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Non-Intellective Factors: Their Influence on Mathematics Performance of High School Students

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**NON-INTELLECTIVE FACTORS: THEIR INFLUENCE ON MATHEMATICS
PERFORMANCE OF HIGH SCHOOL STUDENTS**

A Seminar Paper
Presented to the College of Graduate Studies
and Teacher Education Research
Philippine Normal University
The National Center for Teacher Education

In Partial Fulfilment
of the Requirement for the Degree
Master of Arts in Teaching Mathematics

By
Eleazar A. Gonzales
March 2015

APPROVAL SHEET

This seminar paper entitled **“NON – INTELLECTIVE FACTORS: THEIR INFLUENCE ON MATHEMATICS PERFORMANCE OF HIGH SCHOOL STUDENTS”** prepared and submitted by **ELEAZAR A. GONZALES** in partial fulfillment of the requirements for the degree , Master of Arts in Teaching Mathematics is hereby recommended for approval and acceptance.

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Title : NON – INTELLECTIVE FACTORS: THEIR
INFLUENCE ON MATHEMATICS PERFORMNCE
OF HIGH SCHOOL STUDENTS

Key Concepts : Non – Intellective Factors , Mathematics Performance

Degree : Master of Arts in Teaching (MAT)

Specialization : Mathematics

Adviser : Rene R. Belecina , Ph. D.

The main purpose of this study was to investigate the non – intellective factors that influence mathematics performance of fourth year high school students.

This study utilized the descriptive research design. Its main concern was to determine the non- intellective variable. The non – intellective factors include attitudes , beliefs, motivation, parental involvement and socio – economic status. To gather the needed data, four research instrument were utilized. These are the mathematics attitude scale, parental involvement scale, mathematics beliefs scale and socio – economic status questionnaire. The data gathered from the survey questionnaire were analyzed using frequency, percentage, mean, standard deviation and linear regression analysis.

The participants of the study involved one hundred (100) students and their parents who were selected using stratified random sampling. These were selected from different sections of fourth year students of Bulihan National High School.

Findings showed that among the non – intellective factors, socio – economic status significantly affect mathematics performance.

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E.A.G

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Chapter I

THE PROBLEM AND ITS BACKGROUND

Introduction

Mathematics is a form of reasoning. Thinking mathematically consists of thinking in a logical manner, formulating and testing conjectures, making sense of things, forming and justifying judgments, inferences, and conclusions. We demonstrate mathematical behaviour when we recognize and describe patterns, construct physical and conceptual models of phenomena, create symbol systems to help us represent, manipulate, and reflect on ideas, and invent procedures to solve problems (The Alliance Education, 2006).

It is said that Mathematics is the key of the Sciences . According to Kant, science is exact only in so far as it employs Mathematics. So, all scientific education which does not commence with Mathematics is said to be defective at its foundation. Neglect of mathematics works injury to all knowledge. One who is ignorant of mathematics cannot know other things of the world. Again, what is worse , those who are ignorant are unable to perceive their own ignorance and do not seek any remedy. Finally, Kant says that a natural science is a science in so far as it mathematical. Mathematics has played a very important role in a building up modern Civilization by perfecting all sciences.

In the pedagogical study of mathematics we mainly concern ourselves with two things: the manner in which the subject matter is arranged or the method in which it is presented to the pupils or the mode of presentation. Mathematics is intimately connected with everyday life. It is necessary to a successful conduct of affairs. It is an instrument of education found to be in

conformity with the needs of human mind. The teaching of mathematics is incorporated in the school curricula. If and when Mathematics is removed, the backbone of our material civilization would collapse. This is how important Mathematics is.

Learning Mathematics is not an easy pursuit but it need not be unpleasant for anyone. Mathematics is both a difficult and exciting subject. The most common reason why mathematics as subject is considered difficult is because it requires intellectual ability. Although mathematics is difficult to understand, one must accept that it plays an important role in various aspects of economic and scientific development. It is even said that the world operates in a perfect system of mathematics and yet in spite of the multifarious benefits one gets from the study of mathematics, one feels and possesses in general a natural aversion of it (Nicolaidou and G. Philippou 2003).

Despite knowing the importance of Mathematics, the students of today still have negative attitudes and beliefs toward the subject. They think that Mathematics is a difficult subject, as it is difficult to memorize and understand formulas. Some students who have little appreciation of Mathematics say that learning the four (4) fundamental operations is enough, the use of graphs and formulas have no relevance to their daily living and there is no need for further knowing the subject. They find Mathematics interesting and challenging only if they understand the logic behind it and the principles applied in different problems. They are also compelled to like the subject because it is a requirement.

Although Mathematics is vital to human activity and development, it is unfortunate that students' performance in the subject is poor. This low performance in mathematics has assumed a

disturbing dimension, not only in Philippines, but all over the world. The dismal state of mathematics achievement of high school students was evident in the results of international, national and regional mathematics tests. The performance of Filipino students in the 2003 Trends in International Mathematics and Science Study (TIMSS) placed the Filipino second year high school students at rank 41 in math out of 46. Students' performance in the National Achievement Test (NAT) was even more discouraging. Some one million fourth year students' NAT scores in 2003-2005 had only ten percent mastery in mathematics. Students' NAT for four succeeding years (2006-2009) in both elementary and secondary levels registered below mastery level of 75 percent. The international and national trend of Filipino students' poor performance are also reflected in both regional and local levels. Mathematics is identified by Filipino teachers as the most difficult to understand, which are prevalent on different regions of the Philippines. For any nation that wants to develop technologically, mathematics as a subject taught in schools must be embraced and given urgent attention (Ayotola and Adedeji, 2009). The issue of low quality Mathematics education in the Philippines must be addressed as the country strives to deal with the requirements of globalization, educational reforms, technological change, and survival. Mathematics, as a tool of survival, should be attended to and reengineered as a 21st Century criterion.

Studies claim that Mathematics performance is determined by factors, such as student – related factors, teacher – related factors and school related factors (Lubina, 2004, Yara, 2009, Del Castillo, 2010, Balbalosa, 2010, Gabriel, 2012). However, there are other factors yet to be identified.

There seem to be underlying reasons for declining achievements of students in mathematics despite different efforts to increase students' mathematics performance. This is the

main reason why this study was thought of. This study sought to identify factors, such as the non – intellective factors, that could influence students' mathematics performance. These non-intellective factors may play a vital role in the students' learning of the concepts and skills in mathematics.

Many researchers (Eamon, 2005, Heinze, 2008, Del Castillo, 2010, Gabriel, 2012) have also shown that individual factors influencing students' mathematics achievement can generally be divided into two categories: intellectual and non-intellectual factors. The latter, learning motivation and learning attitude may affect mathematics achievement. Mathematics learning attitude refers to the learner's cognition, emotion and behaviour inclination to mathematics study objects. Cognition refers to the learner's value judgment to mathematics study objects; emotion refers to the learner's emotional reflection such as love, hatred, liking and loathing to mathematics study objects; behaviour inclination is the learner's outward behaviour of cognition and emotion to mathematics study objects. In Mathematics, learning motivation is the internal drive to inspire students to learn mathematics.

A non – intellective factor that may affect students' mathematics performance is the sociological factor which includes involvement of parents' background which Ogunshula, (2012) said that the responsibility of training a child always lies in the hands of the parents. This is congruent to the common assertion of sociologists that education can be an instrument of cultural change which is being taught at home. It is not out of place to imagine that parental socio-economic background can have possible effects on the academic achievement of children in school. Whatsoever affect the developing environment of children would possibly affect their education or disposition to it. Parents of different occupation or classes often have different styles

of child rearing, different ways of disciplining their children and different ways of reacting to their children. This factor may have something to do with students' mathematics performance.

Since good performance is believed to be a manifestation of the student's biological and sociological well being, factors that are contributory to its attainment are very important for educators to identify. Determining the child's performance in school requires consideration of, not only the intellectual factors, but also the non-intellectual factors.

The Mathematics performance of the fourth year high school students of Bulihan National High School has been observed to be deteriorating. The interests and attitudes of the students towards mathematics has been observed to be low. They lack enthusiasm and motivation in this subject. Even the use of some innovations in teaching and various techniques and strategies prove to be ineffective. The results of the students' quizzes, assignments and examinations are still unfavorable. These observations are consistent with those perceived by some Mathematics teachers in Bulihan National High School. They provided the impetus for this study. Thus, it is deemed important to discover deficiencies in this subject and to pinpoint the factors that may contribute to the acquisition of proficiency in Mathematics IV. These factors are non-intellectual and they include attitudes, beliefs, motivation, parental involvement and socio-economic status. .

This study is an attempt to look closely at these factors in order to uplift the mathematics performance of fourth year high school students of Bulihan National High School in Silang Cavite.

Conceptual Framework

There are theories that support the claim that non – intellectual factors could influence students' mathematics performance. "Rotter's Social Learning Theory", emphasized that society plays a role in a person's learning and personality development. According to him, individuals consider the likely consequences of their actions in a given situation and act based on their beliefs. Students often learn a great deal simply by observing other people. Describing the consequences of behaviour can effectively increase the appropriate behaviours and decrease inappropriate ones. New behaviours evolve by observing others. Modelling seems to be an efficient way of affecting new behaviours.

Students must believe that they are capable of accomplishing school tasks. Thus, it is very important to develop a sense of self-efficacy for students. Teachers and parents can promote such self-efficacy by having students receive confidence-building messages, watch others become successful, and experience success on their own. In Bandura's Social Cognitive Theory (1997), it stressed that individuals with high self-efficacy beliefs, that is, those who believe that they can perform behaviours required to achieve specific valued goals, have been shown to demonstrate greater persistence, willingness to tackle difficult tasks, and avoidance of self-blaming attributions for failure.

Learning, according to Vygotsky (1997), is best understood in light of others within an individual's world. This continual interplay, between the individual and others, is described by Vygotsky as the zone of proximal development (ZPD). He defined the zone of proximal development as the intellectual potential of an individual when provided with assistance from a knowledgeable adult or a more advanced child. During this assistance process, an individual is

"other regulated" by a more capable peer or an adult. "Other regulation" refers to cues and scaffolding provided by the more capable peer or adult. The individual, by means of this assistance, is able to move through a series of steps that eventually lead to "self regulation" and intellectual growth (Jones and Araje 2000) in other words adults like parents play a vital role for students' mathematical performance.

The attribution theory as cited by Lubina (2004) is one of the learning theories that supports this investigation. This theory holds that performance like a test could be attributed to hard work. The theory predicts the behaviour of students depending on their responses.

Furthermore, the Behavioural Approach Theory of Skinner stressed that the essential characteristics of the behaviour approach to learning is that events in the environment are understood to predict a person's behaviour, thoughts, feelings, or other events that take place inside a person. This theory maintains that learning can be explained by examining the stimuli, reinforcements and punishments that a person experience. Therefore the learning environment of the students needs to be considered in terms socio – economic and parental involvement to determine their future performance in Mathematics.

The Vector Topological Theory (Villanueva,(2009), explains that the behaviour of an individual is the result of forces operating simultaneously within his environment and life. With this theory, it could be the personal, socio – economic, attitudes in mathematics, mathematical beliefs and motivation are the factors within the learner's environment that affect their Mathematics performance.

Another theoretical support of this study is the Maslow's Motivation Theory. It is believed that human beings are motivated by unsatisfied needs and that certain lower factors need to be satisfied before higher needs can be satisfied. There are general types of needs (physiological, survival, safety, love, and esteem) that must be satisfied before a person can act unselfishly. In this study, it is believed that the attitudes of the students towards Mathematics, Mathematics beliefs, and the students motivation to learn mathematics will be improved if the students' needs in the subject are satisfied.

The most important function of schools, according to the psychologists in education, is to provide learning activities which contribute to the development of desirable traits and proper attitudes among school children in Mathematics. Real life problems should be presented in order to keep students interested in the subject.

Gabriel (2012) said that education should develop personality. The teacher should study each student individually and adapt school work to the abilities and interest of students. With this belief, it is perceived that the teachers play a vital role in the acquisition of knowledge and skills among the students for a better performance in a particular subject as they integrate positive attitudes and beliefs towards the subject.

Calderon (2006), said that there are factors that affect the transfer of learning such as attitudes of learners toward the subject matter, mental ability, similarities between subject matter, motivation and effort making capacity, method of teaching facilities and supervision are also added factors.

Based on the aforementioned theories and concepts related to the study, Figure 1 shows the conceptual paradigm which diagrammatically illustrates the influence of non- intellectual factors to mathematics performance.

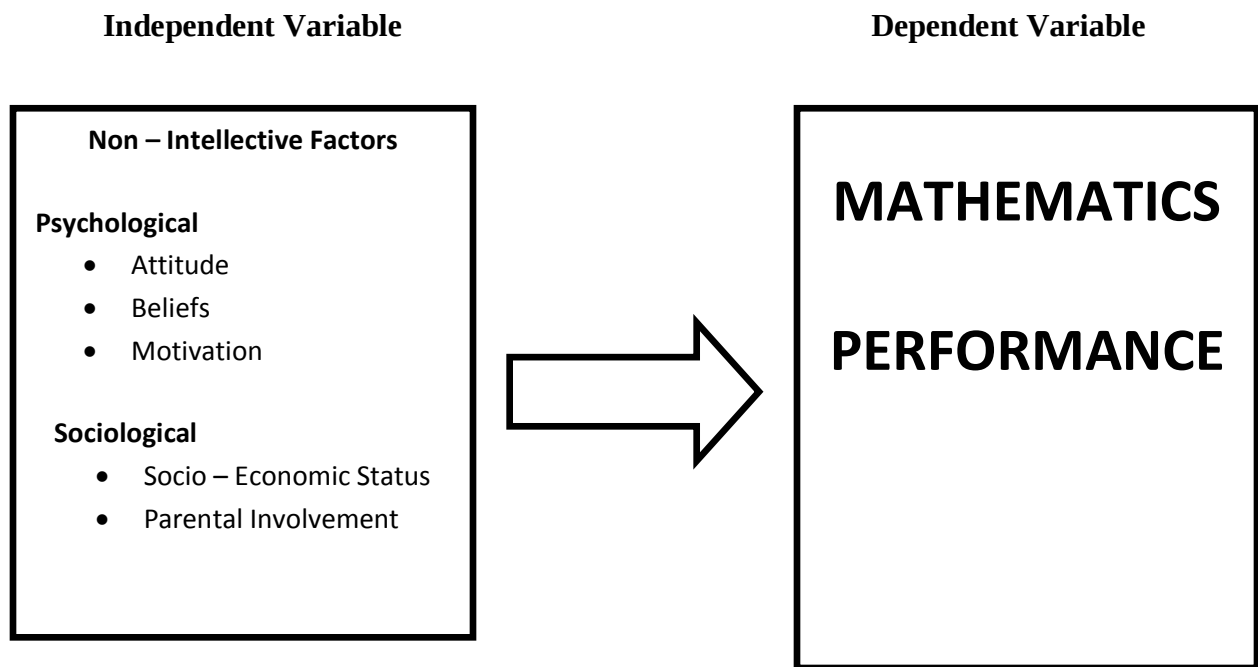


Figure 1 ConceptualParadigm

In the figure, the non – intellective factors consist of psychological factors (attitude, beliefs, motivation) and sociological factors (socio – economic status and parental involvement). The arrow suggests that these variables influence mathematics performance.

Statement of the Problem

The study aimed to describe the non-intellective factors that exert influence on the mathematics performance of selected fourth year high school students in Bulihan National High School year 2014-2015. Specifically, this study sought answers to the following research questions

1. How may the respondents be described in terms of the following?
 - 1.1 attitude towards in Mathematics
 - 1.2 beliefs on Mathematics
 - 1.3 motivation on Mathematics
 - 1.4.socio – economic status
 - 1.5.mathematics performance
2. What is the level of parental involvement as perceived by fourth year high school students in Bulihan National High School?
3. Is there a significant relationship between mathematics performance and the following variables?
 - 3.1. attitude towards mathematics
 - 3.2. beliefs in mathematics
 - 3.3. motivation in mathematics
 - 3.4. parental involvement
 - 3.5. socio – economic status
4. Which of the following variables significantly influence mathematics performance?
 - 4.1. attitude towards mathematics
 - 4.2. beliefs in mathematics
 - 4.3. motivation in mathematics
 - 4.4. parental involvement
 - 4.5 socio – economic status

Significance of the Study

The result of this study would provide information about the non-intellective factors that influence mathematical performance of high school students. In particular this study will be beneficial to the following.

High School Administrators. The study will benefit the school principals since it pinpoints empirical findings on the non - intellective factors that may influence the learning of mathematics. Findings should give them insights which may help in their decision making on policy formulation regarding teaching learning of mathematics.

Teachers. The findings of this study will also benefit the mathematics teachers in knowing their students' non – intellective attributes. This may help them plan their classroom activities and improve their instructional tasks. The findings should also give insights on student-teacher relationships.

Junior High School Students. High school students tend to gain from this study resulting from improved teaching practices as a result of this study.

Parents. The parents will also benefit from the study as it will give them information of the importance of knowing their children's study habits and attitudes, parental involvement, and socio – economic status thereby helping them help their children learning mathematics.

Future Researchers. This study will provide future researchers a guide and baseline information in their studies on teaching - learning activities in mathematics.

Scope and Delimitation of the Study

The study took place in Bulihan National High School (BNHS). It was undertaken from the Third Quarter until the first week of the Fourth Quarter of the School Year 2014 – 2015. The respondents of this study were selected fourth year students and their parents. The non – intellective factors explored are attitudes, beliefs, motivation, parental involvement and socio – economic status.

The data pertinent to this study consisted of information collected through a modified survey questionnaires.

Definition of Terms

For a clearer understanding of this study the following terms are defined operationally.

Academic Performance. It refers to how well a student accomplishes his or her tasks and studies. In this study, it refers to the grade point average of the respondents from first quarter to second quarter.

Attitude toward Mathematics. This pertains to the behaviour feeling and reactions of the students toward learning Mathematics. It is the tendency of an individual to respond positively or negatively to some object, situation, concept or another person.

Belief. This refers to conviction of the truth of some statement or the reality of some being or phenomenon especially when based on examination of evidence. In this study, beliefs could be one of the factors affecting mathematical performance through mathematics – related beliefs.

Mathematics belief refer to the disposition of students in Mathematics which includes self confidence in learning Mathematics, success orientation and defense orientation

Grade Point Average. (GPA) In this study it refers to the mathematics performance of the respondents during the first and second grading period of the school year 2014-2015.

Mathematics IV. This pertains to the subject taken by fourth year high school students of Bulihan National High School.

Mathematics Performance. In this study, thesis the (GPA) of the students in the subject as reflected in their official records filed at the registrar's office during the grading period taken from Form 137 – A.

Motivation. Students' motivation to learn refers to the cognitive and affective psychological processes that influence the learning of all subjects taught in school (Slavin, 1997). It propels and directs learners to engage in academic activities and determines how much is learnt from such activities, and from other information sources to which learners are exposed (Tuckman, 1992, Slavin, 1997). In this study, it refers to the students' motivation to learn mathematics .

Non – Intellectual Factors. These refer to aspects of human characteristics or aspects of the environment that cannot be measured by means of test scores. As used in this study the non – intellectual factors are attitude, beliefs, motivation, socio – economic status and parental involvement.

Parental involvement. This refers to motivated parental attitudes and behaviours intended to influence student's well – being , is a multidimensional and bidirectional construct that has been shown to have clear links with social and academics for children.(Dearing 2004). In this study, it

refers to the level of parent involvement in school activities related to their child's performance as well as parental expectation about learning mathematics.

Socio – Economic Status. This is state of condition of a persons in relation to the community for the satisfaction of his needs. In this study, socio economic profile is the parents' educational attainment, parents' occupation, parents' monthly income, family size and properties.

Chapter II

REVIEW OF RELATED LITERATURE

This chapter presents the review of the existing materials from readings of books, manuals, handbook, legal documents, periodicals, and other publications as well as research studies which were used as references in the conceptualization and formulation of the present study.

Attitudes Towards Mathematics

Students' attitudes play an important role in the teaching and learning process of Mathematics. This factor can affect students' progress and interest within the subject and as result students' achievement and learning. Literature refers to attitude as a learned predisposition or tendency of an individual to respond positively or negatively to some object, situation, concept or another person. This positive or negative feeling is of moderate intensity and reasonable stability; sometimes it is especially resistant to change. In the variety of definitions of attitudes towards Mathematics (ATM) proposed in research studies, two main categories can be identified. Using a simple definition, ATM is just a positive or negative emotional disposition towards Mathematics (Nicoladou and Philippou, 2001).

There are several studies and researches that have been done in many countries to find the factors that influence the students' performance in mathematics. One of these factors, is students' attitude towards mathematics. Often, the studies on relationship between students attitude and the students academic performance show a positive relationship. Hence, students

attitude towards mathematics is considered a major factor that might influence the performance of the students. There are factors that influence students' attitude. Some of these are home environment, society, educational background of parents, occupation of parents and parental expectations (Mohameed and Waheed, 2011).

The attitude towards the study of mathematics is widely perceived as exerting influence on mathematics performance of learners. Numerous studies have reported a positive correlation between attitude towards the subject and achievement (Ma and Xu, 2004). This has implications for teachers who need to find ways of engaging the interest of students in their mathematics subject. According to Pagano (2007), mathematics as a whole is a difficult subject to learn in which varied teaching approaches should be employed. He said that educators must constantly look for innovative ways to arouse students' interest and break through learning barriers. Jaramillo (2002) stressed that as teachers , we know that learning happens when students are motivated. Thus, we should always strive to provide a rich learning environment and maintain the students high level of interest. Heinze(2008) stated that the development of an individual students achievement depends on the achievement level of the specific classroom and therefore on the specific mathematics instruction. Interest in mathematics could be regarded a predictor for mathematics achievement. Malunes, Jr. (2005) believe that students anxiety and fear affects understanding mathematical concepts. This could eradicate if their difficulties encountered are properly identified and addressed.

Another study conducted by Farooq and Sha (2008), stressed that attitude towards mathematics plays a crucial role in the teaching and learning processes of mathematics. It affects students' achievement in mathematics. The researchers concluded that positive attitude towards mathematics leads students towards success in learning mathematics. Improved attitude towards

mathematics at the lower levels provides preparation for higher studies in mathematics. It also influences effect in achievement of mathematics at the secondary school level. Their findings are consistent with the statement of Balbalosa (2010) who said that those who have positive attitudes toward Mathematics have a better performance in this subject. Gabriel (2012) also said that there is significant correlation between students' attitude and Mathematics achievements. The significant correlation may have been caused by favorable attitude of the respondents towards the subject. His findings are similar to the findings of Lubina (2004) who pointed out in his study that there was a significant relationship between the level of interest in Mathematics and performance in College Algebra.

The aforementioned studies and the present study are related to each other in the sense that they both used and analyzed attitudes in mathematics influencing mathematics performance.

Beliefs on Mathematics

Students' self – beliefs and attitudes play an important role in the teaching and learning process of Mathematics. These factors can affect students' progress and interest in the subject resulting in students' achievements and learning.

Academic self-efficacy or beliefs refers to individuals' convictions that they can successfully perform for a given academic tasks at designated levels (Ferla, et. al 2006).

According to Salazar (2001), it is a common knowledge that Mathematics is a dull, difficult and disliked subject. This perennial impression requires hard work in exploring possibilities and alternatives on how to teach Mathematics effectively and efficiently. A key issue in achieving quality in teaching is the selection of methods that will most effectively

enhance the learning of the students , taking into account the entry characteristics of the student concerned.

Students' self beliefs are significantly related to several types of achievement outcomes. For example, in a longitudinal study of high school students, Vallerand, Fortier, and Guay (1997) as cited by House (2008) indicated that self-perceptions were significant predictors of academic performance. The researchers have found a significant predictive relationship between academic self efficacy and subsequent grade performance and these results have suggested that higher levels of academic self-efficacy tend to be associated with higher levels of academic achievement.

A large body of empirical findings support the predictive role of self efficacy or beliefs across various domains of human functioning. In mathematics, research has shown that perceived self efficacy contributes to academic performance irrespective of the level of intellectual ability, and correlates strongly with academic outcomes (Miachaelides, 2008). Research has shown that competent belief in mathematics, as well as the value given to this subject, is good predictors of achievement-related behaviors and achievement (Chourianard et. al., 2007).

Gabriel (2012), categorized mathematics beliefs into self – confidence , success orientation and defense orientation. Based from his findings, the mathematics beliefs of the students in both public and private high school of Sta. Lucia ,Ilocos Sur were on the area of self – confidence in Mathematics. The majority of the student – respondents believed that their level of self – confidence in Mathematics was “little”. There were 72.9 percent of the students who claimed that they had little self – confidence in learning Mathematics.

In Hannula's study (2007), Mathematics beliefs had seven components. The seven principal components of students' view of mathematics are competence, effort, teacher quality, family encouragement, enjoyment of mathematics, difficulty in mathematics and confidence. Based from the result, most of the mathematical beliefs were related to the mathematics achievements of the students.

The present study investigated beliefs in mathematics. In this study, mathematical beliefs were considered as “an individual's understanding and feelings that shape the ways that the individuals conceptualize and engage in mathematical behavior” (Schoenfeld 1992).

Motivation on Mathematics

Motivation refers to reasons that underlie behavior that is characterized by willingness and volition. Intrinsic motivation is animated by personal enjoyment, interest, or pleasure, whereas extrinsic motivation is governed by reinforcement contingencies. Motivation involves a constellation of closely related beliefs, perceptions, values, interests, and actions (Lai, 2011).

Githua and Mwangi (2003) cited several studies done by different researchers that students' motivation to learn refers to the cognitive and affective psychological processes that influence the learning of all subjects taught. This internal process activates guides and maintains a learner's behavior over point out that motivation is a psychological process that gives purpose, direction and intensity to behavior and that it is mainly responsible for differential work output. It propels and directs learners to engage in academic activities and determines how much is learnt from such activities, and from other information sources to which learners are exposed. Motivated learners are able to use higher cognitive processes to learn, absorb and retain more

from the subject they strive to understand the subject matter, improve performance, seek challenges and persist at tasks even in the face of failure.

Motivation direct and energize the behavior of human and other organism (Feldman, 2010). In a local study conducted by Katigbak (1984) on the academic motivations, the research finding states that achieving motives is the best predictor of school grades satisfaction (.37 correlation), which according to the researchers is fairly good for non – intellective variable. This result of the study can be explained by the theory of Cognitive Approach to motivation. This theory suggests that motivation is a product of peoples thought and expectations – their cognitions. For instance, the degree to which people are motivated to study for a test is based on their expectation of well studying will pay off in terms of a good grade (Feldman, 2010). This theory also draw a key distinction between intrinsic and extrinsic motivations. The first one causes us to participate in an activity for personal achievement rather than for any concrete, tangible reward that it will bring us, while the latter causes us to do something for money, grade, or some other tangible and concrete reward (Shaikholeslami&Khayer, 2006). This findings is consistent with the study conducted by Broussard and Garrison (2004). They examined the relationship between students' motivation and academic achievement in elementary school – aged children (122 – first grade and 129 – third grade participants) and they found that for a higher level of mastery, motivation was related to higher math grades. Further, show that students who are engaged or motivated have greater math achievement than students who are not and that early math achievement is a predictor of motivation in math (Styers, 2012).In Education Matters (2008), students' commitment in mathematics refers to students' motivation to learn mathematics, their confidence in their ability to succeed in mathematics and their emotional

feelings about mathematics. Students' commitment in mathematics play a key role in the acquisition of math skills and knowledge.

Finally, on motivation, Githua (2001).investigated students' motivation to learn mathematics. His study look into the relationship of motivation to the students' mathematics performance.

Parental Involvement

Parent involvement has traditionally been defined according to how parents are employed in school – based activities like attending parent – teacher conferences and school events related to their child's education (Epstein, 1995). However , over time a more comprehensive view of parental involvement has evolved beyond parent activities in school settings.

According to Sangeeta Sanjay Chaubal (2011), parents' involvement in their children's education is definitely important. It creates a big difference in their children's performance and academic evaluation. Parents are known to be the role model for kids. Kids also look after their parents as a guide, a source and an important adviser. Parents can help their children deal with a lots of issues through their constant guidance and support. Parents actively involved in their children's physical development, growth, feeding and overall health concerns. The same involvement should be applied to their child's academic development. If parent successfully allots a specified time everyday to his child's studies then the child is definitely going to score better. Education is not just related to academic performance but also to various other arenas which include overall development of a child, extracurricular activity, sports, physical education and mental education. If parents successfully and actively involve them in these arenas, they

would help their children grow and develop into better persons. A parent's involvement can be an accelerating factor for child's development. Children's academic performance, self confidence and self – esteem would develop when parents are involved in their educational pursuits.

More recent research has shown that a much broader range of parent involvement activities can influence positive school outcomes for children (Ginsburg – Block, et., al 2010). In addition to traditional school – based activities , more modern conceptualizations of parent involvement include activities and interactions between parents and their children at home and their communities such as supervision and monitoring, daily conversations about school, and visiting local community institutions for learning purposes as well as parental expectations about learning. In Vukovic (2013), he said that parents influence children's mathematics achievement by reducing mathematics anxiety, particularly when dealing difficult lessons in mathematics. The mediation analyses demonstrated that parental home support and expectations influenced children 's performance on word problems and algebraic reasoning by reducing their children's mathematics anxiety. Policies and programs targeting parental involvement in mathematics should focus on home – based practices that do not require technical mathematical skills. Parents should receive training , resources and support on culturally appropriate ways to create home learning environments that foster high expectations for children success in mathematics.

Lagdameo (2002), as cited by Sulabo (2013), suggested that parents must accept and recognize their parental duties and role in the raising of their children. Parenting, he said, is a vocation that we will carry for as long as there is life in us. Sulabo (2013) cited the importance in Education Act of 1982 that stated that the state shall aid and support the natural right and duty of parents in rearing the youth through the educational system, promote and safeguard the

welfare and interest of the students by defining their rights and obligations, according their privileges, and encountering the establishment of social relationship between them and other members of the school community, promote the social economic status of all school personnel uphold their right, define their obligations and improve their living and working conditions and career prospects; extend support to promote viability of those institutions through which parent, students and school personnel seek to attain educational goal. The Sulabo study (2013), also cited Leler (1998) who said that it is worth noting that research reveals many benefits for school system and for parents themselves when parents become involved in their children's learning. School personnel benefit from the improved support that generally accompanies increased parental involvement. This support is often expressed in parents' willingness to support schools with their labor resources during fund raising activities or special projects. And certainly, the many ways in which parental involvement benefits students' achievements, attitudes and behaviour have a positive impact on school staff. The researcher also reveals that improved parents attitudes toward the school and improved parent self – concepts characteristically result when parents become involved in their children's learning.

It can be noted from the cited researchers that parents often begin their participation wondering whether or not their involvement can make a difference in the mathematics achievement of their children and usually they are very gratified for they discover that they contribute immensely to the success of their children in mathematics.

Toward this end, The present study explored parental involvement and its relation to mathematics performance. Practices play a small but significant role in the development course of children's anxiety (McLeod et al., 2007). In the present context and building on previous

research mathematics educators can understand how parental involvement influences students' mathematics performance.

Socio – Economic Status

The concept of socio - economic status (SES) highlights the position of individuals, families, or other units on one or more dimensions of stratification (Fergusson, Horwood and Boden, 2008). The socioeconomic status has been measured in many ways, including educational and occupational attainment, exposure to poverty, income and exposure to adverse life events such as unemployment or monoparental families (Fergusson et al, 2008). Exposure to social inequality was evaluated on individual, family and community levels (Teodor M, 2012).

In 2009, Bicers et.al, found out that parent's SES play an important role on their children's early and later mathematics achievement. Students who come from low-SES backgrounds enter school far behind their peers who come from higher-SES backgrounds and understand less mathematical topics including but not limited to counting, and number relations. Economic status of parents has had significant effects on mathematics achievement during early childhood, but its effects have not been shown to be as noteworthy during later childhood. The reason is because there is a vital period in a child's life when development of cognitive skills is greatest and that is during the time before formal schooling when involvement by parents is generally the highest.

In a study of mathematics performance, Eamon (2005) revealed that the parent's income is correlated with student's math performance. Socio – economic status was found significantly correlated to primary math and Science achievement scores (Ma & Klinger, 2002). Parents with higher socio – economic status are found more involved in their children's academic

performance than parents of lower socio – economic status. This greater involvement of parents contribute to the development of positive attitudes among their children toward academic learnings in school (1987). It is believed that students who belong to families of lower socio – economic status tend to have negative attitudes because their situation prevents them from accessing various educational materials and resources and creates a distressing atmosphere at home like possible disruption in parenting or an increased likelihood of having family conflicts (Majoribank, 1996). For these reasons, socio – economic status was considered one factor which greatly affects learner’s performance in math.

In terms of socio – economic status, the number of distinct school types and educational programs is positively correlated with significance socio- economic background for student performance. In other words, the data from PISA suggests that the more and the earlier students are divided into separate groups according to their academic performance, the more the students’ socio – economic background matters for their academic performance.
http://ec.europa.eu/education/pdf/doc282_en.pdf/ August 7. 2011.

In Lubina’s study (2004), personal factors such as sex, age, birth order, size of family, occupation of mother, family monthly income and type of high school graduated were not correlated in the performance of the students in college Algebra. High School Mathematics grade and occupation of father were inversely correlated with correlation of – 0.360 and – 0.123 respectively.

Researchers reveal that the education of parents affect their children’s mathematics performance. Parents educational attainment influence the mathematics performance of high school and college students (Villanueva, 2009; Gabriel, 2012).

Another study conducted by Aleta as cited by Del Castillo (2010) on parents occupations revealed that the achievement of pupils in Mathematics is positively revealed to their parent's occupation. This means that parent's occupation does affect the students' performance in Mathematics.

Synthesis

The aforementioned studies and the present study are related to each other because they both analyzed selected psychological and sociological variables in relation to mathematics performance. The reviewed literature and related studies were concerned with the non – intellectual factors that influence mathematics performance. All the aforecited literature provided direction to the researcher in conducting this study. The review on attitude towards mathematics, beliefs on mathematics, motivation on mathematics including parental involvement and socio – economic status served as springboard in identifying possible factors of Mathematics performance among fourth year high school students of Bulihan National High School. The socio economic status has been measured in many ways, including educational and occupational attainment, exposure to poverty, income and exposure to adverse life events such as unemployment or monoparental families (Fergusson et. al, 2008). The present study considered the following ; the number of children in the family, educational attainment of parents, occupation of parents, combined family income, and property ownership.

Chapter III

RESEARCH METHODOLOGY

This chapter presents the research design for the study. It includes sections that address the following topics: methodology, population and sample, instrumentation and data collection procedures, variables, and data analysis. A quantitative method supported by a student survey was used to collect appropriate data for this study.

Research Design

This study used the descriptive research design . Descriptive method of research is a fact – finding study with adequate and accurate interpretation of the findings. It is concerned with conditions of relationships that exist, practices that prevail, beliefs , processes that are going on, effect that are being felt, or trends that are developing (Calderon, et al. 2006).

According to Peter (2010), descriptive research usually requires that the data collected be described by parameter values of central tendency and dispersion. Once there is more than one variable to describe, one can go a step further in the research process to calculate the relationship between them usually in terms of Pearson correlation r .

The study is descriptive because it described the non – intellectual factors such as the level of parents involvement, attitude towards mathematics, beliefs on mathematics, motivation and socio – economic status using the mean and standard deviation. On the other hand , it is correlational because it aim to answer whether there is exist a relationship between independent variables from dependent variables.

Research Locale of the Study

Bulihan National High School (BNHS) is located in the province of Cavite. This school is centrally located at a location with several subdivisions near school. This is also near malls, markets and other private schools.

BNHS started in 1984 by the local government of Cavite. It is managed by a Principal III. Working with the principal are the Department chairs and year level chairmen. The chairmen are the heads of each subject department, working mostly on decision making and operations. Year level chairmen on the other hand are the one who disseminates information coming from the top management to the faculties and students of each year level. Most of the students of this school are part of the lower class families of Bulihan, Silang, Cavite.

Participants of the Study

In order to select the participants of this study, stratified random sampling with proportional allocation was used. Respondents were selected from different groups. The steps in selecting the participants are as follows:

First, all sections in the school were listed for fourth year students.

Second, The enrollment in Fourth year were listed according to gender.

Third, One hundred students of the grand total was determined.

Fourth, The percentage of male and female was also determined.

Fifth, The total number of sample on the stratified sampling with proportional allocation was one hundred (100) fourth year students and their parents.

Research Instrument

The survey questionnaire was used in this study was adapted from the previous researchers. These instruments was presented to and was approved for use in this study by the expert in this field before collecting data.

Mathematics Attitude Scale for Students

The Mathematics Attitude Scale for students (Appendix D) was used to describe the attitude of the students toward mathematics. This was adapted from the attitude scale developed by Aiken (1974) . This instrument was considered this to be most appropriate instrument because a review of related literature revealed that almost all studies regarding attitude used the scale by Aiken.

Attitudes were determined base on summated rating of the respondents in attitude questionnaire. Using the Likert technique, each of four (4) choices after each statement was given a scale value so that a total or summated rating for each statement was obtained. The scoring procedure was done using the following equivalent assigned to each response

Very Positive	4
Positive	3
Negative	2
Very Negative	1

Tally counts and percentage were taken to determine the distribution of the respondents according to their degree of agreement and disagreement to a particular statement in the questionnaire, the mean weight of their responses in each statement was computed.

Responses	Mean
Very Positive	3.51 – 4.00
Positive	2.51 - 3.50
Negative	1.51 – 2.50
Very Negative	1.00 - 1.50

Beliefs in Mathematics Scale

The belief survey questionnaire consisted of 20 items (Appendix E) to which the respondents were asked to respond Very Positive, Positive, Negative and Very Negative. The survey was developed by Perry et al., (2005). This instrument used successfully in a number of different contexts. It is based on statements summarising modern approaches to mathematics and its learning and teaching and provides an overview of commonly espoused teacher beliefs.

Beliefs were determined base on the summation rating of the respondents in the beliefs questionnaire. Using the Likert scaling technique, each of four choices was given a scale value.

Scale	Descriptive Value	Range
4	Very Positive	3.51 – 4.00
3	Positive	2.51 – 3.50
2	Negative	1.51 – 2.50
1	Very Negative	1.00 – 1.50

Motivation Scale

This instrument was used to answer question 1 to 28 (Appendix F). The survey questionnaire was a Likert type survey instrument and it was developed by

Githua(2001).Questionnaires items were reviewed and found to be content valid by a panel of educational researchers in Kenya. A pilot test in Nyandarua and Nyeri Districts that have similar students, schools and learning condition with those in the study area indicated Cronbach alpha reliability coefficients of 0.88 and 0.89 for MSC and SMOT, respectively. Motivation to learn mathematics will be measured on a 28 – item scale that adequately covered the four dimension of students’ motivation to learn mathematics.

Scale	Descriptive Value	Range
4	Very High	3.51 – 4.00
3	High	2.51 – 3.50
2	Low	1.51 – 2.50
1	Very Low	1.00 – 1.50

Four dimensions of motivation	Items
(i) Interest in learning mathematics	1, 2, 3, and 4
(ii) Satisfaction	15, 16, 17, 18, 19 and 20
(iii) Relevance	21, 22, 23, 24, 25, 26, 27 and 28
(iv) Perceived probability of success	5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

Parental Involvement Scale

This instrument (Appendix G) was used to measure the level of parental involvement .This survey developed by Hoover – Dempsey et al., (1995).The survey utilized a Likert scale from 4(To a great Extent) to 1 (Not All) .

The 18 – item statements in parental involvement scale was in the Likert scale presented in a multiple choice format where the parents/ guardian respondents will require to check a mark for the desired column. Each choices of a response was given weight based on the frequency of parents involvement “4 to a great extent” , “3 To some extent”, “ 2 to a moderate extent” and “ 1 Not all”.

Socio – Economic Status

The questionnaire on socio – economic status (Appendix H) was used in this study was adapted from the National Economic and Development Authority (NEDA) . In this questionnaire, five items were considered they are educational qualification of parents, their occupations or professions, the number of children in the family, the combined family income and the material possession of the family. The instrument was used to describe the profile of the fourth year students as to socio – economic status.

Data Gathering Procedure

To carry out the objectives of the present study . The following phases were observed.

Phase I Securing Permits and Instrument Administration

Permit was requested to conduct the study from the principal of (BNHS) Bulihan National High School of Silang Cavite. This was done to allow the researcher to administer the survey questionnaires to the target respondents.

The permit was signed and issued by the principal of (BNHS) after which the adapted questionnaires were checked by mathematics expert.

After the approval of the panel, the researcher distributed the questionnaires to the respondents.

Phase II Accomplished Questionnaire Retrieval and Data Analysis

The accomplished questionnaire was retrieved for data processing.

Data Analysis Procedure

The following statistical tools were used to analyze the data gathered in this study.

Mean. This was used to describe the attitudes towards mathematics, beliefs in mathematics, motivation in mathematics, the level of parental involvement.

Pearson Product – Moment Correlation. This was used to determine if there is a significant relationship between attitude towards mathematics, beliefs in mathematics, motivation in mathematics, parental involvement and grade point average of students in mathematics. And for the significant correlation between student' socio – economic status and their mathematics grade point average will be used the coefficient of correlation with the here under formula.

Standard Deviation. This was used with which deviations of individual scores may be compared.

Chapter IV

PRESENTATION, INTERPRETATION AND ANALYSIS OF FINDINGS

This chapter presents the data gathered in the study, the analysis and the interpretation of the findings based on the results of the statistical treatment applied on the data. The presentation is arranged according to the order of problem statements.

Problem 1. How may the respondents be described in terms of the following non – intellectual variables?

1.1 attitude towards mathematics

1.2 beliefs in mathematics

1.3 motivation in mathematics

1.4 socio – economic status

1.5 mathematics performance

Tables 1 shows the attitude of students towards mathematics. As seen in the table , most of the indicators of the students' attitudes toward mathematics are interpreted as *Positive*. This shows that mathematics is considered by the students as a regular subject that affect their wholesome development. The overall mean value of 2.69 is described as *Positive*. Indicator numbers 2,3, 5, 37 reveals the lowest mean, it shows that students give importance to the subject because the responses of the students from those indicators were negative. Indicators numbers 20, 21, 40 reveals the highest mean, it shows that students attitude is positive towards the subject. Most of them, agreed that mathematics is very interesting subject.

In the same study, Elcarte (2014) revealed that students of CHS displayed *positive* attitudes toward mathematics. The over – all mean is 2.69 . The positive attitude implies that students try hard to succeed in the mathematics learning tasks whatever the outcome maybe..

Table 1
Attitude of the Student Towards Mathematics

Indicators	Mean	Verbal Interpretation
1.I love Mathematics.	2.80	Positive
2.I don't like mathematics.	2.15	Negative
3. I am always full anxiety in a math class.	2.45	Negative
4. I would like to work in the field of mathematics.	2.40	Negative
5. I am scared every time I have to take a math class.	2.35	Negative
6. Mathematics requires a hardwork , patience and perseverance.	3.10	Positive
7. Just to think a math subject gives me a cold comfort.	2.54	Positive
8. I perspire in fear everytime I take a test in math.	2.72	Positive
9. Mathematics makes me think logically.	3.02	Positive
10.Mathematics is like playing any game for me.	2.55	Positive
11.Mathematics trains me to be systematic.	3.01	Positive
12. Mathematics trains me to be discipline	2.92	Positive
13. Mathematics is so difficult that only those who are gifted can understand it.	2.47	Negative
14.Scientific and technological advancements depend a great deal on mathematics theory.	2.80	Positive
15.I make me nervous even to think about having to take so many units of math before I graduate.	2.61	Positive
16.I feel at ease in mathematics.	2.46	Negative
17. I enjoy math class more than any other subject.	2.46	Negative
18. Mathematics makes me feel uneasy , nervous and uncomfortable.	2.67	Positive
19. One hour in a math class seems eternity.	2.90	Positive
20. Mathematics is challenging.	3.24	Positive
21. In math, one doesn't have to memorize much. It's more of understanding and logical thinking.	3.23	Positive
22.Mathematics is fun and fascinating.	2.82	Positive
23. Mathematics stimulates me and gives me a feeling of security.	2.65	Positive
24. I seem to be in maze when doing mathematics.	2.81	Positive
25. I am always tense in a math class.	2.53	Positive
26. I consider people who do well in math to be weird.	2.43	Negative
27. Mathematics is a very interesting and exciting subject.	2.73	Positive
28. Mathematics makes me feel confident.	2.61	Positive
29. Mathematics is the most practical subject.	2.71	Positive
30. The saying " No pain, no gain " applies very well in studying math.	3.02	Positive
31.I feel good whenever I am able to solve math problem	2.93	Positive
32. I usually feel sleepy in my mathematics class.	2.57	Positive
33.A good mathematics training is a big advantage in entering any line of work.	2.94	Positive
34.Life can go on without mathematics.	2.38	Negative
35. Mathematics contributes greatly in scientific technology and advancement.	2.88	Positive
36.I am very attentive in a math class.	2.49	Negative
37. I misbehave in my math class because I cannot understand a thing.	2.21	Negative
38. My mind travels fast when I am in my math class.	2.51	Positive
39. I solve other problems in math aside from the assigned ones.	2.59	Positive
40. Interest and right attitude for mathematics can be developed by having a good math teacher.	3.13	Positive
Over – all Mean	2.69	Positive

Table 2 showsthestudents' beliefs in mathematics. It shows the extent of mathematics beliefs of the fourth high school students of Bulihan National High School during the school year 2013 – 2014. A belief statement is either positive and negative.. The highest mean rating of 3.44 described as “ *positive*” was on the negative statement “Mathematics is computation” This implies that the students perceive mathematics as merely concerned with computing. Many students believe that mathematics is strong effort is needed to learn it.Indicator17, they firmly believed that a math teacher is the dispenser of knowledge. The teacher should ensure that what is taught is caught.

As a whole , mathematics beliefs of the students had an over – all mean of 2.98 described as *Positive*. These mean majority of the students believed that they are bit capable to learn mathematics. It is a positive degree of agreement among the students that hard work is needed to become good at mathematics

Table 2
Students' Beliefs in Mathematics

Indicators	Mean	Verbal Interpretation
1.Mathematics is computation.	3.44	Positive
2.Mathematics problems given to students should be quickly solvable in a few steps.	2.84	Positive
3.Mathematics is the dynamic searching for order and pattern in the learner's environment.	2.91	Positive
4.Mathematics is a beautiful, creative and useful human endeavor that is both a way of knowing and a way of thinking.	3.18	Positive
5.Right answers are much more important in mathematics than the ways in which you get them.	2.82	Positive
6.Mathematics knowledge is the result of the learner interpreting and organizing the information gained from experiences.	3.03	Positive
7.Students are rational decision makers capable of determining for themselves what is right and wrong.	2.97	Positive
8.Mathematics learning is being able to get the right answers quickly.	2.80	Positive
9. Periods of uncertainty, conflict, confusion, surprise are a significant part of the mathematics learning process.	3.11	Positive
10. Young students are capable of much higher levels of mathematical thought than has been suggested traditionally.	2.76	Positive
11.Being able to memorize facts is critical in a mathematics learning.	2.64	Positive
12.Mathematics learning is enhanced by activities which build upon and respect students' experiences.	3.03	Positive
13.Mathematics learning is enhanced by challenged within a supportive environment.	3.04	Positive
14. Teachers should provide instructional activities which result in problematic situations for learners.	3.02	Positive
15.Teachers or the textbook - not the student - are the authorities for what is right or wrong.	2.59	Positive
16.Mathematics is difficult subject.	2.85	Positive
17.The role of the mathematics teacher is to transmit mathematical knowledge and to verify that learners have received this knowledge.	3.30	Positive
18. Teachers should recognize that what seem like errors and confusions from an adult point of view are students' expressions of their current understanding.	3.15	Positive
19.Teachers should negotiate social norms with the students in order to develop a co – operative learning environment in which students can construct their knowledge.	3.19	Positive
20.Mathematics is a complex subject.	2.95	Positive
Over – all Mean	2.98	Positive

Table 3 shows students' motivation in mathematics in terms of interest.It reflects the responses of the students in the Githua Questionnaire on motivation

Table 3
Students' Motivation in Mathematics
(In terms of Interest)

Indicators	Mean	Verbal Interpretation
1.I love learning mathematics.	3.10	High
2.Learning mathematics is frustrating.	2.42	Low
3.The hours I spend doing mathematics are the ones I enjoy most.	2.59	High
4.I am highly motivated to learn mathematics.	2.95	High
Over – all Mean	2.77	High

Table 3 shows the students' motivation in mathematics in terms of interest. As seen in the table, statement number 2 has lowest mean with the verbal interpretation of low interest. This implies that students are motivated to learn mathematics. Students disproved the statement that "Learning mathematics is frustrating". Over all mean of students' motivation in terms of interest is high. This implies that majority of the respondents show *high* interest to learn mathematics.

The table 4 shows students' motivation in mathematics in terms of success. It can be seen from the table that:

Table 4
Students' Motivation in Mathematics
(In terms of Success)

Indicators	Mean	Verbal Interpretation
5.I find it hard to work independently on mathematical problems.	2.72	High
6.I rarely expect to be able to apply mathematics in life situations.	2.81	High
7.I rarely expect to be successful in mathematical tasks given by mathematics teachers in mathematics.	2.84	High
8.Learning mathematics gives me opportunities for personal advancement.	2.16	Low
9.I practice solving mathematical problems on my own during holidays.	2.36	Low
10.I rarely expect to perform well in mathematics – related subjects.	2.67	High
11.I expect to be able to solve mathematical problems anywhere I come across them if they are of my level of education.	2.80	High
12.I am able to work independently in mathematics exercises in and outside mathematics classroom	2.59	High
13.I expect to get high scores in mathematics tests.	2.78	High
14.I expect to be able to apply mathematics easily to other situations in life.	2.73	High
Over – all Mean	2.75	High

Table 4 presents students motivation in mathematics in terms of success. The highest mean is indicator number seven (7). Students agree that they would be highly motivated depending on their teacher. The lowest mean is indicator number 8. Their perception on statement

number 8 is *low* in a sense that they do not know the application of mathematics in their lives. In general the students motivation in terms of success is *high*.

The following table, Table 5, presents students' motivation in mathematics in terms of satisfaction.

Table 5
Students' Motivation in Mathematics
(In Terms of Satisfaction)

Indicators	Mean	Verbal Interpretation
15. Learning mathematics is in itself rewarding.	3.07	High
16.I am satisfied with the way I learn mathematics.	3.08	High
17.I do not feel uneasy during mathematics lessons.	2.58	High
18.I am dissatisfied with my participation in classroom mathematical activities.	2.36	Low
19.I am satisfied with the way mathematics is taught in mathematics classrooms.	2.91	High
20.I am satisfied with my performance in mathematics assignments, tests and examinations.	2.64	High
Over – all Mean	2.77	High

Table 5 shows students' motivation in mathematics in terms of satisfaction. The highest mean is statement number 16, while the lowest mean is statement number 18. It could be noticed that item number eighteen obtained the lowest mean rating. This means that students are satisfied in all activities done in mathematics. On the other hand, the highest mean is statement number sixteen. Majority of the students seem satisfied with the way they learned the subject.

After getting the mean of six statements the result was 2.77 .It means that the students get high satisfaction in learning mathematics. According to Burden (1995), satisfaction is the learners' psychological equilibration due to experience of extrinsic rewards and realization of intrinsic growth of needs.

The following table shows students' motivation in mathematics in terms of relevance.

Table 6
Students' Motivation in Mathematics
(In terms of Relevance)

Indicators	Mean	Verbal Interpretation
21.I aspire to study mathematics lessons after fourth year.	2.80	High
22.I am not sure whether there is need for me to continue studying mathematics.	2.21	Low
23.I find activities in mathematics lessons meaningful.	2.99	High
24.Mathematics subject matter is related to my daily experiences.	2.83	High
25.Mathematics is relevant to my needs and goals both in school and at home.	2.98	High
26.Mathematics gives me opportunities for choice, responsibility and inter- personal influence.	2.94	High
27.Mathematics lessons give me opportunities for co – operative social interaction.	2.82	High
28.I would like a career that does not require mathematics	2.31	Low
Over – all	2.74	High

Table 6 shows the students' motivation in mathematics in terms of relevance. A closer look on the table reveals the over – all mean of 2.74 which is described as *High*. This implies that to the students, mathematics is relevant. The highest mean is indicator number 23. The students perceive mathematics as a valuable subject. They appreciate the relevance of this subject in their daily lives. It can be seen from the table that statement number twenty – two (22) reflects the lowest mean of 2.21. This implies that students are in doubt as to the importance of mathematics in their real life situations.

Table 7 shows the summary of students' motivation in mathematics.

Table 7
Summary of the Students' Motivation in Mathematics

Component	Mean	Verbal Interpretation
Interest	2.77	High
Success	2.75	High
Satisfaction	2.77	High
Relevance	2.74	High
Over – all	2.75	High

The table, table 7, shows the summary of the students' motivation in Mathematics. In all components the students are *highly* oriented. The four components of motivation in mathematics are the foci of this study. Interest arouses a learner's curiosity to learn, respond and attend to subject matter., while relevance is the extent to which learners perceived subject matter content to be significant and valuable to them. If they consider the material to be relevant , they will try to learn it. Perceived probability of success or confidence is the learners' perceived likelihood of success through their personal control of their behavior. Learners will try harder to learn the material if they think they are likely to pass the subject (Burden and Horn, 1995). Students motivation in mathematics had an over – all mean of 2.75 described as “ High”. It could be noticed from the table that among the four components, relevance got 2.74. This implies that majority of the students were not yet fully understood the relevance of mathematics. However, their attention is to learn the subject and they are interested and satisfied in Mathematics.

Table 8 shows the profile of the students in terms of family size.

Table 8
Profile of the students in Terms of Family size

Family Size	Number of Students	Percent (%)
7 and above	18	18.0
4 to 6	50	50.0
3 and below	32	32.0
Total	100	100.0

Table 8 reveals the percentage of the family size of the students. The family size with the greatest number of students is 4 to 6. Effort should be made by parents to have fewer children. Differences in the socio – economic status in schools may cause large differences in the academic performance, differences that are also called “socio – economic gaps” in academic achievement (Ma, 2001).

The next table, Table 9, presents the profile of the students in terms of parents educational attainment.

Table 9
Profile of the Students in Terms of Parents Educational Attainment

Educational Attainment	Number of Students	Percent (%)
College graduate	18	18.0
College level	31	31.0
High School level	37	37.0
Elementary level	14	14.0
Total	100	100.0

Table 9 shows the profile of the students in terms of parents educational attainment. The table shows that majority of students ‘ parents educational attainment were high school level. A parent who is a college degree holder many find have a better job than the one who has not finished college, thus he can afford to support or give the needs of his children.

Students who have parents with low education, unemployed or with jobs where wages are low, have difficulties in engaging in curricular and extra – curricular activities, which leads to lower academic performance (PISA, 2009).

Table 10 shows the profile of the students in terms of occupation.

Table 10
Profile of the students in Terms of Occupation

Occupation	Number of Students	Percent (%)
Teaching	3	3.0
Office Clerks	3	3.0
Businessman	27	27.0
Surveyors	1	1.0
Fishery/ Forester	2	2.0
Self - employed	56	56.0
Farmers	8	8.0
Total	100	100.0

On the occupation of parents particularly the head of the family, most of them were classified as self – employed (56.0 percent). There were 7 percent employed in the professional categories. This means that majority of the parents respondents are employed in the trade and related works, technical/ vocational or have their own business as a source of living. The data imply that a greater number of parents of the students in the private schools are degree holder. The unskilled parents or those parents without regular jobs, most of their children are in the public schools. Students with low socio – economic status and poor backgrounds tends to get low school performance (Zhao et. al, 2011).

Table 11 shows the profile of the students in terms of family income..

Table 11
Profile of the students in Terms of Family Income

Income	Number of Students	Percent (%)
6500 and above	47	47.0
4500 - 6499	28	28.0
2500 - 4499	15	15.0
Below 2500	10	10.0
Total	100	100.0

The table indicates that most of the respondents had income Php6500 above. But, There were 53 percent had income Php6500 below. The data imply that the families' income of students of Bulihan National High School are still dominated by low income earners.

Table 12 shows the profile of the students in terms of property.

Table 12
Profile of the students in Terms Property

Property	Number of Students	Percent (%)
Own house and land with several appliances	40	40.0
Own house and land with few appliances	30	30.0
Rent a house with appliances	21	21.0
Rent a house without appliances	9	9.0
Total	100	100.0

Table 12 shows the distribution of property of the respondents, majority of respondents lived in permanent or own houses. This implies parents of the students know the importance of having own properties and is a good investment of the family.

Table 13 presents the summary of the students in terms of socio – economic status.

Table 13
Summary of the Students in Terms of Socio – Economic Status

Categories	Number of Students	Percent (%)
Upper - upper	0	
Lower upper	0	
Upper - middle	47	47.0
Lower - middle	28	28.0
Upper Lower	15	15.0
Lower - lower	10	10.0
Total	100	100.0

The socio – economic profile of fourth year high school students in Bulihan National High school included the parents educational attainment, family income, parents occupations,

size of the family and property. Based from table , there were no respondents categorized as upper- upper and lower – upper. This implies that many students belong to poor families or expose to poverty. Students who come from low – socio economic status backgrounds enter school far behind their peers who come from higher – socio economic status backgrounds and understand less mathematics topics including but not limited to counting, and number relations (Jordan et, al. 2007). Families and individuals with low socio – economic status, suffer from high incidence when it comes to psychosocial characteristic, being cynical, hostile and a low self – esteem (Blacksher, 2002). Therefore, socio – economic status is related to school performance.

Table 14 presents the profile of the students in terms of mathematics performance.

Table 14
Profile of Students in Terms of Mathematics Performance

Mathematics Grade	No. of Students	Percent (%)
76	1	1.0
77	3	3.0
78	11	11.0
79	9	9.0
80	13	13.0
81	9	9.0
82	11	11.0
83	10	83.0
84	5	5.0
85	7	7.0
86	4	4.0
87	2	2.0
88	4	4.0
89	4	4.0
90	4	4.0
93	2	2.0
94	1	1.0
Total	100	100.0

Table 14 presents the mathematics grade of fourth year students, majority of the respondents have a grade of 80,78, and 82. In addition, the frequency distribution shows that out of 100 respondents there were 7 students who garnered 90 and above grades. This means that there are more students with a lower level of performance in Mathematics IV. It is manifestation that much is still needed to improve their performance.

Problem 2. What is the level of Parental Involvement of fourth year high school students?

Table 15 shows of 18 statements tend to analyze to what extent the parents of the respondents involves or engaging school activities related to their child's performance, as well as parental expectation about learning.

Table 15
Extent of Parental Involvement

Indicators	Mean	Verbal Interpretation
1.I helped my child with his/ her homework.	2.44	To a moderate extent
2.I am active participants in my child 's learning.	2.79	To some extent
3.I communicate with my child's teachers regularly.	2.39	To a moderate extent
4.I was good at math.	2.57	To some extent
5.My teachers were attentive to me.	2.59	To some extent
6.I enjoyed math.	2.70	To some extent
7.I enjoyed elementary school.	3.19	To some extent
8.I was a good student.	3.07	To some extent
9.I have difficulty understanding my child's homework.	2.45	To a moderate extent
10.I have difficulty explaining math assignments to my child.	2.45	To a moderate extent
11.I believe my child has access to resources to help him/her learn at home.	3.03	To some extent
12.I believe my child has trouble with math.	2.48	To a moderate extent
13.My child is being well prepared in school to continue his / her educations.	3.13	To some extent
14.I feel successful about my efforts to help my child learn.	3.01	To some extent
15.I expect my child to get good grades in math.	2.98	To some extent
16.I believe my child will perform well in math in future grades.	2.91	To some extent
17.I never do math activities with my child.	2.32	To a moderate extent
18.I help my child study for math tests at home.	2.43	To a moderate extent
Over - all	2.72	To some extent

It can be seen from the table that items 3, 17 and 18 got the lowest mean described as “To a moderate extent. This implies that there were lesser involvement of parents. On the other hand, the three highest mean are indicators 13, 7 and 8 describes as “ *To some extent*. This implies that the parents had greater expectation about learning.

In general, the extent of parental involvement of fourth year high school students had an over – all mean of 2.72 described as “ to some extent” It shows that the parents of the respondents believed that parent involvement can influence positive school outcomes for children. According to Ginsburg – Block et. al, (2010) , that a much broader range of parent involvement activities can influence positive outcomes for children. Their conceptualization of parent involvement include activities and interactions between parents and their children at home and their communities.

Problem 3. Is there a significant relationship between mathematics performance and the following variables?

- 3.1. attitude towards mathematics
- 3.2. beliefs in mathematics
- 3.3. motivation in mathematics
- 3.4. parental involvement
- 3.5. socio – economic status

Table 16 presents correlation coefficients between math performance and non –
intellective variables.

Table 16
Correlation Coefficients Between Math Performance and Non – Intellective Variables

Non – Intellective Variables	Correlation Coefficient	P - value	Interpretation
Attitude	0.000	0.997	Not significant
Beliefs	-0.015	0.885	Not significant
Motivation	-0.016	.873	Not significant
.Parental Involvement	0.044	0.663	Not significant
Socio – economic	-.0441	0.000	Significant

Table 16 shows correlation coefficient between math performance and non- intellectual variables. Among the variables, socio – economic status posted a P – value of 0.000 and is noted to be significant. This implies that the parent’s educational attainment, income of parents, size of the family, property and occupations of parents are factors that influences students’ mathematics performance.

Problem 4. Which of the following variables significantly influence mathematics performance?

- 4.1. attitudes toward mathematics**
- 4.2. beliefs in mathematics**
- 4.3. motivation in mathematics**
- 4.4. parental involvement**
- 4.5. socio – economic status**

Table 17 presents regression analysis for predicting mathematics performance. It can be viewed from table that the regression analysis for predicting mathematics performance. 20.3 percent of the variations in mathematics is due to the independent variables. Among non – intellectual variables, socio – economic is a significant predictor for mathematics performance. Such findings agrees to that of Zhao et.al., (2011) stated that socio – economic status is consistently to be the strong predictor when it comes to educational outcomes. Furthermore, Lubina (2004) found that occupations of parents is a predictor of the performance of the students in College Algebra as proven by P – value 0.055 and significant at 0.000.

As to the attitudes toward mathematics, beliefs, motivation, and parental involvement were not significantly related to the mathematics performance of the students as proven by their probability values of 0.369, 0.707, 0.835 and 0.829 respectively, which were greater than the set level of significance at 0.05. These imply further, those variables are not influences of their mathematics performance. Such findings negates that of Manoah et. al (2011) when they found

that the attitudes of students toward mathematics were positively correlated to the mathematics performance of the students.

Table 17
Regression Analysis for Predicting Mathematics Performance

Predictors	Beta Coefficient	Standard Error	t - value	P - value	Interpretation
Attitude	1.305	1.42	0.905	0.368	Not significant
Beliefs	0.432	1.144	0.377	0.707	Not significant
Motivation	-0.254	1.214	-0.209	0.835	Not Significant
Parental Involvement	0.235	1.083	0.217	0.829	Not Significant
Socio – economic	-1.822	.375	-4.864	0.000	Significant

$$R^2 = 0.203, f = 4.791$$

Table 18 presents correlation coefficient between mathematics performance and socio – economic status.

Table 18
Correlation Coefficient Between Mathematics Performance and Socio – Economic Status

Socio – Economic Status	Correlation Coefficient	P - value	Interpretation
Family Size	-0.570	0.000	Significant
Educational Attainment	-0.611	0.000	Significant
Parents' Occupation	-0.658	0.000	Significant
Family Income	-0.441	0.000	Significant
Property	-0.476	0.000	Significant

The table reveals that the profile of the students as to socio – economic status with computed P – value of 0.000 were significantly related to the mathematics performance. The findings agrees to that of Gou and Harris (2000) when they found that socio – economic status of parents has had significant effects on mathematics achievement during early childhood. Students

whose parents where highly educated and exposed to mathematics before in their lives tended to show more success in mathematics than their peers whose parents were less educated and not being exposed to mathematics (Demir et. al, 2010). students who come from low socio – economic status backgrounds enter school far behind their peers who come from higher socio – economic status backgrounds and understand less mathematical topics (Jordan et.al, 2007). Furthermore, that there was a huge mathematics achievement gap between low – and middle – SES students .Students with high – SES have the opportunities to learn mathematics at home, demonstrated high achievement in mathematics than their peers who lacked such opportunities (Bicer, 2009).

Table 19 presents regression analysis for predicting mathematics performance in terms of socio – economic status.

Table 19
Regression Analysis for Predicting Mathematics Performance in Terms of Socio – Economic Status

Predictors	Beta Coefficient	Standard Error	t - value	P - value	Interpretation
Family Size	-1.230	.970	-1.269	0.208	Not significant
Educational Attainment	-1.555	.974	-1.597	0.114	Not significant
Parents' occupation	-1.303	.354	-3.684	0.000	Significant
Family Income	0.277	1.041	0.266	0.791	Not Significant
Property	1.534	1.110	1.382	0.170	Not Significant

$$R^2 = 0.464, F = 18.126$$

Table 19 shows that parents' occupation is a predictor of the performance of the students in Mathematics IV as proven by t – value -3.684 and significant at 0.000. The data imply that a greater number of parents of the students in the public schools are not degree holders and are not qualified to have a better occupations or not engage in a professional work. The parents without

regular job are financially unstable. Thus, they could not provide the needs of their siblings in education. Jeynes (2002) revealed the same result that parents with high income seem to provide richer instructional resources to their children which may eventually help to improve the math scores of the students. This findings illustrates that math students need more financial resources as they get close to graduate in math department. He also stressed that socio economics is an important factor affecting the math achievement of students in math courses. Forty six point four percent (46.4%) of the variations in mathematics performance is due to the independent variables. The level of significance of the whole model is 18.126.

Chapter V

SUMMARY , CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary, conclusions and recommendations based on the findings of the study.

Summary

This study aimed to determine the non – intellective factors of the Mathematics performance of the Fourth year high school students of Bulihan National High School for the school year 2014 – 2015.

The researcher utilized the descriptive design. The respondents of the study included 100 fourth year high school students and their parents. The data were subjected to statistical treatment using mean, Pearson r, t- test for uncorrelated samples and Regression analysis.

The dependent variable is the Mathematics performance of the students described in terms of their performance in the third grading period. The independent variables were the non – intellective factors such as attitude towards mathematics, beliefs , motivation, parental involvement and socio – economic status.

Findings

Results of the study revealed the following findings:

1. On the attitudes toward mathematics, the overall mean is described as positive.
2. In terms of students beliefs in mathematics are positive.
3. The students have high motivation in mathematics.
4. On the level of mathematics performance of students, most of the students have average level.
5. The parental involvement were described as “ to some extent”
6. On correlation between Mathematics performance and Non – intellective variables, attitude,

beliefs, motivation and parental involvement were not significant. Socio – economic status was significantly influenced to mathematics performance of the students.

7. There is a significant relationship between socio – economic status and grade point average.

8. Among the non – intellective factors of socio – economic status, parents occupation is the . significant predictors of mathematics performance.

Conclusions

Based on the findings, the following conclusions are made.

1.The BNHS fourth year students have positive attitude towards mathematics.

2.All students were interested to learn mathematics. They are satisfied and considered relevant in their lives

3.The fourth year students firmly believed that mathematics is an important subject.

4. Socio – economic status significantly affects learning of mathematics. Students believe that they can learn mathematics if certain socio – economic variables are addressed.

5. The parents of BNHS is supportive to their child’s education.It is not surprising that some of the students are math achievers.

Recommendations

Based on the findings and conclusion of this study the following are hereby recommended.

1. Since the students who participated in this study are all fourth year , it is suggested that a similar study be done to students from other year levels to explore whether attitude, motivation, beliefs, and parental involvement can also significantly influence mathematics performance.

2. Teachers should encourage their students to learn mathematics despite their socio – economic status. Teachers must integrate values in teaching mathematics. They should instill in the minds of their students that poverty is not a hindrance to learn the subject.
3. Mathematics teachers should regularly attend seminars, conferences, and pursue their studies to update themselves with new approaches, strategies and techniques that will highly motivate their students to learn mathematics.
4. More research should be conducted on mathematics performance of students by closely considering the variables of socio – economic status.

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APPENDICES

APPENDIX A

Letter to the Principal



Republic of the Philippines
Department of Education
Region IV – A
Bulihan National High School
Bulihan, Silang Cavite



December 15, 2014

Willy D. Federico
Principal III

Dear Sir,

Greetings!

The undersigned is currently enrolled in MAT – 550 and working on a paper entitled “ Non – Intellective Factors: Their Influence on Mathematics Performance of High School Students” a partial requirement for the degree Master of Arts in Teaching Mathematics in Philippine Normal University.

One of the requirements in proposed study is to gather data using survey questionnaires. These will be given to 100 fourth year students and their parents from selected sections. The data that will be gathered from these undertaking will serve the purpose of the study. Rest assures that whatever information is being secured will be treated confidentially.

In view of this, may I ask permission from your good office to please allow me to perform the research and distribute questionnaires.

I am hoping that this request will merit your kind attention and most favorable action.

Thank you very much.

Respectfully yours,

Eleazar A. Gonzales
Researcher

Approved by :

Willy D. Federico
Principal III

APPENDIX B

Letter to the Head Teacher



Republic of the Philippines
Department of Education
Region IV – A
Bulihan National High School
Bulihan, Silang Cavite



December 15, 2014

Wilhelmina V. Dilla
Head Teacher III
Mathematics Department

Dear Mam,

Greetings!

The undersigned is currently enrolled in MAT – 550 and working on a paper entitled “Non – Intellective Factors: Their Influence on Mathematics Performance of High School Students” a partial requirement for the degree Master of Arts in Teaching Mathematics in Philippine Normal University.

One of the requirements in proposed study is to gather data using survey questionnaires. These will be given to 100 fourth year students and their parents from selected sections. The data that will be gathered from these undertaking will serve the purpose of the study. Rest assures that whatever information is being secured will be treated confidentially.

In view of this, may I ask permission from your good office to please allow me to perform the research and distribute questionnaires.

I am hoping that this request will merit your kind attention and most favorable action.

Thank you very much.

Respectfully yours,

Eleazar A. Gonzales
Researcher

Approved by :

Wilhelmina V. Dilla
Head Teacher III

APPENDIX C

Letter to the Respondent

December 15, 2014

Dear Respondent,

Greetings!

I am presently enrolled in the Graduate studies in Philippine Normal University, Manila Campus, conducting a seminar paper entitled “Non – Intellectual Factors: Their Influence on Mathematics Performance of High School Students”. May I request you to please be honest in filling the necessary information on required item.

It is assured that your responses will be treated with utmost confidentiality.
Thank you very much for your cooperation and support to the realization of this study.

Very Truly Yours,

Eleazar A. Gonzales
Researcher

APPENDIX D

Attitude Towards Mathematics (Aiken, 1974)

Name: _____ (optional) Fourth Year/ Section: _____

Directions: Below is a list of student's attitude towards mathematics. Please check the appropriate scale to what extent do you agree or disagree about each item. Using the scale below.

Scale	Descriptive Value	Range
4	Strongly Agree	3.25 – 4
3	Agree	2.50 - 3.24
2	Disagree	1.75 - 2.49
1	Strongly disagree	1.00 - 1.74

As a fourth year student I perceive that:

	4	3	2	1
1. I love Mathematics.				
2. I don't like mathematics.				
3. I am always full of anxiety in a math class				
4. I would like to work in the field of mathematics.				
5. I am scared every time I have to take a math class.				
6. Mathematics requires a hardwork, patience and perseverance.				
7. Just to think a math subject gives me a cold comfort.				
8. I perspire in fear everytime I take a test in math.				
9. Mathematics makes me think logically.				
10. Mathematics is like playing any game for me.				
11. Mathematics trains me to be systematic.				
12. Mathematics trains me to be discipline.				
13. Mathematics is so difficult that only those who are gifted can understand it.				
14. Scientific and technological advancements depend a great deal on mathematics theory.				
15. It makes me nervous even to think about having to take so many units of math before I graduate.				
16. I fell at ease in math.				

17. I enjoy math class more than any other subject.				
18. Mathematics makes me feel uneasy , nervous and uncomfortable.				
19. One hour in a math class seems eternity.				
20. Mathematics is challenging.				
21. In math, one doesn't have to memorize much. It's more of understanding and logical thinking.				
22. Mathematics is fun and fascinating.				

23. Mathematics stimulates me and gives me a feeling of security.				
24. I seem to be in maze when doing mathematics.				
25. I am always tense in a math class.				
26. I consider people who do well in math to be weird.				
27. Mathematics is a very interesting and exciting subject.				
28. Mathematics makes me feel confident.				
29. Mathematics is the most practical subject.				
30. The saying “ No pain, no gain “ applies very well in studying math.				
31. I feel good whenever I am able to solve math problem				
32. I usually feel sleepy in my mathematics class.				
33. A good mathematics training is a big advantage in entering any line of work.				
34. Life can go on without mathematics.				
35. Mathematics contributes greatly in scientific technology and advancement.				
36. I am very attentive in a math class.				
37. I misbehave in my math class because I cannot understand a thing.				
38. My mind travels fast when I am in my math class.				
39. I solve other problems in math aside from the assigned ones.				
40. Interest and right attitude for mathematics can be developed by having a good math teacher.				

Question: What are the attitudes of fourth year students towards mathematics?

Attitudes will determine base on the summation rating of the respondents in the attitude questionnaire. Using the Likert scaling technique, each of four choices after each statement will be given a scale value.

APPENDIX E

A scale for Measuring Beliefs on Mathematics

Name: _____ (optional) Fourth Year/ Section: _____

Directions: Below is a list of student's beliefs about mathematics and mathematics learning. Please check the appropriate scale to what extent do you agree or disagree about each item. Using the scale below.

Scale	Descriptive Value	Range
4	Strongly Agree	3.25 – 4
3	Agree	2.50 - 3.24
2	Disagree	1.75 - 2.49
1	Strongly disagree	1.00 - 1.74

Belief statement number	4	3	2	1
1.Mathematics is computation.				
2.Mathematics problems given to students should be quickly solvable in a few steps.				
3.Mathematics is the dynamic searching for order and pattern in the learner's environment.				
4.Mathematics is a beautiful, creative and useful human endeavor that is both a way of knowing and a way of thinking.				
5.Right answers are much more important in mathematics than the ways in which you get them.				
6.Mathematics knowledge is the result of the learner interpreting and organizing the information gained from experiences.				
7.Students are rational decision makers capable of determining for themselves what is right and wrong.				
8.Mathematics learning is being able to get the right answers quickly.				
9. Periods of uncertainty, conflict, confusion, surprise are a significant part of the mathematics learning process.				
10. Young students are capable of much higher levels of mathematical thought than has been suggested traditionally.				
11.Being able to memorize facts is critical in a mathematics learning.				
12.Mathematics learning is enhanced by activities which build upon and respect students' experiences.				
13.Mathematics learning is enhanced by challenged within a supportive environment.				
14. Teachers should provide instructional activities which result in problematic situations for learners.				
15.Teachers or the textbook - not the student - are the authorities for what is right or wrong.				
16.Mathematics is difficult subject.				
17.The role of the mathematics teacher is to transmit mathematical knowledge and to verify that learners have received this knowledge.				
18. Teachers should recognize that what seem like errors and confusions from				

an adult point of view are students' expressions of their current understanding.				
19.Teachers should negotiate social norms with the students in order to develop a co – operative learning environment in which students can construct their knowledge.				
20.Mathematics is a complex subject.				

Question: What are the beliefs of fourth year students about mathematics and mathematics learning?

Beliefs will determine base on the summation rating of the respondents in the beliefs questionnaire. Using the Likert scaling technique, each of four choices after each statement will be given a scale value.

APPENDIX F

A scale for Measuring Motivation

Name: _____ (optional) Fourth Year/ Section: _____

Directions: Below is a list of student's motivation to learn mathematics. Please check the appropriate scale to what extent do you agree or disagree about each item. Using the scale below.

Scale	Descriptive Value	Range
4	Strongly Agree	3.25 – 4
3	Agree	2.50 - 3.24
2	Disagree	1.75 - 2.49
1	Strongly disagree	1.00 - 1.74

	4	3	2	1
1.I love learning mathematics.				
2.Learning mathematics is frustrating.				
3.The hours I spend doing mathematics are the ones I enjoy most.				
4.I am highly motivated to learn mathematics.				
5.I find it hard to work independently on mathematical problems.				
6.I rarely expect to be able to apply mathematics in life situations.				
7.i rarely expect to be successful in mathematical tasks given by mathematics teachers in mathematics.				
8.Learning mathematics gives me opportunities for personal advancement.				
9.I practice solving mathematical problems on my own during holidays.				
10.I rarely expect to perform well in mathematics – related subjects.				
11.I expect to be able to solve mathematical problems anywhere I come across them if they are of my level of education.				
12.I am able to work independently in mathematics exercises in and outside mathematics classroom				
13.I expect to get high scores in mathematics tests.				
14.I expect to be able to apply mathematics easily to othe situations in life.				
15.Learning mathematics is in itself rewarding.				

16.I am satisfied with the way I learn mathematics.				
17.I do not feel uneasy during mathematics lessons.				
18.I am dissatisfied with my participation in classroom mathematical activities.				
19.I am satisfied with the way mathematics is taught in mathematics classrooms.				
20.I am satisfied with my performance in mathematics assignments, tests and examinations.				
21.I aspire to study mathematics lessons after fourth year.				
22.I am not sure whether there is need for me to continue studying mathematics.				
23.I find activities in mathematics lessons meaningful.				
24.Mathematics subject matter is related to my daily experiences.				
25.Mathematics is relevant to my needs and goals both in school and at home.				
26.Mathematics gives me opportunities for choice, responsibility and inter-personal influence.				
27.Mathematics lessons give me opportunities for co – operative social interaction.				
28.I would like a career that does not require mathematics				

Question: What is the level of fourth year students' motivation to learn mathematics?

The descriptive questionnaire was a Likert type survey instrument. Motivation to learn mathematics was measured on a 28 – item scale that adequately covered the four dimension of students' motivation to learn mathematics.

- | | |
|-------------------------------------|--------------|
| a. Interest in learning mathematics | 1,2,3 and 4 |
| b. Perceived probability of success | 5 – to – 14 |
| c. Satisfaction | 15 – to – 20 |
| d. Relevance | 21 – to – 28 |

APPENDIX G

A survey questionnaire on Parental Involvement

Name: _____ (optional) Fourth Year/ Section: _____

Directions: Below is a list on parental involvement. Please check the appropriate scale to what extent do you agree or disagree about each item. Using the scale below.

Scale	Descriptive Value	Range
4	Strongly Agree	3.25 – 4
3	Agree	2.50 - 3.24
2	Disagree	1.75 - 2.49
1	Strongly disagree	1.00 - 1.74

	4	3	2	1
1.I helped my child with his/ her homework.				
2.I am active participants in my child 's learning.				
3.I communicate with my child's teachers regularly.				
4.I was good at math.				
5.My teachers were attentive to me.				
6.I enjoyed math.				
7.I enjoyed elementary school.				
8.I was a good student.				
9.I have difficulty understanding my child's homework.				
10.I have difficulty explaining math assignments to my child.				
11.I believe my child has access to resources to help him/her learn at home.				
12.I believe my child has trouble with math.				
13.My child is being well prepared in school to continue his / her educations.				
14.I feel successful about my efforts to help my child learn.				
15.I expect my child to get good grades in math.				
16.I believe my child will perform well in math in future grades.				
17.I never do math activities with my child.				
18.I help my child study for math tests at home.				

The survey will utilize a Likert scale ranging from 4(Strongly agree) 3(Agree) 2(Disagree) and 1(Strongly Disagree).

APPENDIX H

A survey Questionnaire on Social Economic Status

Instruction: Read questions carefully and check the item that you think is closest to situation.

1.How many siblings are there in the family?

a.7 and above _____

b.4 to 6 _____

c.3 and below _____

2.What is the educational attainment of your father?

a.College Graduate _____

b.College level _____

c.High School level _____

d.Elementary level _____

3.What is the educational attainment of your mother?

a.College Graduate _____

b.College level _____

c.High School level _____

d.Elementary level _____

4.What is the main occupation of your father/ mother?

Father	Mother
a.Teaching _____	_____
b.Office clerks _____	_____
c.Businessman _____	_____
d.Surveyors _____	_____
e.Fishery/Forester _____	_____
f.Self Employed _____	_____
g.Farmer _____	_____

5.Combined Monthly Income

a.6,500 and above _____

b.4,500 – 6499 _____

c.2,500 - 4499 _____

d.Below 2500 _____

6.Property Qwnership

a.Own house and land with several Appliances _____

b.Own house and land with few appliances _____

c.Rent a house with appliances _____

d.Rent a house with out appliances _____

Curriculum Vitae

ELEAZAR A. GONZALES

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Bulihan Silang Cavite

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PROFILE

Date of Birth:	April 28, 1972
Place of Birth:	San Jose San Vicente Camarines Norte
Gender:	Male
Civil Status:	Single
Citizenship:	Filipino
Height:	5'7''
Weight:	69kg
Religion:	Seventh Day Adventist
Profession:	Professional Teacher
Position:	Teacher II

Educational Background:

Graduate: **Philippine Normal University**
Taft Avenue, Manila

Undergraduate: **Bachelor of Secondary Education – Mathematics**
Camarines Norte State College
Scholar

Vocational: **Agricultural Technology**
Mabini College
Daet, Camarines Norte

Secondary Education: **San Vicente Parochial School**
San Vicente Camarines Norte
Third Honorable Mention

Elementary Education: **San Vicente Elementary School**
San Vicente Camarines Norte
Achiever

APPENDIX I

STATISTICS