditioning) and social learning theorist sears ( 1951) were influential at this time. In 1986, Bandura added a new cognitive element to his original learning theory. Bandura`s (1986) basic premise is that rewards and punishment facilitate learning in anticipatory manner. These consequences remind individual of the benefit of the positive behaviour

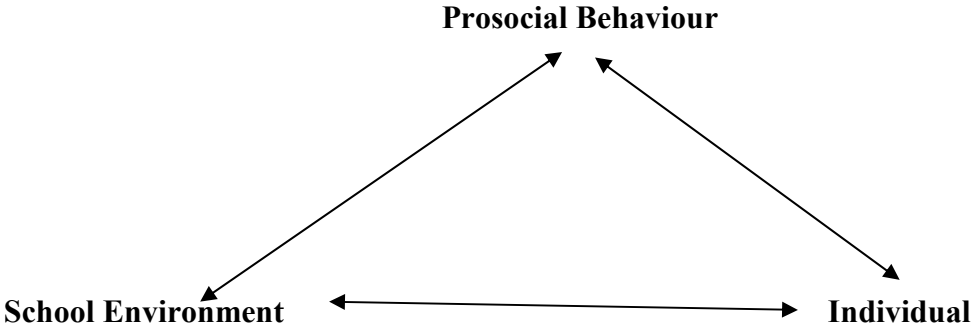
and the cost of inappropriate behaviour. People do not only learn through reinforcement, but they also learn by imitating other people, or modeling, which has been used to explain the development of prosocial behaviour ( Khan & Cangemi 1979 as cited in Baundinet, 2013, p.12).

Baundinet states that social cognitive theory was criticized as stage theories become more prominent because of its lack of attention to the importance of age affecting changes in development. However, social cognitive theory is once more popular due to the inability of stage theories to adequately explain behavioural development (2013, p.12).

Later Bandura (1991a) studied the attainment of moral behaviour through the process of differential reinforcement (responses to a person`s behaviour that increase or decrease the chances of recurrence) and observational learning (beliefs based on observing others). Social cognitive theory expounds that prosocial behaviour is developed as children grow older, as a result of behavioural modeling, or cognitive and emotional development (Bandura 1991 as cited in Baundinet, 2013, p.12).

Furthermore, social cognitive theory differs from stage theories in that there is no reliance upon time or age in explaining changes in prosocial behaviour. Baundinet, states the human behaviour has often been explained as fixed interaction in which environment or internal factors influence or produce behaviour in a unidirectional manner ( Scourfeild, John, martin & McGuffin 2004 , p. 928). Learning theorists such as Skinner ( 1978) suggests that behaviour is controlled by situational forces and that the environment was the instigating force, to be counterected by the individual. The environment was defined as an autonomous force which shape, controlled and determined behaviour. (Scourfeild, John, martin & McGuffin 2004 , p. 928)

Conversely, a social cognitive interpretation of human functioning assume an interdependent cycle, rather than autonomous, and argues that behaviour is influenced both by external and internal stimuli. However, Bandura (1986) believes that social could be fully understood in term of exclusively internal or external factors. A full understing of behaviour requires an integrated perspective in which external influences operate through internal mechanisms, to produce behavoiural effect (Baundinet, 2013, p.13)




**Interactional Model of Prosocial Behaviour**

A reciprocal determinism outlook gives a dynamic interrelationship between the individual, their behaviour and environment in which the behaviour occurs. Accordingly, our behaviours, environment, and cognitive have an interactional influence on each other, allowing expectations, perceptions, and physical structures to influence and direct us. In this way, the interactive forces between a person, their behaviour and their environment determine how an individual will think and behave in any given setting.

I. Firstly the persona-environment interaction is concerned with personal characteristics ( cognition) and external influences ( Bandura, 1989). It describes how people adapt to social expectation through modeling and imitation.

II. Secondly, the Person- Behaviour interaction involves thought, affect and action. Essentially, an individual`s thoughts, beliefs, and feelings dictate their behaviour (Bandura, 1986). and

III. Thirdly, the Behaviour- Environment interaction is facilitated in everyday life because an individual`s behaviour alters their environmental conditions, and is in turn altered by the environment that it creates

## 2.7 Review of Empirical Studies

This is the section of the research that enables the researcher to provide a review of other researches that were carried out by other researchers that are closely related to his own topic of research

### 2.7.1 Cognitive Styles and Academic Achievement

A study conducted by Musya (2015) on cognitive styles and academic achievement among secondary school students in Kenya to find out the extent to which students cognitive styles influence their academic performance. The study applied a quantitative research approach, descriptive in nature. The following objectives were addressed: To determine the cognitive styles of students, to determine the differences in students cognitive styles among boys and girls students and to find out the relationship between the students cognitive styles and their academic achievement. 200 students were selected as a simple size to respond to questionnaires.. Sampling was done using stratified and systematic random sampling. The data collected was subjected to data analysis using statistical package for social sciences (SPSS). The analysis involved computation of the means of scores in chemistry tests and the standard deviations for the scores. The

correlation coefficients were computed using the Pearson Product Moment Correlational Analysis. The results show that both Field independent and Field dependent cognitive styles are evident among the secondary school students. The results also show significant relationship between cognitive styles and academic achievement among secondary school students in Kenya. Based on the result, it can be concluded that both Field independent and Field dependent students are evident among the secondary school students and can influence academic achievement.

Another study conducted by Mandana (2011) on the relationship between field independent/dependent cognitive styles and Iranian academic acheivement. Two hundred and seventy seven (277) students were used (119 male and 158 females). The following instruments were used the group 45 embedded figures test (GEFT) and TOTEL. The data was analysis using the correlation between the TOTEL and the GEFT scores for FD learners (both males and females) was significant (r = 0.70), and higher scores on the GEFT lead to an increase in the FD learners TOTEL scores. One-way and two way ANOVAs was suggested that while there was a relationship between and listening comprehension (F = 18.02) and also no relationship between sex and academic achievement (F = 0.269). This study relates to the present study because it tends to compare field independent and dependent of cognitive styles which this present study seeks to explore. The incorporation of cognitive styles may enhance the teachers understanding of the composition of the class and appropriate adoption of teaching strategy to improve the overall achievement of students in the class. Based on the result, it can be concluded that there are positive relationship between cognitive styles and Iran'an academic acheivement

In yet another study, Bassey, Umoren and Udida (2011) carried out a study to investigate the influence of cognitive styles on academic performance of students in Akwa Ibom state. Two hypotheses were formulated to guide the study. The Expo-facto research design was adopted for the study. Simple random sampling technique was used to select 200 senior secondary school students. Students Questionnaires containing three sectors, namely Siegel cognitive style test, chemistry students' attitude test and chemistry Achievement test was administered to the 200 randomly selected senior secondary three (SS111) students offering chemistry. The data collected were subjected to data analysis using Analysis of variance, Fisher LSD multiple comparison test and Pearson product moment co relational Analysis. Based on the analysis, the following results emerged. There is significant difference in students academic performance due to their cognitive styles, students with analytic (field independent) cognitive perform significantly higher than relational (field dependent) and inferential ones. There is a significant positive relationship between students' attitude to chemistry and their performance in chemistry. The relationship between Bassey et.al study and this present one is that both are expo – factors study which seeks to determine the influence of students' achievement as it relates to cognitive style.

In the same vain, Rani (2017) conducted a study on the effect of emotional intelligence and cognitive style on academic achievement among children with special needs. One of the objective was to find out the relationship between cognitive style and academic achievement. A total of 75 children with special needs studying in different school and college in sonepat district were randomly selected. Cognitive style inventory (CSI), Emotional intelligence inventory (EII) and previous year result for academic achievement

were used for the collection of data in the present study. Pearson Product Moment Correlation(PPMC) technique was used for data analysis. After data analysis, the study found that there was significant relationship between cognitive style and academic achievement of students with special needs.

Dwyer and Moore (2015) investigated the effect of cognitive style on academic achievement among students in the United States . The study adopted ex-post-facto design of a descriptive research, the population comprised all the students New York in the United States, sample size constituted 179 students. The instruments for data collection were Group Embedded figure Test (GEFT) and CGPA . Data collected were analyzed using T-Test results. They found the field independent learners to be superior to field dependent learners on tests measuring different educational objectives and concluded that cognitive style had a significant association with students` academic achievement.

Almeida (2007) examines whether children with different FD/FI cognitive styles show different performance of tasks of attention functioning 149 children were classified according to cognitive style, storage capacity, verbal working memory, capacity to focus, shift, and maintain attention, and capacity for sustained attention. They found that FI children displayed better performance than FD children on all tests except the Digits Forward Test. From the forgoing it can be seen that the search for cognitive style, that is superior in terms of academic achievement is in conclusive, therefore the present researcher wishes to join in the search.

Rosemary (2012) conducted research on the influence of cognitive style and gender on students' achievement in selected areas of Mathematics. The study adopted the ex-post

factor research design. The population of the study consisted of 3,932 SS2 Mathematics students of 2011/ 2012 academic year in the five co-education schools of Ogoja Education Zone of Cross River state. The sample of the study is 620 Mathematics students selected through multi-stage sampling techniques. The instruments for data collection were Group Embedded figure Test (GEFT) and Mathematics Achievement Test (MAT). Data collected were analyzed using SPSS (Special Packages For Social Sciences) to determine mean, standard deviation and T-Test results. The results of the findings reveal that field independent students achieved better than the field dependent students in geometry, algebra and statistics. There is significant difference in the mean achievement scores of field independent and dependent students in these areas of Mathematics. Male students achieved higher than female students in geometry and algebra while in statistics there was no significant difference in achievement of male and female students.

Jantan (2014) conductes research to examine the relationship between students' cognitive styles with student's achievement in Mathematics among year 6 students from selected primary schools in Selangor (Malaysia). The methodology of study was survey. Data were collected using the Group Embedded Figures Test (GEFT). GEFT was used to identify students' cognitive styles either Field-Dependent (FD) or Field-Independent (FI). A total of 150 students in year 6 from selected schools were selected as participant of study. Data were analyzed using SPSS version 17.0. There were two types of analysis used in this study, descriptive and inferential statistical analysis. The finding showed that 112 students were of Field-Dependent cognitive styles (FD) compared to 38 students of Field-Independent (FI) cognitive styles. The study also showed that there was a low

positive correlation between students' cognitive styles and their Mathematics achievement. There was also a significant difference in cognitive styles between boys and girls in the school

Koleoso, Oyekan and Olabode (2008) examine the effect of sex in the achievement of fielddependent and field-independent students in Mathematics. The sample for the study consists of senior secondary two (SS11) Mathematics students in Nigeria. On the whole, 114 students (58 females 56 males) from three schools in Ekiti West Local Government Area of Ondo State took part in the study. The Group Embedded Figure Test (GEFT) was used to classify students into field-dependent and field- independent subgroups. Mathematics Achievement Test with a reliability coefficient of 0.66 was used. The data gathered were subjected to ANOVA. F-ratio was significant, the null hypothesis was rejected .Scheffe's test confirmed the superiority of male and female field-independent groups over their field-dependent counterparts. This study relates to the present study, in the sense that the study seeks to examine very important variables Field dependent and Field independent students in Mathematics which form part of what this study intends to focus on.

In a research study of Tinajero and Paramo (2014) examined the relationship between FI/FD cognitive style and academic achievement and indicated that FI boys and girls performed better than FD ones in all the subjects considered. In another study, Murphy, Casey, Day, and Young (1997) tried to determine the relationship between academic achievement and cognitive style of 63 undergraduate Canadian students in Information Management Programme. They found that field independent students performed better

than field dependent ones only on one of the technical courses. However, the two groups performed similarly for the other courses.

In addition Alomyan and Au (2014) investigate the effect of students' cognitive styles, achievement motivation, prior knowledge, and attitudes on achievement in a web-based environment with undergraduate university students. They found no differences between students' attitudes towards web-based learning and their cognitive style. Guisande, Pramo

**2.7.2 Moral Reasoning and Academic Achievement**.

Zaman (2010) conducted research on relationship between cognitive style, moral reasoning and academic achievement of the secondary school students. The population of the study was secondary level students studying in the FGBEI schools which comprise 600 students. The sample of the study was selected from the 20 educational institutions, 10 each from English and Urdu medium institutions. The data were collected on the three variables by using three research instruments. The Science Reasoning Tasks were used to measure cognitive levels, a test based on moral dilemmas was constructed to determine moral reasoning levels and an achievement test based on moral contents was developed to assess moral knowledge levels of the grade 10 students. Different statistical techniques i.e. descriptive statistics, t-test, Wilcoxon Signed Rank Test, Spearman and Partial Correlation were applied. The findings of the study reveal that there was positive and moderate correlation between moral reasoning and academic achievement among secondary school students in the FGBEI schools.

Berkowiz and Hope (2009) carried out a research on moral reasoning in some schools in Delta State, The study used population of 5,266 students and 350 samples, The instrument used to generate data was a self-designed questionnaire with 14 items which

was validated by expert in guidance and counseling while in the case of reliability Pearson product moment correlation was used to ensure its reliability. Mean was used to test the response measures of the questionnaire statement items, the decision was ruled based on statistical real limit of numbers used to determine the acceptance and rejection of the statement items as 2.538 and above was accepted while below 2.538 was rejected. However, the findings of the study revealed that there is significant relationship between moral reasoning and academic achievement among secondary school students

William (2014) carried out a research on significant differences in moral reasoning and decision making as measured by the D1T-2 where masters' students in educational leaderships outperformed current principles running, in public K-12 School Kenya. The study used population of 500 students and 230 samples, with observation, found that conventionally male and female reasoning and decision making, and avoidance of personal interest reasoning and decision making. A borderline significant difference was also found between masters students and underperforming principals in post conventional moral reasoning and decision-making.

Sa'idu (2010) carried out a research on the moral reasoning of Islamiyya and conventional Primary school pupils at municipal Education zone, Kano State. The study used population of 318,945 pupils across the study area with 384 samples using moral judgment Test (MJT) who's in his study demonstrated that there are significant differences between convention and Islamiyya school pupils in municipal zone area of Kano State. Also the finding shows that gender, rural/urban elicit the difference in moral reasoning. This is a step toward understanding the reason behind some immoral attitude that prevails in primary, secondary and tertiary institutions today

### 2.7.3 Prosocial Behaviour and Academic Achievement

According to the research that was conducted by Samuel and Dantallah (2016) on Pro-social Behavior amongst Students of Tertiary Institutions: An Explorative and a Quantitative approach amongst university students, using a Private university as a case study. Following an explorative research, the study was guided by some theories relating to the phenomenon, focusing on gender and location factors. A quantitative approach was used in the follow up to the exploratory research. A total of 520 structured questionnaires, based on the total population, were distributed out of which 271 were returned. Thus the response rate was approximately 52%. A parametric technique involving independent samples T-Test and one-way between-groups ANOVA with Post-hoc tests (using SPSS, 4th edition, version 18).was employed. The scale used in the measurement was highly validated. The results showed that the relationships between gender and location factors as independent factors and prosocial behavior as dependent factor was highly positive amongst the students. Prosocial behavior is a positive social phenomenon. Thus, the promotion of pro-social culture amongst university students will make them adapt progressively to society, including that of tertiary institutions. Some changes in the curricula could be made to include elements of pro-social behavior.

In another research that was conducted by Bisera (2017) on The attitude of teachers towards prosocial behaviour and academic achievement in serbia Analyzing the significance and the role of school and teachers in the encouragement of prosocial behaviour of the learners in secondary schools, the following problem appeared: the connection between the teachers' encouragement of prosocial behaviour and the academic achievement in the secondary schools in Serbia through the following

segments: procedures and activities used by teachers, and the interrelatedness of prosocial behaviour and academic achievement. A review of theoretical findings and a study conducted on the sample of 695 respondents are presented. The method of theoretical analysis and synthesis, the causal non-experimental method and the descriptive method are applied. The applied techniques include content analysis, scaling and evaluation. The results showed that teachers' activities partly promoted prosocial behaviour. The results of the research pointed to certain pedagogical implications: the reform of the educational system in Serbia; a change of educational objectives and tasks; establishing a continuity between all levels of the educational system and raising cooperation with parents; educational professional services to teachers in the area of raising their interest in acquiring and applying strategies and skills directed at educating prosocially oriented personalities and improving the quality of their work.

According to the research that was conducted by Vander Graff (2018) on Prosocial Behavior in Indonesia Adolescence: Gender Differences in Development and Links with Empathy although adolescents' prosocial behavior is related to various positive outcomes, longitudinal research on its development and predictors is still sparse. This 6-wave longitudinal study investigated the development of prosocial behavior across adolescence, and examined longitudinal associations with perspective taking and empathic concern. Participants were 497 adolescents (Mage t1 =13.03 years, 43% girls) who reported on their prosocial behaviors, empathic concern, and perspective taking. The results revealed marked gender differences in the development of prosocial behavior. For boys, levels of prosocial behavior were stable until age 14, followed by an increase until age 17, and a slight decrease thereafter. For girls, prosocial behavior increased until age

16 years and then slightly decreased. Regarding longitudinal associations, empathic concern was consistently related to subsequent prosocial behavior. However, perspective taking was only indirectly related to prosocial behavior, via its effect on empathic concern. Tests of the direction of effects showed support for the notion that earlier prosocial behavior predicts subsequent empathy related traits, but only for girls. The findings support cognitive-developmental and moral socialization theories of prosocial development and the primary role of moral emotions in predicting prosocial behaviors. Our findings inform strategies to foster prosocial behaviors by emphasizing moral emotions rather than moral cognitions during adolescence.

Another research was also conducted by Mallah (2014) In the current study, a secondary data analysis was conducted to determine the extent to which four prosocial behaviors (cooperation, assertiveness, self-control and prosocial behaviors toward peers) and two forms of aggression (overt and relational) influence academic performance (as indexed by GPA and standardized achievement scores). Additionally, the potential moderating role of two school environment variables (perception of school climate and teacher bonding) were also considered in order to further examine the social-emotional environment of middle schools. Examining concurrent relations between grade 5 social behaviors and academic performance revealed all four forms of prosocial behavior were positively related to higher academic performance. Predictive relations between grade 6 social behaviors and academic outcomes at grade 9 indicated that of the four prosocial behaviors and two forms of aggression, cooperation alone predicted the likelihood of later academic achievement.

### 2.7.4 Cognitive Styles, Moral Reasoning, Prosocial Behaviour and Academic Achievement

In a study undertaken to identify the effect of cognitive style on academic achievement among students in the United States **.** Dwyer and Moore (2015) in their study adopted ex-post facto design of a descriptive research, the population comprised all the students New York in the United States, and sample size constituted 179 students. The instruments for data collection were Group Embedded figure Test (GEFT) and CGPA . Data collected were analyzed using T-Test results. They found that cognitive style had a significant association with students‟ academic achievement.

In the year (2017) Gerbino, Zuffianò and Eisenberg demonstrated the prediction of academic functioning by children's prosocial behaviour (PB). The goal of study was to examine the contribution of adolescents' PB for middle and senior high school academic achievement after controlling for stability of achievement and for intelligence, Big Five traits, and socio demographic variables (i.e., sex and socioeconomic status). Study 1 examined on 165 adolescents (48.5% boys) the prediction by peer-reported PB in 7th grade of academic achievement at the end of junior high school, after controlling for the above variables. Study 2 examined the prediction by 927 (52% girls) 8th graders' PB of academic achievement 5 years later, at the end of senior high school, taking into account the stability of grades, personality traits, and socio-structural variables. Overall, hierarchical regression analysis indicated in both studies PB and Openness significantly predicted academic achievemant in the short term and over time despite the high stability of academic achievemant across 5 years. Extraversion negatively predicted academic achievement across 1 year in junior high school.

Chears-Young, (2014) conducted this study is to explore the association between moral reasoning and perceived self-efficacy, and their relationship to change in student achievement. Studies in professional ethics have shown a positive link between levels of moral judgment development and dimensions of professional behaviour. However, little research exists concerning the professional behaviour of K-12 school teachers. The theoretical framework for the study derives from the bodies of research on moral judgment development (Rest & Narvaez,2009) and perceived self-efficacy (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001), in which both are dimensions of Rest's four component model of morality (FCM). Research on teachers' perceived self-efficacy has shown a positive association between teachers' self-efficacy beliefs and student achievement outcomes.

Participants in this study included 71 active elementary classroom and secondary students from an urban school district. An ANOVA and correlational analyses showed a positive significant association between maintaining norms moral schema as assessed by the Defining Issues Test 2 (DIT2) and the students Sense of Efficacy Scale – short form (TSES). The results also showed a positive significant association between maintaining norms moral schema and TSES' classroom management subscale. As well, an ANOVA and correlational analyses showed a negative significant association between DIT2 postconventional moral schema and the TSES total score, and a negative significant association between postconventional moral schema and TSES' classroom management subscale. The finding reveals good correlation between moral reasoning and academic achievemant in the southern half of the United States.

The study by Alsaqria (2018) aimed at investigating the relationship between moral reasoning and academic achievement. The sample of the study consisted of (223) students. The descriptive method was used in the study and the moral reasoning scale was the instrument used to collect the data of the study. The results reveal that more than half of the sample (88.8%(was on the second level (Social system and Conscience Morality) of Moral Reasoning. The results also revealed that there is a statistically significant difference between males and females on moral reasoning level in favour of females. In addition, there was a statistically significant difference between arts and science students on moral reasoning level in favour of the science specialization students. On the other hand, there was no statistically significant difference on the levels of moral reasoning due to the class variable. Moreover, the results showed that there was a positive correlation between the level of moral reasoning and academic achievement. The results of this study were discussed in the light of latest reviewed literature.

Jing (2018) study was designed to investigate the potential benefits of Prosocial behaviour on Chinese children's academic achievement. With 456 primary school students as participants, we examined the value of Prosocial behaviour on children's academic outcomes and the mediating mechanism. Data was obtained from various sources (self-report, peer-rating, peer nomination, and cognitive tests). The results showed that Chinese children's Prosocial behaviour, regardless of self-reported or peer-rated, positively predicted their academic achievement, and peer acceptance played a mediating role in the pathway. These findings highlighted the importance of children's prosocial behaviour in building positive relationships with peers and facilitating academic achievement.

## 2.8 Summary and Uniqueness of the Study

This study investigated the relationship between cognitive styles, moral reasoning, prosocial behaviour and academic achievements among senior secondary school student in Jigawa state. In the chapter, the researcher reviewed literature on conceptual framework, theoretical and empirical literature concerning the study. In the foregoing different literatures were reviewed conceptually such as concept of cognitive style, concept of moral reasoning, concept of prosocial behaviour, types of prosocial behaviour, five development of prosocial behaviour, The chapter also reviewed different theories such Witkin theory of cognitive style, Kohlberg theory of moral reasoning , Bandura theory prosocial behaviour, related empirical studies were also reviewed in the chapter such as relationship between cognitive development and relationship between moral reasoning and prosocial behaviour among senior secondary school students, and relationship between cognitive development, moral reasoning and prosocial behaviour among senior secondary school students.

No any study has investigated the relationship between cognitive styles, moral reasoning, prosocial behaviour and academic achievements among senior secondary school student in Jigawa state. This research work is unique in the sense that most of the research work carried out in this area previously failed to single out cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school student in Jigawa state. The research is also unique because the population, sample size, sampling technique, data collection instrument, validity, reliability and data analysis procedure differed from previous researches. It was also unique in the fact that it has never been conducted in the area using the same research design, instrument and population. It is

against this background that this research sought to use cognitive styles, moral reasoning, and prosocial behaviour on readdressing academic achievement among senior secondary school student in Jigawa state. Therefore, the present study filled the gap created in literature in terms of time and environment. There are quite a number of existing researches on cognitive styles, moral reasoning, prosocial behaviour and academic achievements. This study would add value to the existing knowledge of field dependence/field independence, moral reasoning, prosocial behaviour and academic achievements, It is hoped that the knowledge of students‟ cognitive styles, moral reasoning and prosocial behaviour would be very useful in academic achievements

# CHAPTER THREE
# METHODOLOGY

## 3.1 Introduction

This chapter drew up the methodology by which the research was conducted. The chapter described the population of the study and its sample, the procedures used by the researcher to obtain the sample for the study, data collection instruments, procedure for data collection and methods of data analysis.

## 3.2 Research Design

The design of the study was correlational research design. Bichi (2004) suggests that this method is appropriate for study that seeks to establish the relationship that exists between two or more variables. Gay (1996) opines that correlation research attempts to explore a non-cause effect relationship between two or more variables, through the use of various measures of statistical association. It relies on quantitative or numerical data such as test scores, grade point averages, scores from attitudinal instruments, etc, which can be correlated and shown that some relationship exists between or among them. Therefore, the study is aimed to find out cognitive styles, moral reasoning, and prosocial behaviour as correlates of academic achievement amonzg senior secondary school students in Jigawa state, Nigeria

### 3.3 Population and Sample

#### 3.3.1 Population

The population of this study comprised of the twenty five thousand and eight hundred (25,800) SS 3 students as obtained from the Planning and Statistics Department of Jigawa State Ministry of Education, Science and Technology in the academic session 2017/2018. It includes both male and female students from different senior secondary schools in the rural and urban areas.

#### 3.3.2 Sample Size

The total population is twenty five thousand and eight hundreds (25,800) SS 3 students and the activities of chosen sample size was done by using the sample size table, developed by the Research Advisors Table in 2006, which gave a sample size of 378 as sample size estimate.

**Table 3.1 Description of population and proportionate sample size**

| S/N | Zones | School | Types of sch | Population of SSII | Sample |
|---|---|---|---|---|---|
| **1** | Gumel | GDSS Gumel | Male | 452 | 34 |
| **2** | Gumel | G.S.S Maigatari | Male | 862 | 65 |
| **3** | Gumel | G.G.D.S.S Gum el | Female | 250 | 19 |
| **4** | Hadejia | G.S.S. Mallam Madori | Male | 785 | 59 |
| **5** | Hadejia | G.G.S.S Mallam Madori | Female | 512 | 38 |
| **6** | Hadejia | S.A.I.S Hadejia | Male | 1200 | 91 |
| **7** | Kazaure | G.G.D.A.S.S. Zainab (Kazaure) | Female | 470 | 36 |
| **8** | Kazaure | G.D.S.S Kazaure | Male | 314 | 24 |
| **9** | Kazaure | G.D.S.S Gwiwa | Male | 150 | 18 |
| | | **TOTAL** | | | **378** |

**SOURCE:** Planning and Statistics Department of Jigawa State Ministry of Education, Science and Technology, in the 2017/2018. (Retrieved on 10/11/ 2017).

### 3.3.3 Sampling Techniques.

Sampling techniques of this study was done in a multi-stage sampling as follows:

1) **First Stage:** The researcher used cluster sampling technique to arrive at the three Educational zones, namely: Gumel, Hadejia and Kazaure. Ellis (1994) argues that in cluster sampling a researcher picks a few clusters and collects data from many subjects comprising each of those clusters. Nine schools were selected from three education zones by using simple random techniques.

2) **Second Stage:** The researcher used stratified random sampling technique based on proportionate to select 378 students for the purpose of the study, from different schools with the aid of research assistants. The researcher used proportionate sampling from the school selected for the study; the schools were randomly selected from the three educational zones. The formula below helped the researcher to determine the proportion of the sample size.

$$\text{PSS} = \frac{\mathbf{TS}}{\mathbf{TP}} \times \text{SS}$$

Where, **PSS** = Proportion of Sample size.

**TS** = Total Population (of a school).

**TP** = Total Population (of the study).

**SS** = Sample Size (as recommended by Research Advisors (2006).

3) **Third Stage:** the third stage of selection of individual sample subjects, simple random sampling technique was used. In the sampling, the hat and draw procedure was utilized in every school visited.

### 3.4 Data Collection Instruments

1. Group Embedded Figure Test (**GEFT**).
2. Defining Issues Test (**DIT2**)
3. The Prosocial Tendencies Measure (**PTM**) and
4. Senior Secondary Certificate Qualifying Examination (**SSCQE**) 2017/2018 Session

#### 3.4.1 Group Embedded Figure Test (GEFT).

The version of Group Embedded Figure Test (GEFT) was used. Witkin, Raskin and Oltman (1971) developed a series of standardized psychological tests, the best used and substantiated of which is the Group Embedded Figure Test (GEFT). This instrument measures a construct that they called "field dependent" and "field independent" which is to be based on what they termed "psychological differentiation". Basically, this perceptual pattern recognition test which measures an individual's ability to "break up" an organized visual field so that an embedded part or given shape in that field can be recognized and memorized as separate from the given field; that is differentiated from the field. This process enables the measurement of bipolar construct field dependence and field independence over a range of given visual field. The Group Embedded Figure Test is a paper and pencil test. It is a universal instrument, which consists of 25 (Chromatic) test items in which simple Geometric forms are hidden within progressively more complex geometric design. The details of this items and scoring are described in Witkin,

Raskin and Oltman (1971). They also pointed out that scores on the Group Embedded Figure Test formed a normal distribution. Since that time the validity and reliability and usage of the Group Embedded Figure Test have been evaluated by a range of researchers with the general conclusion that this instrument has to have desirable measurement characteristics (Thompson & Melancon, 1987) and that it provides reliable and valid data (Thompson & Melancon, 1989). The Group Embedded Figure Test was found by the authors to have a reliability coefficient of 0.82 using spearman rank.

### 3.4.2 Defining Issues Test (DIT2)

The version of Defining Issues Test (DIT2) was used. The DIT is a quantitative instrument designed to measure an individual's level of moral reasoning. The use of DIT began in the 1970s as an alternative to Kohlberg's qualitative interview approach (Rest & Narvaez, 2009: p. 4). The instrument collects information needed to provide a quantitative measure of a person's stage of moral development. An improved version of the survey, DIT2, was introduced in 1999. DIT2 has improved validity, enhanced input reliability checks, and yields better trends (Rest & Narvaez, 2009: p. 8). A new index (N2) for moral reasoning has also been introduced, replacing the prior index. Researchers using the Defining Issues Tests have accumulated results from more than 500,000 participants (Rest & Narvaez, 2009: p.61) and extensive use of the instrument continues throughout the world. The scoring service of Center for the Study of Ethical Development processes an average of about 40 studies per year with about 50% being published. DIT has the reliability index of 0.81 which indicates the instrument is reliable (Rest: & Narvaez, 2009).

The version of Defining Issues Tests (DIT) contained broader domains of moral dilemma. It consists of two samples of story, each story has ten (10) questions to be answered by the respondents in the likert type statements eliciting various degrees of response from the subjects. However, some amendments are made on some of the items for language clarity and culture fair such as Northern Nigeria, Tanko`s family, and Malama Kande. The options are: greatly,(5) great (4), well (3), little (2) and not at all ;( 1). The total highest score is therefore 100 and lowest score is 20 the minimum score is 1x20=20, while maximum score is 5x20=100. The instrument has five columns of, 5, 4, 3, 2, and 1, marks allotted respectively.

### 3.4.3 The Prosocial Tendencies Measure (PTM)

An adapted version of Prosocial Tendencies Measure (PTM). The Prosocial Tendencies Measure (PTM) structures of prosocial behaviours in late adolescents were examined using a newly constructed, multidimensional measure by Carlo and Randall (2001). The correlations of subscales to additional items were acceptable and significant, and the internal consistency by Cronbach alpha for its subscale was acceptable at 0.586 to 0.771. Also the stability by test re-test is desirable all p at 0.05. So this measure seems to be usable for Iranian college students. But in inter correlation between subscales, divergence and convergence validity and gender difference, there are some discrepancy to previous studies. The data collection instrument for this research is therefore in adapted version of Prosocial Tendencies Measure (PTM). The Prosocial Tendencies Measure (PTM) which assesses 6 types of prosocial behaviours: the 20-item version of the PTM consisting of 6 subscales:

1. Public (1-3 Items,)
2. Emotional (4-6 Items).
3. Altruism (7-10 Items)
4. Dire (11-13 Items)
5. Compliant( 14-15 Items), And
6. Anonymous (16-20 Items,)

The five scales of the Likert type PMT were modified; however the 23 items were reduced to 20 items. Scales were scored between 5-1 of the range.

The options are: greatly,(5) great (4), well (3), little (2) and not at all ;( 1). The total highest score is therefore 100 and lowest score is 20, the minimum score is 1x20=20, while maximum score is 5x20=100. The instrument has five columns of, 5, 4, 3, 2, and 1 marks allotted respectively.

### 3.4.4 Senior Secondary Certificate Qualifying Examination (SSCQE) 2017/2018 Session

The students' average score in Senior Secondary Certificate Qualifying Examination (**SSCQE**) 2017/2018 session were used. Scores for candidates in the sample were collected and tabulated subject by subject to allow for proper analysis. Each candidate's performance in Senior Secondary Certificate Qualifying Examination was compiled on the relevant instrument for brevity, ease of understanding and comparison.

### 3.5 Validation of Measuring Instruments

Validity is usually defined by such question as "does the text measure what it is supposed to measure". Thus validity refers to the degree to which a text measures what it purports to measure and consequently permits appropriate scores (Gay, & Airasian, 2000). For the

purpose of this study, a validation study was conducted to determine the psychometric properties for the three instruments of the study. In order to ascertain the validity of the instrument, face validity was used. Kumar (2011) suggests that the judgment that an instrument is measuring what it is supposed to is primarily based upon the logical link between the questions and the objectives of the study. One of the main advantages of this type of validity is that it is easy to apply. Each question or item on the research instrument must have a logical link with an objective. Establishment of this link is called face validity.

### 3.5.1 Validity of Group Embedded Figures Test (GEFT)

The initial validation was determined using face validity. This instrument was validated by the Research Supervisor, expert in Psychology, Test and Measurement and Curriculum for validations who make critical suggestions, recommendations and refined the instrument) from Bayero University, Kano. They refined the instrument for effective data collection on the study. In establishing construct validity, convergent validity was used. Convergent validity refers to the degree to which two measures of a construct that theoretically should be related are in fact related. It is estimated using correlation coefficient. In this case instrument is correlated with another test designed to measure the same concept theoretically. Therefore, Kazembe Sorting Test (KST) was correlated with GEFT to establish convergent validity. It was concurrently administered on randomly selected 40 pilot testing subjects. The result shows that the $r = 0.76$, a significant positive correlation between Group Embedded Figures Test ( GEFT)and Kazembe Sorting Test (KST) was established. This shows a strong evidence of the construct validity of the

Group Embedded Figures Test (GEFT) at 0.76 correlation coefficient meant to measure cognitive styles among senior secondary school students

### 3.5.2 Validity of Defining Issues Test (DIT2)

The validity of Defining Issue Test (DIT2) was determined using face validity and content validity having already established by Rest and Narvaez,(2009) through utilizing the services of five professionals that include experts in test item analysis and construction. Educational Psychologist's draft of the research proposal and the instruments were submitted to these professionals and reasonable time was given for their observations and inputs. In establishing construct validity, convergent validity was used. Therefore, Moral Competence Test Questionnaire (MCTQ) was correlated with DIT2 to establish convergent validity; it was concurrently administered on randomly selected 40 pilot testing subjects. The result showed that the r = 0.68, a significant positive correlation between Defining Issue Test (DIT2) and Moral Competence Test Questionnaire (MCTQ) was established. This shows a moderate evidence of the construct validity of the Defining Issue Test (DIT2) at 0.68 correlation coefficient meant to measure moral reasoning among senior secondary school students

### 3.5.3 Validity of Prosocial Tendencies Measure (PTM)

After the minor modifications of demographic characteristics and few items in the initial instruments, the instrument was successfully face and content validated by the team of expert in education and other behavioral research from Bayero University, Kano consisting of the Supervisor and other experienced scholars in Education Curriculum, Psychology, Educational Measurements, The experts validated the instruments in terms

of clarity of language, ambiguity of the statement, relevance to the topic and appropriateness of the items. After scrutinizing the instruments some constructive suggestions and corrections which were made by the experts were effected before producing the final draft of the instruments for Pilot study.

### 3.6 Reliability of the Instruments

The reliability of these measuring instruments was determined using test re-test technique and Cronbach alpha. The measuring instruments were administered to the pilot samples of 40 students in GGSS Malam Madori and GSS Maigatari, thereafter the scores were obtained.

#### 3.6.1 Reliability of GEFT

The researcher establishd the reliability of the instrument for the GEFT through test retest method. Using pilot test method to administer to a sample of 20 students drawn from the various selected schools with the same items but different occasion i.e the scores obtained were coded and recorded on SPSS package. To determine the reliability of the instrument, the test-retest reliability method was carried out with the instrument at a time lag of two weeks using fourty students of study to enable the researcher generate the data for computing the measure of stability reliability. Correlation analysis was calculated using the Pearson Product Moment Correlation Coefficient. The computed reliability index was 0.84. Therefore, the instmrnent was reliable. According to Eze (2005), the instrument is reliability when the reliability index is above .538 but unreliable when the index is below .538.

### 3.6.2 Reliability of DIT2

The researcher conducted pilot study in two schools. A total number of forty (40) students were randomly selected, twenty students from each school. Cronbach alpha was used through the aid of Statistical Package of Social Sciences (SPSS) Software. The instrument was discovered to be reliable with Cronbach alpha of 0.898. Schnitzer (2006) confirmed that the reliability of an instrument is considered reliable if its reliability coefficient lies between 0 and 1, and that the closer the calculated reliability coefficient is to zero, the less reliable is the instrument and the closer the calculated reliability coefficient is to 1, the more reliable the instrument. Therefore, the instrument is fit to be used for this research because it was found to be reliable for its high scores.

### 3.6.2 Reliability of PTM

Cronbach's Alpha was employed in determining reliability of the PTM . Cronbach's Alpha was employed in determining reliability of the instrument. The output from SPSS shows Cronbach's Alpha reliability to be 0.887 which signals that the instrument was reliable because the value 0.81 is close to 1.

Therefore, the reliability index of the Group Embedded Figures Test (GEFT) was 0.84 and a Cronbach`s Alpha reliability coefficient of DIT2 and PTM was 0.90 and 0.89 respectively, thus, indicating that the instruments were reliable and adequate for the study.

### 3.6 Procedure for Data collection

The successful conduct of any research work depends upon the researcher`s effort in getting the vital information or data. An introductory letter was collected from the

Faculty of Education, Bayero University, Kano (B.U.K), which was given to the Honorable Commissioner of Education, Science and Technology Jigawa state. The permission was sought to conduct research in senior secondary schools. Questionnaires were administered by the researcher with the help of research assistants. The researcher explained the variables in the instrument on the chalkboard for easy understanding on the part of the students. The researcher assured the respondents that, whatever responses they gave would be kept secret or confidential. A total of three hundred and seventy eight (378) questionnaires were distributed in nine (9) schools. Adequate time was given to the respondents to fill the questionnaires and collect on that day.

**3.7 Data Analysis Procedure.**

In order to analyze the data collected, the statistical analysis employed was correlation. Correlation simply means "mutual relation". If pairs of measurements on two variables are given, a correlation describes the degree of simultaneous variation of the two variables. To be more specific, Pearson Product Moment Correlation Coefficient (r) was used. The Pearson Products Moment correlation coefficient, often referred to as the Pearson R test, is a statistical formula that measures the strength between variables and relationships. To determine how strong the relationship is between two variables, one needs to find the coefficient value, which can range between -1.00 to 1.00 (Lawal cited in Maiwada & Yakasai, 2011) In testing research hypotheses 1,2 and 3, Pearson product moment correlation co-efficient (r) was used while Hypotheses 4 sought to find out relationship between one variable and another set of variables, Therefore, Regression analysis was used. Faraway (2002) explains that regression analysis is a statistical technique for explaining or modeling between a single variable called the response, output

or dependent variable and one or more predictor, input, independent or explanatory variables. Regression analysis has several possible objectives, including the prediction of future observations, the assessment of the effect of or relationship between, explanatory variables on the response and general description of the data structure. Regression analysis is primarily used for prediction and the causal inference to predict a continuous dependent variable from a number of independent variables. In other words regression analysis is a form of predictive modeling technique, which investigates the relationship between a dependent (target) and independent variables (predictor).

# CHAPTER FOUR

# DATA PRESENTATION AND ANALYSIS

## 4.1 Introduction

This chapter presented and discussed the results obtained from the data collected in this study. The results relate to students' responses to the statement contained in the instruments administered on them and their academic achievement. The presentation of the result was in accordance with the hypotheses stated in chapter one. In testing each of the hypotheses, the level of significance has been set at 0.05

## 4.2 Data Summary

The data for this research was the row scores of cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school students in Jigawa state

**Table 4.1: Table of Cognitive Styles**

| Cognitive Styles | N | % |
|---|---|---|
| **Field Dependent** | 243 | 64% |
| **Field Independent** | 135 | 36% |
| **Total** | 378 | 100% |

The result presented in table 4.1 above showed the majority of the respondents (243 or 64%) indicated that they were field dependent while the rest (135or 36%) indicated they were field independent. This indicates that majority of the students who responded to GEFT were field dependent.

**Table 4.2: Table of Moral Reasoning**

| Class Inverval | Frequency (F) | Percentage % |
|---|---|---|
| **90 to 100** | 6 | 2 |
| **80 to 89** | 17 | 4 |
| **70 to 79** | 31 | 9 |
| **60 to 69** | 47 | 12 |
| **50 to 59** | 52 | 13 |
| **40 to 49** | 56 | 15 |
| **30 to 39** | 140 | 36 |
| **20 to 29** | 27 | 7 |
| **10 to 19** | 4 | 1 |

The results shown in the table 4.2. that 209 of the respondents (55%) scored between 40 to 100, that they have good moral reasoning while 169 of the respondents (44%) scored between 10 to 39 that they have fair moral reasoning

**Table 4.3: Table of Prosocial Behaviour**

| Class Inverval | Frequency (F) | Percentage % |
|---|---|---|
| **90 to 100** | 12 | 3% |
| **80 to 89** | 19 | 5% |
| **70 to 79** | 45 | 12s% |
| **60 to 69** | 84 | 22% |
| **50 to 59** | 24 | 6% |
| **40 to 49** | 78 | 20% |
| **30 to 39** | 85 | 22% |
| **20 to 29** | 20 | 6% |
| **10 to 19** | 11 | 3% |
| **Total** | 378 | 100% |

The result in the table 4.3. showed that 263 of the respondents (68%) scored between 40 to 100, that they have exhibited prosocial behavoiur while 121 of the respondents (32%) scored between 10 to 39 that they do not exhibit prosocial behavour

**Table 4.4: Table of Academic Achievement**

| Grade | Frequency (F) | Percentage % |
|---|---|---|
| **A** | 24 | 6% |
| **B** | 76 | 20% |
| **C** | 84 | 22% |
| **D** | 78 | 20% |
| **E** | 86 | 22% |
| **F** | 30 | 10 |
| | 378 | 100% |

The results are shown in the table 4.4. that (24 or 6% ) of the respondents scored A , similarly, (76 or 20% ) of the respondents scored B, while (84 or 22% )of the respondents scored between C,but (78 or 20% )of the respondents scored between D. Furthermore, (86or 22% ) scored E. Finally, (30 or 10% ) of the respondents scored F.

**4.3 Data Analysis**

The data generated was subjected to statistical analysis. Hypotheses one, two and three were tested using Pearson Product Moment Correlation Coefficient and Regression Analysis were used to test hypothesis four. The results generated were presented in the tabular form with their corresponding hypotheses.

### 4.3.1 Hypotheses Testing

**$H_{O1}$** There is no significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state.

To test the above hypothesis, Pearson Product Moment Correlation Coefficient was computed to assess whether there is no significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state as presented on table 4.4.

**Table 4.5 Correlation Analysis Between Cognitive Styles and Academic Achievement**

| Pearson Correlation | N | r | p-value | Decision |
|---|---|---|---|---|
| **Cognitive Styles** | 378 | .614 | 0.000 | Significant |
| **Academic Achievement** | 378 | | | |

Table 4.5 presents the result of Pearson Product Moment Correlation between cognitive styles and academic achievement among secondary school students in Jigawa state. The result showed that a positive and moderate correlation was found between cognitive styles and academic achievement (r = .614, p =0.00), indicating that cognitive style influences academic achievement among secondary students in Jigawa state. Therefore, hypothesis which states that there is no significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state is rejected and alternative hypothesis accepted. It is therefore concluded that there is significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state.

**$H_{O2}$** There is no significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state.

Pearson Product Moment Correlation Coefficient was computed to assess whether there is no significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state as presented on table 4.6

**Table 4.6 Correlation Analysis Between Moral Reasoning and Academic Achievement**

| Pearson Correlation | N | r | p-value | Decision |
|---|---|---|---|---|
| **Moral Reasoning** | 378 | .687 | 0.000 | Significant |
| **Academic Achievement** | 378 | | | |

Table 4.6 presents the result of Pearson Product Moment Correlation between moral reasoning and academic achievement among secondary school students in Jigawa state. The result show that a positive and moderate correlation was found between moral reasoning and academic achievement ($r = .687$, $p = 0.00$), indicating that moral reasoning influences academic achievement among secondary students in Jigawa state. Therefore, hypothesis which states that there is no significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state is rejected and alternative hypothesis accepted. It is therefore concluded that there is significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state.

**$H_{O3}$** There is no significant relationship between pro-social behaviour and academic achievement among senior secondary school students in Jigawa state

In order to test the above hypothesis, Pearson Product Moment Correlation Coefficient was used to test whether there is no significant relationship between pro-social behaviour and academic achievement among senior secondary school students in Jigawa state

**Table 4.7 Correlation Analysis between Prosocial Behaviour and Academic Achievement**

| Pearson Correlation | N | r | p-value | Decision |
|---|---|---|---|---|
| **Prosocial Behaviour** | 378 | .538 | 0.000 | Significant |
| **Academic Achievement** | 378 | | | |

Table 4.7 presents the result of Pearson Product Moment Correlation between prosocial behaviour and academic achievement among secondary school students in Jigawa state. The result showed that a positive and moderate correlation was found between prosocial behaviour and academic achievement ($r = .538$, $p = 0.00$), indicating that prosocial behaviour influence academic achievement among secondary students in Jigawa state. Therefore, hypothesis which states that there is no significant relationship between Prosocial behaviour and academic achievement among senior secondary school students in Jigawa state is rejected and alternative hypothesis accepted. It is therefore concluded that there is significant relationship between Prosocial behaviour and academic achievement among senior secondary school students in Jigawa state.

**$H_{O4}$** There is no significant relationship among cognitive styles, moral reasoning, prosocial behaviour and academic achievement senior secondary school students in Jigawa state

In order to test the above hypothesis, Regression analysis was used to test whether there is no significant relationship between among cognitive styles, moral reasoning, prosocial behaviour and academic achievement among senior secondary school students in Jigawa state

**Table 4.8 Model Summary of Regression Analysis**

| Model | R | R Square | Adjusted R Square |
|---|---|---|---|
| **1** | .717 | .514 | .510 |

From the table above R-value .717 represents the multiple correlations between the study variables. The R-Square value of .510 represents the total variability of the dependent variable, as explained by the independent variables. Based on the R-Square value of .510, it follows that 75% of the total variability in the high academic achievement of the students is explained by the variables of cognitive styles, moral reasoning and prosocial behaviour

**Table 4.9: ANOVA`s Table for Model Fitness for Regression Analysis**

| Model | Sum of Squares | Df | Mean Square | f | p- value. |
|---|---|---|---|---|---|
| **Regression** | 71860.545 | 3 | 23953.515 | 131.604 | .000 |
| **Residual** | 68072.735 | 378 | 182.013 | | |
| **Total** | 139933.280 | 378 | | | |

The Analysis of Variance (ANOVA) table is used in measuring the fitness of the regression model. From the above table, the F-Statistic value is 131.604 while the P-value is 0.000 which indicates that the regression model fit the data at hand because the P-Value (sig) is at 0.000, which is less than 0.05 which is region of rejection.

**Table 4.10 Regression Coefficient Table of Cognitive Styles, Moral Reasoning, Prosocial Behaviour and Academic Achievement**

| Model | sB | SE | Beta | t | p-value. |
|---|---|---|---|---|---|
| **Constant** | 12.895 | 2.048 | | 6.297 | .000 |
| **Cognitive_Style** | .217 | .056 | .208 | 3.885 | .000 |
| **Moral_Reasoning** | .481 | .058 | .454 | 8.283 | .000 |
| **Prosocial_Behaviour** | .138 | .048 | .137 | 2.782 | .004 |

The table 4.10 report the standard beta (β) coefficient which gives a measure of the contribution of each independent variable to the model as predictor of the dependent

variable. The result reveals that three indepenedent variables ( cognitive styles, moral reasoning and prosocial behaviour ) significantly contribute to the academic achievement. It is shown that cognitive styles contributed Beta weight of 0.208 and the t-value of 3.885, moral reasoning contributed Beta weight of 0.452 and the t-value of 8.283 and prosocial behaviour also contributed Beta weight of 0.37 and the t-value of 2.782

## 4.5 Summary of the Findings

Based on analyses of data and test of hypotheses, the following are the findings:

1. There is significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state($r = .614$, $p = 0.00$).

2. There is significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state($r = .687$, $p = 0.00$).

3. There is significant relationship between prosocial behaviour and academic achievement among senior secondary school students in Jigawa state($r = .538$, $p = 0.00$).

4. The result reveals that three indepenedent variables ( cognitive styles, moral reasoning and prosocial behaviour ) significantly contribute to the academic achievement. It is shown that cognitive styles contributed Beta weight of 0.208 and the t-value of 3.885, moral reasoning contributed Beta weight of 0.452 and the t-value of 8.283 and prosocial behaviour also contributed Beta weight of 0.37 and the t-value of 2.782

## 4.6 Discussions of the Findings

This section discussesed the findings of the study in respect of the four (4) null-hypotheses analyzed in the section. The fact that all the hypotheses formulated were rejected corroborate with many other studies conducted around the world and at the same time contradicting few other findings

With reference to the relationship between between cognitive styles and academic achievement. the findings of this study substantiated by Dwyer and Moore (2015)whose findings also indicate that cognitive style had a significant association with students‟ academic achievement. Musya`s (2015) finding also found out significant relationship between cognitive styles and academic achievement among secondary school students in Kenya. This finding also corroborates those of Bassey, Umoren and Udida (2011) who found out there is significant difference in students academic performance due to their cognitive styles, students with analytic (field independent) cognitive perform significantly higher than relational (field dependent) and inferential ones. There is a significant positive relationship between students' attitude to chemistry and their performance in chemistry.

In the same vien the finding is in concomitant with the finding of Rani (2017) found that there was significance relationship between cognitive style and academic achievement of students with special needs. Dwyer and Moore (2015) and Almeida (2007) who found the that cognitive style had a significant association with students‟ academic achievement is in line of the finding of this study. Rosemary, (2012) who found that there is significant difference in the mean achievement scores of field independent and dependent students in these areas of Mathematics. Male students achieved higher than female

students in geometry and algebra while in statistics there was no significant difference in achievement of male and female students.

Jantan (2014) found a significant difference in cognitive styles between boys and girls in the school. It is also in line with Tinajero & Paramo (2014) who examined the relationship between academic achievement and cognitive style of 63 undergraduate Canadian students in information management program. In addition Alomyan and Au (2004) found no differences between students' attitudes towards web-based learning and their cognitive style. The finding also lend credence to the findings of Jantan ( 2014) which showed that there was a low positive correlation between students' cognitive styles and their Mathematics achievement. From the foregoing, it appears that the findings of inverse correlation between ognitive style and academic achievement are global phenomena.

The result of Correlation coefficient in table 4.6 of hypothesis two reveled that there is significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state. ( r. 689. p=.000, p <.05) Therefore the null hypothesis is rejected. The findings of this study tally with the findings of Zaman (2010), Abdullahi, Barnabas, Tobias, & Gabriel, (2013), Berkowiz and Hope (2009), Rose (2012) and Sa'idu (2010) who found that there is significant relationship between moral reasoning and academic achievement

Concerning the relationship between pro-social behaviour and academic achievement upon which this study found a significant correlation, the finding is in agreement with Samuel and Dantallah (2016) who found relationship between prosocial behaviour and the academic achievement in the secondary schools in Serbia. In addition to their earlier

submission and in agreement with the findings of this study, Hartmann, Vander Graff (2018) reported that there is relationship between pro-social behaviour and academic achievement. The findings inform strategies to foster prosocial behaviors by emphasizing moral emotions rather than moral cognitions during adolescence. Another research finding conducted by Mallah (2014) agree with the finding of this study which examines concurrent relations between grade 5 social behaviors and academic performance revealed all four forms of prosocial behavior were positively related to higher academic performance.

From the analysis of the data obtained from research hypothesis one in table 4.6 The result reveals that three indepenedent variables ( cognitive styles, moral reasoning and prosocial behaviour ) significantly contribute to the academic achievement. It is shown that cognitive styles contributed Beta weight of 0.208 and the t-value of 3.885, moral reasoning contributed Beta weight of 0.452 and the t-value of 8.283 and prosocial behaviour also contributed Beta weight of 0.37 and the t-value of 2.782

This finding is line with Bassey, Umoren and Udida (2011) in which they found that cognitive styles serve as a predictor of good academic achievement in chemistry. It is also in lline of Tinajero & Paramo (2014) who examined that cognitive style as a determinant of academic achievement In addition Alomyan and Au (2004) found that cognitive styles serve as a predictor of good academic achievement This finding is also in concomitant with the findings of Awofala, Balogun and Olagunju (2012) who reported that results showed that cognitive styles serve as a predictor of good academic achievement in mathematical Word Problems.

Similarly, moral reasoning serves as a predictor of good academic achievement of the students, moral reasoning is predicted to account for 53% . This finding is in line with Rose (2012) finding which confirms that moral reasoning improves during undergraduate studies when students have contact with their professors outside of class. This finding is in line of Zaman (2010) who found that moral reasoning serves as a predictor of good academic achievement of the students. Barnabas, Tobias, & Gabriel, (2013). Opined that moral reasoning serves as a predictor of good academic achievement of the students, but prosocial behaviour does not serve as a predictor of good academic achievement This is in line with the study of Dwyer and Moore (2015) They found that cognitive style serves as a predictor of good academic achievement students‟ academic achievement. The study by Alsaqria, (2018) the relationship between moral reasoning serves as a predictor of good academic achievement . This finding is not line with Ingles, et .al (2009) who revealed that prosocial behaviour was a positive predictor of academic achievement. Chears-Young. (2014) The finding reveals good correlation between moral reasoning serves as a predictor of good academic achievement in the southern half of the United States. This finding is not line with Gerbino, et.al (2017).who supported the view of prosocial behaviour as a predictor of academic achievement. Jing, (2018) findings highlighted the importance of children's Prosocial behaviour in building positive relationships with peers and facilitating academic achievement. Chinese educators are suggested to put more weight on cultivating children's Prosocial behaviour that is beneficial for children's psychological and social well-being.

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1 Introduction

This chapter presented the whole research work, conclusions drawn from it and recommendations based on the findings of the work. Finally suggestions for further studies were made in this chapter.

## 5.2 Summary

The study examines cognitive styles, moral reasoning, prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state. The study has five chapters. In chapter one, the background to the study and the problem that led to the study were highlighted. Four objectives and corresponding number of research questions and null hypotheses were formulated to guide the study. The expected contributions the work would make were also explained. Finally the chapter explained the scope of the study and its delimitation.

Chapter two examines the concepts of the key variables of the study – cognitive styles, moral reasoning, Prosocial behaviour and academic achievement. It was discussed under these broad headings: concept of cognitive styles, concept of moral reasoning, concept of prosocial behaviour, types of prosocial behaviour, five development of prosocial behaviour, The theoretical framework adopted for this study include: Witkin cognitive style theory, Kohlberg theory of moral reasoning , Bandura`s theory of prosocial behaviour . Related empirical studies were also reviewed.

Chapter three focused on the methodology adopted for the study. The design of the study was co- relational research, the study covered a population of twenty five thousands eight

hundred 25,800 SS 3 students. The sample of the study was 378 SS III students who were selected using the multi sampling technique. Three instruments were used for the data collection namely: Group Embedded Figure Test (GEFT). Defining Issues Test (DIT2). The Prosocial Tendencies Measure (PTM) and Qualifying Examination Result

Chapter four contains the analysis of the data obtained from the study. This includes data presentation, testing of null hypotheses summary of findings and discussions of findings. Following the analyzed data collected, it was found that there is significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state. ($r = .614$, $p = 0.00$). It was found that there is significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state. ( r. .687. $p = .000$, $p < .05$). It was found that there is significant relationship between prosocial behaviour and academic achievement among senior secondary school students in Jigawa state. (r..5380. $p = 0.000$, $p < .05$). Finally, It was found that Cognitive styles serve as a predictor of good academic achievement of the students, cognitive styles contributed Beta weight of 0.208 and the t-value of 3.885. Similarly, moral reasoning serves as a predictor of good academic achievement of the students, it contributed Beta weight of 0.452 and the t-value of 8.283. But prosocial behaviour also contributed Beta weight of 0.37 and the t-value of 2.782

Chapter five summarized the findings of the study, conclusion and recommendation were included. The recommendation given by the researcher highlighted that parents and teachers should encourage students on how to develop field independent, good moral reasoning and prosocial behaviour so as to attain the higher academic excellent.

## 5.3 Conclusion

Based on the findings of this study, the following conclusions were arrived at:

1. There is significant relationship between cognitive styles and academic achievement among senior secondary school students in Jigawa state(r = .614, p =0.00). It is concluded that Cognitive styles reasoning has significant relationship with academic achievement.

2. There is significant relationship between moral reasoning and academic achievement among senior secondary school students in Jigawa state(r = .687, p =0.00). It is concluded that moral reasoning has significant relationship with academic achievement.The correlation between moral reasoning and academic achievement indicates that the students' moral reasoning influences academic achievement.

3. There is significant relationship between prosocial behaviour and academic achievement among senior secondary school students in Jigawa state(r = .538, p =0.00). It is concluded that prosocial behaviors and academic performance were positively related to higher academic performance.

4. The result reveals that three indepenedent variables ( cognitive styles, moral reasoning and prosocial behaviour ) significantly contribute to the academic achievement. It is concluded that the three variables i.e. cognitive style, moral reasoning and prosocial behaviour are the predictors of academic achievement.

## 5.4 Recommendations

### 5.4.1 Recommendations from the Study

Based on the findings of this study, the following recommendations are hereby made:

1. Teachers should emphasize on the use of cognitive styles as a means of achieving better academic achievement. Teachers should also encourage students to adopt a deep approach, and inculcate analytical and critical thinking skills in the students in order to make them acquire academic achievement

2. Teachers should teach the students moral values so that it can be instrumental for good academic achievement of students.

3. Teachers should also give emphasis in classroom and the teaching and learning process to promote prosocial behaviour among the students in addition to focusing on only their cognitive style. Because, if they are academically good but lack these skills they may not be productive especially in the area of dealing with emotional skills, social skills and behavioural issues of human beings.

4. Teachers should develop learners intellectually, morally and socially because as learners attain higher cognitive styles, they become capable of more complex reasoning about moral issues. Their tendencies toward prosocial behaviour and academic achievement increase as well.

### 5.4.2 Recommendation for Further Studies

The focus of this study was directed at investigating of cognitive styles, moral reasoning, prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state. Therefore, further studies are hereby suggested below:

1. Similar investigation should be carried out to determine the effect of cognitive style, moral reasoning, Prosocial behaviour and gender on student academic achievement among senior secondary school students in northwest zone Nigeria.
2. Similar studies can be replicated in other states of the federation or goepolitical zone with larger sample sizes than that used in this study.

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# APPENDIX 1

School of Post-graduate Studies,
Bayero University, Kano
25th April, 2016.

The Honourable commissioner,
Ministry of Education, Science
And Technology, Jigawa State.
Dear Sir.

**REQUEST FOR DATA COLLECTION**

With due regards, I wish to write and kindly request your honour to grant me permission to collect data for my Ph.D research.

I am a Ph.D student with registration number SPS/14/PED/00010 undertaking research in the area of Educational Psychology. My research topic is **"**cognitive styles, moral reasoning, Prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria**"**.

I want the number of senior secondary school and the population of the students in each senior secondary school in Jigawa state. I kindly request your honour to grant me permission to conduct this research at senior secondary school in Jigawa state.

I hope my request would kindly be considered and approved.

Thanks.

Yours Faithfully,

Hassan Dauda.
SPS/14/PED/00010.

**Appendix ii**

**Group Embedded Figures Test ( GEFT)**

Dear Respondent,

This research is being conducted on **"**cognitive styles, moral reasoning, Prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria**"** in partial fulfillment for the award of Philosophy of Education (Psychology). It is believed that your honest responses will be kept confidential and would be used for the purpose of this research only. Your co-operation is highly appreciated.

## Section 'A' (Background Information)

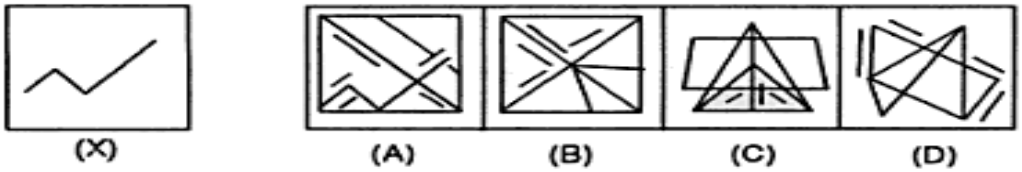
Please tick or fill as applicable.

1. Sex A. Male [ ] B. Female [ ]

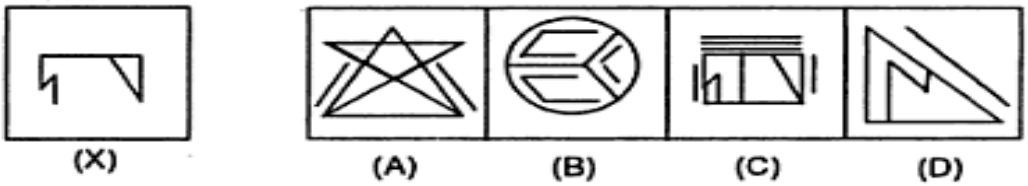
Name of School……

**INTRODUCTION**: In each of the following questions you are given a figure (x) is embedded by four alternative figures A, B, C, D, . Find out the alternative figure which contains figure (x) as its part.

1 a




2 C

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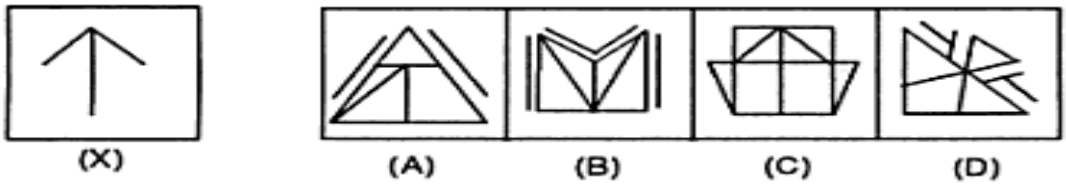
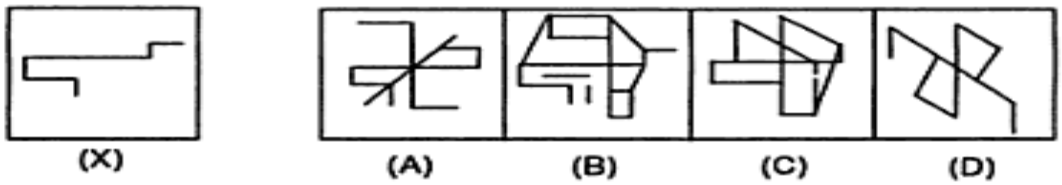
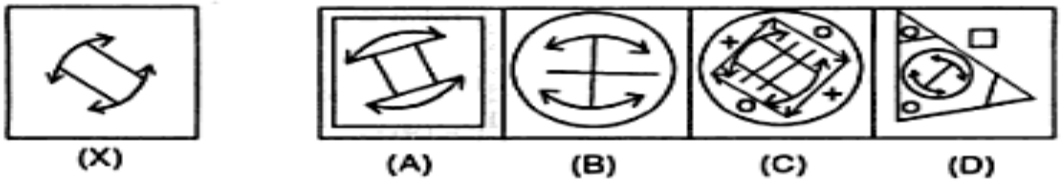


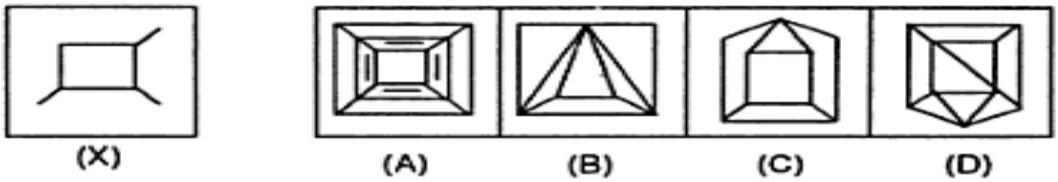
4 B



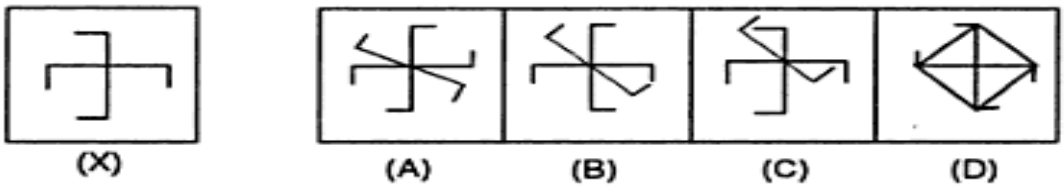

5 C



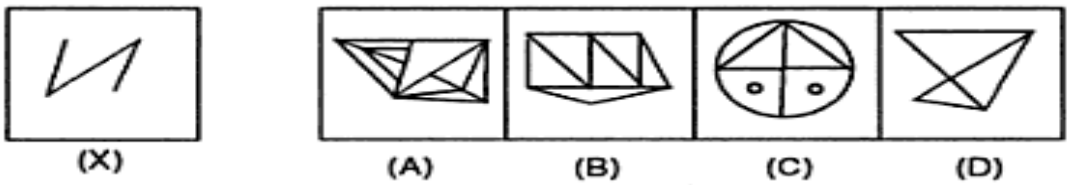

6 D



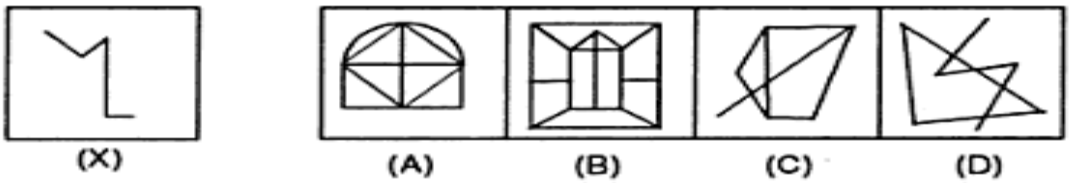

7 C



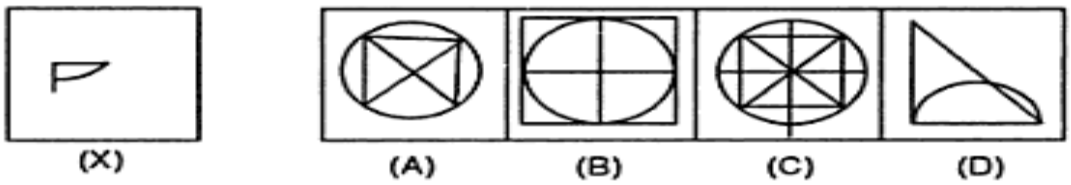

8 A



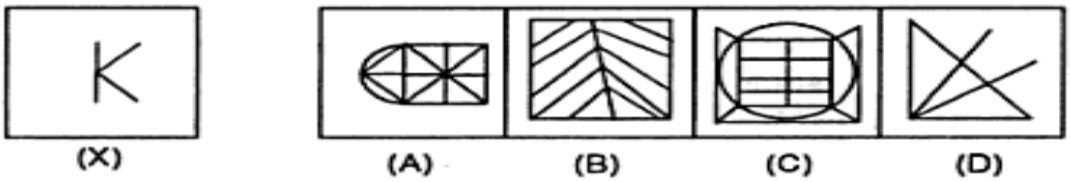

9 B



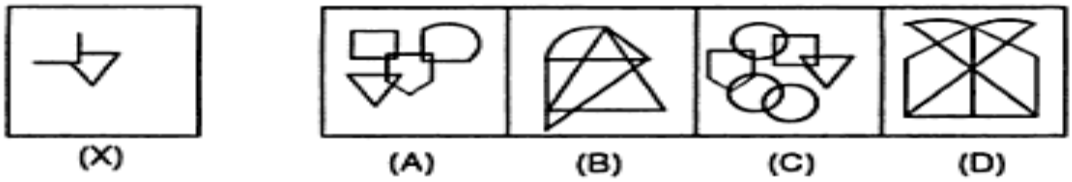
10 C



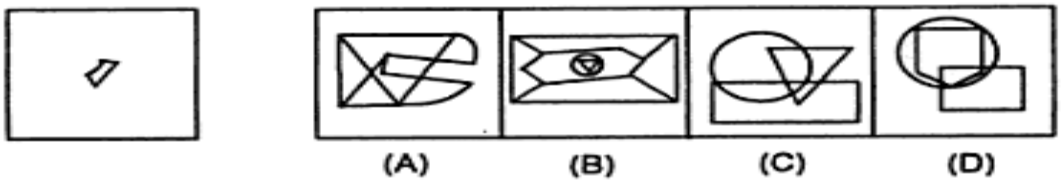

11 A



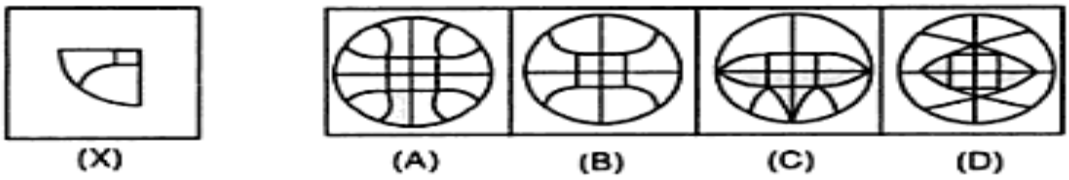

12 C




13 C




14; E

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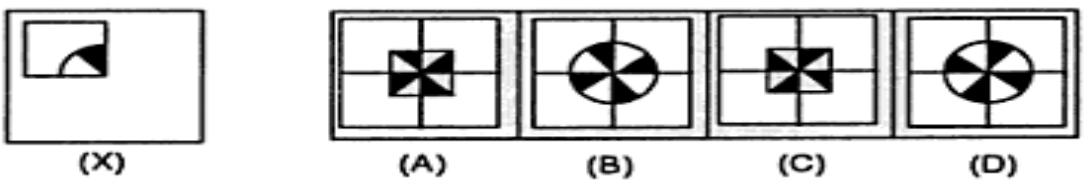

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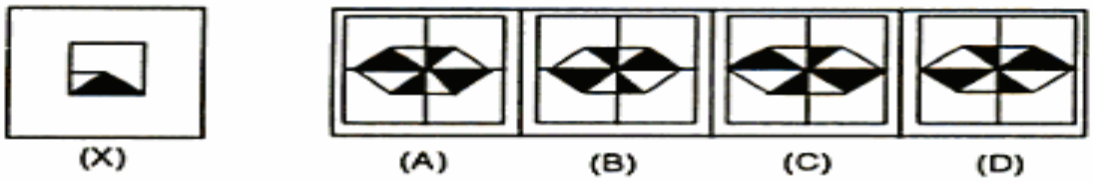


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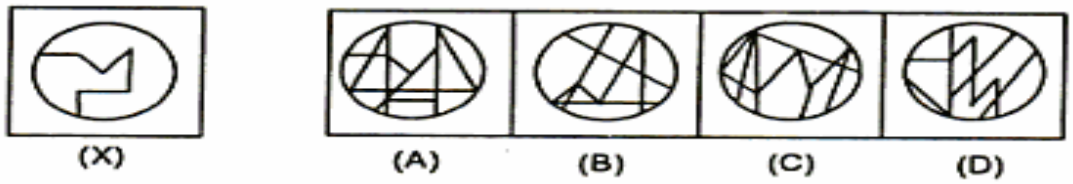
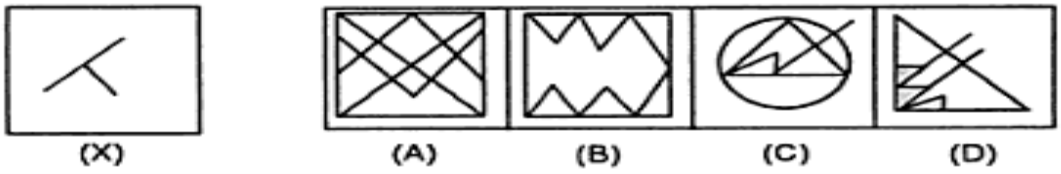



19; D


20; A



## Appendix iii

## Defining Issues Test (DIT)

Dear Respondent,

This research is being conducted on **"**cognitive styles, moral reasoning, Prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria**"**. in partial fulfillment for the award of Philosophy of Education (Psychology). It is believed that your honest responses will be kept confidential and would be used for the purpose of this research only. Your co-operation is highly appreciated.

### Section 'A' (Background Information)

Please tick or fill as applicable.

1. Sex A. Male [ ] B. Female [ ]
2. Name of School……..
3. Identification Number ……...

**Section 'B' (Moral dilemma) : The Famine**

The small village in northern Nigeria has experienced shortages of food before, but this year's famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Tanko's family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit Tanko is desperate and thinks about stealing some food from the rich man's warehouse. The small amount of food that he needs for his family probably wouldn't even be missed.

Rate the following issues in terms of importance.

Greatly: 5 Great:4 Well: 3 Somewhat: 2, Little : 1

| S/N | ITEMS | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 1 | Is Tanko courageous enough to risk getting caught for stealing? | | | | | |
| 2 | Would stealing bring about more total good for everybody concerned or not? | | | | | |
| 3 | Shouldn't the community's laws be upheld? | | | | | |
| 4 | Does Tanko know a good recipe for preparing soup from tree bark? | | | | | |
| 5 | Does the rich man have any legal right to store food when other people are starving? | | | | | |
| 6 | Is the motive of Tanko to steal for himself or to steal for his family? | | | | | |
| 7 | What values are going to be the basis for social cooperation? | | | | | |
| 8 | Is the epitome of eating reconcilable with the culpability of stealing? | | | | | |
| 9 | Does the rich man deserve to be robbed for being so greedy? | | | | | |
| 10 | Isn't private property an institution to enable the rich to exploit the poor? | | | | | |

## Cancer

Malama kande is 62 years old, and in the last phase of colon cancer. She is in terrible pain and asks the doctor to give her more pain medicine. The doctor has given the maximum safe dose already and is reluctant to increase the dosage because it would hasten her death. In a clear and rational mental state. Malam kande says that she realizes this; but she wants to end her suffering even if it means ending her life.

Greatly: 5 Great:4 Well: 3 Somewhat: 2, Little : 1

| S/N | ITEMS | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1 | Isn`t the doctor obligated by the same laws as everybody else if giving an overdose would be the same as killing her ? | | | | |
| 2 | Shouldn`t society protect everyone against being killed ? | | | | |
| 3 | If malama kande dies, would the doctor be legally responsible for malpractice? | | | | |
| 4 | Does the family of malama kande agree that she should get more painkiller medicine? | | | | |
| 5 | Is the painkiller medicine an active hellotropic drug? | | | | |
| 6 | Does the state have the right to force continued existence on those whose who don`t want to live ? | | | | |
| 7 | Is helping to end another`s life ever a responsible act of cooperation? | | | | |
| 8 | Would the doctor show more sympathy for malama kande by giving the medicine or not? | | | | |
| 9 | Wouldn`t the doctor feel guilty from giving malama kande so much drug that she died? | | | | |
| 10 | Should only Allah decide when a person`s life should end? | | | | |

**APPENDIX iv**

**Prosocial Tendencies Measure ( PTM)**

Dear Respondent,

This research is being conducted on **"**cognitive styles, moral reasoning, Prosocial behaviour as correlates of academic achievement among senior secondary school students in Jigawa state, Nigeria**"**., in partial fulfillment for the award of Philosophy of Education (Psychology). It is believed that your honest responses will be kept confidential and would be used for the purpose of this research only. Your co-operation is highly appreciated.

Thanks,

## Section 'A' (Background Information)

Please tick or fill as applicable.

1. Sex A. Male [ ] B. Female [ ]
2. Name of School……..
3. Identification Number ……...

**Instruments For Prosocial Tendencies Measure.**
Below are a number of statements that may or may not describe you. Please indicate

**HOW MUCH EACH STATEMENT DESCRIBES YOU** by using the following scale:

Greatly: 4 Well:3 Little : 2 Not at all ; 1

| S/N | ITEMS | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1 | I can help others best when people are watching me. | | | | |
| 2 | Helping others when I am in the spotlight is when I work best. | | | | |
| 3 | I get the most out of helping others when it is done in front of others. | | | | |
| 4 | I respond to helping others best when the situation is highly | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | emotional. | | | | |
| 5 | Emotional situations make me want to help needy others. | | | | |
| 6 | It is most fulfilling to me when I can comfort someone who is very distressed. | | | | |
| 7 | I believe that donating goods or money works best when it is tax-deductible. | | | | |
| 8 | I think that one of the best things about helping others is that it makes me look good. | | | | |
| 9 | I believe I should receive more recognition for the time and energy I spend on charity work. | | | | |
| 10 | One of the best things about doing charity work is that it looks good on my resume. | | | | |
| 11 | I tend to help people who are in a real crisis or need. | | | | |
| 12 | It is easy for me to help others when they are in a dire situation. | | | | |
| 13 | I tend to help people who hurt themselves badly. | | | | |
| 14 | I never hesitate to help others when they ask for it. | | | | |
| 15 | When people ask me to help them, I don't hesitate. | | | | |
| 16 | I tend to help needy others most when they do not know who helped them. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 17 | I tend to help others particularly when they are emotionally distressed. | | | | |
| 18 | Most of the time, I help others when they do not know who helped them. | | | | |
| 19 | I think that helping others without them knowing is the best type of situation. | | | | |
| 20 | I prefer to donate money anonymously. | | | | |

```
CORRELATIONS
  /VARIABLES=Cognitive_Styles Academic_Achievement
  /PRINT=TWOTAIL NOSIG
  /STATISTICS DESCRIPTIVES XPROD

  /MISSING=PAIRWISE.
```

# Correlations

[DataSet1] E:\Ph. D Internal Defense\Data Set-HD.sav

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Cognitive_Styles | 44.9868 | 18.51409 | 378 |
| Academic_Achievement | 50.8667 | 19.26592 | 378 |

**Correlations**

| | | Cognitive_Styles | Academic_Achievement |
|---|---|---|---|
| Cognitive_Styles | Pearson Correlation | 1 | .614** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 129224.934 | 82521.333 |
| | Covariance | 342.772 | 218.889 |
| | N | 378 | 378 |
| Academic_Achievement | Pearson Correlation | .614** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 82521.333 | 139933.280 |
| | Covariance | 218.889 | 371.176 |
| | N | 378 | 378 |

**Correlations**

| | | Cognitive_Styles | Academic_Achievement |
|---|---|---|---|
| Cognitive_Styles | Pearson Correlation | 1 | .614** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 129224.934 | 82521.333 |
| | Covariance | 342.772 | 218.889 |
| | N | 378 | 378 |
| Academic_Achievement | Pearson Correlation | .614** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 82521.333 | 139933.280 |
| | Covariance | 218.889 | 371.176 |
| | N | 378 | 378 |

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=Moral_Reasoning Academic_Achievement
  /PRINT=TWOTAIL NOSIG
  /STATISTICS DESCRIPTIVES XPROD

  /MISSING=PAIRWISE.
```

# Correlations

[DataSet1] E:\Ph. D Internal Defense\Data Set-HD.sav

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Moral_Reasoning | 46.3016 | 18.20496 | 378 |
| Academic_Achievement | 50.8667 | 19.26592 | 378 |

**Correlations**

| | | Moral_Reasoning | Academic_Achievement |
|---|---|---|---|
| Moral_Reasoning | Pearson Correlation | 1 | .687** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 124945.619 | 90839.600 |
| | Covariance | 331.421 | 240.954 |
| | N | 378 | 378 |
| Academic_Achievement | Pearson Correlation | .687** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 90839.600 | 139933.280 |
| | Covariance | 240.954 | 371.176 |
| | N | 378 | 378 |

**. Correlation is significant at the 0.01 level (2-tailed).

```
CORRELATIONS
  /VARIABLES=Prosocial_Baheviou Academic_Achievement
  /PRINT=TWOTAIL NOSIG
  /STATISTICS DESCRIPTIVES XPROD

  /MISSING=PAIRWISE.
```

# Correlations

[DataSet1] E:\Ph. D Internal Defense\Data Set-HD.sav

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Prosocial_Baheviou | 43.2249 | 19.10809 | 378 |
| Academic_Achievement | 50.8667 | 19.26592 | 378 |

**Correlations**

| | | Prosocial_Baheviou | Academic_Achievement |
|---|---|---|---|
| Prosocial_Baheviou | Pearson Correlation | 1 | .538** |
| | Sig. (2-tailed) | | .000 |
| | Sum of Squares and Cross-products | 137649.886 | 74719.533 |
| | Covariance | 365.119 | 198.195 |
| | N | 378 | 378 |
| Academic_Achievement | Pearson Correlation | .538** | 1 |
| | Sig. (2-tailed) | .000 | |
| | Sum of Squares and Cross-products | 74719.533 | 139933.280 |
| | Covariance | 198.195 | 371.176 |
| | N | 378 | 378 |

**. Correlation is significant at the 0.01 level (2-tailed).

# Regression

**Descriptive Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Academic_Achievement | 50.8667 | 19.26592 | 378 |
| Cognitive_Styles | 44.9868 | 18.51409 | 378 |
| Moral_Reasoning | 46.3016 | 18.20496 | 378 |
| Prosocial_Baheviou | 43.2249 | 19.10809 | 378 |

**Correlations**

| | | Academic_Achievement | Cognitive_Styles | Moral_Reasoning | Prosocial_Baheviour |
|---|---|---|---|---|---|
| Pearson Correlation | Academic_Achievemen | 1.000 | .614 | .687 | .538 |
| | Cognitive_Styles | .614 | 1.000 | .715 | .590 |
| | Moral_Reasoning | .687 | .715 | 1.000 | .613 |
| | Prosocial_Baheviour | .538 | .590 | .613 | 1.000 |

| | | | | | |
|---|---|---|---|---|---|
| Sig. (1-tailed) | Academic_Achievemen | . | .000 | .000 | .000 |
| | Cognitive_Styles | .000 | . | .000 | .000 |
| | Moral_Reasoning | .000 | .000 | . | .000 |
| | Prosocial_Baheviour | .000 | .000 | .000 | . |
| N | Academic_Achievemen | 378 | 378 | 378 | 378 |
| | Cognitive_Styles | 378 | 378 | 378 | 378 |
| | Moral_Reasoning | 378 | 378 | 378 | 378 |
| | Prosocial_Baheviour | 378 | 378 | 378 | 378 |

**Variables Entered/Removed[b]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | Prosocial_Baheviou, Cognitive_Styles, Moral_Reasoning[a] | . | Enter |

a. All requested variables entered.

b. Dependent Variable: Academic_Achievement

**Model Summary**

| | | | | | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .717[a] | .514 | .510 | 13.49121 | .514 | 131.604 | 3 | 374 | .000 |

a. Predictors: (Constant), Prosocial_Baheviou, Cognitive_Styles, Moral_Reasoning

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 71860.545 | 3 | 23953.515 | 131.604 | .000[a] |
| | Residual | 68072.735 | 374 | 182.013 | | |
| | Total | 139933.280 | 377 | | | |

a. Predictors: (Constant), Prosocial_Baheviou, Cognitive_Styles, Moral_Reasoning

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 71860.545 | 3 | 23953.515 | 131.604 | .000[a] |
| | Residual | 68072.735 | 374 | 182.013 | | |
| | Total | 139933.280 | 377 | | | |

a. Predictors: (Constant), Prosocial_Baheviou, Cognitive_Styles, Moral_Reasoning

b. Dependent Variable: Academic_Achievement

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Correlations | | |
|---|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Zero-order | Partial | Part |
| 1 | (Constant) | 12.895 | 2.048 | | 6.297 | .000 | | | |
| | Cognitive_Styles | .217 | .056 | .208 | 3.885 | .000 | .614 | .197 | .140 |
| | Moral_Reasoning | .481 | .058 | .454 | 8.283 | .000 | .687 | .394 | .299 |
| | Prosocial_Baheviou | .138 | .048 | .137 | 2.782 | .004 | .538 | .147 | .104 |

a. Dependent Variable: Academic_Achievement

Appendix iv

**DATA COLLECTED FROM SENIOR SECONDARY SCHOOLS IN JIGAWA STATE**

| S/N | Cognitive Style | Moral Reasoning | Prosocial Behaviour | Academic Achieve |
|---|---|---|---|---|
| **1** | 85.0 | 70.0 | 80.0 | 85.0 |
| **2** | 90.0 | 62.0 | 50.0 | 85.0 |
| **3** | 70.0 | 64.0 | 60.0 | 80.0 |
| **4** | 80.0 | 60.0 | 40.0 | 87.0 |
| **5** | 95.0 | 85.0 | 55.0 | 78.0 |
| **6** | 85.0 | 90.0 | 30.0 | 78.0 |
| **7** | 65.0 | 70.0 | 30.0 | 67.0 |
| **8** | 80.0 | 75.0 | 85.0 | 65.0 |
| **9** | 85.0 | 30.0 | 40.0 | 74.0 |
| **10** | 95.0 | 65.0 | 85.0 | 68.0 |
| **11** | 75.0 | 65.0 | 90.0 | 70.0 |
| **12** | 65.0 | 55.0 | 50.0 | 60.0 |
| **13** | 65.0 | 85.0 | 60.0 | 90.0 |
| **14** | 65.0 | 70.0 | 30.0 | 67.0 |
| **15** | 55.0 | 75.0 | 50.0 | 68.0 |
| **16** | 65.0 | 70.0 | 50.0 | 80.0 |
| **17** | 80.0 | 65.0 | 80.0 | 87.0 |
| **18** | 70.0 | 75.0 | 85.0 | 78.0 |
| **19** | 65.0 | 75.0 | 95.0 | 78.0 |
| **20** | 80.0 | 65.0 | 75.0 | 67.0 |
| **21** | 65.0 | 70.0 | 65.0 | 65.0 |
| **22** | 75.0 | 60.0 | 65.0 | 74.0 |
| **23** | 60.0 | 55.0 | 65.0 | 68.0 |
| **24** | 60.0 | 75.0 | 55.0 | 70.0 |
| **25** | 75.0 | 55.0 | 65.0 | 60.0 |
| **26** | 80.0 | 85.0 | 80.0 | 90.0 |

| | | | | |
|---|---|---|---|---|
| **27** | 50.0 | 65.0 | 50.0 | 80.0 |
| **28** | 80.0 | 60.0 | 55.0 | 87.0 |
| **29** | 85.0 | 75.0 | 50.0 | 78.0 |
| **30** | 95.0 | 65.0 | 50.0 | 78.0 |
| **31** | 75.0 | 65.0 | 55.0 | 67.0 |
| **32** | 65.0 | 80.0 | 55.0 | 65.0 |
| **33** | 70.0 | 85.0 | 60.0 | 76.0 |
| **34** | 65.0 | 65.0 | 75.0 | 68.0 |
| **35** | 55.0 | 75.0 | 50.0 | 67.0 |
| **36** | 65.0 | 65.0 | 50.0 | 60.0 |
| **37** | 80.0 | 75.0 | 80.0 | 90.0 |
| **38** | 60.0 | 65.0 | 85.0 | 67.0 |
| **39** | 65.0 | 70.0 | 95.0 | 78.0 |
| **40** | 65.0 | 65.0 | 75.0 | 67.0 |
| **41** | 60.0 | 60.0 | 65.0 | 65.0 |
| **42** | 55.0 | 65.0 | 65.0 | 76.0 |
| **43** | 55.0 | 55.0 | 65.0 | 68.0 |
| **44** | 50.0 | 50.0 | 55.0 | 67.0 |
| **45** | 60.0 | 65.0 | 65.0 | 60.0 |
| **46** | 65.0 | 76.0 | 80.0 | 90.0 |
| **47** | 50.0 | 70.0 | 50.0 | 67.0 |
| **48** | 55.0 | 50.0 | 55.0 | 68.0 |
| **49** | 55.0 | 60.0 | 50.0 | 46.0 |
| **50** | 55.0 | 65.0 | 50.0 | 46.0 |
| **51** | 50.0 | 50.0 | 55.0 | 46.0 |
| **52** | 50.0 | 50.0 | 55.0 | 46.0 |
| **53** | 65.0 | 50.0 | 50.0 | 46.0 |
| **54** | 50.0 | 50.0 | 60.0 | 46.0 |

| | | | | |
|---|---|---|---|---|
| **55** | 65.0 | 55.0 | 65.0 | 46.0 |
| **56** | 55.0 | 75.0 | 50.0 | 46.0 |
| **57** | 65.0 | 65.0 | 50.0 | 40.0 |
| **58** | 55.0 | 65.0 | 80.0 | 40.0 |
| **59** | 50.0 | 65.0 | 85.0 | 40.0 |
| **60** | 55.0 | 55.0 | 95.0 | 47.0 |
| **61** | 50.0 | 65.0 | 75.0 | 63.0 |
| **62** | 50.0 | 60.0 | 65.0 | 42.0 |
| **63** | 55.0 | 50.0 | 65.0 | 42.0 |
| **64** | 55.0 | 55.0 | 65.0 | 45.0 |
| **65** | 50.0 | 50.0 | 55.0 | 66.0 |
| **66** | 60.0 | 50.0 | 65.0 | 42.0 |
| **67** | 60.0 | 55.0 | 80.0 | 45.0 |
| **68** | 50.0 | 55.0 | 50.0 | 45.0 |
| **69** | 50.0 | 50.0 | 55.0 | 45.0 |
| **70** | 70.0 | 60.0 | 50.0 | 30.0 |
| **71** | 85.0 | 70.0 | 60.0 | 70.0 |
| **72** | 65.0 | 50.0 | 55.0 | 70.0 |
| **73** | 75.0 | 50.0 | 55.0 | 30.0 |
| **74** | 65.0 | 80.0 | 50.0 | 60.0 |
| **75** | 65.0 | 85.0 | 60.0 | 60.0 |
| **76** | 65.0 | 95.0 | 30.0 | 30.0 |
| **77** | 60.0 | 75.0 | 50.0 | 30.0 |
| **78** | 65.0 | 65.0 | 50.0 | 30.0 |
| **79** | 75.0 | 65.0 | 80.0 | 85.0 |
| **80** | 65.0 | 65.0 | 85.0 | 80.0 |
| **81** | 55.0 | 55.0 | 95.0 | 87.0 |
| **82** | 70.0 | 65.0 | 75.0 | 78.0 |

| | | | | |
|---|---|---|---|---|
| **83** | 50.0 | 80.0 | 65.0 | 78.0 |
| **84** | 55.0 | 50.0 | 65.0 | 67.0 |
| **85** | 55.0 | 55.0 | 65.0 | 65.0 |
| **86** | 60.0 | 80.0 | 55.0 | 74.0 |
| **87** | 75.0 | 50.0 | 65.0 | 68.0 |
| **88** | 50.0 | 75.0 | 80.0 | 70.0 |
| **89** | 50.0 | 55.0 | 50.0 | 60.0 |
| **90** | 80.0 | 60.0 | 55.0 | 90.0 |
| **91** | 85.0 | 75.0 | 50.0 | 67.0 |
| **92** | 95.0 | 70.0 | 60.0 | 68.0 |
| **93** | 75.0 | 50.0 | 55.0 | 80.0 |
| **94** | 65.0 | 80.0 | 55.0 | 87.0 |
| **95** | 65.0 | 85.0 | 60.0 | 78.0 |
| **96** | 65.0 | 95.0 | 75.0 | 78.0 |
| **97** | 55.0 | 75.0 | 50.0 | 67.0 |
| **98** | 65.0 | 65.0 | 50.0 | 65.0 |
| **99** | 80.0 | 65.0 | 80.0 | 74.0 |
| **100** | 50.0 | 65.0 | 85.0 | 68.0 |
| **101** | 55.0 | 55.0 | 95.0 | 70.0 |
| **102** | 50.0 | 65.0 | 75.0 | 60.0 |
| **103** | 50.0 | 80.0 | 65.0 | 90.0 |
| **104** | 55.0 | 50.0 | 65.0 | 80.0 |
| **105** | 55.0 | 55.0 | 65.0 | 87.0 |
| **106** | 50.0 | 70.0 | 55.0 | 78.0 |
| **107** | 60.0 | 50.0 | 65.0 | 78.0 |
| **108** | 65.0 | 55.0 | 80.0 | 67.0 |
| **109** | 50.0 | 55.0 | 50.0 | 65.0 |
| **110** | 50.0 | 50.0 | 55.0 | 76.0 |

| | | | | |
|---|---|---|---|---|
| **111** | 80.0 | 60.0 | 50.0 | 68.0 |
| **112** | 85.0 | 65.0 | 50.0 | 67.0 |
| **113** | 95.0 | 50.0 | 55.0 | 60.0 |
| **114** | 75.0 | 50.0 | 55.0 | 90.0 |
| **115** | 65.0 | 80.0 | 50.0 | 67.0 |
| **116** | 65.0 | 85.0 | 60.0 | 78.0 |
| **117** | 65.0 | 95.0 | 65.0 | 67.0 |
| **118** | 55.0 | 75.0 | 50.0 | 65.0 |
| **119** | 65.0 | 65.0 | 50.0 | 76.0 |
| **120** | 80.0 | 65.0 | 80.0 | 68.0 |
| **121** | 50.0 | 65.0 | 85.0 | 67.0 |
| **122** | 55.0 | 55.0 | 95.0 | 60.0 |
| **123** | 50.0 | 65.0 | 75.0 | 90.0 |
| **124** | 50.0 | 80.0 | 65.0 | 67.0 |
| **125** | 55.0 | 50.0 | 65.0 | 68.0 |
| **126** | 55.0 | 55.0 | 65.0 | 46.0 |
| **127** | 60.0 | 50.0 | 55.0 | 46.0 |
| **128** | 30.0 | 50.0 | 65.0 | 46.0 |
| **129** | 50.0 | 55.0 | 80.0 | 46.0 |
| **130** | 90.0 | 55.0 | 50.0 | 46.0 |
| **131** | 80.0 | 60.0 | 55.0 | 46.0 |
| **132** | 85.0 | 30.0 | 50.0 | 46.0 |
| **133** | 95.0 | 50.0 | 50.0 | 46.0 |
| **134** | 75.0 | 90.0 | 55.0 | 40.0 |
| **135** | 65.0 | 80.0 | 55.0 | 60.0 |
| **136** | 35.0 | 85.0 | 60.0 | 90.0 |
| **137** | 30.0 | 95.0 | 30.0 | 80.0 |
| **138** | 40.0 | 75.0 | 50.0 | 87.0 |

| | | | | |
|---|---|---|---|---|
| **139** | 40.0 | 65.0 | 90.0 | 78.0 |
| **140** | 20.0 | 55.0 | 80.0 | 78.0 |
| **141** | 35.0 | 45.0 | 85.0 | 67.0 |
| **142** | 30.0 | 55.0 | 95.0 | 65.0 |
| **143** | 30.0 | 70.0 | 75.0 | 76.0 |
| **144** | 35.0 | 20.0 | 65.0 | 68.0 |
| **145** | 35.0 | 35.0 | 35.0 | 67.0 |
| **146** | 30.0 | 30.0 | 30.0 | 60.0 |
| **147** | 35.0 | 30.0 | 40.0 | 90.0 |
| **148** | 35.0 | 35.0 | 40.0 | 67.0 |
| **149** | 30.0 | 35.0 | 20.0 | 78.0 |
| **150** | 40.0 | 30.0 | 35.0 | 67.0 |
| **151** | 40.0 | 55.0 | 30.0 | 65.0 |
| **152** | 20.0 | 35.0 | 30.0 | 76.0 |
| **153** | 35.0 | 45.0 | 35.0 | 68.0 |
| **154** | 30.0 | 55.0 | 35.0 | 67.0 |
| **155** | 30.0 | 55.0 | 30.0 | 60.0 |
| **156** | 35.0 | 85.0 | 10.0 | 90.0 |
| **157** | 35.0 | 45.0 | 35.0 | 67.0 |
| **158** | 30.0 | 55.0 | 30.0 | 68.0 |
| **159** | 40.0 | 30.0 | 40.0 | 46.0 |
| **160** | 35.0 | 35.0 | 40.0 | 46.0 |
| **161** | 30.0 | 35.0 | 20.0 | 46.0 |
| **162** | 40.0 | 30.0 | 35.0 | 46.0 |
| **163** | 40.0 | 35.0 | 30.0 | 46.0 |
| **164** | 20.0 | 35.0 | 30.0 | 46.0 |
| **165** | 35.0 | 30.0 | 35.0 | 46.0 |
| **166** | 30.0 | 40.0 | 35.0 | 46.0 |

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|---|---|---|---|---|
| **167** | 30.0 | 40.0 | 30.0 | 40.0 |
| **168** | 35.0 | 20.0 | 10.0 | 40.0 |
| **169** | 35.0 | 35.0 | 35.0 | 40.0 |
| **170** | 30.0 | 30.0 | 30.0 | 47.0 |
| **171** | 35.0 | 30.0 | 40.0 | 30.0 |
| **172** | 35.0 | 35.0 | 40.0 | 42.0 |
| **173** | 30.0 | 35.0 | 20.0 | 42.0 |
| **174** | 40.0 | 30.0 | 35.0 | 23.0 |
| **175** | 40.0 | 35.0 | 30.0 | 34.0 |
| **176** | 20.0 | 35.0 | 30.0 | 42.0 |
| **177** | 35.0 | 30.0 | 35.0 | 45.0 |
| **178** | 30.0 | 40.0 | 35.0 | 45.0 |
| **179** | 30.0 | 40.0 | 30.0 | 45.0 |
| **180** | 35.0 | 20.0 | 10.0 | 30.0 |
| **181** | 35.0 | 35.0 | 35.0 | 30.0 |
| **182** | 30.0 | 30.0 | 30.0 | 30.0 |
| **183** | 35.0 | 30.0 | 40.0 | 30.0 |
| **184** | 35.0 | 35.0 | 40.0 | 30.0 |
| **185** | 30.0 | 35.0 | 20.0 | 30.0 |
| **186** | 40.0 | 30.0 | 35.0 | 30.0 |
| **187** | 40.0 | 10.0 | 30.0 | 12.0 |
| **188** | 20.0 | 35.0 | 30.0 | 12.0 |
| **189** | 35.0 | 30.0 | 35.0 | 12.0 |
| **190** | 30.0 | 40.0 | 35.0 | 20.0 |
| **191** | 30.0 | 40.0 | 30.0 | 28.0 |
| **192** | 35.0 | 20.0 | 10.0 | 50.0 |
| **193** | 35.0 | 35.0 | 35.0 | 30.0 |
| **194** | 30.0 | 30.0 | 30.0 | 34.0 |

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|---|---|---|---|---|
| **195** | 35.0 | 30.0 | 40.0 | 42.0 |
| **196** | 35.0 | 35.0 | 40.0 | 24.0 |
| **197** | 30.0 | 35.0 | 20.0 | 64.0 |
| **198** | 40.0 | 30.0 | 35.0 | 34.0 |
| **199** | 40.0 | 10.0 | 30.0 | 54.0 |
| **200** | 20.0 | 35.0 | 30.0 | 12.0 |
| **201** | 35.0 | 30.0 | 35.0 | 36.0 |
| **202** | 30.0 | 40.0 | 35.0 | 36.0 |
| **203** | 30.0 | 40.0 | 30.0 | 36.0 |
| **204** | 35.0 | 30.0 | 10.0 | 36.0 |
| **205** | 35.0 | 35.0 | 35.0 | 36.0 |
| **206** | 30.0 | 30.0 | 30.0 | 34.0 |
| **207** | 35.0 | 30.0 | 40.0 | 34.0 |
| **208** | 55.0 | 35.0 | 40.0 | 34.0 |
| **209** | 35.0 | 35.0 | 20.0 | 34.0 |
| **210** | 30.0 | 30.0 | 35.0 | 65.0 |
| **211** | 40.0 | 35.0 | 30.0 | 60.0 |
| **212** | 40.0 | 55.0 | 30.0 | 64.0 |
| **213** | 20.0 | 35.0 | 35.0 | 45.0 |
| **214** | 35.0 | 30.0 | 35.0 | 66.0 |
| **215** | 30.0 | 40.0 | 30.0 | 60.0 |
| **216** | 30.0 | 40.0 | 10.0 | 64.0 |
| **217** | 35.0 | 20.0 | 55.0 | 54.0 |
| **218** | 35.0 | 35.0 | 35.0 | 66.0 |
| **219** | 30.0 | 30.0 | 30.0 | 60.0 |
| **220** | 40.0 | 30.0 | 40.0 | 60.0 |
| **221** | 35.0 | 35.0 | 40.0 | 60.0 |
| **222** | 30.0 | 35.0 | 20.0 | 54.0 |

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|---|---|---|---|---|
| **223** | 40.0 | 30.0 | 35.0 | 54.0 |
| **224** | 40.0 | 45.0 | 30.0 | 44.0 |
| **225** | 35.0 | 35.0 | 30.0 | 54.0 |
| **226** | 35.0 | 30.0 | 35.0 | 56.0 |
| **227** | 30.0 | 40.0 | 35.0 | 56.0 |
| **228** | 30.0 | 40.0 | 30.0 | 56.0 |
| **229** | 35.0 | 40.0 | 10.0 | 56.0 |
| **230** | 35.0 | 35.0 | 35.0 | 56.0 |
| **231** | 30.0 | 40.0 | 30.0 | 56.0 |
| **232** | 35.0 | 45.0 | 40.0 | 56.0 |
| **233** | 35.0 | 35.0 | 40.0 | 56.0 |
| **234** | 30.0 | 40.0 | 20.0 | 50.0 |
| **235** | 40.0 | 55.0 | 35.0 | 50.0 |
| **236** | 40.0 | 45.0 | 30.0 | 50.0 |
| **237** | 20.0 | 35.0 | 30.0 | 50.0 |
| **238** | 35.0 | 45.0 | 35.0 | 50.0 |
| **239** | 30.0 | 40.0 | 35.0 | 45.0 |
| **240** | 30.0 | 40.0 | 30.0 | 50.0 |
| **241** | 35.0 | 20.0 | 10.0 | 50.0 |
| **242** | 35.0 | 35.0 | 35.0 | 50.0 |
| **243** | 30.0 | 30.0 | 30.0 | 50.0 |
| **244** | 35.0 | 30.0 | 40.0 | 50.0 |
| **245** | 30.0 | 35.0 | 40.0 | 45.0 |
| **246** | 40.0 | 35.0 | 20.0 | 48.0 |
| **247** | 40.0 | 30.0 | 35.0 | 48.0 |
| **248** | 20.0 | 35.0 | 30.0 | 48.0 |
| **249** | 35.0 | 30.0 | 30.0 | 46.0 |
| **250** | 30.0 | 40.0 | 35.0 | 46.0 |

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|---|---|---|---|---|
| **251** | 30.0 | 40.0 | 35.0 | 46.0 |
| **252** | 35.0 | 20.0 | 30.0 | 46.0 |
| **253** | 35.0 | 35.0 | 35.0 | 40.0 |
| **254** | 30.0 | 30.0 | 30.0 | 40.0 |
| **255** | 35.0 | 30.0 | 40.0 | 40.0 |
| **256** | 35.0 | 35.0 | 40.0 | 46.0 |
| **257** | 30.0 | 35.0 | 20.0 | 46.0 |
| **258** | 40.0 | 45.0 | 35.0 | 46.0 |
| **259** | 40.0 | 45.0 | 30.0 | 46.0 |
| **260** | 20.0 | 25.0 | 30.0 | 30.0 |
| **261** | 35.0 | 30.0 | 35.0 | 46.0 |
| **262** | 30.0 | 40.0 | 35.0 | 46.0 |
| **263** | 30.0 | 40.0 | 30.0 | 46.0 |
| **264** | 35.0 | 35.0 | 10.0 | 46.0 |
| **265** | 35.0 | 35.0 | 35.0 | 40.0 |
| **266** | 30.0 | 30.0 | 30.0 | 40.0 |
| **267** | 10.0 | 30.0 | 40.0 | 40.0 |
| **268** | 35.0 | 35.0 | 40.0 | 47.0 |
| **269** | 30.0 | 35.0 | 20.0 | 30.0 |
| **270** | 40.0 | 30.0 | 35.0 | 42.0 |
| **271** | 40.0 | 45.0 | 30.0 | 42.0 |
| **272** | 20.0 | 35.0 | 30.0 | 23.0 |
| **273** | 35.0 | 30.0 | 35.0 | 34.0 |
| **274** | 30.0 | 40.0 | 35.0 | 42.0 |
| **275** | 35.0 | 40.0 | 30.0 | 45.0 |
| **276** | 35.0 | 20.0 | 10.0 | 45.0 |
| **277** | 35.0 | 35.0 | 35.0 | 45.0 |
| **278** | 35.0 | 30.0 | 30.0 | 30.0 |

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|---|---|---|---|---|
| **279** | 30.0 | 30.0 | 40.0 | 30.0 |
| **280** | 40.0 | 35.0 | 40.0 | 30.0 |
| **281** | 40.0 | 35.0 | 20.0 | 30.0 |
| **282** | 35.0 | 35.0 | 35.0 | 30.0 |
| **283** | 35.0 | 30.0 | 30.0 | 30.0 |
| **284** | 30.0 | 40.0 | 30.0 | 30.0 |
| **285** | 30.0 | 40.0 | 35.0 | 30.0 |
| **286** | 35.0 | 20.0 | 35.0 | 30.0 |
| **287** | 35.0 | 35.0 | 35.0 | 30.0 |
| **288** | 30.0 | 30.0 | 30.0 | 30.0 |
| **289** | 25.0 | 30.0 | 40.0 | 30.0 |
| **290** | 35.0 | 35.0 | 40.0 | 30.0 |
| **291** | 30.0 | 35.0 | 20.0 | 30.0 |
| **292** | 40.0 | 30.0 | 35.0 | 30.0 |
| **293** | 40.0 | 35.0 | 30.0 | 30.0 |
| **294** | 20.0 | 30.0 | 30.0 | 30.0 |
| **295** | 35.0 | 35.0 | 35.0 | 30.0 |
| **296** | 30.0 | 40.0 | 35.0 | 35.0 |
| **297** | 30.0 | 40.0 | 30.0 | 30.0 |
| **298** | 35.0 | 35.0 | 10.0 | 28.0 |
| **299** | 35.0 | 35.0 | 35.0 | 30.0 |
| **300** | 30.0 | 30.0 | 30.0 | 32.0 |
| **301** | 40.0 | 30.0 | 40.0 | 32.0 |
| **302** | 40.0 | 35.0 | 40.0 | 32.0 |
| **303** | 20.0 | 35.0 | 20.0 | 32.0 |
| **304** | 35.0 | 30.0 | 35.0 | 32.0 |
| **305** | 30.0 | 40.0 | 30.0 | 31.0 |
| **306** | 30.0 | 40.0 | 30.0 | 30.0 |

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|---|---|---|---|---|
| **307** | 35.0 | 20.0 | 35.0 | 30.0 |
| **308** | 35.0 | 35.0 | 35.0 | 30.0 |
| **309** | 30.0 | 30.0 | 30.0 | 30.0 |
| **310** | 20.0 | 30.0 | 40.0 | 30.0 |
| **311** | 35.0 | 35.0 | 40.0 | 20.0 |
| **312** | 30.0 | 35.0 | 20.0 | 28.0 |
| **313** | 30.0 | 30.0 | 35.0 | 28.0 |
| **314** | 35.0 | 35.0 | 30.0 | 20.0 |
| **315** | 20.0 | 35.0 | 30.0 | 27.0 |
| **316** | 35.0 | 30.0 | 35.0 | 27.0 |
| **317** | 25.0 | 40.0 | 35.0 | 27.0 |
| **318** | 30.0 | 40.0 | 30.0 | 27.0 |
| **319** | 35.0 | 20.0 | 10.0 | 27.0 |
| **320** | 35.0 | 35.0 | 35.0 | 27.0 |
| **321** | 30.0 | 30.0 | 30.0 | 27.0 |
| **322** | 70.0 | 50.0 | 40.0 | 60.0 |
| **323** | 90.0 | 65.0 | 40.0 | 90.0 |
| **324** | 80.0 | 75.0 | 20.0 | 80.0 |
| **325** | 80.0 | 75.0 | 35.0 | 87.0 |
| **326** | 75.0 | 75.0 | 30.0 | 78.0 |
| **327** | 70.0 | 75.0 | 30.0 | 78.0 |
| **328** | 60.0 | 65.0 | 35.0 | 67.0 |
| **329** | 30.0 | 35.0 | 35.0 | 35.0 |
| **330** | 45.0 | 40.0 | 30.0 | 40.0 |
| **331** | 60.0 | 65.0 | 10.0 | 68.0 |
| **332** | 30.0 | 35.0 | 35.0 | 40.0 |
| **333** | 40.0 | 30.0 | 30.0 | 45.4 |
| **334** | 40.0 | 30.0 | 40.0 | 45.2 |

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|---|---|---|---|---|
| **335** | 30.0 | 35.0 | 40.0 | 33.0 |
| **336** | 35.0 | 30.0 | 20.0 | 53.0 |
| **337** | 30.0 | 40.0 | 35.0 | 35.0 |
| **338** | 30.0 | 40.0 | 30.0 | 35.0 |
| **339** | 35.0 | 20.0 | 30.0 | 40.0 |
| **340** | 35.0 | 35.0 | 35.0 | 35.0 |
| **341** | 30.0 | 30.0 | 30.0 | 35.0 |
| **342** | 30.0 | 30.0 | 24.0 | 30.0 |
| **343** | 35.0 | 35.0 | 40.0 | 35.0 |
| **344** | 30.0 | 35.0 | 35.0 | 35.0 |
| **345** | 40.0 | 40.0 | 35.0 | 45.0 |
| **346** | 40.0 | 45.0 | 30.0 | 35.0 |
| **347** | 45.0 | 35.0 | 30.0 | 46.0 |
| **348** | 35.0 | 30.0 | 35.0 | 40.0 |
| **349** | 30.0 | 40.0 | 35.0 | 35.0 |
| **350** | 30.0 | 40.0 | 30.0 | 46.0 |
| **351** | 35.0 | 35.0 | 10.0 | 40.0 |
| **352** | 35.0 | 35.0 | 35.0 | 30.0 |
| **353** | 30.0 | 30.0 | 30.0 | 45.0 |
| **354** | 30.0 | 30.0 | 35.0 | 40.0 |
| **355** | 35.0 | 35.0 | 40.0 | 40.0 |
| **356** | 30.0 | 35.0 | 20.0 | 30.0 |
| **357** | 40.0 | 30.0 | 35.0 | 35.0 |
| **358** | 40.0 | 45.0 | 30.0 | 35.0 |
| **359** | 35.0 | 35.0 | 30.0 | 42.0 |
| **360** | 35.0 | 30.0 | 35.0 | 35.0 |
| **361** | 35.0 | 40.0 | 35.0 | 40.0 |
| **362** | 35.0 | 40.0 | 30.0 | 34.0 |

| | | | | |
|---|---|---|---|---|
| **363** | 35.0 | 35.0 | 10.0 | 42.0 |
| **364** | 35.0 | 35.0 | 35.0 | 30.0 |
| **365** | 30.0 | 30.0 | 30.0 | 35.0 |
| **366** | 35.0 | 30.0 | 40.0 | 35.0 |
| **367** | 20.0 | 35.0 | 40.0 | 25.0 |
| **368** | 20.0 | 35.0 | 20.0 | 20.0 |
| **369** | 25.0 | 30.0 | 35.0 | 25.0 |
| **370** | 20.0 | 10.0 | 30.0 | 20.0 |
| **371** | 20.0 | 20.0 | 30.0 | 20.0 |
| **372** | 25.0 | 20.0 | 35.0 | 25.0 |
| **373** | 25.0 | 20.0 | 35.0 | 25.0 |
| **374** | 20.0 | 20.0 | 30.0 | 20.0 |
| **375** | 20.0 | 20.0 | 10.0 | 20.0 |
| **376** | 20.0 | 20.0 | 20.0 | 20.0 |
| **377** | 20.0 | 20.0 | 20.0 | 20.0 |
| **378** | 20.0 | 20.0 | 20.0 | 20.0 |

| Population Size | Confidence = 95% Margin of Error | | | | Confidence = 99% Margin Error | | | |
|---|---|---|---|---|---|---|---|---|
| | **5.0%** | **3.5%** | **2.5%** | **1.0%** | **5.0%** | **3.5%** | **2.5%** | **1.0%** |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 20 | 19 | 20 | 20 | 20 | 19 | 20 | 20 | 20 |
| 30 | 28 | 29 | 29 | 30 | 29 | 29 | 30 | 30 |
| 50 | 44 | 47 | 48 | 50 | 47 | 48 | 49 | 50 |
| 75 | 63 | 69 | 72 | 74 | 67 | 71 | 73 | 75 |
| 100 | 80 | 89 | 94 | 99 | 87 | 93 | 96 | 99 |
| 150 | 108 | 126 | 137 | 148 | 122 | 135 | 142 | 149 |
| 200 | 132 | 160 | 177 | 196 | 154 | 174 | 186 | 198 |
| 250 | 152 | 190 | 215 | 244 | 182 | 211 | 229 | 246 |
| 300 | 169 | 217 | 251 | 291 | 207 | 246 | 270 | 295 |
| 400 | 196 | 265 | 318 | 384 | 250 | 309 | 348 | 391 |
| 500 | 217 | 306 | 377 | 475 | 285 | 365 | 421 | 485 |
| 600 | 234 | 340 | 432 | 565 | 315 | 416 | 490 | 579 |
| 700 | 248 | 370 | 481 | 653 | 341 | 462 | 554 | 672 |
| 800 | 260 | 396 | 526 | 739 | 363 | 503 | 615 | 763 |
| 1,000 | 278 | 440 | 606 | 906 | 399 | 575 | 727 | 943 |
| 1,200 | 291 | 474 | 674 | 1067 | 427 | 636 | 827 | 1119 |
| 1,500 | 306 | 515 | 759 | 1297 | 460 | 712 | 959 | 1376 |
| 2,000 | 322 | 563 | 869 | 1655 | 498 | 808 | 1141 | 1785 |
| 2,500 | 333 | 591 | 952 | 1984 | 524 | 879 | 1288 | 2173 |
| 3,500 | 346 | 641 | 1068 | 2565 | 558 | 977 | 1510 | 2890 |
| 5,000 | 357 | 678 | 1176 | 3288 | 586 | 1066 | 1734 | 3842 |
| 7,500 | 365 | 710 | 1275 | 9211 | 610 | 1147 | 1960 | 5165 |
| 10,000 | 370 | 727 | 1332 | 9899 | 622 | 1193 | 2098 | 6239 |
| 25,000 | 378 | 760 | 1448 | 6939 | 646 | 1285 | 2399 | 9972 |
| 50,000 | 381 | 772 | 1491 | 8056 | 655 | 1318 | 2520 | 12455 |
| 75,000 | 382 | 776 | 1505 | 8574 | 658 | 1330 | 2563 | 13583 |
| 100,000 | 383 | 778 | 1513 | 8762 | 659 | 1336 | 2585 | 14227 |
| 250,000 | 384 | 782 | 1527 | 9248 | 662 | 1347 | 2626 | 15555 |
| 500,000 | 384 | 783 | 1532 | 9423 | 663 | 1350 | 2640 | 16055 |
| 1,000,000 | 384 | 783 | 1534 | 9512 | 663 | 1352 | 2647 | 16317 |
| 2,500,000 | 384 | 784 | 1536 | 9567 | 663 | 1353 | 2651 | 16478 |
| 10,000,000 | 384 | 784 | 1536 | 9594 | 663 | 1354 | 2653 | 16560 |
| 100,000,000 | 384 | 784 | 1537 | 9603 | 663 | 1354 | 2654 | 16584 |
| 300,000,000 | 384 | 784 | 1537 | 9603 | 663 | 1354 | 2654 | 16586 |