

Academic Achievement Prediction: Role of Interest in Learning and Attitude towards School

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Abstract: *Multiple prediction design was applied to ascertain the magnitude of relationship and prediction that students' interest in learning and attitude to school individually and collectively have on their academic achievement. A stratified random sample of 518 was drawn with the aid of table of random numbers from the 14459 students who enrolled for the 2013 May/June Senior Secondary Certificate Examination (SSCE) in Bayelsa State. Multiple regression statistical technique was used for analysis with SPSS to test tenability of each postulated null hypothesis at 0.05 alpha. Results showed significant correlation and multiple prediction of students' academic achievement with the predictor variables; accounting for 21.60% of the variance in students' academic performance. Thus, improvement of students' interest in learning and attitude to school could contribute in boosting their performance academically.*

Keywords: *Academic achievement, Attitude towards school, Interest in learning, Multiple prediction design; SSCE.*

1. INTRODUCTION

It has become increasingly common to find youths who have written their Senior Secondary Certificate Examination (SSCE), conducted by the West African Examination Council (WAEC) but could neither fit into the tertiary institutions of learning nor the labor market in Nigeria because their academic achievement (performance in the SSCE) was poor, not up to the minimum required five credit passes that include English Language and Mathematics for admission. Such unsatisfactory academic performance might have been occasioned by a combination of several psychological and sociological cum environmental factors. As a way of seeking better understanding of and combating the phenomenon of academic achievement, this investigation is not only centered on ascertaining the actual magnitude of relationship between some psychological factors (students' interest in learning and attitude towards school) and academic achievement, but the extent to which the psychological factors individually and mutually predict students' academic achievement. The researchers suspect that if these psychological correlates happen to overwhelmingly predict students' academic performance, then exploring ways of improving students' attitude to school and interest in learning might help in the amelioration of their academic performance.

Academic achievement of student is the ability of the student to study and remember facts and being able to communicate his knowledge orally or in written form even in an examination condition. Secondary education plays a crucial role in laying the foundation for the further education of students. If a good foundation is laid at the secondary school level, students can

better cope with the challenges of life and profession with great ease. However, different people have explained different factors responsible for the academic achievement of students.

Factors that influence students' academic achievement at the senior secondary school are not conclusively known and could be multivariate in nature. They might include students' attitude towards school, interest in learning, study habit, attribution, self-efficacy, intelligence, and motivation. Udoh (2005) maintained that academic performance of students is phenomenon that has educational, psychological and sociological connotation. Thus, students' academic achievement cannot be completely accounted for by only one or two variables but a number of them. Since students' academic performance depends on a number of variables, performance could be enhanced through identifying and manipulating each of such variables.

Attitude towards schooling denotes a positive or negative predisposition towards schooling and every activity in the school environment, which could be cognitive, emotional, or behavioral (Bernstein, Penner, Clarke-Stewart & Roy, 2006). Fazio and Roskes (1994), said, "attitudes are important to educational psychology because they strongly influence social thought, the way an individual thinks about and social information". It is evident that, when so defined, attitudes cannot be directly observed but must be inferred from overt behavior, both verbal and nonverbal. Most children come to school ready and willing to learn. How school can best foster and strengthen their predisposition and ensure that they leave school with the motivation and capacity to continue learning throughout life has remained a matter of great concern. Without development of the right attitudes, students may not be well prepared to acquire the new knowledge and skills necessary for successful adaptation to changing circumstances and the necessary situation to achieve in their academic pursuit (Kuusinen & Leskinen, 1988). In school, teachers manage much of students' learning. However, learning might be enhanced if students can manage it themselves; moreover, once they leave school, individuals have to manage most of their own learning. To do this, they need to be able to establish goals, to persevere, to monitor their learning progress, to adjust their learning strategies as necessary and to overcome difficulties in learning. Students who leave school with the autonomy to set their own learning goals and with a sense that they can reach those goals tend to be better equipped to learn throughout their lives (Candeias, Rebelo, Olivera & Mendes, 2012).

Beyond students' perception of how well school will prepare them for life, their overall attitude to school and to all the school-related activities could be important. For some students, school is central to their daily life. They view schooling as essential to their long term well-being, and this attitude is reflected in their participation in academic and non-academic pursuits. The students tend to have good relations with school staff and with other students when their attitude to school is positive. However, many youths express negative attitude to school as they do not tend to believe that the school and success in it will have a strong bearing on their future. Such negative feelings and attitudes may result in their becoming disaffected with school (Williams, 2000). They may withdraw from school activities, and in some cases, participate in disruptive behavior and display negative attitudes towards teachers and other students.

Students' attitude to school can be seen as a disposition towards learning, working with others and functioning in a social institution. It is partly for this reason that the Pearson Foundation (2014) with the Quaglia Institute for Student Aspiration identified eight conditions for students to realize academic, social, and personal success; and emphasized that attitude towards school, also referred to as the sense of belonging is the first and most crucial. It emphasizes self worth, engaged learning and sense of purpose. Attitude to school is an important condition for a student's feeling of well-being, social engagement, and competence. Highly positive attitude towards school increases intrinsic motivation, for it fosters self-confidence and investment in the community. It is only with positive attitude towards school that a student can develop good sense of belonging and engagement in school. The condition of belonging means that a student is a valued member of the school community while still maintaining his or her uniqueness. It is a relationship between two or more persons characterized by a sense of connection and support for individual achievement of self-actualization and advancement.

Attitude to school can be, for some students, indicative of educational success and well-being. As such, this perception deserves to be treated alongside academic performance, an important outcome of schooling. The academic performance of students may partly depend on the kind of

attitude they put up towards school and the level of success they wish to attain. It is for this reason that this investigation is necessarily embarked on to critically study the relationship and the extent to which students' attitude towards school can predict their academic achievement.

“Interest in learning, could most probably be a very powerful affective psychological trait and a very strong knowledge emotion as well as an overwhelming magnetic positive feeling, a sense of being captivated, enthralled, invigorated and energized to cognitively process information much faster and more accurately in addition to most effective application of psychomotor traits like self-regulatory skills, self-discipline, working harder and smarter with optimum persistence” (Kpolovie, 2010a). He recommended the need for psychologists to execute research works for ascertaining the actual role that interest in learning plays in students' academic attainment at all levels of the educational system.

The nature and strength of one's interest in learning and in schooling may represent an important aspect of personality (Anastasi & Urbina 2007). The characteristic, interest, may substantially influence educational and occupational achievement, interpersonal relations, the enjoyment one derives from leisure activities, and other major phases of daily living. Values are clearly related to life choices and are often discussed in conjunction with interests and preference. From the view point of the student and what he intends to achieve educationally, a consideration of his interest might be of practical significance. The interest must be there for him to devote time for his study. This investigation seeks to x-ray the relationship and the degree to which students' interest in learning predicts their academic achievement.

A person's successful achievement in any activity is based upon the volume of requisite information that he has on the activity, his interpretation of it and most importantly, the application of his entire information on it. Acquisition of such information depends on reading and learning in most cases. But the drive to learn could to an extent be a function of the person's interest in the activity. It depends on the individual to decide why he wants to study materials on an activity and engage in the activity. What one learns may depend on the degree to which he succeeds in achieving that aim or purpose. Isangedighi (1997) reports strong correlation between interest in learning, study habits and academic achievement of high school students. He equally noted that the degree of learning depends on the amount of time a child is actively engaged in learning. The time spent on studying helps students to retain the materials learnt, which may eventually boost the students' performance outcomes during tests or examinations. A person does not naturally spend very long time in studying materials that do not capture his interest and attention.

One's pursuit of education and the actual magnitude of his academic achievement depend on several factors, many of which are collectively referred to as correlates of academic achievement. The current researchers are poised to investigating two of such correlates (interest in learning and attitude towards school) with a view to identifying their relationship with and the degree of contribution that they independently and collectively have in the prognosis of students' academic achievement in secondary school as measured by their grade in the 2013 May/June SSCE, conducted by the WAEC.

Statement of the problem

Nothing important happens without a cause or in total isolation of associated factors. The level of academic achievement of students is dependent upon or associated with a number of psychological, sociological and environmental factors. The psychological factors could include attitude of students toward schooling, interest in learning, study habit, attribution or locus of control, self-efficacy, personality, motivation, creativity, sociability, age, persistence, and intelligence. In this investigation, traits that serve as predictor variables are attitude towards school and interest in learning because the extent to which these constructs actually correlate with and probably predict students' academic performance in the SSCE, conducted by WAEC, has not been conclusively established empirically (Kpolovie, Ololube & Ekwebelem, 2011).

All senior secondary students desire success academically, but are driven by different motives and different stimuli for attainment of the success. Students do different things to attain desired academic performance. Some students lack self-confidence and may resort to examination malpractice for their test scores, some are studious but still do not do very well in their

educational pursuit, some have examination phobia maybe due to some unpleasant situations experienced at younger age in school that has resulted in apathy in schooling. While some students attribute their successes and failures to outside factors like their luck, teachers and other influential persons; some accept total responsibility for their successes and failures. Some students' level of achievement is dependent upon the level of motivation they get from people directly or indirectly. Though there may be other factors like social and environmental factors that militate against students' achievement, the variables investigated in this study are centered on the students' response to psychological stimuli of academic performance. The researchers are interested in finding out the magnitude and nature (direction) of relationship between each of the psychological constructs (attitude towards school and interest in learning) and students' academic achievement; and the extent to which the criterion variable is predicted individually and collectively by the predictor variables.

Research Questions

The following six research questions guided the study.

1. What is the relationship between students' attitude towards school and their academic achievement?
2. What is the relationship between students' interest in learning and their academic achievement?
3. What is the relationship between students' interest in learning and their attitude to school?
4. To what extent does attitude towards school predict students' academic achievement?
5. To what extent does interest in learning predicts students' academic achievement?
6. What is the extent to which students' interest in learning and attitude towards school jointly predict their academic performance?

Hypotheses Postulation

The tenability of six null hypotheses were tested at 0.05 level of significance as specified by Kpolovie (2011b).

1. Significant relationship does not exist between students' attitude to school and their academic achievement.
2. Significant relationship does not exist between students' interest in learning and their academic achievement.
3. Significant relationship does not exist between students' interest in learning and their attitude towards school.
4. Interest in learning does not significantly predict students' academic achievement.
5. Students' attitude to school does not significantly predict their academic achievement.
6. Students' interest in learning and attitude towards school do not jointly predict students' academic achievement significantly.

Review of Literature

This section of the introduction is a brief review of related literature.

Academic Achievement

Academic achievement in this investigation is operationally defined as the aggregate of each student's demonstrated learning, knowledge, skills, ability, and indeed cognitive, affective and psychomotor domains in four subjects (Mathematics, English Language, Biology and Economics) as measured by the student's grade in the 2013 May/June Senior Secondary Certificate Examination (SSCE) that was reliably and validly conducted by the West African Examination Council (WAEC) in Bayelsa State of Nigeria. These are the four subjects that all the respondents wrote in the SSCE.

Academic achievement can be defined as excellence in all academic disciplines, in class as well as extracurricular activities. Academic achievement is the outcome of education as it indicates the extent to which the student, teacher, curricular and indeed the educational institution has achieved the predetermined educational goals. Academic achievement is commonly measured with

examinations that assess important procedural knowledge such as skills, and declarative knowledge such as facts which student have learnt (Engel, 2002; Bennett, 2003; Bishin, 1973).

Academic achievement, used interchangeably with academic performance, is indispensable in every formal educational institution. It pertains to scholarly human activities conducted in a formal educational environment. Academic achievement is a measurable index that depicts a student's cognitive, affective and psychomotor domains in an educational setting. Students' academic achievement is ascertained by testing which "has and will continue to play significant role in any educational system world-over. In fact, it would be irrational to think of teaching without test, measurement and evaluation. Evaluation of educational achievement is indispensable for effective formal and even non-formal education" (Kpolovie, 2014a: 30). The Joint Committee of the American Association of School Administrators (1962); the Joint Committee on Testing Practices (2004) and the Joint Committee on Standards for Educational Evaluation (2003) in the United States (Alamieyeseigha and Kpolovie, 2013) have reiterated that to teach without testing to ascertain the learners' academic achievement is unthinkable. This position is also held and emphatically expressed by the Joint Committee on Standards for Educational Evaluation (1988) and (1994). Academic achievement which is usually measured with test refers to what is actually done under existing circumstances that subsumes the process of accessing and utilizing the structure of knowledge and abilities and a host of affective, motivational and stylistic factors that influence the ultimate responses (Murphy and Moon, 1989; Kaplan and Saccuzzo, 2005).

Academic achievement is therefore a yard stick for ascertaining the capabilities of a student from which his overt, covert and inherent or unrevealed abilities could be inferred. Academic performance is generally used to determine how well an individual is able to assimilate, retain, recall and communicate his knowledge of what has been learnt. Knowles (1978) asserts that academic performance is the demonstrated achievement of learning as opposed to the potential for learning. It is knowledge attained or skills developed in school subjects usually designated by scores in formal tests or examinations. 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). It suggests that academic performance is different from the academic potentials of an individual. It is the measured relatively permanent changes in an individual's behaviour due to experiences acquired. A student's academic performance is usually measured by teacher-made tests or standardized tests (Kpolovie, 2014a) which in most cases are referred to as external examinations like the Senior School Certificate Examination (SSCE) conducted in Nigeria by the West African Examination Council (WAEC) and the National Examination Council (NECO) (Kpolovie, Ololube and Ekwebelem, 2011).

Academic achievement in this work is in the context of learning and being able to express what has been learnt in a written or practical form without examination malpractice of any sort. It is on this note that Ashton (1990: 569) stated that "academic attainment as measured by the examinations of the traditional kind involves most of the capacity to express oneself in a written form. It requires the capacity to retain propositional knowledge, to select from such knowledge appropriately in response to a specified request and to do so without reference to possible sources of information. The capacity to memorize and organise materials is particularly important."

Lawton and Gordon (1993) posited that it is quite possible to have a high ability coupled with a low attainment, achievement or performance. Hence, academic performance is the demonstrated achievement of learning as opposed to the potential for learning and is measured validly with SSCE by WAEC and NECO in Nigeria (Kpolovie, Ololube and Ekwebelem, 2011). In the same vein, Lawton and Gordon further commented that academic achievement is the present attainment or learning of a particular skill or knowledge demonstrated by evidence of some kind, including performance in test. Academic performance is the achievement of a student in terms of aggregate obtained in a test or examination in specific subjects that cover a given academic programme.

The academic achievement of students may also dependent to an extent on many environmental factors which include education funding (Kpolovie and Obilor, 2013; Kpolovie, 2014), the student, home, school administration (Ololube and Kpolovie, 2012), teacher, cultural and educational policy (Kpolovie, 2013; Kpolovie, 2012a) that can easily be studied experimentally and conclusive conclusions drawn. Since learning is an integral aspect and a major determinant of academic achievement, it logically follows that the factors influencing learning in an individual

may have overt or covert effects on the individual's academic performance. The economic or financial aspect of the school environment may largely determine academic performance. This is true because it influences the acquisition of instructional or teaching/learning aids as well as the provision of infrastructural facilities and basic amenities in the school environment. Though education funding determines both the quality and quantity of both human and material resources to enhance learning, "the average percentage of total annual budgetary allocation to education in Nigeria from 1960 to date is self-destructively low as 5.72" as revealed by Kpolovie (2014) in a study that he ex-rayed quality assurance in the Nigerian Educational system.

A hungry or malnourished student may find it difficult to maximally concentrate in the class and optimally learn (Siminialayi, 2014 and Kpolovie, 2011a). In fact Kpolovie (2012) demonstrated the effect of brain boosting food and brain boosting food supplements on learning that individuals cannot live well and function maximally, mentally or cognitively without eating food that is rich in Omega-3 fatty essential acids (such as salmon, mackerel, soybeans, pumpkin seeds and walnuts) and antioxidants (such as blueberries, mangoes, watermelon and dark green vegetables) as they enhance acquisition and retention of knowledge. He further stated that the symptoms of Omega-3 fatty acid deficiency include fatigue, poor memory, dry skin, heart problem, mood swings, depression, poor circulation and attention deficit, cognitive decline, dementia and Alzheimer's disease. All these go a long way to explain the effects of nutrition on an individual's academic achievement. Academic performance is high when the right nutrition is adequately taken and vice versa.

The school administration also plays a significant role in determining students' academic achievement (Ololube and Kpolovie, 2012). The administrators decide the use of funds, acquisition of instructional materials and teaching aids, employment of both the quantity and quality of teachers, in truth, all materials and human resources that enter into the school premises. Poor academic performance may also be manifestations of failed policies (Kpolovie, 2012a; 2014) in Nigeria. Solutions lie in correcting such policies, in addition to initiating new ones in strict accordance with needs analysis and regular utilitarian evaluation that would make the educational system work more effectively and efficiently for the maximum benefit of all the stakeholders (Kpolovie, 2010; Kpolovie and Ololube, 2013; Kpolovie, 2012a).

Unfortunate however, unlike the environmental factors that can easily be studied experimentally to determine their effects on students' academic achievement; psychological factor that tend to influence academic achievement could at best only be studied as correlates or predictor of academic achievement. While negative behaviors have been associated with negative academic outcomes, research has shown that positive and socially appropriate student behaviors such as independence, appropriate classroom conduct, compliance with school rules, and socially appropriate interactions with peers, contribute to positive academic outcomes (Lassen, Steele & Sailor, 2006). These positive interactions can create a more pleasurable environment conducive to positive student and teacher communications. Positive behaviors have been associated with an increased ability and willingness to complete classroom works through motivation from students. It is suggested that these positive behaviors contribute to positive academic outcomes because they promote academically oriented behavior, such as intellectual curiosity, active listening and an interest in schoolwork (Lassen, Steele & Sailor, 2006).

Interest in Learning

Interest is defined by Typhoon International Corp. (2004: 662) as the "attention with a sense of concern; lively sympathy or curiosity; and the power to excite or hold such attention (in something)." Interest plays great role in the field of psychology as some recent research works have found that it is closely related with personality, motivation, cognition, development, emotion, vocations, aesthetics, behavior, hobbies, reasoning, and information processing (Silvia, 2006). A few works have found interest to be a factor that partly influences reading and text processing as a text with the features of coherence, vividness, ease of comprehension, and concreteness tends to arouse greater interest of the audience than a text without such features. Though there is evidence that seductive details of interest has detrimental effect as it impairs comprehension; "interest promotes comprehension and memory for several reasons: interest increases attention to a text; interest makes people process a text more deeply; and interest promotes good meta-cognitive strategies" (Silvia, 2006).

In spite of psychologists' praxis that is mainly on determination of why people do what they do, psychologists have characteristically disregarded close examination of interest as an overwhelming construct in the determination of human learning, motivation and emotion (Silvia, 2006). This omission of interest in psychological praxis accounts for why the trait is not mentioned in the Oxford Dictionary of Psychology by Colman (2003) and is not accorded due attention in several major psychological books (Gleitman, Fridlund & Reisberg, 2004; Kassir, 2006; Matlin, 1999; Hetherington & Parke, 1999; Goldstein, 1994; Papalia, Old & Feldman, 2002; Baron, 1999; Santrock, 2000; Franzoi, 2000; Santrock, 2001; Feldman, 2000; Weiten, 2005; Durand & Barlow, 2000; Myers, 2002; Elliot, Kratochwill, Cook & Travers, 2002; Morgan, King, Weiz & Schopler, 1986; Hayes, 1998; Resenzweig, Breedlove & Leiman, 2002; Wood & Wood, 2002; Brannon & Feist, 1997; Zimbardo & Weber, 1994).

Other top psychological books that one will rightly expect to find a chapter or a section dedicated to interest, but the trait is obviously absent as further evidence that interest has not been considered and treated as a psychological construct in the past include Brannon and Feist (2007); Vaughn and Bos (2009); Kirk, Gallagher, Anastasiow and Coleman (2006); Sternberg (2006); Reisberg (2006); Cauley, Linder and McMillan (1999); Funder (2007); Littrell, Lorenz and Smith (1996); Arnold (2005); Tepperman (2006); Kantowitz, Roediger III and Elmes (2005); and Paul (2004). In fact, the list of excellent books on psychology in the past that did not accord attention to interest as one of the several psychological attributes is endless.

It is only recently that some researchers in the field of psychology are trying to focus attention on the possible roles that interest could play in learning, motivation, and in the overall development of the human being in attainment of psychosocial body equilibrium. The present research is aimed at filling the existing great knowledge gap by empirically establishing the extent to which interest in learning predicts student's academic achievement, if at all it indeed does.

Silvia (2006) reviewed the research works that are recently emerging on the psychology of interest and indicated what contemporary emotion research has revealed about the subject. He answered these four research questions:

Is interest like other emotions?

What functions does interest serve?

What makes something interesting?

Is interest merely another label for happiness?

Based on his findings, recommendations were made that interest play central role in cultivating knowledge and expertise, and therefore psychologists should apply research on interest to practical problems of learning, education, and motivation.

It is only recently that psychologists started to investigate interest and the results are impressive as stated by Paul (2014) that: "in recent years researchers have begun to build a science of interest, investigating what interest is, how interest develops, what makes things interesting, and how we can cultivate interest in ourselves and in others. They are finding that interest can help us think more clearly, understand more deeply, and remember more accurately. Interest has the power to transform struggling performers, and lift high achievers to a new plane." In an earlier study, Paul (2013) found that interest cognitively engages students and statistically fosters learning.

Interest could be seen as "a psychological state of engagement, experienced in the moment, and also a predisposition to engage repeatedly in particular ideas, events, or objects over time" (Paul, 2014). Interest simultaneously diversifies one's experience and focuses his experience; leading him to pay attention to only certain things and not to some other things that tend to stimulate the person's attention. Interest serves as a drive towards the new, the edgy, and the exotic. Both the urge to approach or engage in certain events and the urge to avoid some events lie in the realm of interest.

Interest in an activity, such as learning, could most probably be a very powerful affective psychological trait and a very strong knowledge emotion as well as an overwhelming magnetic positive feeling, a sense of being captivated, enthralled, invigorated and energized to cognitively process information much faster and more accurately in addition to most effective application of

psychomotor traits like self-regulatory skills, self-discipline, working harder and smarter with optimum persistence (Kpolovie, 2010a; 2007; 2010). Persistence for instance, is defined by Kpolovie (2012; 2010) as “the indomitable willpower, unshakable determination, irrepressible commitment, absolute dedication, relentless pursuit, continuous and ever-increasing confidence and resolute action in the direction of one’s goal until it is satisfactorily achieved.” Self-discipline is defined as “the ability to and the actual commitment to make oneself do what one should do, exactly how and when he/she should do it, irrespective of whether he/she feels like it or not” (Kpolovie, 2010). It is little wonder then that when an individual is keenly interested in the information that he is learning, he tends to pay closer attention; process the information more effectively; employ the most effective learning strategies; engage in critical thinking; rehearse deeply; and very frequently make connections between the new information and old knowledge acquired (Kpolovie, 2010a; Kpolovie, 2007; Kpolovie, 2012).

Growing knowledge leads to growing interest as new information increases the likelihood of conflict (i.e., conflict of coming across a fact or idea that does not fit into what the individual has already learnt) (Silvia, 2006; Paul, 2014). The more a person knows or learns about a domain, the more interesting the domain becomes to him. This is most probably because of the phenomenon of more learning leading to more questions, which in turn increases learning. It is on this note that Kpolovie (2012) emphatically posited that:

The most central phenomenon in human life can rightly be said to be learning. The desire to express learning and to acquire more of it both consciously and unconsciously is infinitely endless. No individual has learnt maximally and none perhaps, could ever do so; yet to maximally learn in a perfectly unforgettable manner is doubtlessly the ultimate goal of all human.

He defined leaning as:

the complex synergy of cognitive, affective, psychomotor and environmental experiences and other influences for the acquisition, maintenance, organization, reorganization and enhancement of changes in an individual’s behavior, knowledge, skills, values, personality and world views for better resolution of problems. Each problem so resolved, is itself a relevant piece of leaning that adds to the complex whole and better prepares the individual for further acquisition and organization of knowledge to produce yet a more intelligent behavior in overt or covert problem resolution.

The information that is novel, complex, and comprehensible tends to arouse learner’s interest because it increases curiosity (Kpolovie, 2007). Understandability of the learning material is crucial in capturing of the learner’s interest. New and complex things are interesting provided the learner feels able to comprehend them and master the challenges that they pose (Silvia, 2006; Paul, 2013; Paul, 2014). Curiosity is the “totality of a person’s organized active explorative and manipulative behavior in response to the occurrence of a novel, unexpected and unpredicted phenomenon by logically seeking conclusive observable and empirical evidence to resolve all the questions of what, why, how, when and which about the phenomenon” (Kpolovie, 2010).

This is in consonance with the proposition of Loewenstein (1994) that there is a psychology of curiosity which holds that “curiosity arises when attention becomes focused on a gap in one’s knowledge. Such information gaps produce the feeling of deprivation labeled curiosity. The curious individual is (intrinsically) motivated to obtain the missing information to reduce or eliminate the feeling of deprivation.” Once this is done, the individual has learnt both the information that led to the curiosity or knowledge gap as well as the information with which he filled the knowledge gap or resolved the curiosity. So learning could be facilitated by creating or arousing the learner’s interest with catching and holding his attention via presentation of novel, complex and comprehensible information that arouses his curiosity (Kpolovie, 2010a). While catching the learner’s interest is about seizing his attention by providing highly stimulating information, holding his interest is about finding deeper meaning and purpose in the exercise of interest. Sustaining of a person’s interest in a piece of information could also be done by promoting the development of his interests by supporting his feelings of competence and self-

efficacy, self-direction and autonomy that makes him to sustain the attention and motivation even in the midst of challenging or confusing material.

Interests powerfully influence academic and professional choices. In a longitudinal study using 858 subjects by Harackiewicz, Durik, Barron, Linnenbrink-Garcia, and Tauer (2008) that lasted for seven years, the results chiefly showed that interest is a more powerful predictor of future choices than prior achievement or demographic variables. Interest has also been found to have marked effects on the way people read. An interesting text allows for better comprehension during reading and recall of the information after reading. In this way, interest is not only able to, but actually boosts or enhances memory, which invariably tends to boost learning. To this end, teachers and librarians are ideally positioned to serve as cultivators of students' interests in reading and learning.

However, Paul (2013) stated that:

Given the galvanizing effects of interest on learning, it is troubling that research shows students' interest in academic subjects decline across their years in school. Interest starts out strong in the elementary grades but bottoms out in early high school, just at the moment when students are preparing to make choices about further education and future careers. Interest in academics is lower among weak students than among successful ones, meaning that those who are most in need of interest's boost are least likely to feel it. Moreover, our nation's education policy, with its emphasis on improving standardized test scores in a small number of subjects, may be eliminating exactly those experiences that lead students to discover and develop their interests.

In a research on the employment outlook that sought to specify the occupational employment opportunities over ten years in the United States, the U.S. Department of Labor (2005) and the U.S. Bureau of Labor Statistics predicted that between 2004 and 2014, there will be a 22% growth in jobs for fields related to science, technology, engineering, and mathematics (STEM). The nation was then required to ensure that her youths be provided with the requisite opportunities to understand how they can best be prepared for the changes in the workforce by acquiring extra skills in science, technology, engineering and mathematics (Alamieyeseigha & Kpolovie, 2013). To this end, a number of suitable programs were embarked upon throughout the United States (U.S. Department of Education, 2010a; U.S. Department of Education, 2010b). Special programs were also designed for acquisition of STEM skills by women and the minorities in proportion to their population growth.

In line with the then current trend, an investigation designed for quality understanding and engagement of Hispanic students and teachers, Hayden, Ouyang, Scinski, Olszewski and Bielefeldt (2011) sought ways of promoting student interest and attitudes toward careers in science, technology, engineering, and mathematics (STEM). The study centered on two models, student summer camp program, and professional development. The student summer camp findings show that underserved populations of both female and male students experienced increased interest and improved attitudes toward science and technology and performed better academically. The professional development model was able to transform middle school science teachers from digital immigrants to advocates of having technology as a critical part of student learning through integration of innovative technology experiences in formal science settings. Results further showed how teachers successfully implemented lessons that engage students in hands-on investigations, leading to deeper understanding of science and, therefore improving the potential of underrepresented students competing in STEM fields.

In STEM projects were mounted on the principle that the more interested students are in a subject, the more involved they become in their assignments, putting effort into their studies and engaging in deeper levels of thinking (U.S. Department of Education, 2010b). Efforts towards meeting the demands of STEM sought to and successfully increased students' interest and engagement in science, technology, engineering and mathematics courses at all educational levels that eventually led to involvement in math- and science-related after-school activities and career aspirations in the United States (Alamieyeseigha & Kpolovie, 2013).

The investigations for Quality Understanding and Engagement for Students and Teachers, funded by the National Science Foundation captured and maintained students interest in STEM and

brought technology-enhanced learning experiences as early intervention for middle school students in classrooms having high percentages of traditionally underserved populations in STEM fields, specifically focusing on Hispanic populations and girls with five guiding principles (Hayden, Ouyang, Scinski, Olszewski, & Bielefeldt, 2011):

1. Students' best chance to experience information and communication technology (ICT) enhanced learning comes from ICT-savvy teachers.
2. Students and teachers increase 21st -century workforce skills through ICT-enhanced learning experiences.
3. Students' and teachers' individual needs are addressed in learning communities.
4. Students who are engaged in hands-on investigations have deeper understanding of science concepts.
5. Students who see themselves as scientists pursue STEM careers.

The project teachers were provided professional development and mentoring to support them in becoming cyber-ready workforce members who feel comfortable incorporating innovative technology resources in classroom lessons to enhance students' understanding of scientific concepts and investigations. ICT resources such as visualization tools, interactive games, online collaboration, videoconferencing, and open source applications promoted students' interest in technology and science and prepared the students as cyber-ready, 21st century workers who are prepared to pursue STEM careers.

Emerick (2007) investigated the factors which influenced the reversal of underachievement pattern in 10 gifted students (aged 14 to 20 with IQ not less than 125) who progressed from chronic underachievement to academic excellence from northern New England, the Northeast, and the Southeast regions of the United States. Results showed evidence that some gifted underachievers may respond well to interventions which incorporate educational modifications that focus on individual strengths and interests. Personal interests can motivate the student to learn and provide an avenue for learning various skills related to school success. Of greatest importance, the study provided empirical support for relating the individual's perception of his inadequacy in school learning to the development of related interests, attitudes, and academic self-concept. Emerick (2007) asserted that:

Today, there is no problem more perplexing or frustrating than the situation in which a bright child cannot or will not perform at an academic level commensurate with his or her intellectual ability. The gifted child who is an academic underachiever may suffer from more than poor grades and the disapproval of parents and teachers. Unfortunately, if performance in school is deemed inadequate, the child may also perceive himself or herself as inadequate in other kinds of learning experiences. As these unpleasant experiences continue, a negative attitude toward school, self, and learning in general may result, and poor motivation habits may develop.

The explanation and prediction of academic achievement is an important area of research in education. The prevalence of research efforts in this area reflects the fact that many decisions reached in the modern educational system are based upon predictions of school success. The estimation of a candidate's probability of future academic success is a central aspect of the decision-making process in every educational setting, irrespective of whether the process involves personal decisions or institutional decisions (Ololube and Kpolovie, 2012).

There are three major distinct groups of factors that have been found by psychologists to influence achievement (a) student characteristics (e.g., intelligence), (b) home environment (e.g., socioeconomic class), and (c) school context (e.g., quality of instruction). Academic career decisions rely mainly on student characteristics that are broadly classified into three factors of academic success prognosis: (a) general cognitive factors such as verbal and quantitative ability; (b) general motivational factors like achievement motivation; and (c) specific preferences for particular subject areas. The last two of these factors can commonly be referred to as "interests" (Krapp, Schiefele & Winteler, 2009; Krapp, 1999).

The Cognitive factors have been found to overwhelmingly exhibit the greatest predictive power, accounting for as large as 50% of the variance in academic performance (Krapp, 1999; Krapp, Schiefele & Winteler, 2009; Bloom, 1976; Kuusinen & Leskinen, 1988). There is general agreement, based on empirical evidence that motivational or emotional factors are of less importance in prognosis of academic achievement (Kuusinen & Leskinen, 1988). However interest, level of effort put in reading and learning style adopted might still hold some influence on academic performance (Hidi, 2001; Renninger, Hidi & Krapp, 2014).

Goulart and Bedi (2011) examined whether a child's interest in school has any bearing on his educational success after controlling for the kinds of variables typically used in educational economics analyses in Portugal. They collected two data sets in 1998 and 2001 and examined the link between interest in schooling or in learning and educational success, using cross-section and panel data in each set. Results indicated that after controlling for other traits, there is little or nothing in support of the hypothesis that prior interest in school has a bearing on future educational success. Simply put, they found that interest in school does not meaningfully predict the variance in students' academic performance. Thus, manipulation of interest in school or in learning might not be a veritable means or solution to the educational attainment in Portugal that considerably lags behind most European countries.

Unlike Goulart and Bedi' (2011), Hussin, Maarof and D'Cruz (2001) successfully employed enriched teaching/learning procedures in which both teachers and students' motivation and interest in English Language were elicited to improve the learning of English Language in Malaysian schools beyond the customary preparation of students for standardized examinations. In this case, manipulation of students' and teachers' motivation and interest could possibly be adopted to improve academic performance in English Language.

Eberly Center (2014) stressed the probable association between interest in the learning material and the actual effort expended in learning it; noting that irrespective of the objective value of an activity or topic, if students do not recognize its value, they may not be motivated to expend effort. When the students clearly see how coursework connects to their life-long goals, and concerns, they will be more likely to value it, be more interested in it learning it, and thus more motivated to invest time and effort for possible excellent performance. For purposes of emphasis, Eberly Center (2014) advanced seven guiding principles as follows:

1. Students' prior knowledge can help or hinder learning.
2. How students organize knowledge influences how they learn and apply what they know.
3. Students' motivation determines, directs, and sustains what they do to learn.
4. To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned.
5. Goal-directed practice coupled with targeted feedback enhances the quality of students' learning.
6. Students' current level of development interacts with the social, emotional, and intellectual climate of the course to impact learning.
7. To become self-directed learners, students must learn to monitor and adjust their approaches to learning.

Eberly Center (2014) advanced seven corresponding strategies that could possibly be adopted by the teacher to capture and sustain the learner's interest in the learning of any given subject matter.

1. Clearly articulate learning goals.

Students will be more motivated to work if they know what goals they are working towards. Thus, it is a good idea not only to articulate goals for the course, but also for specific lectures, discussions, and assignments. For example, before beginning a lecture, an instructor might write on the board the skills, knowledge, and perspectives students will gain that day (with appropriate effort), using concrete, student-centered language—for example, “When you leave today, you should be able to debate the pros and cons of a single-payer health plan; apply a particular economic framework to make predictions about interest rates; identify, illustrate and compare three theoretical approaches in child development.” Articulating learning goals is important for a

variety of reasons, but it plays a key role in motivation by showing students the specific value they will derive from a particular course, unit, or activity.

2. *Show relevance to students' academic lives.*

Students will be more motivated to work hard if they see the value of what they are learning to their overall course of study. Consequently, it is important to explain to students how your course will help prepare them for subsequent courses (e.g., a mathematics professor might help to motivate psychology students by explaining how the math skills they learn will help them in quantitative courses for their major). This gives students a better appreciation of the combined value of the courses they take and lets them see how each contributes to their overall education. It is also helpful to point out when students are learning skills that will help them later in the same course—especially when the material is difficult and potentially frustrating (e.g., an instructor might help encourage students who are struggling with a concept by saying, “This is a difficult idea, but a crucial one, and you’re going to be very glad you learned it when we begin analyzing negotiation cases in Unit 3”). Seeing the value of the material within a broader academic framework can help students sustain motivation and persist through challenges and setbacks.

3. *Demonstrate relevance to students' professional lives.*

Students are more likely to exert effort in a course if they anticipate an eventual payoff in terms of their future professional lives. Consequently, instructors can enhance motivation by linking their course content to students' intended professions, pointing out how the skills and knowledge students are gaining in class will help them after they graduate. An information systems instructor, for example, can motivate students to learn information systems principles by pointing to real-life database failures that resulted when these principles were not applied. A theater instructor might motivate acting students to study dramaturgy by explaining how a rich understanding of a play's context will contribute to their understanding of character. It is especially important to highlight the professional relevance of higher-level skills such as quantitative reasoning, public speaking, persuasive writing, and teamwork, because students do not always recognize their importance in the work world.

4. *Highlight real-world applications of knowledge and skills.*

One effective way to harness student motivation is to have students apply what they are learning to real-world contexts. For example, a marketing professor might use a real-world industry case study to give students practice applying marketing principles to complex, contextualized problems. Similarly, in an information systems course, the instructor might assign a service-learning project in which students must build a database for a non-profit community organization. This kind of task allows students to work within authentic constraints, interact with real clients, and explore possible professions. Such assignments may also create possibilities for future internships or jobs. All of these factors are likely to increase student motivation. Even in courses that are more theoretical than applied, instructors can convey the relevance of course content simply by pointing out its significance in the real world. For example, a mathematics professor teaching optimization might point out that financial institutions use optimization techniques to maximize trade efficiency.

5. *Connect to students' personal interests.*

Motivation is often enhanced when instructors connect course material to students' personal interests. For example, a chemistry professor might link a lesson on chemical transformations of carbohydrates to students' interest in cooking. A history instructor might motivate interest in colonial history by showing how it helps to explain contemporary geopolitical conflicts or environmental problems. Similarly, well-constructed courses that tap into issues that are important to students (e.g., The History of Rock 'n' Roll, Philosophy and the Matrix [a popular film], The Statistics of Sexual Orientation) can capitalize on students' motivation without sacrificing intellectual or disciplinary rigor.

6. *Allow students some degree of choice.*

One possible way to enhance student motivation is to allow students to choose topics for papers and projects that connect the course content to their outside interests and passions. For example, a

physics instructor might allow a student who plays different sports to do a project comparing the spin, rotation, and acceleration of differently shaped balls. A history instructor teaching about immigration might allow students to write about their own family's immigration experience in relation to the course content. However, while flexibility and choice can be motivating, it is also important to recognize that weighing and choosing among alternatives requires cognitive effort and can create an extra burden for students. Thus, instructors might want to provide a restricted set of options and sufficient time to choose among them. This can enhance motivation without overwhelming students with too many choices.

7. Show your own passion and enthusiasm.

Your own enthusiasm about the course content can be powerful and contagious. Even if students are not initially attracted to or interested in the material, by clearly demonstrating your own enthusiasm, you can often raise students' curiosity and motivate them to find out what excites you about the subject. This can lead them to engage more deeply than they had initially planned and to discover value they had overlooked.

Shirey and Reynolds (2012) demonstrated in an investigation that interest in a learning material might lead to the attention given to learn it, and this in turn might culminate in the actual learning. While the extent to which a given material is learnt may depend partly on the quality of attention accorded it by the learner; the attention given to the material may be a function of the magnitude of interest that the learner has in the material. The effects of interest on the allocation of attention to, and the learning of, written material were investigated in the study. With 23 college students who read 72 sentences that had been previously rated for interest. The sentences were presented on a microcomputer that recorded two measures of attention: sentence reading time and reaction time to a secondary task. Later, the students were given a cued recall test of the material. Results showed that although interesting sentences were learned much better, less attention was allocated to them; indicating that attention did not serve as a causal mediator between interest and learning. The findings further showed that the subjects engaged in some strategy independent of attention to learn the interesting material; meaning that interest was not a definitive predictor of the learning. That is, interest in learning does not have deterministic covariation with the learning outcomes or academic achievement (Kpolovie, 2010: 23). "Deterministic covariation is when manipulation of only one variable produces observable effect of similar magnitude in another variable." That is, interest in learning is not "a necessary and sufficient condition" for students' academic performance.

Contrary to Shirey and Reynolds's (2012) findings, Steinkuehler (2014) in her research on online video games and literacy; found that whenever students are highly passionate about a subject matter, "learning it skyrockets." In like manner, Horowitz (2013) sought to find out whether with interest-based personalized lesson such that it resides within a domain of the learners' interest, the students can and actually make better sense of the abstract concepts. He concluded on the basis of data analyzed that adaptation of lesson to the students' interest makes for easier problem solving and better learning by the students. Also, Peprah (2009) explored the importance of engaging students' interests in their learning and incorporated their interests into the lessons. He successfully achieved this with the use of Teaching and Learning Initiative (TLI) and the Mentoring and Student Teaching program (MAST) computer-based instructional techniques. Results showed improvement in students' learning.

When students do not seem interested in the lesson that the teacher teaches and it is becoming almost impossible for the teacher to get them to focus on the tasks in class; the strategy that the teacher should immediately adopt to solve the problem, according to Rotgans and Schmidt (2013), is "problem-based learning." This is because problem-based learning approach represents a puzzle or controversial issue describing something unexpected or novel, startles students' curiosity and interest; in addition to engaging students to work with their peers in teams to come up with tentative alternative explanations for the problem. Also, problem-based learning encourages students to choose what they want to study or identify their own learning goals that make them to develop feelings of autonomy and empowerment that motivate them intrinsically. Thus, interest in learning could be improved with problem-based learning for possible boosting of academic performance.

Hidi (2001) worked extensively on the probable effect of interest on readers' comprehension and learning, specifying some of the variables that tend to determine readers' interests, as well as the process of attention, motivation and reading that may potentially umpire the effect of interest on learning. Hidi adopted dynamic measures of interest in addition to the customary traditional self-reports and questionnaires. Findings stressed the importance of optimal utilization of students' interest in the classrooms for possible improvement of reading, learning and academic performance.

Subramaniam (2009) examined the motivational effects of interest on student engagement and learning in physical education. The power of situational interest as key motivator in the enhancement of student engagement in meaningful learning process was emphasized. He posited that situational interest has the potential of influencing interest in learning and predicting future skills intention. "Situational interest is the affective reaction triggered by specific or appealing stimuli in the environment... It can be enhanced through the manipulation or the modification of certain aspects of the learning environment and contextual factors such as teaching strategies, task presentation, and structuring of learning experiences." Therefore, situational interest is a potent medium that can be harnessed by teachers to motivate students' interest in learning even by the disengaged and unmotivated students to more effectively learn for probable better performance.

Wade (2007) reviewed works done on text-based interest which covers the elements within texts that create interest for the majority of readers to include three major aspects:

- i) What kinds of information are considered interesting, both theoretically and empirically
- ii) What effects popular strategies for creating interest have on learning outcomes
- iii) How interest influences where students focus their attention in a text.

Key finding of the review is that the practice of adding personalized anecdotes and highly interesting but nonessential information to texts has a detrimental effect on the learning of important information; and recommended alternative strategies for creating interest in texts, for educational practice, and for future research.

Lee, Chao and Chen (2011) used Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to ascertain the extent to which teacher's instructional attitude affects student learning outcomes through interaction with either students' interest in learning or the number of their learning hours in Taiwanese vocational colleges. Results revealed that when Taiwanese vocational college students have a satisfied attitude towards their teachers, both interest in learning and learning hours produce positive and significant interactive influence on the learning and their academic achievement. Lee, Chao and Chen (2011) collected enough relevant data and tested the null hypotheses of no positively significant influence of:

1. students' interest in learning on their learning outcomes (academic achievement)
2. students' learning hours on their learning outcomes
3. a teacher's instructional attitude on students' learning outcomes
4. interaction of students' interest in learning and a teacher's instructional attitude on students' learning outcomes
5. interaction of students' learning hours and teacher's instructional attitude on students' learning outcomes.

In a study on interest and self-sustained learning as catalysts of development, Barron (2006) sought to establish the facilitative learning ecology perspective of adolescent students in relation to their academic performance. Learning opportunities are created and utilized both in school and at home when the learner is interested in the topic to be learnt. The learning ecology framework that most suitably compels better or more engaged reading, comprehension and learning both within and outside the school; and how the learning in school can lead to the learning activities outside school were specified. Three portraits of adolescent learners were shared to illustrate different pathways to the development of interest. Also employed in the study were five types of self-initiated learning processes identified across the portraits. These include the seeking out of text-based informational sources, the creation of new interactive activity contexts such as projects,

the pursuit of structured learning opportunities such as courses, the exploration of media, and the development of mentoring or knowledge-sharing relationships.

Results showed that there is a complementary interest in how individuals contribute to their own development through appropriating and adapting the resources provided to them. Self-initiated activities mediate learning in the short term within and across contexts. Interest development is triggered by ideational resources that are available in diverse facets of the learning ecology. Once interest is sparked, adolescents utilize a variety of strategies to further their knowledge development. Learning activities based on interests are particularly likely to be boundary crossing and that consequently a learning ecology can best be conceptualized as a dynamic entity that can be characterized by the diversity and depth of learning resources and activities. A few years earlier, Hussin, Maarof and D'Cruz (2001) had made similar findings in sustaining interest in the learning of English Language and systematically increasing the motivation to learn the subject.

Attitude of Students Toward Schooling

Attitude could be defined as a consistent tendency to react in a particular way often positively or negatively toward a given matter or social object as measured by the first section of the instrument for data collection in this investigation. Everyone has an attitude towards learning, but not everyone has the same attitude towards it. Some individuals' attitudes propel them along, helping them to deal with challenges, overcoming obstacles, and accomplishing their learning objectives. Others have attitudes that are anchors, slowing them down or stopping them altogether from learning (Harrell, 2005).

Loftus (1982) viewed attitude as a relatively, enduring organization of feelings, beliefs, behaviors and tendencies towards persons, groups, ideas or objects. It implies that individuals are not born with attitudes but learn them. From early childhood, the individual begins forming his attitudes through direct experience and indirect observation. Through social contacts, a person could acquire an attitude by watching and imitating one's parents, siblings, friends and teachers or peers. A person could also develop attitudes through operant conditioning, that is, adult rewarding an individual for expressing the correct views with appropriate responses. It is on the basis of such operant conditioning that the relationship between students' attitude to school and academic achievement could be explained (Lassen, Steele and Sailor, 2006). If students with positive attitude towards school make significantly better academic achievement than their counterparts with negative attitude towards school, then good attitude towards school is reinforced in line with specifications in operant conditioning theory of learning (Shah, 2009).

According to Candeias, Rebelo and Oliveira (2013), attitude towards schooling is a psychological construct that depicts an individual's behaviors, feelings, expression of favorable or unfavorable affection and judgments for school and school experiences. Attitude towards school, like other constructs, is intrinsically related to a number other psychological traits such as students' perceptions of and interest in learning, their competence (often seen as a result of previous academic achievement) and motivation. For instance, attitude towards school has been found to have gender influence among Portuguese students. While girls tend to have more positive school attitudes, boys are less motivated and have more negative attitudes toward school (Houtte, 2004; Candeias and Rebelo, 2010). Results of their investigations further showed that girls do not require more time to study, engage less in cases of misconduct and disruptive behavior, have less absenteeism, and also have more expectations about future and are more enthusiastic about further studies. On the contrary, boys are less committed to studies, less commitment to school, and give up more easily, particularly when their popular teen or peer role model does not necessarily require to have good grades and total dedication to school as automatic preconditions for success. In relation to parental socio-economic level for only male students, those from families with high socio-economic status are more satisfied with school and accord better attitude to schooling that tends to guarantee them significantly better academic achievement than their counterparts from families with low socio-economic status that is closely associated with less access to school resources, computers and demonstrate negative attitude towards school, and consequently perform poorly academically (Linnehan, 2008).

There is also empirical evidence that cognitive variables such as ability-related and expectancy beliefs, motivation, competency beliefs, goal structures, and social relationships (Urda and

Schoenfelder, 2006), general attitudes toward school, and attitudes toward specific academic subjects are related to academic performance and that these can equally differ across gender, racial groups, and socio-economic backgrounds (Akey, 2006). The extent to which families actively take part in their children's academic life also tends to influence students' attitude to school as well as the students' academic achievement. A study by Kuperminc, Daniel and Alvarezlimenez (2008) showed that family contexts that are less exciting and less involved in their children's education are manifested in less positive attitudes toward school, less resilience levels and have higher probability of dropping out of school (Rumberger, 2001). Students from families with inactive participation in their school have statistically greater probability of believing that having rigorous studies and completing school courses with good grade are not important to have a job or maintaining a career in life.

When schools are able to provide interesting activities for their students and the way those activities are engaged, and even the participation of students and their families in school decisions have influence on how students feel at school, how they react to school life, and their overall attitude toward schooling that later tends to reflect their academic performance (Urdu and Schoenfelder, 2006; Candeias, 1997; Lewy, 1986; Alamiyeseigha and Kpolovie, 2013). The more a school is in engaging the major stakeholders (students, teachers, parents and the community), the greater the extent to which students' positive attitude to school and to learning is aroused (Rumberger, 2001; Candeias, Rebelo, Oliveira and Mendes, 2012).

Racial groups and parental educational level have also been found to influence or correlate meaningfully with students' attitude towards schooling as well as competence beliefs and academic achievement (Linnehan, 2008; Candeias, Rebelo and Oliveira, 2013). The study by Linnehan (2008) divulged that with the exception of Asian group, parental educational level is significantly related with more favorable attitudes toward college. Other results showed that students' attitude towards school is influenced by three broad factors; attitudinal contents, attitudinal context and personal components. Learning, competence beliefs and motivation constitute attitudinal contents. The kind of environment (urban or rural), socio-economic background (occupational status), parental educational level, and the school circumstance constitute the attitudinal context. The personal component of attitude towards school is made up of the individual's intellectual (cognitive), emotional (affective) skillful (psychomotor) developmental state as well as the person's gender and age.

In their investigation, Candeias, Rebelo and Oliverra (2013) adopted exploratory models of factors that tend to affect students' attitude towards school and learning in Portugal with a sample of 778 adolescent students, using regression trees algorithm; and found that students' gender, contextual background, age, school failures and students' perception of their learning competence are potent factors that interfere with students' attitude towards learning and school. They concluded that certain socio-demographics factors, personal attributes and some specific school characteristics are significant correlates of students' attitude towards school and learning. They provided data-based recommendation that the improvement of students' attitudes and motivation toward school should involve the students, parents, teachers, the school, and the community. In another investigation done earlier by Candeias, Rebelo, Oliveira and Mendes (2012) that examined primary school pupils' attitudes to school, similar findings and conclusions were also made.

2. METHODOLOGY

Multiple prediction design was applied to ascertain the magnitude of relationship and prediction that students' interest in learning and attitude to school individually and collectively have on their academic achievement. According to Kpolovie (2010), multiple prediction design is a higher order correlational research design that extends the least-squares association principle to the study of relationship between one dependent variable and two or more independent variables. It is the bivariate product-moment correlation between a criterion variable (academic achievement) and some combination of a set of predictor variables (interest in learning and attitude towards school) in a most meaningful, reliable and valid manner that allows for establishment of coefficient of determination of the variance in the criterion variable from the combined variance of the predictor variables. A stratified random sample of 518 was drawn with the aid of table of random numbers from the 14459 students who enrolled for the 2012/2013 Senior Secondary Certificate

Examination (SSCE) in Bayelsa State. The sample size of 518 subjects is far above the recommended sample size of 370 which is graphically determined using Krejcie and Morgan's (1970) graph for determination of suitable minimum sample size as documented in Kpolovie (2011: 34).

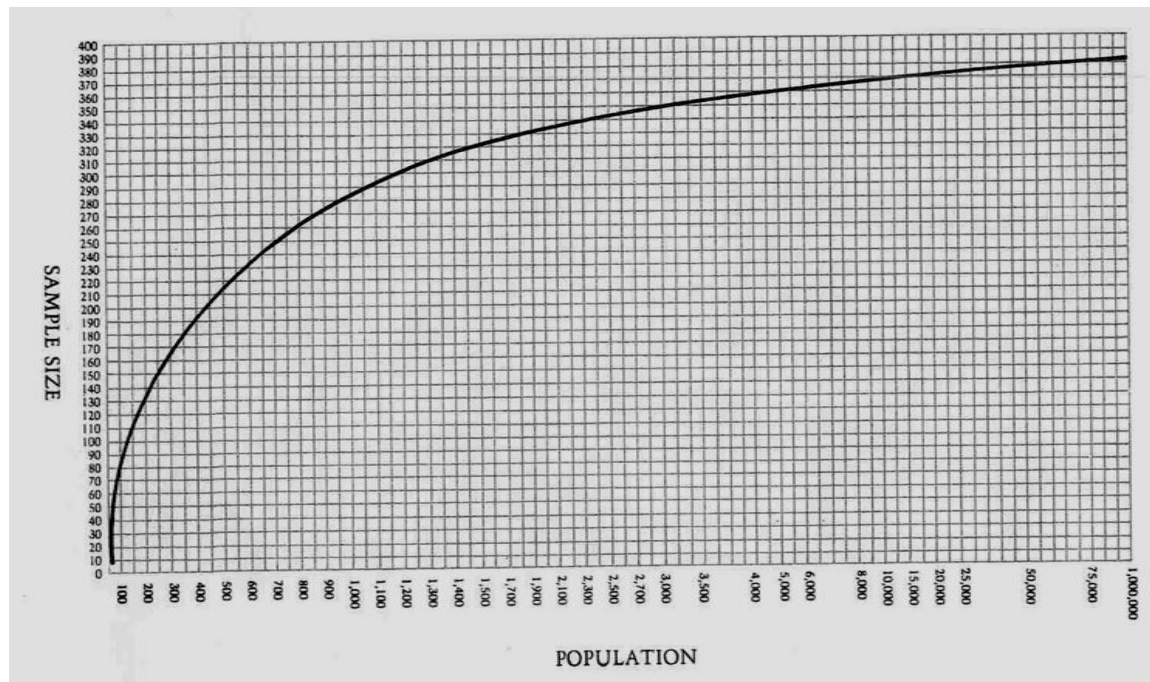


Figure 1. Determination of minimum sample size from population

The instrument for data collection in this research was the Interest in Learning and Attitude to School Scale (ILASS). The instrument had two parts. Part A composed of 30 items, measures students' interest in learning with 0.79 Cronback coefficient alpha reliability and 0.89 internal consistency evidence of construct validity. Part B measures students' attitude to school with 27 items and it has 0.82 reliability and 0.87 construct validity via internal consistency source. Each item in the instrument was structured in the modified Likert scale format of Strongly Agree, Agree, Disagree and Strongly Disagree. The ILASS was administered to the students at the expiration of registration period for the 2013 May/June SSCE (Senior Secondary Certificate Examination). The academic achievement data were collected from the results of the 2013 May/June SSCE, conducted by the West African Examination Council (WAEC). The SSCE results for each of the four subjects Mathematics, English Language, Biology and Economics) were scored from 9 points for the best possible grade (A1) to 1 point for the least possible grade (F9) such that the a student who made A1 in all the four subjects had total points of 36, while a student who got F9 in all the four subjects had 4 points as his total score. Multiple regression statistical technique was used for data analysis with the aid of IBM SPSS Version 22 to answer the research questions and test tenability of each postulated null hypothesis at 0.05 alpha.

3. RESULTS AND DISCUSSION

Findings of the investigation are presented in *Tab. 1a-e* and briefly discussed in this section. The part **a** (descriptive statistics) shows that the students' academic achievement has a mean and standard deviation of 15.46 and 4.938, respectively. While interest in learning has a mean of 69.44 and standard deviation of 31.487, their attitude to school has mean of 60.16 and 26.076 standard deviation.

The **b** part of **Tab. 1** shows pairwise correlation coefficients, indicating the actual significance level for each that:

- i) academic achievement and interest in learning has r of .329 which is significant ($p < .05$)
- ii) academic achievement and attitude to school has r of .374 that is significant ($p < .05$)
- iii) interest in learning and attitude to school has r of .149 which is significant ($p < .05$).

These correlation coefficients serve as answers to the first three research questions that were posed in the study. They have also indicated that each of the first three null hypotheses is rejected as the correlation coefficient is statistically significant at 0.05 alpha.

Part **c** of **Tab. 1** portrays multiple regression (R) of .465, regression square (R²) of .216, adjusted R² of .213 and standard error of the estimate of 4.380. It equally shows the change statistics that R² change is .216 which means that the predictors (interest in learning and attitude towards school) jointly accounts for 21.6% of the variance in the criterion (students' academic achievement) and this prediction is statistically significant (p < .05) at 2 and 515 degrees of freedom (df). With the information here, the sixth research question has been answered and the sixth null hypothesis rejected as there is overwhelming preponderance of evidence that students' attitude to school and interest in learning significantly predict their academic achievement, accounting for as much as 21.6% of the variance in the criterion.

Part **d** of the **Tab 1** indicates that when converted to ANOVA, the prediction of students' academic achievement with their attitude to school and interest in learning has regression sum of squares of 2727.114, df of 2 and mean square of 1363.557. The residual sum of squares is 9881.452 with 515 df and 19.187 mean square. The total sum of squares is 12608.566 with 517 df. The resultant F of 71.066 is statistically significant. This further rationalizes the rejection of the sixth null hypothesis.

Lastly, part **e** of **Tab.1** (coefficients) illustrates the unstandardized multiple regression of .044 for interest in learning, and .063 for attitude towards school. Of greatest practical importance are the standardized regression coefficients (Beta) as they are actually tested for significance of the contribution of each of the predictor variables in predicting the criterion variable (Kpolovie, 2011) as required to answer the fourth and fifth research questions and test the corresponding null hypotheses. The Beta for students' interest in learning is .279 with t of 7.080 that is statistically significant (p < .05); and for students' attitude to school, the Beta is .332 with t of 8.427 that is also significant statistically (p < .05). Thus, the fourth and fifth null hypotheses are rejected as interest in learning and attitude to school independently contributes significantly in the prediction of students' academic achievement.

Table 1a-e. Multiple regression output

a) Descriptive Statistics

	Mean	Std. Deviation	N
ACADEMICACHIEVEMENT	15.46	4.938	518
INTERESTINLEARNING	69.44	31.487	518
ATTITUDETOSCHOOL	60.16	26.076	518

b) Correlations

		ACADEMICACHIEVEMENT	INTERESTINLEARNING	ATTITUDETOSCHOOL
Pearson Correlation	ACADEMICACHIEVEMENT	1.000	.329	.374
	INTERESTINLEARNING	.329	1.000	.149
	ATTITUDETOSCHOOL	.374	.149	1.000
Sig. (1-tailed)	ACADEMICACHIEVEMENT	.	.000	.000
	INTERESTINLEARNING	.000	.	.000
	ATTITUDETOSCHOOL	.000	.000	.
N	ACADEMICACHIEVEMENT	518	518	518
	INTERESTINLEARNING	518	518	518
	ATTITUDETOSCHOOL	518	518	518

c) Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.465 ^a	.216	.213	4.380	.216	71.066	2	515	.000

d) ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2727.114	2	1363.557	71.066	.000 ^b
	Residual	9881.452	515	19.187		
	Total	12608.566	517			

a. Dependent Variable: ACADEMICACHIEVEMENT

b. Predictors: (Constant), ATTITUDETOSCHOOL, INTERESTINLEARNING

e) Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.628	.605		14.261	.000	7.439	9.816
	INTERESTINLEARNING	.044	.006	.279	7.080	.000	.032	.056
	ATTITUDETOSCHOOL	.063	.007	.332	8.427	.000	.048	.078

a. Dependent Variable: ACADEMICACHIEVEMENT

In summary, the findings of this investigation are that:

1. Students' interest in learning and their academic achievement are significantly correlated positively.
2. Students' attitude towards school positively correlates significantly with their academic achievement.
3. Students' interest in learning correlate positively significant with their attitude towards school.
4. Students' interest in learning significantly predicts their academic achievement.
5. Students' attitude to school predicts their academic achievement significantly.
6. Interest in learning and attitude to school jointly predict students' academic performance significantly.

Correlation and prediction of students' academic achievement with interest in learning

The **first** and **fourth** findings of this investigation that in addition to being significantly related to students' academic performance, interest in learning significantly predicts academic achievement, are in support of Silvia (2006); Paul (2013); and Paul, 2013. Silvia on the basis of his findings, recommended that interest play central role in cultivating knowledge and expertise, and therefore psychologists should apply research on interest to practical problems of learning, education, and motivation. Paul (2013) found that interest cognitively engages students and fosters learning significantly. Thus, the first and fourth results of the current study tend to disagree with the seemingly endless list of works on psychology that do not even view interest as a crucial psychological trait that is highly related with and could influence learning and some other associated constructs like attitude (Brannon & Feist, 2007; Vaughn & Bos, 2009; Kirk, Gallagher,

Anastasiow & Coleman, 2006; Sternberg, 2006; Reisberg, 2006; Cauley, Linder & McMillan, 1999; Funder, 2007; Littrell, Lorenz & Smith, 1996; Arnold, 2005; Tepperman, 2006; Kantowitz, Roediger III & Elmes, 2005; Paul, 2004).

Paul (2014) found that of recent psychologists have started to investigate interest and the results are impressive, asserting that: “in recent years researchers have begun to build a science of interest, investigating what interest is, how interest develops, what makes things interesting, and how we can cultivate interest in ourselves and in others. They are finding that interest can help us think more clearly, understand more deeply, and remember more accurately. Interest has the power to transform struggling performers, and lift high achievers to a new plane.” Also, that interest is both a psychological state of engagement that is experienced at the moment, and a predisposition to engage repeatedly in particular ideas, events, or objects such as learning over time for improvement of academic performance.

The findings of the current work also corroborates those of previous works by Kpolovie (2007; 2010a; 2010; 2012), Hidi (2001), Barron (2006), Subramaniam (2009), Hussin, Maarof and D’Cruz (2001), and Eberly Center (2014) that interest in an activity, such as learning, could most probably be a very powerful affective psychological trait and a very strong knowledge emotion as well as an overwhelming magnetic positive feeling, a sense of being captivated, enthralled, invigorated and energized to cognitively process information much faster and more accurately in addition to most effective application of psychomotor traits like self-regulatory skills, self-discipline, working harder and smarter with optimum persistence to ensure good academic performance.

The current findings equally tend to agree with the works of Harackiewicz, Durik, Barron, Linnenbrink-Garcia and Tauer (2008) on influence of interest on academic and professional performance; Loewensein (1994) on interest and curiosity in learning; Alamieyeseigha and Kpolovie (2013), U.S. Department of Education (2010a; 2010b) as well as Hayden, Ouyang, Scinski, and Bielefeldt (2011) on interest and better preparation of the U.S. workforce to acquire extra skills in science, technology, engineering and mathematics. Emerick (2007) had also provided empirical support for relating the individual's perception of his inadequacy in school learning to the development of related interests, attitudes, and academic self-concept. The results of Krapp, Schiefele and Winteler (2009) and Krapp (1999) on the group of factors that influence achievement which is largely dominated by interest are also supported by the findings in the current work. Part of the conclusions of Hidi (2001) and Renninger, Hidi and Krapp (2014) that interest, level of effort put in reading and learning style adopted might hold some influence on academic performance is confirmed by the present work which has shown that students’ interest in learning overwhelmingly predicts their academic performance. On the contrary, the conclusion reached by Goulart and Bedi (2011) that interest in school or learning has no bearing on students’ academic achievement is not supported by results of the current work.

Correlation and prediction of students’ academic achievement with attitude to school

The **second** and **fifth** of these findings that attitude towards school does not only correlate significantly with academic achievement, but actually predicts students’ academic achievement significantly is in support of all the reviewed works that indicated close association between the two variables (attitude to school and academic achievement) in institutions of learning. For instance, the findings are in line with results of the study carried out by Fakaye (2010) who investigated the relationship between students’ personal variables such as attitude and academic ability and their achievement in English Language. Fakaye’s study showed that there was a positive relationship between students’ attitude and their academic achievement in English Language. Findings of the present study are also in line with the results of Akey (2006) when she studied school context, students’ attitudes and behavior, and academic achievement. The findings were that both variables are significant predictors of school performance.

Yara (2009) while studying students’ attitude towards mathematics and academic achievement in some selected secondary schools in Southwestern Nigeria also found that students’ attitudes towards school subjects like mathematics were positive correlated with academic performance in the subjects; and that many of the students believed that mathematics is a worthwhile and necessary subject which can help them in their future career. In all it is obvious that a good

attitude towards any endeavor, most of all academic pursuit, will certainly bring about positive result. According to Harrell (2005), attitude is everything. Positive attitude to school is indispensable for success, particularly general academic performance; and negative attitude to school is linked to poor performance academically.

Some available research have revealed that students with lower performance and higher rate of school failure have more negative attitudes as previous school performance experienced by the students have great influence on the attitudes they shown toward school, learning and commitment to school (Candeias, Rebelo and Oliveira, 2013; Kpolovie, 2007; Kpolovie, 2012a). Linnehan (2008), Kuperminc, Daniel and Alvarezlimenez (2008) asserted further on the basis of data gathered and analyzed that students who receive more support from adults and colleagues who live with them at school and at home have more positive attitudes and academic values and feel more satisfied with school. Consequently, they make better grades than their counterparts with negative attitude to schooling.

All the efforts made in successful development of standardized scales for the measurement of students' attitudes toward school or school related subjects are based on the supposition that to an extent, academic performance depends on the nature (positive or negative) and magnitude (strength) of such attitudes (Gokhale, Brauchle & Machina, 2013). If students' attitude has no bearing on their academic performance, it will be needless undergoing all the hassles of test development to measure it.

Kpolovie (2014a) had also posited that attitude to school is essentially relatively stable evaluations of school-related situations such as schooling, aspects of school, school subjects, persons in school, teaching-learning transactions, and testing along a continuum that range from highly positive to very negative. Poor attitude to all these could hamper academic performance. For excellent performance in the various tests, good attitude to school is necessary. Attitude has three components (Wood & Wood, 2002): 1) a cognitive component – thoughts and beliefs about the attitudinal object; 2) an emotional component – feelings toward the attitudinal object; and 3) a behavior component – predispositions concerning actions toward the object. With highly positive attitude to school, a student's satisfactory academic achievement tends to be guaranteed as such performance depends on the cognitive, affective and psychomotor domains.

Correlation between interest in learning and attitude to school and their joint prediction of students' academic achievement

Students' attitude to school and their interest in learning are significantly related. This is not surprising as the students with much better attitude to school are bound to be more interested in learning and more frequently be engaged in studying, using better information processing stiles in learning as revealed by the findings of Kpolovie (2010b) that information processing stiles and types of learning have significant effects on students' learning. In consonance with statistical logic (Kpolovie, 2012), the result that students' academic performance is significantly predicted jointly by their attitude to school and interest in learning is rightly anticipated because students' academic achievement is significantly predicted independently by their interest in school and attitude to learning, coupled with the fact that the two predictors and the criterion have significantly high multiple. The predictor jointly account for as high as 21.6% of the variance in students' academic achievement.

4. CONCLUSION

Based on the foregoing findings and discussion, apt conclusions can be drawn that this investigation has indeed revealed overwhelming preponderance of data-based evidence that students' interest in learning and attitude towards school jointly and separately predict academic performance in the Senior Secondary Certificate Examination conducted by the West African Examination Council, particularly in English Language, Mathematics, Biology and Economics (the subjects that operationally constituted academic performance in this study). Of course, to significantly predict academic performance, the predictors must have first of all correlated significantly with themselves and with academic achievement jointly and independently as shown in *Tab. 1b*. The prediction of academic performance implies the great need for both teachers and parents to be actively involved in the improvement of students' interest in learning and attitude to school for possible amelioration of the students' academic performance in the SSCE.

RECOMMENDATIONS

1. It is recommended that teachers should device modern methods of teaching to arouse students' interest in learning each of the various subjects. Inadequacy and inappropriateness of the instructional methods and materials used for teaching-learning interactions may only handicap academic performance by blocking students' interest in learning and worsening their attitude to school.
2. Teachers and parents should try and build self-confidence in their wards/students as it could boost students' interest in learning and improve their attitude towards school.
3. Igniting a spark of energy and fervour in children to learn and succeed in academic and life pursuits is a fundamental role of teachers and parents alike. It is recommended that students should be adequately motivated in their studied do well not only in examinations but in the setting and attainment of excellent life-long goals.
4. Since interest in learning plays irresistible role in significantly predicting academic performance, psychologists need not delay in unanimously accepting and adding interest as an indisputable psychological construct; and in according the trait the desired attention by investigating the relative influence that it whales over several other psychological attributes. Such inclusion and attention could help greatly in psychological praxis that essentially deals with ascertainment of why people act the way they do and the imminent consequences.

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