Factors Influencing the Attitude of the Teacher Education Students of Guimaras State College Towards Mathematics

Lilian Diana B. Parreño, Ph.D.
Wennie Rose G. Tuando
Geraldo B. Cang
Enriqueta N. Siva

ABSTRACT

This study was conducted to find out the factors influencing the attitude of teacher education students of Guimaras State College toward mathematics and its relation to their academic performance. The study utilized the descriptive research design. The respondents of the study were the first year Education students of Guimaras State College SY 2008-2009 for both the main and external campus (Mosqueda). The data was gathered using the researcher-made questionnaire. The data gathered was analyzed using the frequency, mean and percent. Majority of the respondents were female, with age range appropriate for their year level. The parents of the respondents had varied educational attainment ranging from elementary level to post graduate level and noteworthy was that there were more fathers having a college degree than the mothers; the grades of the respondents in math showed variation commencing from 1.30-2.80; the level of attitude of the respondents toward mathematics as a subject was geared towards positive one; there was no significant difference in the level of attitude of the respondents when categorized according to their parents' educational attainment. The null hypothesis which states that there is no significant difference in the educational attainment of parents and the respondents' attitude towards mathematics was accepted which implied that the age and academic performance in math showed no significant difference. In addition the null hypothesis which states that there is no significant difference in age and academic performance in math of the respondents and their level of attitude was accepted.

Key Words: Attitude, Teacher Education, Mathematics

INTRODUCTION

Background of the Study

Mathematics is a science that deals with the relationship and symbolism of numbers and magnitudes and that includes quantitative operations and the solution of quantitative problems. This is also defined as the study of numbers, shapes, and symbols. It includes the rules of dealing with these things. It was created by human being. It began with counting, later on people developed ways of writing down numbers. This made the numbers easier to use when working out mathematical problems. At first mathematics was entirely practical. It seemed to be a series of natural laws that are firm. But as of today mathematics know that there is no end to the possible systems of systems (Encyclopedia Americana Deluxe Library Ed.).

At the same time mathematics has become part of our daily lives. Every day we encounter numbers and some problems about it. With the help of mathematics it is easier for us to solve these problems. Mathematics feeds itself on the physical and life sciences. We can be sure that mathematics will continue to grow although we cannot predict the ways in which it will grow.

The advent of the study of mathematics has contributed much to the modernization as well as in the technological advancement of the present time. The study of mathematics has made possible different technological development in the fields of science, statistics, engineering, economics, commerce, computer and many others. This is how encompassing mathematics is with our lives today. The Philippine educational curriculum during the American regime focused on the three R's which are, Reading, Writing (silent W) and Rithmetic. Students are taught even during pre-school age the intricacies of counting and solving. This is the basic component of any curricular program of a school.

Mathematics is a subject offered in all schools at present. One cannot graduate without it. It is said to be one of the students' enemy, though it is the easiest, once you have mastered the rules and application. In this regard, our study focused on the attitude of Guimaras State College (GSC) Education students towards mathematics as a subject. We would like to know what are their feelings and attitudes towards this subject.

However, students do not have as much interest for mathematics as they have for the other subjects in school. This is the reason why we constantly fell behind with other countries in terms of competence in mathematics. This seemingly disinterest in mathematics makes learning and mastering it like dreaming and doing the impossible.

Aware of the feedback from the Teacher Education students of Guimaras State College, the researchers would like to conduct a study about the attitude of the college students enrolled in the teacher education program toward mathematics and its relation to their academic performance.

Attitudes are fundamental to the dynamics of behavior. They largely determine what students learn. The mathematics student with a positive attitude, studies mathematics because he enjoys it, he gets satisfaction from knowing mathematical ideas, and he finds competency in mathematics as own reward.

Measuring attitudes towards mathematics is a task of increasing importance to math teachers. Developing positive attitudes toward the subject being studied is probably one of the goals of the mathematics teachers. Many teachers believe that students' attitude toward a school subject affects the students' achievement in the subject.

Therefore, mathematics teachers must particularly be concerned about their students feeling towards the subject because mathematics has a reputation of being unpopular. Since the researchers were interested in developing positive attitude towards math as a subject, the researchers wanted to find out through this study how students feel about math and what factors are associated with their attitude towards math. The researchers hope that this study would go further.

Statement of the Problem

This study was conducted to find out the factors influencing the attitude of teacher education students of Guimaras State College towards mathematics.

Specifically, this study sought answers to the following questions:

1. What is the profile of the First Year Education students of Guimaras State College in terms of age, gender, final grade in Mathematics during the first semester AY 2008-09 and parents' educational attainment?
2. What are the attitudes of college students towards mathematics as a subject?
3. Is there a significant difference in the attitudes of Education college students when grouped according to the variables of gender, parents' educational attainment and grades in Mathematics?

METHODOLOGY

This study utilized the descriptive research design. The respondents of this study were the first year Education students of Guimaras State College SY 2008-2009 from both the Main and external campus (Mosqueda campus). Total enumeration was used in the study since the enrolment of the first year students for the School of education was less than 100 and the researchers felt that this number was a manageable number. Data were gathered using the researcher - made questionnaire.

The data gathered were analyzed by grouping the respondents. The responses in each question were grouped and percentages, frequency and mean of all the responses were tallied and analyzed. The discussion was based on the result of this statistical tool. Regression analysis was used to determine the relationship between the independent variables tested and the attitude of the students towards mathematics as subject.

MAJOR FINDINGS

a. Selected Personal Attributes of the Respondents

Table 1 presents the profile of the respondents in each of the variables identified. It revealed that out of the 34 Teacher Education respondents, 3 or 8.8% were males and 31 or 91.2% were females.

When the respondents were grouped as to age, results revealed that 29 or 85.26% belonged to age bracket 17-22, 1 or 2.9% belonged to age bracket 23-28 and 2 or 5.89% belonged to age bracket 29-24 and 2 respondents or 5.89% did not indicate their age.

Table 1. Selected personal attributes of the respondents

Category	Frequency	Percentage
Sex:		
Male	3	8.8
Female	31	91.2
Total	34	100
Age:		
17-22	29	85.29
23-28	1	2.94
29-34	2	5.88
Did not indicate	2	5.89
Total	34	100

Table 2 presents the final grades of the respondents in mathematics. Results revealed that seven (7) or 20.59% have grades ranging from 1.30-1.70, another seven (7) or 20.59% have grades ranging from 1.80-2.20; 14 or 41.20% got grades raging from 2.30-2.80 and six (6) or 17.65% of the respondents did not indicate their final grades in Mathematics.

Table 2. Final grades of respondents

Category	Frequency	Percentage
1.30-1.70	7	20.59
1.80-2.20	7	20.58
2.30-2.80	14	41.18
Did not indicate	6	17.65
Total	34	100

Educational Attainment of the Parents of the Respondents

Table 3 presents the parents' educational attainment of the respondents. Results revealed that the fathers of the respondents have varied educational attainment. There were seven (7) or 20.59% elementary graduates as well as seven (7) or 20.59% who did not indicate their father's educational attainment. There were six (6) or 17.65% high school level; five (5) or 14.71% high school graduates; four (4) or 11.76% college level; three (3) or 8.82% elementary level and two (2) or 5.88% post graduate.

The same was also true with the categories for the educational attainment of the respondents' mothers. There were nine (9) or 26.47% high school level; seven (7) or 20.59% both elementary graduates and those who did not indicate there educational attainment; five (5) or 14.71% high school graduates; three (3) or 8.82% college level; two (2) or 5.88% elementary level and one (1) or 2.94% post graduate degree holder.

Table 3. Educational attainment of the parents of the respondents

Category	Frequency	Percentage
Father's Educational Attainment:		
Elementary level	3	8.82
Elementary Graduate	7	20.59
High School Level	6	17.65
High School Graduate	5	14.71
College Level	4	11.76
Post Graduate	2	5.88
Did not Indicate	7	20.59
Total	34	100
Mother's Educational Attainment:		
Elementary level	2	5.88
Elementary Graduate	7	20.59
High School Level	9	26.47
High School Graduate	5	14.71
College Level	3	8.82
Post Graduate	1	2.94
Did not Indicate	7	20.59
Total	34	100

Attitude of the Students Towards Mathematics

Table 4a shows the responses of the education students on the positive items in the questionnaire for determining their attitude towards mathematics as a subject. Results showed that the overall mean for the 10 items was 3.95 which means that the students showed positive attitude towards mathematics. This implies that the education students agreed on the items in the questionnaire for their attitude towards math as a subject and they are not afraid of mathematics rather they have positive attitude towards mathematics as a subject.

Analyzing further the individual items, the respondents strongly agreed on "I am interested to acquire further knowledge in Math (M=4.21). While they agreed for the rest of the items such as, "I enjoy studying math" (M=3.76); "I am excited during my Math class" (M=3.71); "I find Math a very interesting subject" (M=3.82); "I believe Math has contributed greatly to Science" (M=3.94); "I believe learning Math makes one successful in life" (M=4.09); "I know math requires a lot of practice for mastery" (M=4.15); "Math develops a person's line of thinking and reasoning" (M=4.18); "I enjoy doing the assigned work and trying to solve problems in math" (M=3.82) and "Math makes students more inquisitive" (M=3.85).

Table 4a. Attitude of the respondents towards mathematics

Items	Mean	Interpretation
1. I enjoy studying math.	3.76	Positive
2. I am comfortable during my Math class.	3.71	Positive
3. I find Math a very interesting subject.	3.82	Positive
4. I believe Math has contributed greatly to Science	3.94	Positive
5. I am interested to acquire further knowledge in Math.	4.21	Positive
6. I believe learning Math makes one successful in life.	4.09	Positive
7. I know math requires a lot of practice for mastery	4.15	Positive
8. Math develops a person's line of thinking and reasoning	4.18	Positive
9. I enjoy doing the assigned work and trying to solve problems in math	3.82	Positive
10. Math makes students more inquisitive	3.85	Positive
Mean	3.95	Positive

Scale: 1.00-2.50 Negative; 2.51-3.40 Neutral; 3.41-5.00 Positive

Table 4b shows the responses of the education students on the negative items in the questionnaire for determining their level of attitude towards math as a subject. Results revealed that the overall mean of the 10 items was 2.65 interpreted as undecided. This implies that the education students were not sure whether to love or hate math. Analyzing further the individual items, the respondents strongly disagreed on "Math makes me feel as though I'm lost in a jungle of numbers and cannot find my way out" (M=2.59); "Math makes me feel nervous that I cannot even think during classes" (M=2.58); "I believe Math leaves no room for personal opinion" (M=2.56); and "I believe math is less important to people than art or literature" (M=2.24). The respondents were undecided on, "I am stressed in my Math Class" (M=2.65); "I have never liked Math as a subject" (M=2.88); "I am unable to think clearly when doing Math" (M=2.61); "Math problems often scare me" (M=2.63) and "Math test are often difficult" (M=3.03).

Table 4b. Level of attitude of the respondents' on negative items in the instrument

ITEMS	Mean	Interpretation
1. I am stressed in my Math Class	2.65	Neutral
2. Math makes me feel as though I'm lost in a jungle of numbers and cannot find my way out	2.59	Neutral
3. I have never liked Math as a subject	2.88	Neutral
4. Math makes me feel nervous that I cannot even think during classes	2.58	Neutral
5. I find Math dull and boring	1.78	Positive
6. I believe Math leaves no room for personal opinion	2.56	Neutral
7. I am unable to think clearly when doing Math assignment	2.61	Neutral
8. I believe math is less important to people than art or literature	2.24	Positive
9. Math problems often scare me.	2.63	Neutral
10. Math tests are often difficult	3.03	Neutral
Mean	2.56	Neutral

Scale: 1.00-2.50 Positive; 2.51-3.40 Neutral; 3.41-5.00 Negative

Differences in the Attitude of the Respondents When Categorized According to Age, Grade in Math and Parents' Educational Attainment

In the level of attitude of the respondents to mathematics when grouped as to Mothers' educational attainment, the mean square between groups was 2.329 and within groups was 4.11. The F-value equal to .566 at degrees of freedom (5, 21) equal to 26. The p-value was 0.725, greater than the set probability equal to 0.05, interpreted as not significant. This meant that there were no significant differences in the level of attitude towards mathematics among respondents when categorized as to the educational attainment of the mother. This implies that there are no differences in the attitude whether the mother is a high school graduate or lower than that but still their attitude towards math as a subject persist as indicated by the average mean on the level of their attitude towards the subject. The null hypothesis that there is no significant difference in the level of attitude of the Teacher's Education students of Guimaras State College when grouped as to their Mother's educational attainment is accepted. The attitude of the teacher education students is independent and does not vary as to their Mother's educational attainment (Table 5).

Table 5. Mother's educational attainment

Sources of Variation	Sum of Squares	df	Mean of Squares	F	Sig.	Interpretation
Between Groups	.116	5	2.329 E-02	0.566	.725	Not significant
Within Groups	.864	21	4.11E-02			
Total	.981	26				

*p>.05 level of significance

Table 5a shows the differences in the level of attitude of the respondents towards mathematics when grouped as to their fathers' educational attainment. The mean square between groups was 4.012 and within groups was 3.715. The F-value equal to 1.080 at degrees of freedom (5, 21) equal to 26. The p-value was 0.400, greater than the set probability equal to 0.05, interpreted as not significant. This meant that there was no significant difference in the level of attitude among respondents towards mathematics when categorized as to the educational attainment of the father.

This imply that there is no difference whether the father has a high educational attainment or low but still their attitude towards math as a subject persist as indicated by the average mean on the level of their attitude towards the subject. The null hypothesis that there is no significant difference in the level of attitude of the Teacher Education students of Guimaras State College when grouped to their fathers' educational attainment is accepted. The attitude of the Teacher Education students is independent and does not vary as to their fathers' educational attainment.

Table 5a. Fathers' educational attainment

Sources of Variation	Sum of Squares	Df	Mean of Squares	F	Sig.	Interpretation
Between Groups	0.201	5	4.01E-02	1.080	0.400	Not significant
Within Groups	0.780	21	3.72E-02			
Total	0.981	26				

*p>.05 level of significance

Table 6 presents the differences in the level of attitude of the Teacher Education students towards Mathematics when grouped as to their grade in math. The mean square between groups was 4.589 and within groups was 3.335. The F-value equal to 1.376 at degrees of freedom (5, 21) equal to 26. The p-value was 0.311, greater than the set probability equal to 0.05, interpreted as not significant. This meant that there were no significant differences in the academic performance of the respondents and their level of attitude towards mathematics as a subject. This implies that whether the respondent/s has high or low grades in math still their attitude towards the subject doesn't vary. The null hypothesis that there is no significant difference in the level of attitude of the Teacher's Education students of Guimaras State College when categorized as to their academic performance in math is accepted. The attitude of the Teacher Education students is independent and does not vary as to their final grade in math during the semester when the data was gathered.

Table 6. Differences in the level of attitude of the teacher education towards mathematics when grouped as to their academic performance

Sources of Variation	Sum of Squares	Df	Mean of Squares	F	Sig	Interpretation
Between Groups	.505	11	4.589E-02	1.376	0.311	Not Significant
Within Groups	.334	10	3.335E-02			
Total	.838	21				

*p>.05 level of significance

The t-test results for the differences in the level according of attitude of the Teacher Education students when classified as to gender were presented in Table 7. The computed t-ratio is -.149, df=32 t-prob=.883 revealed that the observed significant level was greater than .05. This meant that there is no significant difference in the level of attitude of the Teacher Education student towards mathematics. This implies that the gender is not a factor that can affect the attitude of the respondents towards Mathematics.

Category	N	df	t-ratio	t-prob	Interpretation
Gender	32	32	-0.149	0.883	Not significant

*p>.05 level of significance

CONCLUSIONS AND RECOMMENDATIONS

More than majority of the respondents were female, with age range appropriate for their year level. Likewise the parents of the respondents have varied educational attainment ranging from elementary level to post graduate level and noteworthy was that there are more fathers having a college degree than the mothers. The grades of the respondents in math showed variation commencing from 1.30-2.80. The level of attitude of the respondents toward mathematics as a subject was positive. There were no significant differences in the level of attitude of the respondents when categorized according to their parents' educational attainment. The age and academic performance in math showed no significant difference.

Based from aforementioned findings and conclusions, it is recommended that the School of Education should strengthen the marketing of their programs to the incoming first year college students so that more male students will be enlightened to enroll in the School of Education and reduce the big discrepancy between the population of male and female members of the college. For those students having low grades in math to work hard and improve their class standing by means of asking assistance from their math teachers to give them extra exercises/ assignments in math so that they can practice more, thus, improving their skills in manipulating problems in math. For those students who responded undecided to negative items in the questionnaire should try to face these attitudes and think more positive about the subject so that their performance will improve once attitude changes with the change of one's outlook in life. The students of education should focus more in learning the intricacies of doing mathematical operations. The management of GSC should also strengthen the students' skills in doing mathematical operations by means of providing students avenues to learn more about the subject such as creating clubs and organizations. The students' attitude towards math as shown by the results of the study was generally positive, hence, only a minimum of pushing them towards liking math more as subject is needed.