

**TEACHERS' CONTROL ORIENTATION AND SELF-EFFICACY
BELIEF AS PREDICTORS OF STUDENTS' MATHEMATICS
ACHIEVEMENT MOTIVATION AND TASK
PERSISTENCE IN ENUGU STATE**

BY

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UNIVERSITY OF NIGERIA, NSUKKA**

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TITLE PAGE

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APPROVAL PAGE

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DEDICATION

This Ph.D thesis is dedicated to my husband, Chief Ugwuanyi, G. N. and our children who never relented to see me through this course of study.

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ABSTRACT

This study investigated teachers' control orientation and self-efficacy belief as predictors of students' Mathematics achievement motivation and task persistence in Enugu State. The purpose of this study was to determine the predictive power of Mathematics teachers control orientation and self-efficacy belief on students' Mathematics achievement motivation and task persistence in Enugu State. Six research questions and six null-hypothesis were formulated, answered and tested. The study adopted a correlational survey research design. The population of this study was 48705 consisting of respondents all the 48414 senior secondary class two students and the 291 Mathematics teachers of senior secondary two. The sample size was 636 comprising 607 students (311 females and 296 males) and 29 SS II Mathematics teachers. Multi-stage sampling technique was used. Four instruments were used to collect data namely Mathematics Teachers Control Orientation Inventory (MTCOI), Mathematics Teachers Self-Efficacy Belief Scale (MTSEBS), Students Mathematics Achievement Motivation Rating Scale (SMAMRS) and Students Mathematics Task Persistence Scale (SMTPS). The instruments were validated by three experts, two in the Department of Educational Foundations and one in Educational Measurement and Evaluation. The data was collected with the help of research assistants through direct delivery method. The data collected were analyzed using multiple regression analysis. Pearsons Moment Correlation Coefficient ® and R-square to answer the research questions, while ANOVA was used to test the null-hypotheses at 0.05 level of significance. The result of this study showed that There is a very low predictive power of teachers' control orientation on students' mathematics achievement motivation. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation, There is a low predictive power of teachers' self-efficacy on students' mathematics achievement motivation. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation, There is a very low predictive power of teachers' control orientation on students' mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics task persistence, There is a very low predictive power of teachers' self-efficacy on students' mathematics task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics task persistence. There is a low predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation and mathematics task persistence, There is a very low predictive power of teachers' self-efficacy on students' mathematics task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation and mathematics task persistence. The results have educational implications for teachers' control orientation and self-efficacy belief as credible tools for enhancing students' Mathematics achievement motivation and task persistence. Based on the findings, the following recommendations among others were made: The government should employ only qualified Mathematics teachers. The government should hold workshops and seminars for teachers to improve their control orientations and the teachers should encourage the students to work in groups and as cooperate individuals on tasks.

CHAPTER ONE

INTRODUCTION

Background of the Study

Nigeria is in a world where science and technology have become an integral part of the global culture. Any country that toys with science and technology does so at the risk of roping in darkness in a technological fast moving world. Science in itself is a weapon that catapults technological development of any kind. It is the work of science that makes the world smaller for one can reach a person anywhere in the world in a few seconds through technology. In modern technology, we can get a lot of information from the internet, television and radio. In this modern world where emphasis is laid on industrial and technological development, Nigeria encourages students at all levels of schooling to take science and technology related subjects. Ekwueme & Meremikwu (2013) stated that no nation can achieve meaningful measure of scientific and technological advancement without proper foundation in school Mathematics and science.

Mathematics, as the pivot of all sciences play immeasurable role in the development of science and technology. Ugwu (2016) affirmed that Mathematics is both the language and the tool of sciences which enables the scientists to carry out their researches and inventions; investigate and predict the future and generally improve the world (Maria, Chima & Onyeozili, 2005). Mathematics is a kind of logical structure, a series of methods for deriving conclusions or the essence of our knowledge of the physical world and a framework whose body built is the sciences (Kayode, 2018). Operationally, Mathematics can be defined as a course of study that uses signs and symbols to train for logical thinking and drawing conclusions. It is worthy of note that the importance of Mathematics cannot be over emphasized since mathematical operations are needed by scientists, farmers, house wives,

businessmen, carpenters, architects, surveyors as well as petty traders and therefore students must not escape from learning Mathematics if they must receive effective and balanced education.

In Nigerian secondary schools, the government made it compulsory that Mathematics is taught everyday and it is a prerequisite for admission into Nigerian tertiary institutions for all courses. Considering the importance of Mathematics, the government established National Mathematics Centre (NMC) in the year 2000 in Kaduna for the improvement of teaching and learning of Mathematics. This centre conducts competitions like Mathematics Olympia across the schools in which prizes are won and the year 2012 was even declared National Mathematics Year for Nigeria (Ali, 2012). Experts in Mathematics produce Mathematics texts with teachers' guides and students' activities to improve the study of Mathematics in schools.

According to the Federal Republic of Nigeria in her National Policy on Education (FRN, 2004), Mathematics is compulsory for every child to acquire the appropriate Mathematical skills that will enable the child cope with life challenges. This is aimed at laying a sound basis for scientific and critical thinking, giving the child opportunities for developing manipulative skills that will enable the child function effectively in the society within the limits of the child's capacity (FRN, 2004). The National Mathematics Centre developed kits for primary and secondary schools used for the retraining of teachers all over the nation to help rekindle and sustain students' interest and determination in the study of Mathematics and sciences. Other corporate organizations such as Promasidors Nigeria Limited (Makers of Cowbell Milk) and Macmillan publishers have programmes for secondary school students aimed at reawakening the students' interest and determination in Mathematics. Examples of such programmes included the 2008 and 2009 Cowbell National

Secondary School Mathematics competition and the 2008 Macmillan workshop on effective teaching of Mathematics.

Mathematics is all about finding solution to problems. Decisions are taken on answering such questions as what and how by converting every statement to mathematical statement before solutions are proffered. Adedeji (2008) affirmed that the depth of mathematical knowledge an individual has dictates the level of accuracy of the individual's decision. This indicates that before a person can function well in a society, the person must possess or have relatively good knowledge of Mathematics especially in this technological era. Ademolu (2017) further stressed that Mathematics liberates the mind and gives individuals an assessment of the intellectual abilities by pointing towards direction of improvement. Ademolu concluded that Mathematics is the basis of all sciences and technology which cuts across all areas of human endeavours. Ademolu's findings on the study of some teacher variables such as qualification, attitude, experience, self-efficacy and interest as predictors of students' academic achievement affirmed that in the Nigerian context, research on teacher variables is silent. It is necessary that studies on some other teacher variables as predictors of students' academic achievement be carried out.

In spite of all the efforts made above by the Nigerian government and private individuals to promote teaching and learning of Mathematics, most students presume that Mathematics is a very difficult subject and become afraid of Mathematics and so that they still achieve below expectations. For instance in Enugu State, the candidates who sat for West African Senior School Certificate Examination (WASSCE) from the year 2012 through 2015 did not achieve better grades in Mathematics as can be seen below. Of all the candidates who sat for the examination in 2012, 38.8 percent had credit and above in

Mathematics. In 2013, 36.57 percent had credit and above passes in Mathematics. In the year 2014, of all the candidates who sat for the examination, only 31.28 percent had credit and above passes in Mathematics and in 2015 they had only 38.65 percent credit and above in Mathematics (WAEC, 2012-2015, Statistics and Planning Unit, PPSMB, Enugu). Taiwo (2014) confirmed this degrading situation and revealed that of all the candidates who sat for WASSCE in 2012, about 61 percent failed, in 2013, failure rose up to 63 percent. In 2014, over 70 percent failed and in 2015, 65 percent failed in the subject (Abah & Adebayo, 2015). These rising failure in Mathematics calls for concern.

A number of research efforts have been made in the area of teaching and learning of Mathematics to proffer solutions that can enhance better teaching and learning of Mathematics. For instance, Onyishi (2014) and Ugwu (2016) carried out studies on the influence of teachers' content learning strategies, competence and control orientation on students Mathematics task persistence, self-efficacy belief and achievement. Onyishi and Ugwu made some recommendations that can proffer solutions to improving students Mathematics achievement and persistence. These included the use of discovery approach to teaching, proper use of instructional materials, employment of only qualified Mathematics teachers and among others. Discovery approach of learning is a method whereby the learner is guided by the teacher to discover facts and formulae through observations and organized activities. Instructional materials help to make mathematical concepts more real and limit the abstractness of the subject.

Teachers as the facilitators of learning and instruction exhibit control over the learners' behaviours that necessitate their learning, achievement motivation and task persistence. Teachers' control orientation is the control teachers exercise over the students for effective

learning which can be humanistic (autonomy) or authoritarian (control) (Deci & Ryan, 2005). Humanistic teachers are patient, congenial and easily approached by the students. They are responsive to students' self-discipline and independence (Agne, Greenwood, & Millar, 2004). This type of teachers establishes relaxed and flexible classroom settings. Authoritarian teachers are primarily concerned with the maintenance of order. Students' misbehaviours are regarded as personal affront which must be controlled through the application of punitive sanctions. Authoritarian teachers have rigid classroom settings. Athanasiou & Philippou (2007) suggest that the way students approach learning tasks, the cognitive and affective processes they deploy and the level of learning they ultimately attain depend, to a great extent, on whether students are operating from a humanistic or authoritarian control orientation. The type of control a teacher exhibits depends on the teacher's self-efficacy belief.

The term self-efficacy has been defined as an individual's judgement of his or her capability to organize and execute the courses of action required to attain designated types of performances (Bandura, 1986). Bandura further stated that self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations. In other words, self-efficacy is a person's belief in one's ability to succeed in a particular situation. People with high efficacy set themselves challenging goals and maintain strong commitment to them. They attribute failure to insufficient effort or deficient knowledge and skills which are acquirable and approach threatening situations with assurance of having control over them. Self-efficacy belief is a term used in psychology about a person's belief in his capability. Self-efficacy belief is a belief in one's own competence (Bandura, 2008). Bandura argued that people create and develop self-perceptions of capability that become instrumental to the goals they pursue and to the control they exercise

over their environment. Bandura emphasized the role of self-reference beliefs in which individuals are viewed as proactive and self-regulating rather than as reactive and controlled by biological forces. Individuals are understood to possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions. According to Bandura, how people behave can be better predicted by beliefs they hold about their capabilities rather than by what they are actually capable of accomplishing for the people's perceptions help determine what they do with the knowledge and skills they have. According to Pajares and Miller (2001), self-efficacy belief influence the choices people make, the courses of action they pursue, the amount of stress and anxiety they experience as they engage in an activity. Operationally, teachers' self-efficacy belief can be defined as the belief in their capabilities to bring about the desired outcomes of teaching and learning. Teachers' self-efficacy has been shown to be strongly related to teachers; adoption of innovations and classroom management strategies which increase and preserve student motivation and self-esteem with the possibility of being translated into more success for individual students (Good & Brophy, 2003). Efficacious teachers may therefore influence the students' achievement motivation.

Achievement motivation can be perceived as self-determination to succeed in whatever activities one engages in, be it academic work, sporting events among others (Gesinde, 2000). Gesinde asserts that the urge to achieve varies from one individual to the other. For some individuals, the urge for achievement is very high, whereas for others it may be very low. Achievement motivation is believed to be learnt during socialization processes and learning experiences. Gesinde posits that those who have high achievers as their models in their early life experiences would develop the high need to achieve, while those who have low achievers as their models hardly develop the need to achieve.

Contemporary achievement motivation literature discusses other concepts all subsumed under the term motivation (Murphy & Alexander, 2000). The three most prominent approaches are: need achievement theory, expectancy-value and trait of personality. As the need for achievement is part of a person's personality, it is thought to trigger behaviours across different situations. Expectancy-value theory is explained by expectancies for future success and the value ascribed to a task. Trait of personality is the qualities in a person's character as dullness; vibrant, slow learner among others. One is motivated to do a task depending on the value of that task (Wigfield & Eccless, 2002). Operationally, achievement motivation can be defined as the strong desire to acquire new skills, ideas, materials, position, knowledge to add to the already existing ones. Achievement motivation, as the desire to achieve determines the level of task persistence because of the value one ascribes to a task (Ricardo & Birgit, 2009).

Task persistence is the ability to stick with something in spite of distraction, physical or emotional discomfort or lack of immediate success (Sandie, 2012). Task persistence can also be defined as maintaining activity, despite fluctuations of pain intensity. Task persistence implies that a person sets out to accomplish a task not minding the pains or obstacles which the person may come across until the person is successful. Task persistence relates to task value (Wigfield & Eccless, 2002). Task value is defined as an incentive for engagement in academic activities and consists of four components: attainment value, intrinsic value, utility value and cost. Attainment value is the importance of doing well in a given task. Intrinsic value is the enjoyment one gains from doing a task. Utility value refers to how a task fits into an individual's future plans. Cost refers to what the individual has to give up doing a task (Wigfield & Eccless, 2002). This means that an individual has to value a task before plunging into performing a task and that value determines the amount of

persistence and effort to be exerted in performing a task. Students study Mathematics in schools because Mathematics is a compulsory subject not that most students like to offer Mathematics as a subject. Students lack achievement motivation and task persistence for Mathematics hence the students' subsequent failures in Mathematics in external examinations as can be seen in the WASSCE from the years 2012 through 2015. Experience has shown that most students either absent themselves from Mathematics classes or just sit tight in the class and wait for the next subject to come up. These ugly situations are not favourable since Nigeria is in a fast moving technological world which is the global culture. Nigeria needs industrial and technological advancement for economic growth and the Nigerian child needs to acquire scientific and manipulative skill that should enable the child face life challenges in order to survive. It is against this background that this study examined teachers' control orientation and self-efficacy belief as predictors of students Mathematics achievement motivation and task persistence.

Statement of the Problem

Mathematics as a base for all sciences plays immeasurable role in the life of every student. It is very vital since it requires reasoning and logical thinking which makes for scientific learning and technological development. In secondary schools, Mathematics is taught everyday and it is a prerequisite for admission into Nigerian tertiary institutions for their courses. In spite of the efforts being made to motivate the students, they continue to display low achievement motivation and perform poorly in Mathematics. Generally, it is a well known fact that most students in the secondary schools regard Mathematics as a very difficult subject. Experience has shown that most students are afraid of Mathematics and

therefore lack achievement motivation and persistence in Mathematics tasks hence their subsequent failures in Mathematics at school and in public examination. This calls for serious attention for all stakeholders in Education to proffer solutions that can make students to be determined to study Mathematics hence the need for scientific and technological advancement of our country. The problem of this study stated in a question form is: What is the predictive power of teachers' control orientation and self-efficacy belief on students' Mathematics achievement motivation and task persistence?

Purpose of the Study

The purpose of this study was to determine the predictive power of teachers' control orientation and self-efficacy belief on students' Mathematics achievement motivation and task persistence. Specifically, this study sought to determine:

1. The predictive power of teachers' control orientation on students' Mathematics achievement motivation.
2. The predictive power of teachers' self-efficacy belief on students' Mathematics achievement motivation.
3. The predictive power of teachers' control orientation on students' task persistence.
4. The predictive power of teachers' self-efficacy belief on student's task persistence.
5. The predictive power of teachers' control orientation on students' Mathematics achievement motivation and task persistence.

6. The predictive power of teachers self-efficacy belief and students' Mathematics achievement motivation and task persistence.

Significance of the Study

The significance of this study was derived from the theoretical and practical bases of teachers' control orientation and self-efficacy belief on students Mathematics achievement motivation and task persistence. Theoretically, this study exposed the important aspects of the theories of teachers' control orientation and self-efficacy belief on students achievement motivation and task persistence. Glasser's control theory states that a person's behaviour is inspired by what the person needs at that particular time not an outside stimulus. A person then makes choice of his needs and adjusts his behaviour to satisfy his needs. People need to be recognized as individuals. They need to survive, belong, loved, have power, freedom, independence and fun. As social beings, people need to work in groups and as co-operate individuals to gain the above. Glasser stressed that through group and cooperative efforts one can regain ones previous losses in future.

In practical terms the government, authors of Mathematics texts, curriculum planners, teachers and the students will benefit from this study if properly publicized through workshops, publications and seminars. The government should employ only qualified Mathematics teachers. The government should hold workshops and seminars for the teachers to identify the dynamics of teachers' control and improve students learning of Mathematics. The publishers of Mathematics should simplify their text as much as they can so that the students should attracted and enjoy learning Mathematics. The curriculum planners should

carefully select teachers and students activities for each topic and they should not lump together many topics to be covered in each school term or year.

The teachers having been acquainted with the dynamics of teachers' control orientation can build the students achievement motivation and task persistence by relating well with the students and by linking the new tasks with the previous tasks. The teachers should encourage the students to set attainable goals and help them achieve the goals. The teachers should set heterogeneous tasks for the students so that each student can earn some marks at any time. The teachers should make the students understand that they are in control of their destiny and that no stable force is controlling the learning of Mathematics. The teachers should make their lessons as simple as possible and allow the students to co-operate among themselves. Group work should be highly stressed. The Mathematics class should be very free and relaxed. The students should be helped to evaluate themselves and adjust to improve. The students should benefit through working in groups and cooperatively among themselves. The students should also benefit from the teachers' encouragement and good control which should boost their morale towards learning of Mathematics and achieving better through persistence.

Scope of the Study

The study was delimited to only the senior secondary two students (SS II) and their Mathematics teachers' in all the six education zones in Enugu State of Nigeria. Specifically, the study focuses on teachers' control orientation and self-efficacy belief as predictors of male and female students' Mathematics achievement motivation and task persistence. The senior secondary two (SS II) students were used because they were neither involved in any external

examination immediately nor; were they adjusting to the senior secondary curriculum as the SS I students. The predictor variables in this study include teachers' control orientation and self-efficacy belief while the dependent variables were students' Mathematics achievement motivation and task persistence.

Research Questions

The study addressed the answers to the following questions:

1. What is the predictive power of teachers' control orientation on students' Mathematics achievement motivation?
2. What is the predictive power of teachers' self-efficacy belief on students' Mathematics achievement motivation?
3. What is the predictive power of teachers' control orientation on students Mathematics task persistence?
4. What is the predictive power of teachers' self-efficacy belief on students' Mathematics task persistence?
5. What is the predictive power of teachers' control orientation on students' Mathematics achievement motivation and task persistence?
6. What is the predictive power of teachers' self-efficacy belief on students' Mathematics achievement motivation and task persistence?

Hypotheses

The following null hypotheses (Ho) were tested at 0.05 level of significance and guided the study:

- H₀₁: Teachers' control orientation will not significantly predict students Mathematics achievement motivation.
- H₀₂: Teachers self-efficacy belief will not significantly predict students Mathematics achievement motivation.
- H₀₃: Teachers control orientation will not significantly predict students Mathematics task persistence.
- H₀₄: Teachers self-efficacy belief will not significantly predict students Mathematics task persistence.
- H₀₅: Teachers' control orientation will not significantly predict students' Mathematics achievement motivation and task persistence..
- H₀₆: Teachers' self-efficacy belief will not significantly predict students' Mathematics achievement motivation and task persistence.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter examined some literature related to the study. In doing this, the researcher organized the review under the following headings: conceptual framework, theoretical framework, review of empirical studies, and summary of review of literature.

Conceptual Framework

Concept of :

Control Orientation

Self-efficacy Belief Achievement

Achievement Motivation

Task Persistence

Schematic Diagram Showing Relationship among Key variables and Expected Outcome.

Theoretical Framework

Glasser's Control Theory Approach to Classroom Management (1996)

J.B. Weiner's Attribution Theory of Motivation (1979)

J.W. Atkinsons' achievement need theory (1976)

Bandura's Self-efficacy theory (1986)

Review of Empirical Studies

Studies related to teachers' control orientation on students achievement motivation.

Studies related to teachers' control orientation on students task persistence

Studies related to self-efficacy belief and achievement motivation.

Studies related to self-efficacy belief and task persistence.

Summary of Review of Literature

CONCEPTUAL FRAMEWORK

Concept of Control Orientation

Control orientation is viewed from two dimensions; autonomy versus control or humanistic versus authoritarian. The concept of autonomy versus control grew from cognitive evaluation theory (Deci & Ryan, 1985) which argues that adults tend to have a general orientation toward dealing with children which can be viewed as ranging from supporting the children's autonomy to controlling the children's behaviours. Those who tend to control the children's behaviours through the use of external controls as rewards and comparisons are considered as controlling, whereas those who sought to minimize salient external controls and instead attempt to take the students internal frame of reference with respect to problems, ideas and initiatives are considered as autonomy supportive. From a humanistic view, the school is regarded as educational community in which the students learn through co-operative interaction and experience. In contrast, the authoritarian orientation

depict a classroom atmosphere with a rigid and highly controlling setting concerned primarily with the maintenance of order (Willower, 2000). Misbehavior is regarded as personal affront and students are perceived as persons who must be controlled through the application of punitive sanctions. Authoritarian educators manifest suspicion and distrust of students often addressing them in unpleasant and angry manner. They react personally and judgementally towards students who misbehave (Lunenburg & Mankowsky, 2006). Teachers control orientation can be defined as all the overt and covert strategies teachers can apply to control the students behaviours to make them learn in a desired manner which can be humanistic or authoritarian. The control is embedded in teachers' habits and relationship with the students (Glasser, 2008). Operationally, Teachers control orientation is the type of control teachers' exercise over the learners for effective teaching and learning which can be humanistic or authoritarian. Students might perceive these situations differently which may influence their achievement motivation and task persistence. Some may perceive the teacher as humanistic while some may perceive the same teacher as authoritarian. Control orientation is the control adults exercise over the children's behaviours that can be seen as humanistic or authoritarian.

Teachers control orientation was defined by Ngwuoke & Akaneme (2010) as the direction to which teacher discipline strategies tend on a continuum of internal-external (teacher learner) control. In other words, it is the discipline strategies teachers employ to effect the delivery of instruction for improved teaching and learning. Ngwuoke & Akaneme pointed out that the discipline strategies can be charted as a continuum to depict a pattern of total teacher-control on the one end and total learner – control on the other end of the continuum. This implies that teacher control orientation; whether the students should be controlled or be given freedom to make decision determines the structure of the classroom which in turn influences the students' motive to learn. Operationally teachers control

orientation is the control teachers exercise over the students, behaviours that can be seen as humanistic or authoritarian. The present study examined the predictive value of teachers control orientation and self-efficacy belief on the students Mathematics achievement motivation and task persistence.

Concept of Self-Efficacy Belief

Self-efficacy belief has been identified as an important motivational factor that influences learning and performance. Self-efficacy was introduced by Bandura (1977), self-efficacy refers to peoples ability to perform an action successfully. Bandura (1997) further stressed that belief has a lot to do in human functioning which he refers to as self-reference beliefs. Bandura opined that self-efficacy belief is a peoples belief in their capabilities to organize and execute courses of actions to attain a goal. A multidimensional construct self-efficacy belief influences human functioning directly and indirectly through its effects on determinance of behaivour, motivation, self-regulation, attribution and emotion. Self-efficacy belief is not merely a self-recognition of being good in school, but judgement of capability in task specific skills to accomplish goals related to learning and performance (Pintrich and Schunk, 2002). For instance, self-efficacy in Mathematics may not be the same for English language . Self-efficacy is future-oriented and represents individuals use of self-perceptions in successfully accomplishing a specific task (Bandura, 1997). Bandura identified two dimensions of self-efficacy; personal self-efficacy and outcome expectancy. Personal self-efficacy is the belief in one's capabilities to organize and execute the courses of action acquired to produce a given attainment whereas outcome expectancy is a judgement of the likely consequence such performance will produce. Personal self-efficacy he noted, is future

– oriented belief about the level of competence a person expects to display in a given situation. Bandura's outcome expectancy, is the notion based on the expected success of that action.

Self-efficacy belief is a term used in psychology roughly corresponding to a peoples' belief in their own competence (Bandura, 1997). Bandura argued that individuals create and develop self-perceptions of capability that become instrumental to the goals they pursue and to the control they exercise over their environment. Bandura proposed a view of human functioning that emphasized the role of self-referent beliefs in which individuals are viewed as proactive and self-regulating rather than as reactive and controlled by biological forces. Individuals are understood to possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions. According to Bandura how people behave, can often be better predicted by beliefs they hold about their capabilities which he called self-efficacy belief than by what they are actually capable of accomplishing for this self-perceptions help determine what individuals do with the knowledge and skills they have. Self-efficacy beliefs influence the choices people make, the courses of action they pursue, the amount of stress and anxiety individuals experience as they engage in an activity (Pajares & Miller, 2001).

Self-efficacy beliefs exercise a powerful influence on the level of accomplishment that individuals ultimately realize. Confident individuals approach difficult tasks as challenges to be mastered rather than as threats to be avoided. They have greater interest and deep engrossment in activities, set themselves challenging goals and maintain strong commitment to them. They heighten and sustain their efforts in the face of failure. They more quickly recover their confidence after failures or setbacks and attribute failure to insufficient effort or

deficient knowledge and skills which are acquirable. High self-efficacy helps create feelings of serenity in approaching difficult tasks and activities. Conversely people who doubt their capabilities may believe that things are tougher than they really are, a belief that fosters stress, depression and a narrow vision of how best to solve a problem, (Pajares & Schunk cited in Riding & Rayner, 2001).

Bandura & Goddard (2000) posited that people possess different self-efficacy for performing different actions namely: general self-efficacy, social self-efficacy, academic self-efficacy and teacher self-efficacy. General self-efficacy is commonly understood as demand – specific, that is one can have more or less self-efficacy in different domains or particular situation of functioning. This refers to the global confidence in one's coping ability across a wide range of demanding or novel situations. Social self-efficacy is an individual's confidence in his/her ability to engage in the social interactional tasks necessary to initiate and maintain interpersonal relationship. As a construct social self-efficacy has been variably defined, described and measured in the scientific literature as researcher begins to generalize Bandura's theory for specific applications.

Academic Self-efficacy refers to a students' belief that one can successfully engage in and complete course specific academic tasks, such as accomplishing course outcomes, demonstrating competence skills used in the course, satisfactorily completing assignments, passing the course and meeting the requirements to continue in one's major. Teacher self-efficacy pertains to one's perceived competence to deal with all demands and challenges that are implied in teacher's professional life. It is a teacher's judgement of the capabilities to bring about desired outcomes of student engagement and learning (Tschannen-Moran & Hoy,

2001). In other words, teachers' self-efficacy belief is a belief in the teacher's capability to carry out the work of teaching and learning successfully.

Students with strong sense of self-efficacy are more likely to challenge themselves with different tasks and be intrinsically motivated. These types of students will put forth a high degree of effort in order to meet their commitments and attribute failure to factors which are in their control, rather than blaming external factors. Self-efficacious students also recover quickly from setbacks and ultimately are likely to achieve their personal goals. Students with low self-efficacy, on the other hand believe that they cannot be successful and thus are less likely to make a concerted, extended effort and may consider challenging tasks as threats that are to be avoided. Students with low self-efficacy have low aspirations which may result in disappointing academic performances becoming part of a self-fulfilling feedback cycle (Bandura, Margolis & McCabe, 2006). In this study, self-efficacy belief is a belief in one's capability to carry out a task successfully. Operationally, self-efficacy belief is a belief in a person's ability to perform a task successfully.

Concept of Achievement Motivation

Motivation is an internal state that arouses, directs and maintains behaviour (Graham and Weiner, 2006). Hebb (2002) defined motivation as the process of arousing action, sustaining the activity in progress and regulating the pattern. Graham & Weiner posited that motivation is of two types – intrinsic and extrinsic motivation. It is intrinsic when one gets satisfaction from the task internally and extrinsic when one gets or wins satisfaction of others from the task. Motivation can also be defined as the urge that pushes an organism into action.

Achievement motivation can be seen as self-determination to succeed in whatever activities one engages in, be it academic work, sporting events, among others (Gesinde, 2000). Gesinde asserts that the urge to achieve varies from one individual to the other. While for some individuals the urge for achievement is very high for others, it may be very low. Achievement motivation is believed to be learnt during socialization processes and learning experiences. Gesinde posits that those who have high achievers as their models in their early life experiences would develop high need to achieve while those who have low achievers as their models hardly develop the need to achieve. Self-determination is the need to experience choice in what we do and how we do it. It is the desire to have our own wishes, rather than external rewards or pressures determine our actions. Some people determine to be incharge of their own behaviour. They consistently struggle against pressures from external controls such as rules, schedules, deadlines, orders and limits imposed by others. Sometimes even help is rejected so that the individual can remain in command.

In a bid to explain the difference between self-determination and other determination, Vansteenkiste, Lens & Deci (2006) used the metaphor of people as Origins and 'pawns' origins perceive themselves as the origin or source of their intention to act in a certain way while pawns see themselves as powerless participants in a game controlled by others. As origins, students are active and responsible but as pawns, they are passive and they take little responsibility for school work. Literature show that when students feel more like origins and less like pawns, they have higher self-esteem, feel more competent and incharge of their learning score higher on standardized tests and are absentless (Black & Deci, 2000). There are three guidelines supporting autonomy and self-determination in students; allowing and encouraging the students to make choices, helping students plan actions to accomplish self-

selected goals and holding students accountable for the consequences of their choices. Nevertheless, students' choices may be hampered by the control of significant others.

Achievement motivation is defined by (Stipek, 2003) as a set of conscious beliefs and values shaped mainly by recent experiences with success and failure and by factors in the immediate situation such as the difficulty of the task or the incentives available. One can have high achievement motivation in one course because one is doing well in it and values it but low achievement motivation in another course because one may have had trouble with the course in the past and the assignment seems unnecessarily long and difficult. Some other psychologists as McClelland and Pilon (2003) stated that achievement motivation is a stable and unconscious trait, something the individual has more or less of. McClelland and Pilon affirmed that the origin of high achievement motivation is assumed to be in the family and cultural group of the child. If achievement, initiative and competitiveness are encouraged and reinforced in the home and if parents let children solve problems on their own without becoming irritated by the children's initial failures, children are more likely to develop a high need for achievement.

Contemporary achievement motivation literature states that in every achievement motive, there are some goals. These goals are reflections of the underlying reasons for achievement behaviours and provide valuable insight into students' motivation (Hardre, Sullivan & Roberts, 2008). Students tend to adopt goal orientations from the past and present classroom and teacher characteristics. Students with a learning goal orientation (mastery performance) desire to increase their knowledge and skill and this is promoted when success is measured by progress and improvement. An emphasis is placed on effort and learning and mistakes are viewed as part of learning so that attention is focused on learning and

development rather than on competition and comparison. In contrast with learning goal where students with performance goals are concerned with looking good, smart or capable to others. Performance goal is promoted in the classroom environment when success is defined by high grades, value is given to high ability and attention and rewards are given to students' performance relative to others. Performance goals are divided into two – performance – approach goal and performance-avoidance goal. Performance – approach goal is to outperform others while performance-avoidance goal is to avoid doing the task for fear of appearing less than others (failure). Achievement motivation is a strong determination to carry out a task successfully. In all, an efficacious teacher with good classroom control orientation is likely to impact more positively on students' achievement motivation and task persistence. Operationally, achievement motivation is self-determination to succeed in any engagement.

Concept of Task Persistence

Task persistence is the ability to stick to something in spite of distractions, physical or emotional discomfort or lack of immediate success (Sandie, 2012). Task persistence is maintaining activity despite fluctuations of pain intensity. Persistence is typically defined as the length of time adults attend a class or tutoring sessions and therefore “dropping out” of a class is evidence of lack of persistence (Sandra, 2005).

Sandra pointed out that some adults may withdraw when their goals for participation have been reached which may not coincide with a programme's definition of completion. Any adult who may stop attending programmes return when their circumstances change. According to Sandra students view persistence as adults staying in programs for as long as they can,

engaging in self-directed study when they must drop out of their programs and returning to programs as soon as the demands of their lives allow. In other words, Task persistence can be defined as the process of accomplishing a task not minding the pains or obstacles which one may encounter until the task is accomplished. Task persistence is related to task value (Wigfield & Eccles, 2000). Task value is defined as an incentive for engagement in academic activities and consists of four components: attainment value, intrinsic value, utility value and cost. Attainment value is the importance of doing well on a given task. Intrinsic value is the enjoyment one gains from doing the task. Utility value refers to how a task fits into an individual's future plan. Cost refers to what the individual has to give up to do a task. This means that an individual has to value a task before plunging into doing it and that task value determines the amount of effort and persistence one puts in performing a task. Task persistence is sticking with a task not minding any discomfort until success is achieved.

Beginning in early childhood, there are individual differences in persistence in task-based goal directed behaviour. Task persistence is one aspect of self-regulated attention, cognition and behaviour that is part of broader systems of executive function and temperament (Anderson, 2002). Task persistence is a key aspect of cognitive performance, academic motivation and achievement and also is linked with fewer behavioural and self-regulation problems such as those indicative of attention deficit disorders (Jennings & Dietz, 2003). Molecular and behavioural genetic studies show evidence of genetic influences in task persistence with indications of shared environmental variance in preschool and early middle childhood being more mixed (Petrill & Deater-Deckard, 2004). However, little is known about developmental change or stability of these effects and the literature includes studies based on a variety of methods and informants which leads to inconsistencies in

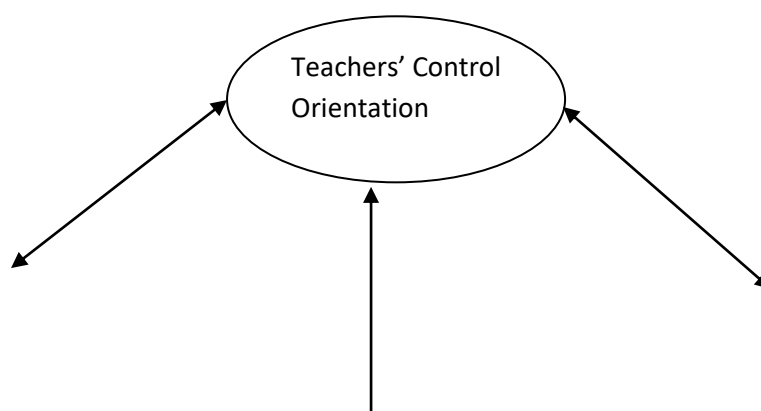
estimates. McCracken & Samuel (2007) suggest some ways of maintaining activity when pain increases as follows:

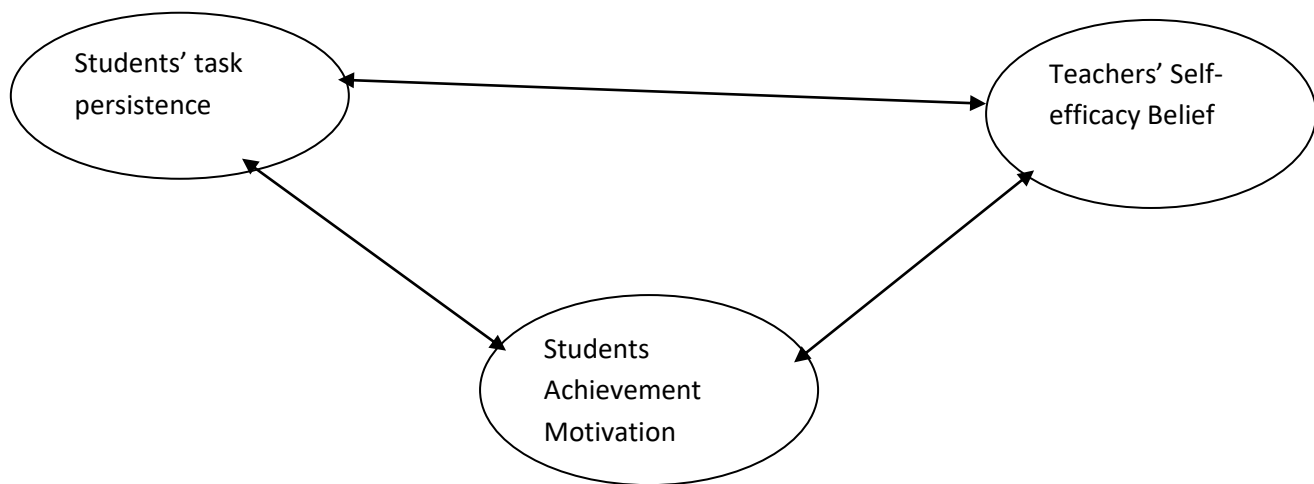
- (1) Using distraction – engaging imagery or activities can be useful.
 - stimulating conversations;
 - imaging a scene or object in visual, auditory, olfactory and textural detail;
 - singing a song or reciting poetry or readings, For distraction to help maintain activity is that it should not interfere with the completion of the task.
- (2) Coping statements
- (3) Planning Chunks or schedule.
- (4) Setting a target and gaps recording achievement.
- (5) Encouragement

Task persistence as a requirement for a persons' success is necessary for a teacher to be able to impact positively on the most difficult students to make them achieve successfully.

Operationally task persistence is sticking with a task not minding the obstacles surrounding it until successful accomplishment.

Fig. 1: Schematic representation of the relationship among key variables and expected outcome.





Relationship among Teachers' Control Orientation, Self-Efficacy Belief and Students' Achievement Motivation and Task Persistence

Teachers' control orientation can be defined as some established discipline strategies which teachers' apply to control students' behaviours for teaching and learning to be effective. The teachers can control the students' behaviours by overt or covert actions. Teachers' control orientation contends that behavior is inspired by what a person wants most at a given time. Thus individuals have the power to change their lives for the better based on the choices they make. Self-efficacy belief is a person's confidence in one's ability to carry out an action successfully. The teacher's confidence in oneself to carry out the work of teaching and learning successfully is one's self-efficacy beliefs. From all, indications it is the level of a teachers self-efficacy belief that determines the extent a teacher can carry out the work effectively. If a teacher is confident enough, the classroom control is high.

Achievement motivation is self-determination to succeed in whatever activities one engages in. In achievement motivation there must be a need which a person desires to achieve. As the need for achievement is part of a person's personality, it is thought to trigger

behaviours across different situations. The desire can be intrinsic or extrinsic. In order to achieve our needs we control and direct our behaviours towards achieving (satisfying) our needs. It is only when there is a need that we desire to achieve those needs or acquire them.

Task persistence is the ability to stick with something in spite of distractions, physical or emotional discomfort or lack of immediate success. Task persistence is maintaining activity despite fluctuations of pain intensity. Task persistence therefore implies that a person sets out to accomplish a task not minding the pains or obstacles which the person may come across until the person is successful in the task. Task persistence is related with task value because a person sticks with doing what he values. The students have needs they desire to achieve (knowledge). The teachers' own need is to motivate the students to achieve their own needs.

Teachers' control orientation, teachers' self-efficacy belief, students' achievement motivation and task persistence are very much related in the sense that the type of teachers' control orientation is determined by the level of teachers' self-efficacy belief. Teachers' self-efficacy belief is seen in their control orientation which influences students' achievement motivation and task persistence and is seen in students' performance, achievement and persistence. When students' achievement motivation and task persistence are influenced, the teachers control orientation and self-efficacy belief are also influenced which manifest in the teachers' adjustment in their control orientation and self-efficacy belief. The key variables lend themselves to each other in the sense that any alteration in any of the variables influences the rest.

THEORETICAL FRAMEWORK

Glasser's Control Theory Approach to Classroom Management

This theory was propounded by Glasser in 1996. Glasser's control theory states that a person's behaviour is inspired by what that person needs at that particular time not an outside stimuli. Glasser believes in power sharing classroom meetings to deal with any issues including rules, behaviour, discipline, project work, course work and excursion. Students are allowed to discuss any topic without fear of condemnation and the outcome of the meeting should be an agreement to follow the solution(s) to the problem by both parties. Glasser recognizes that students need to have sense of belonging, need to feel important (recognized), need to have fun and freedom. Glasser believes that students are all social and therefore like the support and interest of others and that learning together in small groups help students a lot. Students gain a sense of belonging because groups should include low, middle and high achievers. The high achievers find it fulfilling to help the weaker ones and the weaker ones like participating because their contributions are accepted and seen as beneficial. Glasser also included reality therapy which holds the idea that regardless of what happened in one's life, one is able to choose more appropriate behaviour that will help one meet one's needs more effectively in future. Using this approach, the teacher focuses on helping the students evaluate their behaviour and adjust.

Effective teacher control orientation would help students in improving their self-worth and academic achievement hence students could evaluate their behaviours for adjustment. The power sharing classroom meeting allows the students high involvement in problem-based learning and skills in thinking which is motivational. The students would like to stick with the problem until it is solved because of their serious involvement. The students have freedom to make choice. Working in groups and as corporate individuals creates

belongingness which is initial motivator as the students interact and have fun. Every student is recognized as they make contributions individually and as groups. Glasser stressed the role of the teacher is not to make judgements and give punishment but rather by using a process of questioning that provides an opening for self-evaluation and adjustment. A teacher with good class control makes the students work in groups and as corporate individuals thereby promoting integration among the students for self-evaluation and adjustment. When the students interact very well, they adjust their behaviour towards achieving their needs. The teacher is to encourage and help students make good choices and attain them. As the students interact, they should understand that they need one another and any bad behaviour affects not only the individual but everybody as a whole. This helps the students to work hard and improve. When the teachers' control recognize the students' freedom to contribute their ideas in planning and solving the tasks in groups and as corporate individuals their achievement motivation and task persistence increase

J.B. Weiner's Attribution Theory of Motivation (1979)

The theory was propounded by J. B. Weiner in 1979. Attribution theory of motivation describes how individual's explanation, justification and excuses influence motivation. Weiner posited that most of the causes which students attribute their failures or successes can be characterized in terms of three dimensions: locus (location of the cause internal or external to the person), stability (whether the cause stays the same or can change) and responsibility (whether the person can control the cause). The internal/external locus seems to be related to self-esteem. If success or failure is attributed to internal factors, success will lead to pride and

increased motivation, whereas failure will diminish self-esteem. Some people with internal locus of control believe they are responsible for their own fate, and they like to work in situations where skill and effort can lead to success. Those with external locus of control generally believe that people and forces outside themselves control their lives, and they like to work in situations where luck determines the outcome.

The stability dimension seems to be related to expectations about the future. If students attribute their success or failure to a stable factor such as the difficulty of the subject, they will expect to succeed or fail in that subject in future. If students attribute the outcome to unstable factors such as mood or luck they expect changes in future when confronted with similar tasks. The responsibility dimension is related to emotions such as anger, pity, gratitude or shame. If one fails at something one believes is controllable, one feels guilty, if one succeeds, one may feel proud. Failure at uncontrollable task may lead to shame or anger towards the person or institution in control while succeeding leads to feeling lucky or grateful.

Students who feel they are in control of what they do and that they control their own fate achieve greatly while those who think the hand of external forces are on them do not succeed. Weiner asserts that teachers should not be sympathetic with the students who fail due to uncontrollable causes or be furious with those who fail due to controllable causes but should help students by giving them heterogeneous tasks so that every student should achieve at any given tasks. Teachers with good control orientation should help students set achievable goals and channel their efforts towards achieving the goals. This makes the students see that they can control their fate and remove the difficultness of Mathematics. As the students achieve, they would like to put more effort and persistence. When the students realize that their fate is in their hands, they persist and work harder for success. As the students work in

groups and co-operatively, they are bound to detect their lapses and the causes of their failures in tasks when evaluating themselves and then correct their errors thereby increasing their determination and persistence.

J. W. Atkinson's Achievement Need Theory

The theory was propounded by J. W. Atkinson in 1976. Achievement need theory states that when an individual is actively involved in a task, he sets himself a standard to conquer. That standard is called the level of aspiration. Level of aspiration is a longing for what is above one, with advancement as its goal. Aspiration has to do with desire to improve or to rise above one's present status. Aspiration may be high when one has just succeeded or low when one has just failed. Aspiration may be positive or negative. Positive aspiration has to do with winning, success or doing better than one has done before while negative aspiration has to do with avoiding failure. Aspiration may be explained as unrealistic especially when it is informed by limited knowledge and experience or inadequate assessment of opportunities available in the learning environment for its attainment. Some aspirations relate to what the learner wants to be or the ideal self concept while others relate to what the learner wants to accomplish or need achievement. Two factors interact to determine one's level of aspiration personal factors and cultural and environmental factors. Personal factors relate to personality traits as intelligence, interest, self-concept, gender, activity level, socio-economic status and previous training experiences. Cultural and environmental factors include; parental ambition, social expectation, peer pressure, social values and social reinforcement. Success or failure feeling can be transferred from one set of activities to another. The average standard of one's own group or class affects one's level of aspiration.

Effective teachers' control orientation can help students to assess their abilities and environmental conditions and make use of the opportunities available to set realistic and attainable success in school activities thereby build positive self-concept which enhances need achievement motive. The teacher creates good learning conditions and helps the students to interact among themselves and other resource persons and materials in their environment to attain success in what they need. A teacher with good class control involves the students actively in the class. When the students active involved, they aspire higher in their achievement. When the students are given free-hand to participate actively in tasks, it serves as a motivator to them and the students normally take upon themselves to succeed which increases their achievement motivation and task persistence.

Bandura's Self-Efficacy Belief Theory

The theory was propounded by Bandura in 1986. Self-efficacy belief is a person's belief in his/her capability to organize and execute courses of action required to manage prospective situations. Self-efficacy belief is the belief in one's power or capacity to effectively produce a desired effect. Self-efficacy belief is task specific and influences task choice, effort, persistence and achievement. People with high self-efficacy belief set themselves high standards to conquer. They approach difficult tasks with assurance of mastering them than avoiding the tasks as threats like low self-efficacious people. Self-efficacious people have the capacity to carry out self-directed and fore-thought actions. Students do not engage in activities that lead to negative outcome. Bandura argued that in self-directed and fore thought actions, one adopts some personal standard, one's subsequent actions, behaviour and motivation are regulated by the positive and negative consequences of

those standards. Self-efficacy belief is future oriented and represents an individual's use of self-perceptions in successfully accomplishing specific tasks. Bandura's outcome expectancy is the notion based on expected success of that action.

Efficacious teachers with good control orientation in the class can motivate the students to persist and achieve hence self-efficacy belief is a belief in one's capability to organize and execute courses of actions successfully. A self-efficacious teacher can do his teaching and learning perfectly and that is the cause of this study. An efficacious teacher with good control teaches and relates well with the students when there is good relationship with the students are motivated to work harder and persist to achieve better. Efficacious teachers know the subject matters very well and can impact on the students by winning their attention through good control and clarity of their teaching thereby increasing the students' achievement motivation and task persistence.

REVIEWED OF EMPIRICAL STUDIES

Studies related to Teachers' Control Orientation and Students' Achievement Motivation

Akhter (2010) carried out a study on the relationship between teachers' control behavior and students' motivation in Bangladesh. The purpose of this study was to examine the inter-relationships of teachers' autonomy support and teachers' authoritarianism and how these affect students' intrinsic motivation and social goals. Two research questions and two hypotheses were formulated and used for the study. The study was a correlational study. The sample comprised of 1545 respondents (1400 students and 145 teachers) drawn from 50 year-five classes from 50 schools randomly selected from Dhaka district. Four instruments were used. They include; Teacher orientation construct was measured by Willower's Pupil Control

Ideology (PCI). The problems in School Inventory (PSI) developed by Deci & Swartz. Students' motivation construct by Harter's intrinsic-extrinsic motivation orientation scale and Wentzel's social responsibility goal scale. Both correlation co-efficient and multilevel analyses were used to analyze the data. It was found that teachers' variables and the students' variables correlate very highly. The result of the relationships between PCB and students' outcome revealed that student' social goals was negatively influenced while it has positive influence on the pupils' intrinsic motivation.

However, for the intrinsic motivation, the positive impact indicated that if students perceived their teachers more authoritarian, their intrinsic motivation was higher than that of humanistic teachers. In Bangladesh society which is characterized by a collectivist culture where individual values are determined by group goals, high authoritarian classroom structure is generally regarded as the optimal environment for academic achievement. Akhter's study is related to the present study in the sense that they used the same instrument which is a questionnaire on the control of pupils' behaviour for data collection. Correlation coefficient and multilevel regression analysis were used to analyze their data which informed their relationships. Above all, these studies were concerned with teachers control orientation in secondary schools and seeking its relationship with other variables. They are therefore related studies because they dwelt on for the influence of teachers' control orientation on the students.

Said and Marwa (2014) carried out a correlational study on the predictive role of teaching styles on Omani students mathematics motivation in Sultan Qaboos University, Muscat. The population consisted of 425 Omani 8th grade students (202) males and 223 females). Two instruments: - Students Perception of Teaching Style Scale (SPTSS) and

Mathematics Motivation Scale (MMS) were used to collect the data. Three research questions and three hypotheses guided the study. Correlation coefficient and multiple regression analysis were used to analyse the data. Humanistic teaching style was found to be the better predictor of student motivational construct. The reviewed study is related to the present study since the two studies used the same research design. Both studies researched on Mathematics and use the same method of data analysis.

Ogunmakin and Akomolafe (2013) conducted a study to examine the influence of some psychological factors on students' academic performance in Osun State. Descriptive research design of correctional type was used for the study. The sample consisted of three hundred and sixty four students randomly selected from ten secondary schools. Three research questions and three hypotheses were employed for the study. Two standardized instruments Teachers self-Efficacy scale by Bandura and teachers locus of control scale were used to collect data from the sample while students' scores in their previous promotion examination were used to measure their academic performance. Through multiple regression analysis, the researchers found that academic self-efficacy and locus of control jointly predicted students academic performance. Further analysis revealed that academic self-efficacy significantly predicted academic performance while locus of control was not a good predictor. The reviewed study and the present study share some variables in common, which are self-efficacy and locus of control. The reviewed study used descriptive research design while the present study made use of correlational research design.

Studies related to Teachers' Control Orientation on Students Task Persistence.

Lunenburg and Schmidt (2000) carried out a study to examine the relationship between teachers control orientation and pupils' motivation and achievement. Two instruments: teachers control versus autonomy measures developed by Deci & Schwartz and Harter's motivation construct were used to collect the data. The study was a correlational design done in Bangladesh. The sample was 1400 pupils and 145 teachers from 50 different schools. Two research questions guided the study. Data was analyze using means, standard deviation and inter-correlation. It was found that pupils in classroom with autonomy supportive teachers performed better in terms of achievement, more intrinsic motivation, higher satisfaction with school and higher commitment and persistence to class work due to teachers' caring relationship with the pupils. The reviewed study and the present study are related in the sense that they share some variable (teachers' control, students motivation and achievement) in common. Both were correlational studies and employed correlation coefficient to analyse their data. They sought for relationship among variables.

In a study by Rideout and Windle (2010) in Atlanta, on beginning teachers pupils' control ideologies (PCI): An empirical examination of the impact of beliefs about educational leadership style, they used a sample of 474 participants. Their purpose was to determine the relationship between the PCI of beginning teachers (2-5 years) with their PCI at the end of their pre-service year and to determine the relationship between the PCI of beginning teachers and internal and external factors. Two research questions and two hypotheses guided the study: This research follows an explanatory mixed methods design with quantitative and qualitative data from the beginning years being compared to data collected during the pre-service year. The quantitative data was collected through the use of four quantitative mail-in questionnaires followed by quantitative data collection in the form of one-on-one interviews. Correlation coefficient and multiple regression analysis were used to analyse the data. It was

found that the humanistic beginning teachers have more control over their pupils and that their pupils persist more in their tasks than authoritarian teachers. The study is related to the present study because they both used questionnaire as their instrument for data collection. They both used the PCI to determine the type of control the teachers used. The descriptive statistics of mean and standard deviation and correlation coefficient were used to analyse their data. Multiple regression analysis was used to test the hypotheses. Both studies dealt with teachers' control orientation as they influence the students.

Studies Related to Self-Efficacy and Achievement Motivation

Awan, Noureen and Naz (2011) carried out a correlational study to examine achievement and its relationship with achievement motivation and self concept. The subjects consisted of 336 students (146 males and 172 females) from four public and four private schools of the Sargodha district at the secondary level. Intact groups of all eight schools enrolled in 9th grade were involved in the study. The following instruments were used: I. Academic Self-Description Questionnaire II (ASDQ II) for measuring self concept in English and self concept in Mathematics; II. General Achievement Goal Orientation Scale (GAGOS) for measuring three types of achievement goals, that is, mastery goals, performance goals and social goals. The questionnaire was translated into Urdu language and was finalized keeping in view the suggestions and opinions of the experts for content validity. Three research questions and three hypotheses guided the study. Pearson r and t -test were used for correlations and mean differences using SPSS. The result of the study revealed the following; the correlations of the self concept of English and Mathematics and all three dimensions of achievement motivation and Academic achievement of Mathematics are significant at 0.01

level (2-tailed). The reviewed study was on relationship between achievement motivation and self-concept while the present study was on relationship between teachers' control orientation and self-efficacy on students' achievement motivation and task persistence. Both were correlational studies and applied regression analysis to analyze their data. Both were interested in students achievement motivation.

In a study by Caprara, Steca, Barabaranelli and Malone (2006) on teachers' self-efficacy as determinants of satisfaction and students academic achievement in Italy, the sample was 300 teachers including their principals drawn from 102 junior high schools. The purpose of this study was to find out the influence of teachers' self-efficacy beliefs on their job satisfaction and students' achievement. The study used Ex-post factor design. Six hypotheses were proposed and three instruments were used. The instruments include; Teachers' self-efficacy belief scale of Bandura (1997) & Tschannen-Moran (1998) were adopted. It contains 12 items, Job satisfactions scale by Borgogni (1999) containing 4 items. Students end of third year final examination grades were used for their achievement. Descriptive statistics of mean and standard deviation were used to describe the data while ANOVA was used to analyse the hypotheses. They found that teachers' self-efficacy beliefs induce them to work harder and enjoy their work, thereby motivating the students to persist and achieve better. The study is related to the present study because they sought to find relationship. Descriptive statistics of mean and standard deviation and correlational coefficient were used to analyze the data. Both studies were survey studies. Both the reviewed and the present study were interested on teachers' self-efficacy as determinants of students' academic achievement, but the present study was also interested in determining teachers' self-efficacy as determinants of students' academic achievement motivation and task

persistence. Moreover, the reviewed study was carried out in Italy while the present study was carried out in Enugu Education Zone, Nigeria.

Britner and Pajares (2001) carried out a correlational study on influence of self-efficacy beliefs, motivation, race and gender on science achievement of middle school in America. The purpose was to find out how those variables influence science achievement of different races. The sample was 262 grade 7 students (119 white and 143 African – American) from four urban public schools in the southeast. Eight instruments were used thus: Science self-efficacy scale consisting five items was used; Science self-concept was measured with Academic Self-Description Questionnaire (ASDQ) consisting of 6 items likert type; Self-efficacy for self-regulated learning was measured with Banduras children multidimensional self-efficacy scale consisting of 7 items. Science anxiety was measured with Mathematics Anxiety scale. It contains three items; Value of science was measured with student Attitude Questionnaire (SAQ) which contained 5 items; Achievement goal orientation was described as tasks or performance orientation. This was measured with a scale provided. Science achievement was measured by collecting the students' GPA in science class at the end of the second semester; Race was measured by each students' self-report. Two research questions and two hypotheses were used. Descriptive statistics of mean, standard deviation and correlation coefficient and multiple regression were used to analyze the data collected. Britner and Pajares found that self-efficacy beliefs motivated all the students more to achieve. The study is related to the present study in the sense that both are correlational studies and sought to find relationships among variables. Both used questionnaire to collect their data. Descriptive statistics of mean and standard deviation correlation coefficient were used to describe their data while multiple regression analysis was used to test the hypotheses.

Mojavezi and Tamiz (2012) carried out a study on impact of teacher self-efficacy on students' motivation and achievement in Utah. The objective of the research was to investigate the influence of teacher self-efficacy (TSE) on the students' motivation and achievement. The participants of this study comprised of two groups. The first group consisted of eighty senior high school teachers in four different cities of Iran. The teachers were both male. The second group of participants consisted of 150 students in different cities. The students actually belonged to the classes whose teachers contributed to this study. For data collection, two instruments were employed: Teacher Self-Efficacy and Students' Motivation questionnaires. The Teacher Self-Efficacy Questionnaire, developed by Tschannen-Moran & Hoy (2001).

The study was a correctional survey study. Two research questions and two hypotheses guided this study. Data collected were analyzed using Pearson product-moment correlation coefficient and ANOVA. The results of the study revealed that teacher self-efficacy has a positive influence on the students' motivation and achievement. The reviewed study and the present study are related in the sense that both studies were on influence of teachers' self-efficacy beliefs on students' motivation and achievement but differ in some other variables like task persistence and control orientation which the present study was interested in. Both used correlation co-efficient to analyse their data.

Tai, Hu, Wang and Chen (2012) investigated the impact of teacher self-efficacy on students' learning outcomes. The study adopted research model research design. Following Krejcie and Morgan, study participants were selected from a convenient sample of vocational high school teachers and students in Taiwan. Each participant was asked to complete a survey with items measuring their beliefs. The questionnaires were administered by the researchers.

Follow-up surveys were administered to all participants. A total of 372 surveys were distributed to a vocational high school in Taiwan, and the students' samples were drawn randomly from the teachers' class. Data collected were analyzed using structural Equation Modeling (SEM) to verify the theoretical model. Five research questions and five hypotheses were used for the study. The results revealed that teacher self-efficacy significantly affects learning satisfaction and teacher self-efficacy is closely connected to the learning satisfaction. Teacher self-efficacy also significantly affected learning outcome. The teachers teaching process was found to affect learning satisfaction significantly. Teacher teaching process also significantly affects learning outcome.

Finally, the results showed that learning satisfaction significantly affects learning outcome. The reviewed study and the present study were interested in determining the impact of teacher self-efficacy on students learning outcomes. The present study is also interested in some variables like achievement motivation and task persistence of the students which Tai, Hu, Wang and Chen did not investigate. Moreover the reviewed study employed descriptive research design while the present study adopted correlational research design.

Azar (2013) investigated the relationship between academic Self- efficacy, achievement motivation and academic procrastination with academic achievement and their predictive validity on gender. To achieve this aim, Samples of 200 (100 male and 100 female) students were selected by multi-stage cluster sampling from high schools in Orumieh. All participants were asked to complete lay's academic procrastination scale, Hermans achievement motivation scale and self - efficacy scale. The data were analyzed using Pearson(r) one-way ANOVA, t-test and regression analyses. The result of multiple regression analysis revealed that academic self-efficacy and gender were the best predictors of

academic achievement while Academic procrastination inversely is a significant predictor of academic achievement. Also, extra result of t- test revealed that there is no significant between the mean score of girls and boys in academic procrastination. There was significant difference among boys and girls, in terms of the level of achievement motivation, academic achievement and academic self-efficacy. Azar' study focused on self- efficacy, achievement motivation and academic procrastination with academic achievement while the present study was also interested in some of the variables like self- efficacy, achievement motivation with inclusion of task persistence.

Goulão (2014) examined the relationship between academic self-efficacy of an adult learners group in an online learning context with their actual performance in Athens. The study is a correlational study in Iran which aimed at evaluating the relationship between self-concept of a group of students in online context and their academic achievement. One research question and one hypotheses were used to guide the study. Data were collected from 63 students of both genders, with average age of 42 years old, selected from the first years of their undergraduate studies. An adapted questionnaire was used to measure self-efficacy ($\alpha=.908$). The data was analyzed using descriptive and inferential statistics. The Pearson correlation coefficient was used to see the relationship between self-efficacy and academic performance. The analysis of the data indicated that students' level of self-efficacy is high and a significant relationship exists between self-efficacy and academic achievement. Both studies were related because they sought for relationship among variables. They share some variables (self-efficacy) in common. Both the reviewed and present study employed the correlation coefficient in analyzing their data.

Adu, Tadu and Eze (2012) examined the influence of teachers' self-efficacy on students' academic performance in selected secondary school subjects in Southwestern Nigeria. The study adopted the descriptive survey design of ex-post facto type. The population comprised of teachers and students of secondary schools in Southwestern Nigeria. A multi-stage random sampling technique was used to select a sample of 61 schools, 1,612 teachers and 5,100 students for the study. Teachers' Self-Efficacy Questionnaire and Students' Achievement Test were used to collect the data. One hypothesis was tested at 0.05 level of significance. Data were analyzed using descriptive and inferential analyses. The result showed that there was positive relationship between teachers' self-efficacy and students' academic performance. Hence, school culture (Teacher self-efficacy) was a potent predictor of improving students' academic performance in selected secondary school subjects. Both the reviewed and present study were interested in impact of self-efficacy on students' academic performance in secondary schools. However, the reviewed study used a wrong design (descriptive design) which the present study intends to correct by adopting correlational design.

Al-Alwan and Mahasneh (2014) examined teachers' self-efficacy as determinant of students' attitudes toward school. Teachers and students participated in this study. The study was a correlational survey study. One research question and one hypothesis were used for the study. Participants were 679 male and female teachers from 23 schools in the Al-Salt City at the western from Amman capital of Jordan. The schools (primary and junior) represented the existing variability of the population in the country in terms of socioeconomic, ethic and geographic (urban or rural) status. The instrument used in the study is Norwegian teachers' self-efficacy scale which was developed by Skaalvik & Skaalvik (2007) and students' attitudes toward school scale which was designed by the researchers. To analyze the data, Pearson (r) correlation and regression analysis. Results indicated that the level of teachers'

self-efficacy is moderate. Also, there is a significant correlation between teachers' self-efficacy and students' attitudes toward school. On the other hand, teachers' self-efficacy is a good predictor of students' attitudes toward school. Finally, the results showed that no significant differences exist between male and female teachers in their level of self-efficacy. Al-Alwan & Mahasneh's study was on self-efficacy as determinant of students' attitudes in Amman capital of Jordan while the present study is on self-efficacy as determinant of students' achievement motivation in Nigeria.

Tenaw (2013) investigated the level of students' self-efficacy, gender difference in self-efficacy and achievement and also relationships between self-efficacy and achievement for second year students in the fall of 2012 in Analytical Chemistry I (ACI) at Debre Markos College of Teacher Education (DMCTE). This was a correlational survey study. The self-efficacy survey and the ACI achievement test were completed by 100 students. The study was guided by two research questions and two hypotheses. The self-efficacy survey data were gathered by Likert scale questionnaire. The data collected were analyzed using inferential statistics of Pearson correlations t-test and multilevel regression analysis. The analysis of the data indicated that students' level of self-efficacy is medium and there is no significant difference in their self-efficacy between sexes but there is a statistically significant difference in achievement between sexes and also a significant relationship exists between self-efficacy and achievement. The reviewed study and the present study shared some variables in common (self-efficacy and achievement). However, while the reviewed study is interested in self-efficacy, gender difference in self-efficacy and achievement and also relationships between self-efficacy and achievement for second year students in Analytical Chemistry, the present study focused on teachers' self-efficacy and students' achievement motivation and task-persistence.

Studies Related to Self-Efficacy and Task Persistence

In a correlational study by Ramin and Nabi (2010) on teacher characteristics as predictors of students' academic achievement in Iran, a sample of 30 EFL teachers and 630 grade eleven students were used. Three research questions were addressed. Four instruments were used: Teacher reflectivity questionnaire, teacher sense of efficacy scale, Lowman's Two – Dimensional Teaching style scale and End-of-the – year achievement test. Descriptive statistics of mean and standard deviation correlation coefficient were used to describe the data. Multiple regression analysis was used to test the hypotheses at 0.05 level of significance. The result indicated that teacher variables can significantly predict students' academic achievement and persistence. The study highlights teachers' central role in language teaching settings and the need for closer inspection of teacher-related variable.

The study by Ramin and Nabi is related to the present study because both researchers questionnaire to collect their data. Descriptive statistics of mean and standard deviation, correlation coefficient were used to answer their research questions. Multiple regression analysis was used to test the hypothesis at 0.05 level of significance. Above all, both sought to find relationships between variables. In a study carried out by Adedeji (2008) on teacher variables as predictors of academic achievement of primary school pupils' Mathematics in Ejigbo L.G.A. of Osun State of Nigeria, used a sample of 254 teachers and 120 pupils was used. The instrument used was teacher variables questionnaire which has three sub-scales: (i) teacher attitude sub-scale, teacher self-efficacy sub-scale and teachers; interest in Mathematics teaching scale. The second instrument was the pupils' Mathematics Achievement Test (MAT). The study was an Ex-post facto design. The study was guided by

two research questions and two hypotheses. Descriptive statistics of mean and standard deviation was used to describe the data. Pearsons Product Moment Correlations statistical procedure and stepwise multiple regression analysis were used to test and analyze the result. It was found that teachers' self-efficacy was the highest predictor followed by interest, attitude, qualification and experience and that teacher variables promote both teachers and pupils' task persistence.

Adedeji's study is related to this present study because they both sought predictive influence among the variables of their studies. Both used questionnaire to collect their data. They sought relationships among the variables. They used descriptive statistics of mean and standard deviation and correlation coefficient to answer their research questions. Above all, both employed multiple regression analysis to test their hypotheses at 0.05 level of significance.

Summary of the Review of Literature

The researcher reviewed the basic issues related to the present study under broad headings: conceptual framework, theoretical framework and empirical studies. The conceptual framework covered the concepts of control orientation, self-efficacy belief, achievement and achievement motivation. The concepts of task persistence and gender were also discussed. The theories related to the study were reviewed. They include Glasser's Control Theory Approach to Classroom Management, Bernard Weiner's Attribution Theory, Atkinsons' Achievement Need Theory and Bandura's Self-Efficacy Theory. Glasser's control theory states that a person needs to work in groups or co-operatively to get what the person wants while Weiner's attribution theory sought why we fail or succeed in our tasks. Weiner

posits that the causes of our failure or success can be categorized into three dimensions: Locus (location of the cause internal or external to the person), stability (whether the cause stays the same or can change) and responsibility (whether the person can control the cause). Atkinson's achievement need theory posits that when an individual is actively involved in a task, the individual sets a standard to conquer and that standard is the individual's level of aspiration. Bandura's self-efficacy theory opined that self-efficacy is a person's capabilities to organize and execute the courses of action required to manage prospective situations. These theories were discussed in line with the study.

Related studies on teachers' control orientation and self-efficacy have been explored as regards its relationship with students' achievement, achievement motivation and task-persistence. However, the major problem as is evident from review of empirical studies is that some of the empirical studies reviewed were carried out in foreign countries. Secondly, almost none of the empirical studies were carried out in Mathematics. Also of note is that none of the reviewed studies investigated the teachers' control orientation and self-efficacy jointly with respect to students' achievement motivation and task-persistence. Therefore, the differences between the cultures in which these studies were conducted and Nigerian environment and subsequent poor achievement in the subject area motivated the need for this study. Hence, it is the bid to fill this gap that motivated this study on teachers' control orientation and self-efficacy belief as predictors of students' Mathematics achievement motivation and task persistence in Enugu State.

CHAPTER THREE

RESEARCH METHOD

This chapter presents the procedure for carrying out this study. Specifically it describes the design of the study, area of the study, population of the study, sample and sampling techniques, instruments for data collection, validation of the instruments, reliability of the instruments, method of data collection and method of data analysis.

Design of the Study

The study adopted a correlational survey research design. According to Nworgu (2015), this type of study sought to establish what relationship exists between two or more variables. Such studies indicate the direction and magnitude of the relationship between variables. As a correlational study, an attempt was made to establish the relationship among teachers' control orientation, self-efficacy belief and students' mathematics achievement motivation and task persistence.

Area of the Study

The area of study was Enugu State of Nigeria. Enugu State is one out of thirty-six states that make up Nigeria as a country. Enugu State is in the South-East geopolitical zone of Nigeria. Enugu State is bounded in the north by Benue State, in the west by Kogi State, in the South by Anambra State and in the east by Ebonyi State. Enugu State comprises of seventeen (17) Local Government Areas with six Education Zones namely; Obollo-Afor,

Nsukka, Enugu, Awgu, Agbani and Udi with 291 public secondary schools (Planning, Research and Statistics (PRS) units, Post Primary schools Management Board (PPSMB, 2016, Enugu). The rationale for choosing this state is based on the poor Mathematics achievement of students which has been continuously reoccurring for some years in Enugu State.

Population of the Study

The population of this study is 48705 consisting of all the 48414 (20664 males and 27750 females) Senior Secondary Class Two (SS II) students and the 291 Mathematics teachers of senior secondary two. (Planning, Research and Statistics (PRS) 2016, Units, PPSMB, Enugu). The choice of Senior Secondary Class two (SS II) students and their teachers was guided by the assumption that the students are in the middle class of senior secondary and they are not sitting for the WASSCE immediately.(See Appendix A. p. 91). Their teachers are the ones directly involved in control of the students in their various classes.

Sample and Sampling Techniques

The sample size was 636 comprising 607 SS II students (311 females and 296 males) and 29 SS II Mathematics teachers. Multi-stage sampling procedure was utilized to get the sample of this study. The procedures used were stratified, proportionate and simple random sampling techniques. In the first stage, the entire population of the study was stratified into six education zones in Enugu State consisting Nsukka, Enugu, Awgu, Obollo-Afor, Agbani and Udi zones (See Appendix . B., p.109).

In the second stage, proportionate random sampling technique was used to sample 10% of the total number of schools in each Education zone of the state. The rationale for using 10% was based on the recommendation made by Nworgu (2015). Nworgu recommended that when the population is so large, the sample of the study would be considered adequate if the range is between 5 to 20 percent. Using simple random sampling technique, the researcher drew 10% of the required number of schools from each zone (See Appendix C, p 109).

In the third stage, 10% of the total population of SS II students in each school was drawn using proportionate stratified random sampling technique (Nworgu, 2015). All the Mathematics teachers of SS II students in the sampled schools were selected for use because they are directly involved with the SS II students currently.

Instruments for Data Collection

Four instruments were developed by the researcher for use in collecting the data for this study.

The instruments are:

1. Mathematics Teachers' Control Orientation Inventory (MTCOI).
2. Mathematics Teachers Self-efficacy Belief Scale (MTSEBS).
3. Students Mathematics Achievement Motivation Rating Scale (SMAMRS).
4. Students Mathematics Task Persistence Scale (SMTPS).

Mathematics Teachers' Control Orientation Inventory (MTCOI) was developed by the researcher from information got from the review of relevant literature. The instrument was used to determine the type of control the teachers have over their students. The MTCOI consists of 24 items. The responses are rated on a 4 – point rating scale structured as follows: Very High Extent (VHE = 4), High Extent (HE = 3), Low Extent (LE = 2) and Very Low Extent (VLE = 1). The students were required to indicate the level of control of their teachers over the students' behaviours by ticking a number from 4 to 1 against any of the stated options of response. The students were the respondents because they were the recipients of the teachers control orientations. (See Appendix D p.112) .

The Mathematics Teachers' Self-efficacy Belief Scale (MTSEBS) was developed by the researcher from information got from the review of relevant literature. This scale was developed to determine the level of the teachers' confidence in performing their duties as teachers. It consists of thirty-three items. The responses are rated in a 4 – point scale structured as follows; Very High Extent (VHE = 4), High Extent (HE = 3), Low Extent (LE = 2) and Very Low Extent (VLE = 1). The teachers were asked to indicate their degree of confidence in performing their duties by ticking a number from 4 to 1 against any of the stated options of response ratings. (See Appendix E p.114).

Students' Mathematics Achievement Motivation Rating Scale (SMAMRS) was developed by the researcher from information got from the review of relevant literature. The scale consists of 21 items. The responses are rated on a 4 – point rating scale structured as follows: Strongly Agree (SA = 4), Agree (A = 3) Disagree (D = 2) and Strongly Disagree (SD = 1).

(1) The students were required to indicate their extent of agreement by ticking a number from 4 to 1 against any of the stated options of the response ratings. The items are from information acquired through review of relevant literatures. (See Appendix F, p.117)

Students Mathematics Task Persistence Scale (SMTPS) was developed by the researcher from information from the review of relevant literature. This scale consists of 10 items. The response is rated on a 4 – point rating scale structured as follows: Strongly Agree (SA = 4), Agree (A = 3), Disagree (D = 2) and strongly Disagree (SD =1). Students were asked to indicate their level of persistence in performing mathematics tasks by ticking a number from 4 to 1 against any of the stated options of response ratings. The items are from information acquired through review of relevant literatures. (See Appendix G, p.119).

Validation of the Instrument

Initial draft of Mathematics Teachers' Control Orientation Inventory (MTCOI), Mathematics Teachers Self-Efficacy Belief Scale (MTSEBS), Students Mathematics Achievement Motivation Rating Scale (SMAMRS) and Students Mathematics Task Persistence Scale (SMTPS) were both content and face validated by three specialists, two in Educational Psychology and one in Educational Measurement and Evaluation. The validation was done alongside with the research questions and the hypotheses. The three specialists were asked to assess these instruments with regard to the suitability of the language used and the extent to which the items represent what they are supposed to measure. Their comments and suggestions were used in improving the items.

Reliability of the Instruments

To get the internal consistency reliability of the items of each instrument, the four instruments were trial tested using 10 teachers and 40 students from some secondary schools in Ebonyi State which is outside the study area. The internal consistency reliability of the items which yielded a reliability estimate of .81 for Mathematics Teachers Control Orientation Inventory (MTCOI), .89 for Mathematics Teachers Self-Efficacy Belief Scale (MTSEBS), .79 for Students Mathematics Achievement Motivation Rating Scale (SMAMRS) and .76 for Students Mathematics Task Persistence Scale (SMTPS). These reliability estimates were got through the use of Cronbach Alpha method, since the scores obtained were not-dichotomously scored. See Appendix H, I, J and K, p. 120.

Method of Data Collection

The data was collected through the help of 29 research assistants (Mathematics teachers) who administered the instruments to the students. The research assistants were instructed on how to administer the instruments. Direct delivery method was used to administer the instruments after which they were retrieved from the respondents immediately after

completion. Out of 636 questionnaire administered, 627 were correctly completed and used for data analysis.

Method of Data Analysis

The returned copies of the instruments were inspected for completeness of responses. Nine (9) copies that have incomplete responses were discarded while the responses of the properly 627 completed copies of the instruments were utilized for data analysis.

The data collected for the study was analyzed using multiple regression analysis. Pearson moment correlation Coefficient (r) and R- square were used to answer the research questions, while ANOVA was used to test the hypotheses at 0.05 level of significance.

CHAPTER FOUR

RESULTS

The results of this study are presented in this chapter according to the research questions and hypotheses.

Research Question One

What is the predictive power of teachers' control orientation on students' mathematics achievement motivation?

Table 1: Regression analysis of the predictive power of teachers' control orientation on students' mathematics achievement motivation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.194	.038	.039	.33876

Result in Table 1 revealed that the correlation coefficient between teachers' control orientation and students' mathematics achievement motivation is 0.194. This means that, there exists a very low predictive power of teachers' control orientation on students' mathematics achievement motivation. Result in Table 1 also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.194 was 0.038. The coefficient of determination of 0.038 implies that 3.8 percent

variation in students' mathematics achievement motivation can be attributed to teachers' control orientation.

Hypothesis One

Teachers' control orientation will not significantly predict students' mathematics achievement motivation

Table 2: Regression Analysis of variance of the predictive power of teachers' control orientation on students' mathematics achievement motivation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.276	1	19.276	167.968	.437 ^a
	Residual	71.839	626	.115		
	Total	91.115	627			

The result in Table 2 shows that an F-ratio of 167.968 with associated probability value of .437 was obtained. Thus the null hypothesis was accepted since the obtained probability value of .437 was greater than 0.05 level of significance set as bench mark for testing the hypothesis. The researcher therefore, concludes that teachers' control orientation does not significantly predict students' mathematics achievement motivation.

Research Question Two

What is the predictive power of teachers' self-efficacy on students' mathematics achievement motivation?

Table 3: Regression analysis of the predictive power of teachers' self-efficacy on students' mathematics achievement motivation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.250	.063	.064	.48362

Result in Table 3 revealed that the correlation coefficient between teachers' self-efficacy and students' mathematics achievement motivation is 0.250. The result implies that, there is low predictive power of teachers' self-efficacy on students' mathematics achievement motivation. The result also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.250 was 0.063. The coefficient of determination of 0.063 implies that 6.3 percent variation in students' mathematics achievement motivation can be attributed to teachers' self-efficacy.

Hypothesis Two

Teachers' self-efficacy will not significantly predict students' mathematics achievement motivation.

Table 4: Regression Analysis of variance of the predictive power of teachers' self-efficacy on students' mathematics achievement motivation

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.342	1	20.342	138.156	.528 ^a
	Residual	92.171	626	.147		
	Total	112.513	627			

The result in Table 4 revealed that an F-ratio of 138.156 with associated probability value of .528 was obtained. Thus the null hypothesis was accepted since the obtained probability value of .528 was greater than 0.05 level of significance set as bench mark for testing the hypothesis. The researcher therefore, concludes that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation.

Research Question Three

What is the predictive power of teachers' control orientation on students' mathematics task persistence?

Table 5: Regression analysis of the predictive power of teachers' control orientation on students' mathematics task persistence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.027	.001	.000	.36275

Result in Table 5 revealed that the correlation coefficient between teachers' control orientation and students' mathematics task persistence is 0.027. This means that, there exists a very low predictive power of teachers' control orientation on students' mathematics task persistence. The result further revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.027 was 0.001. The coefficient of determination of 0.001 implies that 0.1 percent variation in students' mathematics task persistence can be attributed to teachers' control orientation.

Hypothesis Three

Teachers' control orientation will not significantly predict students' mathematics task persistence.

Table 6: Regression Analysis of variance of the predictive power of teachers' control orientation on students' mathematics task persistence

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.739	1	8.739	66.414	.439 ^a
	Residual	82.375	626	.132		
	Total	91.115	627			

The result in Table 6 revealed that an F-ratio of 66.414 with associated probability value of 0.439 was obtained. Thus, the null hypothesis was accepted since the probability value of 0.439 was greater than 0.05 set as bench mark for testing the hypothesis. The researcher therefore, concludes that teachers' control orientation does not significantly predict students' mathematics task persistence.

Research Question Four

What is the predictive power of teachers' self-efficacy on students' mathematics task persistence?

Table 7: Regression analysis of the predictive power of teachers' control orientation on students' mathematics task persistence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.183	.033	.036	.36275

Result in Table 7 revealed that the correlation coefficient between teachers' self-efficacy and students' mathematics task persistence is 0.183. The result implies that, there is low predictive power of teachers' self-efficacy on students' mathematics task persistence. The result also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.183 was 0.033. The coefficient of determination of 0.033 implies that 3.3 percent variation in students' task persistence can be attributed to teachers' self-efficacy.

Hypothesis Four

Teachers' self-efficacy will not significantly predict students' mathematics task persistence.

Table 8: Regression Analysis of variance of the predictive power of teachers' control orientation on students' mathematics task persistence

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	54.243	1	54.243	582.735	.267 ^a
	Residual	58.270	626	.093		
	Total	112.513	627			

The result in Table 8 revealed that an F-ratio of 582.735 with associated probability value of .267 was obtained. Thus the null hypothesis was accepted since the obtained probability value of .267 was greater than 0.05 level of significance set as bench mark for testing the hypothesis. The researcher therefore, concludes that teachers' self-efficacy does not significantly predict students' mathematics task persistence.

Research Question Five

What is the predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence?

Table 9: Regression analysis of the predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.286	.082	.083	.33447

Result in Table 9 revealed that the correlation coefficient among teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence is 0.286. The result implies that, there is low predictive power of teachers' control orientation on students' mathematics achievement motivation and task persistence. The result also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.286 was 0.082. The coefficient of determination of 0.082 implies that 8.2 percent variation in students' achievement motivation and mathematics task persistence can be jointly attributed to teachers' control orientation.

Hypothesis Five

Teachers' control orientation will not significantly predict students' mathematics achievement motivation and mathematics task persistence

Table 10: Regression analysis of the predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.197	625	10.598	94.740	.155 ^a
	Residual	69.918	627	.112		
	Total	91.115				

The result of the analysis in Table 10 revealed that an F-ratio of 94.740 with associated probability value of .156 was obtained. Thus, the null hypothesis was accepted since the obtained probability value of .156 was greater than 0.05 level of significance set as bench mark for testing the hypothesis. The researcher therefore, concludes that teachers' control orientation does not significantly predict students' mathematics achievement motivation and mathematics task persistence jointly.

Research Question Six

What is the predictive power of teachers' self-efficacy on students' mathematics achievement motivation and mathematics task persistence?

Table 11: Regression analysis of the predictive power of teachers' self-efficacy on students' mathematics achievement motivation and mathematics task persistence

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.213	.045	.044	.29634

Result in Table 11 revealed that the correlation coefficient among teachers' self-efficacy on students' mathematics achievement motivation and mathematics task persistence is 0.213. The result implies that, there is low predictive power of teachers' self-efficacy on students' mathematics achievement motivation and mathematics task persistence. The result also revealed that, the coefficient of determination (R^2) associated with the correlation coefficient of 0.213 was 0.045. The coefficient of determination of 0.045 implies that 4.5 percent variation in students' achievement motivation and mathematics task persistence can be jointly attributed to teachers' self-efficacy.

Hypothesis Six

Teachers' self-efficacy will not significantly predict students' mathematics achievement motivation and mathematics task persistence.

Table 12: Regression analysis of the predictive power of teachers' self-efficacy on students' mathematics achievement motivation and mathematics task persistence

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	57.626	2	28.813	328.096	.294 ^a
	Residual	54.887	625	.088		
	Total	112.513	627			

The result in Table 12 revealed that an F-ratio of 328.096 with associated probability value of .294 was obtained. Therefore, the null hypothesis was accepted since the obtained probability value of .294 was greater than 0.05 level of significance set as bench mark for testing the hypothesis. The researcher therefore, concludes that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation and mathematics task persistence jointly.

Summary of the Findings

Based on the analysis of data in the study, the following findings emerged;

1. There is a very low predictive power of teachers' control orientation on students' mathematics achievement motivation. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation.

2. There is a low predictive power of teachers' self-efficacy on students' mathematics achievement motivation. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation.
3. There is a very low predictive power of teachers' control orientation on students' mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics task persistence.
4. There is a low predictive power of teachers' self-efficacy on students' mathematics task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics task persistence.
5. There is a low predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation and mathematics task persistence.
6. There is a low predictive power of teachers' self-efficacy on students' mathematics task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation and mathematics task persistence.

CHAPTER FIVE

DISCUSSION OF RESULTS, CONCLUSION, RECOMMENDATIONS, LIMITATIONS, SUGGESTIONS AND SUMMARY

This chapter presented the discussion of the findings, conclusions, implications, recommendations, limitations, suggestions and summary of the study.

Discussion of Results

The discussion is presented in line with the research questions and hypotheses that guided the study under the following headings:

1. the predictive power of teachers' control orientation on students' Mathematics achievement motivation;
2. the predictive power of teachers' self-efficacy belief on students' Mathematics achievement motivation;
3. the predictive power of teachers' control orientation on students' Mathematics task persistence;
4. the predictive power of teachers' self efficacy belief on students' Mathematics task persistence;
5. the predictive power of teachers' control orientation on students' Mathematics achievement motivation and task persistence;

6. the predictive power of teachers' self-efficacy belief on students' Mathematics Achievement motivation and task persistence.

The predictive power of Teachers' Control Orientation on Students' Mathematics Achievement Motivation.

Results showed that there is a very low predictive power of teachers' control orientation on students' Mathematics achievement motivation. This implies that teachers' control orientations have low predictive power on students' Mathematics achievement motivation in schools. This further indicates that there is positive relationship between teachers' control orientation and students' Mathematics achievement motivation. This finding is in line with the finding of Akhter (2010) that there is positive influence of teachers' control orientation on students intrinsic motivation. This finding negates the findings of Said and Marwa (2014) that humanistic teaching style is a better predictor of students' motivational construct.

The finding of this study is in agreement with the findings of Ogunmakin and Akomolafe (2013) whose findings indicated that locus of control was not a good predictor. From the above discussions, it can be concluded that teachers of Mathematics lack good control of students as a result of the quality of Mathematics' teachers in secondary schools, may be they are more authoritarian. Teacher-student relationship is vital to classroom learning. It is important that seminars and workshops be made available to teachers to improve their control. The government should employ only qualified Mathematics teachers in the schools.

The Predictive power of Teachers' Self-efficacy Belief on Students Mathematics Achievement Motivation.

The result showed a low predictive power of teachers' self-efficacy belief on students' Mathematics achievement motivation. Further analysis indicated no significant predictive power of teachers' self-efficacy belief on students' Mathematics achievement motivation. The finding of this study negates the findings of Anwar Noreen and Naz (2011) which indicated the significance of self-concept with achievement motivation. The finding also negates the findings of Caprara, Steca, Barabaranelli and Malone (2006) which found that teachers' self-efficacy belief motivates the students to work harder. The findings of this study negates the findings of Britner and Pajares (2001) which indicated that self-efficacy belief relates to students' motivation. The finding of this study is inline with the findings of Mojavezi and Tarriz (2012) which indicated that teachers' self-efficacy belief has a positive influence on students' motivation and achievement. The finding of this study does not agree with the findings of Tai, Hu, Wang and Chen (2012) which found that teachers' self-efficacy significantly affected students learning outcomes.

The findings of this study is not in consonance with the findings of Azar (2013) and Goutao (2014) whose findings indicated the significance of academic self-efficacy on students' achievement. The findings of this study does not agree with the findings of Adu, Tadu and Eze (2012) which indicated significance of teachers' self-efficacy belief on students' academic performance. The findings of this study negate the findings of Al-Alwan and Mahasneh (2014) which indicated teachers' self-efficacy belief as a good predictor of students' attitudes toward school. The finding of this study negates the finding of Tenaw (2013) which indicated a significant difference in relationship between self-efficacy and

achievement. From the above findings, it can be said that teachers' self-efficacy belief has relationships with students learning but cannot predict students' achievement motivation. It can be seen that lack of qualified teachers in the secondary school system made teachers self-efficacy belief insignificant in teaching and learning. The stakeholders should employ qualified teachers only.

The Predictive power of Teachers' Control Orientation on students Mathematics Task Persistence.

Results also indicated a low predictive power of teachers' control orientation on students' task persistence. On further analysis, teachers' control orientation indicated no significant predictive power on students' Mathematics task persistence. This finding negates the findings of Lunenburg and Schmidt (2000) which indicated significance on students' achievement motivation, higher satisfaction, commitment and persistence to class work due to teachers caring relationship with students. The finding of this study also disagrees with the findings of Rideout and Windle (2010) which indicated that humanistic teachers have more control of their pupils and that their pupils persist more to work in class. From the above discussion it can be said that teachers' control orientation, especially when it is more of humanistic type can make the students to persist in learning Mathematics. It is a major learning factor. It can be inferred that teachers' control orientation should be more of humanistic type in the teaching and learning process in Mathematics.

The Predictive power of Teachers' Self-Efficacy Belief on Students Mathematics Task Persistence

The results of this study show a very low predictive power of teachers' self-efficacy belief on students' Mathematics task persistence. Further analysis indicated no significant predictive power of teachers' self-efficacy on students' Mathematics task persistence. The findings of this study does not agree with the findings of Ramin and Nabi (2010) which indicated significant prediction of teachers' self-efficacy on students' task persistence. The result of this study also disagrees with the findings of Adedeji (2008) who found out that teachers' self-efficacy was the highest predictor of students academic achievement and promotes both teachers and pupils' task persistence. From the discussion above, it can be seen that teachers' self-efficacy has relationship with students' task persistence but the relationship is not strong as to predict students' Mathematics task persistence. It may be possible that the quality of teachers contribute to students' lack of persistence.

The Predictive power of Teachers' Control Orientation on Students' Mathematics Achievement Motivation and Task Persistence.

The results of this study show a low predictive power of teachers' control orientation on students' Mathematics achievement motivation and task persistence. On further analysis, it indicated no significant predictive power of teachers control orientation on students' Mathematics achievement motivation and task persistence, from the findings above, it can be seen that teachers' control is a learning factor but not strong to predict students' achievement

motivation and task persistence in Mathematics. It may be pertinent to note that the quality of teachers and their control create apathy in the students.

The Predictive Power of Teachers' Self-Efficacy Belief on Students' Mathematics Achievement Motivation and Task Persistence.

Results of this study indicate that teachers' self-efficacy belief is a factor in the learning process but weak in predicting students' Mathematics achievement motivation and task persistence. Further analysis showed that it was not significant. It may be that the quality of teachers make them not efficacious in their work.

Conclusion

From the findings and discussion of this study, the following conclusions are made:

1. There is a very low predictive power of teachers' control orientation on students' mathematics achievement motivation. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation.
2. There is a low predictive power of teachers' self-efficacy on students' mathematics achievement motivation. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation.

3. There is a very low predictive power of teachers' control orientation on students' mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics task persistence.
4. There is a low predictive power of teachers' self-efficacy on students' mathematics task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics task persistence.
5. There is a low predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation and mathematics task persistence.
6. There is a low predictive power of teachers' self-efficacy on students' mathematics achievement motivation and task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation and mathematics task persistence.

Implications of the Study

From the findings of this study, one can draw up some educational implications of the study for the government, curriculum planners, publishers of Mathematics texts, students and teachers.

The results of this study have provided empirical evidence which demonstrated that teachers' orientation and self-efficacy belief have very low predictive power on students' Mathematics achievement motivation and task persistence. The above findings imply that teachers' control is paramount to students' achievement motivation and task persistence. The implication is that stakeholders will become aware of the impact of other variables surrounding the learner. Such factors are teachers' self-efficacy, conditions of service, adequate learning environment, students' traits, among others. If the findings are made available, the government should be training the teachers adequately in the subject matter and in control for efficaciousness. Workshops, Seminars and in-service training should be given frequently for teachers to update their expertise. Learning environments should be conducive including teachers' conditions of service. The curriculum planners should plan learning experiences together with teachers' guides achievable within each academic session.

Publishers of Mathematics texts should simplify their texts with a lot of examples on each unit to encourage the students. If the findings are made available to the students, they should realize that self-determination is the key to excel and they have their own effort to make, not blaming the teachers. Teachers should be explicit in their teaching and relate well with the students. When teachers control or self-efficacy was used on students' Mathematics achievement motivation and task persistence jointly they had no significant predictive power on students' Mathematics achievement motivation and task persistence. This implies that the government should encourage the teachers and students to perform creditably by providing what it takes to create adequate learning environment.

Recommendations

Based on the findings and implications of this study, the following recommendations are suggested:

1. The government should employ only qualified Mathematics teachers to teach the subject in schools.
2. The government should hold workshops and seminars for the teachers occasionally.
3. The government should give scholarships to best Mathematics students.
4. The curriculum planners should not put too many learning experiences within an academic session.
5. Publishers of Mathematics texts should simplify them as much as possible and give a lot of examples on each topic.
6. Teachers should encourage the students to work in groups and as co-operate individuals.
7. Teachers should be explicit in their teachings.
8. Teachers should teach little at a time for comprehension and by giving the students heterogeneous tasks.

Limitations of the Study

The difference in each individual research assistant's instructional approach cannot be isolated. To this end little; errors may have been introduced into this study.

Suggestions for further Research

Based on the findings of this study, the researcher suggests that other researchers should address the following:

1. The present study employed only senior secondary two (SS II) students with a small sample size. Further studies can improve on this by using a large sample size.
2. Further studies could be done on this topic by including students from other classes so as to allow for generalization.
3. Further studies could be done on these using different subjects other than Mathematics.

Summary of the Study

It is a well known fact that most students in Nigerian secondary schools detest the learning of Mathematics and that can be seen in the declining nature of their Mathematics achievement in national examination bodies. This continuous decline has become so worrisome to the extent that needs urgent attention by all the stakeholders in education industry to proffer possible solutions to this. Achievement motivation is perceived as self-determination to succeed in whatever activities one engages in while Task Persistence is sticking with a task to a successful end. Students' achievement in Mathematics in Enugu State secondary schools have not been encouraging. This could this be as a result of teachers' control orientation and self-efficacy belief. Teachers' control orientation, on the other hand,

is the control measures the teachers exercise on the students for successful teaching, and learning. Self-efficacy belief is a belief in one's ability to carry out a task successfully.

In order to address this problem, this study investigated Teachers' Control Orientation and Self-Efficacy belief as predictors of students Mathematics Achievement Motivation and Task Persistence. Six research questions and six hypotheses guided the study: The researcher looked at the basic issues related to the present study under broad headings: Conceptual framework, theoretical framework and review of empirical studies. The conceptual framework covered the concepts of control orientation, self-efficacy belief achievement, achievement motivation and task persistence. The theories related to the study were reviewed. They include Glasser's control Theory Approach to Classroom Management, Bernard Weiner's Attribution Theory, J. W. Atkinson's Achievement Need Theory and Bandura's Self-Efficacy Belief Theory.

Glasser's control theory states that a person behavior is inspired by his needs while Weiner's attribution theory sought why we fail or succeed in our tasks. Weiner posits that the causes of our failure or success can be categorized into three-dimensions: locus (location of the cause internal or external to the person), stability (whether the cause stays the same or can change) and responsibility (Whether the person can control the cause). Atkinso's achievement need theory states that when an individual is actively involved in a task, the individual sets a standard to conquer and that standard is the individual's level of aspiration. Bandura's self-efficacy theory opined that self-efficacy belief is a belief in a person's capabilities to organize and execute the courses of action required to manage prospective situations.

Related studies on teachers' control orientation and self-efficacy have been explored as regards its relationship with students' achievement, achievement motivation and task persistence. However, the major problem, as is evident from review of empirical studies, is that some of the empirical studies reviewed were carried out in foreign countries. Secondly, almost none of the empirical studies were carried out in Mathematics. Also of note is that none of the reviewed studies investigated the teachers' control orientation and self-efficacy belief jointly with respect to students' achievement motivation and task persistence. Therefore the differences between the cultures in which these studies were conducted and Nigerian environment and subsequent poor achievement in the subject area motivated the need for this study. Hence, it is the bid to fill this gap that motivated this study on Teachers' control orientation and self-efficacy belief as predictors of students Mathematics achievement motivation and task persistence in Enugu State.

The study adopted a correlational survey research design. The study was carried out among secondary school class II students and their teachers in six education zones of Enugu State. The total sample used was 636 comprising 607 SS II students and 29 SS II Mathematics teachers drawn from 29 secondary schools of the six education zones. Four instruments developed by the researcher were used in collecting data for the study. They are Mathematics Teachers' Control Orientation Inventory (MTCOI), Mathematics Teachers Self-Efficacy Belief Scale (MTSEBS), Students Mathematics Achievement Motivation Rating Scale (SMAMRS) and Students Mathematics Task Persistence Scale (SMTPS). The data collected were analysed using multiple regression analysis. Pearson moment correlation coefficient and R-square were used to answer the research questions while ANOVA was used to test the hypotheses at 0.05 level of significance. Results of the findings showed that:

- 1 There is a very low predictive power of teachers' control orientation on students' mathematics achievement motivation. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation.
2. There is a low predictive power of teachers' self-efficacy on students' mathematics achievement motivation. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation.
3. There is a very low predictive power of teachers' control orientation on students' mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics task persistence.
- 4 There is low predictive power of teachers' self-efficacy on students' mathematics task persistence. Further analysis revealed that teachers' self-efficacy does not significantly predict students' mathematics task persistence.
- 5 There is a low predictive power of teachers' control orientation on students' mathematics achievement motivation and mathematics task persistence. Further analysis revealed that teachers' control orientation does not significantly predict students' mathematics achievement motivation and mathematics task persistence.
6. There is a low predictive power of teachers' self-efficacy on students' mathematics achievement motivation and task persistence. Further analysis

revealed that teachers' self-efficacy does not significantly predict students' mathematics achievement motivation and mathematics task persistence.

Finally, the findings of the study were carefully and extensively discussed; various educational implications and recommendations were highlighted. Suggestions for further study, limitations and summary of the study were also made.

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APPENDIX A

DISTRIBUTION OF SECONDARY SCHOOLS BY EDUCATION ZONES AND LOCAL GOVERNMENT AREAS IN ENUGU STATE

NSUKKA ZONE

Igbo-Etiti Local Government

S/N	Name of School	SS II Students Population
1	Akutara C.S.S. Ohodo	*
2	Boys S.S.S. Aku	54
3	C.H.S. Ekwegbe	286
4	C.H.S. Ukehe	208
5	C.S.S. Aku	320
6	C.S.S. Ohebe-Dim	188
7	C.S.S. Ohodo	284
8	C.S.S. Ozalla	142
9	C.S.S. Ukopi-Ekwegbe	104
10	C.S.S. Umuna	166
11	C.S.S. Umunko	194
12	Compr. S.S. Diogbe	0
13	G.S.S. Aku	186
14	Igbo-Etiti S.S. Ikolo	140
15	Orinandu C.S.S. Ukehe	188
16	Premier S.S. Ukehe	384
	Total	2854
NSUKKA L.G.A.		
1	Agu-Umabor C.S.S. Umabor	52

2	C.S.S. Akpotoro Obimo	104
3	C.H.S. Umabor	220
4	C.S.S. Alor-Uno	140
5	C.S.S. Ede-Oballa	560
6	C.S.S. Ehandiagu	290
7	C.S.S. Ezebunagu	90
8	C.S.S. Ibagwa-Ani	404
9	C.S.S. Lejja	134
10	C.S.S. Obimo	100
11	C.S.S. Obukpa	314
12	C.S.S. Okpuje	96
13	C.S.S. Opi-Agu	38
14	C.S.S. Breme Ehandiagu	40
15	C.S.S. Isienu	412
16	Com. H.S. Ajuona-Obimo	0
17	C.S.S. Nru	302
18	Edem C.S.S. Edem	316
19	Comp. S.S. Opi (G.S.S. Opi)	60
20	G.S.,S. Ede-Enu Ede-Oballa	50
21	Lejja H. S. Lejja	168
22	Model S.S. Nsukka	320
23	Nsukka H. S. Nsukka	518
24	Okutu S.S. Okutu	116
25	Opi H.S. Opi	160
26	QRSS Nsukka	372
27	S.T.C. Nsukka	424
28	St. Cyp. G.S.S. Nsukka	418

29	Urban B.S.S. Nsukka	190
30	Urban G.S.S. Nsukka	302
	Total	6710
Uzo-Uwani L. G.A.		
1	Adada S.S. Nkpologu	54
2	Atta Memorial H.S. Adada	100
3	C.H.S Nrobu	64
4	C.S.S. Abbi-Ugbene	322
5	C.S.S. Nimbo	178
6	C.S.S. Ogurugu	200
7	C.S.S. Ugbene-Ajima	130
8	C.S.S. Ukpata	98
9	C.S.S. Ogbosu Umulokpa	40
10	Girls S.S. Umulokpa	50
11	Joerose C.S.S. Ogba Nkpologwu	60
12	Uvuru S.S. Uvuru	94
13	Uzo-Uwani S.S. Adani	120
14	Welfare S.S. Opanda-Nimbo	20
	Total	1330
	Nukka Zone Total	10,894
ENUGU ZONE		
	Enugu East L.G.A.	
1	Annunciation S.S. Nike	400
2	Com. H. S. Emene	306
3	Com. S.S. Ugwuogo Nike	40
4	Girls' S.S. Abakpa Nike	520
5	Girls' S.S. Emene	406

6	National Gram.S.Nike	572
7	New Heaven S.S. Enugu	120
8	St. Pat S.S. Emene	406
9	Trans Ekulu G.S.S. Enugu	1280
10	Umuchigbo C.H.S. Iji-Nike	-
	Total	4050
ENUGU NORTH L.G.A.		
1	City Girls S.S.Enugu	154
2	Coal Comp.S.S. Enugu	312
3	Com. S.S. Iva-Valley, Enugu	194
4	Day S.S. Indep. Layout, Enugu	324
5	Govt. S.S. Enugu	400
6	Metro Girls S.S. Enugu	320
7	New Layout S.S. Enugu	460
8	Queens School Enugu	1320
9	Urban Girls S.S. Enugu	-
	Total	3484
ISI-UZO L.G.A.		
1	Aguamede C.S.S. Ikpakpara	-
2	Com.S.S. Eha-Ohuala	304
3	Com. S.S. Neke	248
4	Com. S.S. Umualor	258
5	Com. S.S. Umuhu	284
6	Com. S. S. Mbu	320
7	Com. S.S. Emeora-Neke	-
8	Com. S.S. Ikem-Nkwo	-
9	Com. S.S. Isioroto-Ikem	0

10	Ogo Com. S.S. Ikem	138
12	Union S.S. Eha-Amufu	240
	Total	1792
	Enugu Zone Total	5568
OBOLLO-AFOR ZONE		
	Igbo-Eze North L.G.A.	
1	A. H.S. Aji	240
2	C.H.S. Ogurute	268
3	C.H.S. Okpo	300
4	C.H.S. Olido	338
5	C.S.S. Amaoba-Inyi	96
6	C.S.S. Aguibeje	80
7	C.S.S. Amachala	110
8	C.S.S. Amufie Umuitodo	326
9	C.S.S. Ezeaku Inyi	330
10	C.S.S. Igogoro	212
11	C.S.S. Imufu	322
12	C.S.S. Isiugwu	316
13	C.S.S. Umuogbo-Agu	290
14	C.S.S. Umuopu	280
15	C.S.S. Uda	180
16	C.H.S. Umuida	300
17	C.S.S. Mkpamute-Ulo Enugu-Ezike	-
18	C.S.S. Umuagama	0
19	Igbo-Eze S.S. Enugu-Ezike	358
20	MCSS Ekposhi	120
21	U.S.S. Ugbaike	106

	Total	5064
IGBO-EZE SOUTH L.G.A.		
1	B.S.S. Ibagwa-Aka	60
2	B.S.S. Ovoko	520
3	C.S.S. Itchi	184
4	C.S.S. Alor-Agu	90
5	C.S.S. Iheakpu-Awka	266
6	C.S.S. Uhunowerre	152
7	C.S.S. Nkalagu-Obukpa	126
8	C.S.S. Unadu	160
9	G.S.S. Ibagwa-Aka	118
10	Iheaka G.S.S. Iheaka	506
	Total	2182
UDENU L.G.A.		
1	Ada C.S.S. Obollo-Etiti	140
2	B.H.S. Orba	170
3	C.S.S. Orba	278
4	C.S.S. Obollo-Etiti	74
5	C.S.S. Amalla	146
6	C.S.S. Ezimo-Uno	376

7	C.S.S. Imilike-Agu	92
8	C.S.S. Obollo-Afor	366
9	C.S.S. Ogbodu-Aba	80
10	C.S.S. Umundu	372
11	Com.G.S.S. Imilike-Ulo	254
12	C.S.S. Ibenda-Obollo	-
13	C.S.S. Obollo-Eke	0
14	Ezimo-Agu H.S. Ezimo-Agu	122
15	G.S.S. Owerre-Eze-Orba	300
16	St. Pat. MCSS Obollo-Eke	74
	Total	2844
	Obollo-Afor Zone Total	10,090
ANINRI L.G.A.		
1	Agboechara H.S. Ndeabor	28
2	Awgu H.S. Nenwe	100
3	C.S.S. Ohafia Oduma	144
4	C.S.S. Mpu	80

5	C.S.S. Ndeabor	116
6	C.S.S. Oduma	120
7	C.S.S Okpanku	140
8	C.H.S. Ezinesi-Oduma	100
9	C.S.S. Emudo-Nenwe	68
10	C.S.S. Agbada-Nenwe	0
11	C.S.S. Uhueze-Nenwe	-
12	G.H.S. Nenwe	200
13	G.S.S. Oduma	108
14	King's H.S. Oduma	0
15	Model S.S. Mpu	170
16	C. H.S. Okpanku	140
17	U.S.S. Oduma	106
	Total	1620
AWGU L.G.A.		
1	B.S.S. Awgu	244
2	B.S.S. Mgbowo	190

3	C.S.S. Agbudu Awgu	50
4	C.S.S. Amabor-Owelli	138
5	C.S.S. Nkwe-Awgu	60
6	G.S.S. Mmaku	90
7	C.S.S. Ihe	106
8	C.S.S. Isu-Awa	300
9	C.S.S. Ituku	26
10	G.S.S Enugu	92
11	C.S.S. Obeagu-Awgu	44
12	C.S.S. Ogbaku	152
13	C.S.S. Ogugu	108
14	C.S.S. Ugbo	220
15	C.S.S. Ugbo-Okpala	32
16	C.S.S. Ugwueme	16
17	Eziobu S.S. Ugwueme	94
18	G.H.S. Mgbowo	290
19	G.S.S. Agbogugu	92

20	G.S.S. Mgbowo	102
21	G.S.S Owelli	38
22	Mmaku H.S. Mmaku	84
23	R.H.S. Awgu	254
24	St. Vin. S.S. Agbogugu	32
25	U.G.S.S Ugwuleshi	48
26	U.S.S. Awgu	120
	Total	3022

OJI RIVER L.G.A.

1	Akpugoeze H.S. Akpugoeze	130
2	Awlaw H.S. Awlaw	46
3	C.S.S. Isiama-Awlaw	54
4	C.S.S. Ugwuoba	134
5	Corpus Christi College Achi	80
6	Model Com. S.S. Isikwe-Achi	186
7	Girls' H.S.Inyi	96
8	Girls' H.S. Ugwuoba	154

9	Anglican Gram.S. Achi	-
10	Model Comp.B.S.S. Inyi	130
11	Urban S.S. Oji River	154
	Total	1270
	Awgu Zone Total	5912
UDI ZONE, EZEAGU L.G.A		
1	A.B.S.S. Oghe	116
2	Aguohu-Owa H.S.	70
3	C.H.S. Okpudo Obeleagu	150
4	C.H.S. Umumba Ndiagu	18
5	C.S.S. Aguobu Umumba	80
6	C.S.S. Umuaji Mgbagbu Owa	36
7	C.S.S. Agba Umana	100
8	C.S.S. Aguohu-Iwollo	36
9	C.S.S. Awha Imezi	64
10	C.S.S. Awha Ndiagu	38
11	C.S.S. Ezema Olo	46

12	C.S.S. Imezi-Owa	56
13	C.S.S. Mgbagbu-Owa	34
14	C.S.S. Obeleagu-Umana	166
15	C.S.S. Obinofia Ndiuno	76
16	C.S.S. Ogwofia Imezi-Owa	110
17	C.S.S. Omughu Umana	40
18	C.S.S. Ozom Mgbagbu-Owa	0
19	C.S.S. Umuana Ndiagu	110
20	C.S.S. Umueze Obinof. Ndiagu	76
21	C.S.S. Umumba Ndiuno	42
22	C.S.S. Ezema Imezi Owa	0
23	Com. S.S. Aguobu-Owa	62
24	Comp. S.S. Imezi Olo	0
25	Ezeagu S.S. Isiugwu Umana	166
26	Iwollo H.S. Iwollo	132
27	Model S.S. Olo	96
28	Sedes Sapien. G.S.S. Oghe	82

29	U.S.S. Ihuonyia Amansiodo	80
	Total	2082
UDI L. G. A.		
1	C.S.S. E	90
2	C.H.S. Amokwe	106
3	C.H.S. Obioma	90
4	C.S.S. Agbudu	136
5	C. S.S. Akpakwume	96
6	C. S.S. Amokwu Affa	110
7	C.S.S. Awhum	116
8	C.S.S. Ngwo Uno	444
9	C.S.S. Nsude	240
10	C.S.S. Nze	200
11	C.S.S. Ogo-Affa	60
12	C.S.S. Okpata	78
13	Christ H.S. Abor	40
14	Com. Comp. S.S. Obinagu	0

15	Com. S.S.Ebe	140
16	Com. S.S. Amozalla Affa	62
17	Com. S.S. Umulumgbe	80
18	Com. S.S./ Ezi-Nze	-
19	Comp. H. S. Udi Abia	196
20	Comp. H.S. Ukana	100
21	G.H.S. Machi	60
22	G.S.S. Ngwo	-
24	S.T.S.S. Abor	136
25	St. Paul's S.S. Eke	184
	Total	2810
	Udi Zone Total	4892
AGBANI ZONE		
	ENUGU SOUTH L.G.A.	
1	Army Day S.S. Awkunanaw	480
2	C.S.S. Ndiagu Amechi	8
3	C.S.S. Obeagu Awkunanaw	36

4	C.S.S. Ugwuaji	78
5	Chukwu Mem. S.S.	14
6	C.I.C. Enugu	756
7	Comp. S.S. Akwuke	56
8	G.G.S. Awkunanaw	258
9	G.H.S. Uwani	416
10	H.R.C. Enugu	616
11	Idaw River G.S.S. Enugu	668
12	M/Land S.S. Enugu	164
13	Model H.S. Amechi Awk.	138
14	Union S.S. Awkunanaw	276
15	Uwanni S.S. Enugu	484
	Total	4448
NKANU-EAST L.G.A.		
1	B.S.S. Nara	54
2	C.S.S. Mburumbu	60
3	C.S.S. Akpawfu	244

4	C.S.S. Amafor Ugbawka	142
5	C.S.S. Amagunze	120
6	C.S.S. Ihuokpara	48
7	C.S.S. Isigwe Ugbawka	80
8	C.S.S. Mbuhuowo	24
9	C.S.S. Nkerefí	88
10	C.S.S. Nomeh	58
11	C.S.S, Owo	44
12	C.S.S. Ubahu	342
13	C.S.S. Uzam Idodo	96
14	C.S.S. Eziana Idodo	20
15	Comp. S.S. Oruku	0
16	Comp. S.S. Enugu Nkerefí	50
17	Igwebuiké C.S.S. Imeoha	52
18	Model S.S. Ishienú Amofu	0
19	Unateze G.S.S. Nara	76
	Total	1598

NKANU WEST L.G.A.		
1	Akpugo S.S. Akpugo	76
2	C.S.S. Agbani	214
3	C.S.S. Akpasha	-
4	C.S.S. Amodu Awk.	80
5	C.S.S. Amuri	108
6	C.S.S. Obuofia Awkunanaw	50
7	C.S.S. Umueze Awkunanaw	84
8	G.S.S. Akegbe Ugwu	152
9	G.S.S. Obe	90
10	Model S.S. Agbani	318
11	O.H.S. Ozalla	82
	Total	1254
	Agbani Zone Total	7300

APPENDIX B

NUMBER OF PUBLIC SECONDARY SCHOOLS IN ENUGU STATE ZONE BY ZONE

S/N	ZONE	NUMBER OF SCHOOLS	10% PERCENT OF THE NUMBER
1	Nsukka	60	6
2	Udi	54	5
3	Agbani	45	5
4	Obollo-Afor	47	5
5	Enugu	31	3
6	Awgu	54	5

APPENDIX C

SCHOOL SAMPLED ZONE BY ZONE

S/N	Zone	Name of school sampled	Mathematics Teachers	Number of Students			
				Male	Female	Total	10% of Students Population
1	Nsukka	CSS Ohodo	2	131	148	284	28
		Model Secondary School Nsukka	2	104	216	320	32
		Adada SS Nkpologu	2	32	22	54	5
		USS Uvuru	2	60	60	120	12
		CSS Umuna	2	82	84	166	17
		CSS Ede Obolla	3	242	318	560	56
2	Udi	CSS Imezi Owa	2	28	28	56	7
		MSS Olo	2	40	56	96	10
		CSS Okpatu	2	36	42	76	8
		CSS Egede	2	52	38	90	9

		CSS Umulumgbe	2	34	46	80	8
3	Agbani	Model SS Agbani	7	148	170	318	31
		Uwani S.S.	3	484	-	484	48
		C.S.S. Agbani	2	88	126	214	21
		C.S.S. Ugwuaji	2	38	40	78	8
		C.S.S. Nkerefi	2	38	50	88	9
4	Obollo-Afor	C.S.S. Obollo-Afor	2	154	212	366	37
		C.S.S. Uda	2	131	262	398	40
		I.G.S.S. Iheaka	3	-	506	506	51
		M.C.S.S.	2	50	70	120	12
		C.S.S. Obollo-Etiti	2	30	44	74	7
5	Enugu	C.S.S. Iva – Valley	2	94	154	248	25
		Ogo C.S.S. Ikem	2	70	68	138	14
		C.H.S. Emene	2	106	200	306	31
6	Awgu	C.S.S. Ugwuoba	2	96	34	130	13
		C.S.S. Ihe	2	46	60	106	11

		C.S.S. Isu Awa	2	180	120	300	30
		Urban S.S. Oji River	2	68	86	154	15
		U.S.S. Awgu	2	56	64	120	12
			61	2709	3338	6047	607
							296/311

APPENDIX D

MATHEMATICS TEACHERS' CONTROL ORIENTATION INVENTORY (MTCOI)

Please indicate by ticking (✓) under the response category that best represent your opinion about each item in both sections. The responses to be made are categorized as follows:

Sex: Male ☐ Female ☐

Very High Extent (VHE) - 4 points

High Extent (HE) - 3 points

Low Extent (LE) - 2 points

Very Low Extent (VLE) - 1 point

SECTION A:

S/N	ITEMS	VHE	HE	LE	VLE
1	My teacher is friendly with students in the class;				
2	discusses in a friendly manner with the students;				
3	Has warm social interaction with students;				
4	Is very gentle with students;				
5	allows the students to express themselves freely in the class				
6	accepts the students' views when necessary;				
7	encourages the students to participate in class activities;				
8	recognizes the class students' ideas;				
9	maintains good rapport with the students;				
10	Gets willing co-operation easily from the students;				
11	makes the students feel free and relaxed in the class.				
12	makes the students feel as they are all equals;				
13	Is always punctual to school;				
14	Is unapproachable;				
15	insists that the students do as he/she wishes;				

16	Does not recognize the students' ideas;				
17	Uses sarcastic words on the students;				
18	threatens to beat the students when they perform poorly in the class;				
19	often finds faults with the students;				
20	takes only her/his initiatives in class discussions;				
21	Has "I don't care" attitude to the students;				
22	categorizes the students in the class;				
23	Class is rigid and uncomfortable;				
24	Is seldom punctual to school;				

APPENDIX E

MATHEMATICS TEACHERS' SELF-EFFICACY BELIEF SCALE (MTSEBS)

Please indicate by ticking (√) under the response category that best represent your opinion about each item. The responses to be made are categorized as follows:

- | | | |
|------------------------|---|----------|
| Very High Extent (VHE) | - | 4 points |
| High Extent (HE) | - | 3 points |
| Low Extent (LE) | - | 2 points |
| Very Low Extent (VLE) | - | 1 point |

S/N	ITEMS	VHE	HE	LE	VLE
1	I can influence class size in my mathematics class.				
2	I can easily get the instructional materials I need to teach mathematics.				
3	I find it easy getting through to the most difficult students in my mathematics class.				
4	I can keep students on task on difficult mathematics assignments.				
5	I can promote mathematics learning even when there is lack of support from home.				
6	I can improve students' memory of what they learnt in previous mathematics lesson by asking them questions on that before embarking on a new one.				
7	I can motivate students who show low interest in mathematics.				
8	I can make students to work together in solving mathematics problems.				
9	I can improve students' learning in mathematics despite their teaming population.				
10	I can make the students adhere to mathematics rules in the class.				

11	I can make the students enjoy mathematics lessons in the class always.				
12	I correct the students' mistakes while teaching mathematics and immediately after the lesson.				
13	I can control disruptive behaviours in my mathematics class.				
14	I can get the parents to help their children and wards do well in mathematics class.				
15	I can make students enjoy coming to mathematics class.				
16	It is difficult getting through to the most difficult students in mathematics class.				
17	I find it difficult to prevent problem behaviours in mathematics class.				
18	I often make my lessons brief and clear to the Students in mathematics class.				
19	I can apply appropriate strategies to control disruptive behaviours in mathematics class.				
20	I cannot influence class size in my mathematics class.				
21	I find it difficult to get the instructional materials I need to teach mathematics.				
22	I cannot keep the students on task on difficult mathematics assignment.				
23	I cannot promote mathematics learning when there is lack of support from home.				
24	I seldom revise mathematics previous lesson before embarking on a new one.				
25	I cannot motivate students who show low interest in mathematics.				
26	I cannot make students work together in solving mathematics problems.				
27	I cannot improve students' learning in mathematics in a large class.				

28	I cannot make the students adhere to mathematics rules in the class.				
29	I cannot make the students enjoy mathematics lessons in the class.				
30	I cannot correct the students mistakes while teaching mathematics and immediately after the lesson.				
31	I cannot control disruptive behaviours in my mathematics class.				
32	I cannot get the parents to help their children and wards do well in mathematics class.				
33	I seldom make my lessons brief and clear to the students in mathematics class.				

APPENDIX F

STUDENTS MATHEMATICS ACHIEVEMENT MOTIVATION

RATING SCALE (SMAMRS)

Please carefully tick (✓) under the response option that best represent your opinion about each item. The responses to be made are:

Sex: Male ☐ Female ☐

Strongly Agree (SA) - 4 points

Agree (A) - 3 points

Disagree (D) - 2 points

Strongly Disagree (SD) - 1 point

S/N	ITEMS	SA	A	D	SD
1	I feel motivated whenever it is time for mathematics lesson.				
2	Mathematics is a subject I desire to learn.				
3	When I encounter a mathematics problem I am enticed to solve it.				
4	I do not like missing mathematics class.				
5	I am not discouraged when I perform poorly in mathematics task.				
6	Mere mentioning of mathematics discourages me from learning the subject.				
7	Solving mathematics problems with my friends motivates me.				
8	Mathematics periods motivate me to learn the subject.				
9	I do feel good when it is period for mathematics.				
10	I do not desire to remain in mathematics classes.				
11	My attendance to mathematics classes motivate me to achieve better.				
12	Regular attendance of mathematics classes motivates me to learn more of the subject.				
13	The teacher's methods of teaching mathematics				

	motivate me.				
14	The mathematics teacher's voice projection and diction motivate me to learn the subject.				
15	The teacher's methods of teaching motivate me to recall a wide range of materials taught in mathematics.				
16	The mathematics teacher's methods of teaching motivate me to use learned materials in new and concrete situations.				
17	The teacher's methods of evaluation motivate my achievement in mathematics.				
18	I feel very uncomfortable whenever it is time for mathematics class.				
19	Encountering any difficult mathematics problem makes me not to try further.				
20	I do not desire to remain in mathematics classes.				
21	The teacher's methods of teaching mathematics discourage me from learning the subject.				

APPENDIX G

MATHEMATICS STUDENTS TASK PERSISTENCE SCALE (MSTPS)

Please carefully tick (✓) under the response category that best represents your opinion about each item. The responses to be made are as follows:

Strongly Agree (SA) - 4 points

Agree (A) - 3 points

Disagree (D) - 2 points

Strongly Disagree - 1 point

Sex: Male ☐ Female ☐

S/N	ITEMS	SA	A	D	SD
1	If I cannot do a mathematics task the first time, I keep trying until I can.				
2	I can hardly finish my mathematics tasks.				
3	If mathematics task seems too hard, I do not even bother to try it.				
4	I cannot handle unexpected mathematics problem very well.				
5	Failure just makes me try harder				
6	I cannot depend on myself in solving difficult mathematics problems.				
7	I easily give up on difficult task.				
8	I am not sure of my ability in solving Mathematics tasks.				
9	Failure makes me lose hope.				
10	If I perform well in a mathematics task, I enjoy trying more of the tasks.				

