DE LA SALLE UNIVERSITY

AN ANALYSIS OF THE MATHEMATICS ATTITUDES, PROBLEMS, AND ACHIEVEMENTS OF THE HIGH SCHOOL STUDENTS OF DE LA SALLE SANTIAGO ZOBEL SCHOOL; ALABANG 1985-1986

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study was primarily aimed at determining the mathematics attitudes, achievements, and problems of the high school students of De La Salle Santiago Zobel School (DLSZ) during the schoolyear 1985-1986.

The study further attempted to answer the following questions:

1. What are the attitudes of the DLSZ high school students towards mathematics?
2. Is there a significant difference in the attitudes of students towards mathematics when analyzed from the dimensions of sex, year level and mathematics achievement?

The null hypotheses tested in this study were the following:

1. There are no significant differences in the attitudes of students toward mathematics when analyzed from the dimensions of sex, year level and mathematics achievement.
2. There are no significant interactions between sex and year level; sex and achievement; year level and achievement, and among sex, year

level, and achievement in relation with the students' attitudes.

This is a descriptive study in as much as it made use of the normative survey method to determine the mathematics attitudes and problems of De La Salle Santiago Zobel School during the school year 1985-1986. An Attitude Scale Inventory questionnaire was used to analyze the attitudes of the DLSZ high school students towards mathematics. Another questionnaire was used to determine the problems of the students in the study of mathematics.

The population of this study consisted of 917 first to fourth year high school students of DLSZ who were officially enrolled during the school year 1985-1986. A sample consisting of 256 students were selected from the given population by stratified random sampling with year level and sex as strata. The sample consisted of 78 students from the first year, 66 from the second year, 59 from the third year and 53 from the fourth year.

The mathematics subjects offered to DLSZ high school students at the time of the study were as follows: Algebra I in the first year, Algebra 2 and Statistics in the second year, Geometry and Trigonometry in the third year, and Advanced Algebra in the fourth year.

A three-way analysis of variance was used to determine if significant differences in the mathematics attitudes of the students existed due to sex, year level, and achievement. The problems of the students on the other hand, were tallied and expressed in terms of percentages of students who had these problems.

Summary of Findings

Following were the significant findings gathered from the students' responses to the survey questionnaire.

1. Attitudes of DLSZ Students Toward Mathematics

   1.1 Viewed from the dimensions of year level, the first year and the fourth year students had positive attitudes towards the subject while the second year and the third year students had neutral attitudes.

   1.2 When analyzed from the dimension of sex, the females had neutral attitudes while the males generally had positive attitudes towards the subject.

   1.3 Lastly, when viewed from the dimension of mathematics achievement, the high mathematics achievers had positive attitudes while the average and the low achievers had neutral attitudes.

   1.4 In general, the obtained mean attitude scores of all the respondents whether viewed from the affective, cognitive, or behavioral dimensions fell under the category of neutral attitudes.

2. Differences in Students' Attitudes Towards Mathematics

   2.1 The obtained F-ratio for year level of

14.542 was significant at the .05 level. Thus, the null hypothesis of no significant difference in mathematics attitudes due to year level was rejected. The first and the fourth year students had more favorable attitudes towards mathematics than the second and the third year students.

2.2 The obtained mean difference of .44767 between the mean attitude score of the males and that of the females was not significant. Hence, although the males got a relatively higher mean attitude score than the females, the null hypothesis of no significant difference in the students' mathematics attitudes due to sex was accepted.

2.3 Significant differences in the respondents' attitudes were obtained when the students were grouped on the basis of their mathematics achievements. The obtained F-ratio of 28.738 for this factor was significant at the .05 level. In line with this finding, the null hypothesis of no significant difference in the students' attitudes towards mathematics when grouped as to mathematics achievement was therefore rejected with the high achievers having the most favorable attitudes followed by the average achievers and the low achievers, in that order.

2.4 A significant interaction between year level and mathematics achievement existed at the .05 level with the obtained F-ratio of 2.182 for these factors.

2.5 There was no significant interaction between year level and sex.

2.6 A significant interaction at the .05 level existed between sex and achievement.

2.7 There was no significant interaction among year level, sex, and achievement.

3. Students' Problems in the Study of Mathematics. These problems were analyzed from the dimension of whether they were student, teacher or parent-related problems.

3.1 As to student-related problems, the respondents identified that their main problems concerned their inability to schedule regular study hours, carelessness with mathematical computation, forgetfulness, difficulties in working with word problems, lack of concentration, and failure to understand the explanation in the textbook.

3.2 With regard to teacher-related problems, the students pointed out that their teachers did not give them the opportunity to recite or to go to the board and that the teachers used the same technique or method in teaching everyday.

3.3 Parent-related problems were the least felt problems of the students in the study of mathematics. Although 50 percent or more of the first year students experienced a parent-related problem, in general, parent-related problems could be considered not a serious problem of the respondents across year levels.

4. Comparison of Students' Problems in the Study of Mathematics. Students' problems in mathematics were also analyzed from the dimension of sex, year level, and mathematics achievement.

4.1 By Sex
The most serious problems of the male students were concerned with teacher's bias during recitations and methods and techniques in teaching, as well as with the students' carelessness and forgetfulness, lack of concentration, difficulties with word problems, and

inability to understand the textbook used. It appears that the most common problems of the male students could be attributed to teacher and student-related factors. The male group identified "My teacher doesn't give me the opportunity to recite or go to the board." As their most serious problem.

On the other hand, the most common problems suffered by the females were generally similar to the problems experienced by the male group.

4.2 By Year Level

The most common problems of the students in the study of mathematics when viewed from the dimension of year level could be identified as: teacher's bias during class recitation and students' inability to schedule regular study hours, forgetfulness, and difficulties in working with word problems.

The findings also show that as per year level, the first year and the fourth year students had lesser problems than the second and the third year students. Also, it is interesting to note that only the first year students suffered a parent-related problem.

4.3 By Mathematics Achievement

The low achievers suffered the same problems encountered by 50 percent or more of the average and the high achievers. Fifty percent or more of the high achievers had the least number of problems in the study of mathematics as compared with the low and the average groups who had more problems.

The high achievers identified these problems as: teacher's bias during class recitations and lack of variety in teaching techniques, and students' poor study habits, carelessness in computation,

and difficulties in problem solving.

These problems plus three more problems, were also experienced by the low and the average achievers. These were: lack of concentration in the study of mathematics; forgetfulness, and inability to understand the explanations in the textbook.

Conclusions

In view of these findings, the following conclusions were drawn:

1. The DLSZ students generally had neutral attitudes towards mathematics.

2. Significant differences in the students' mathematics attitudes may be attributed to their differences in sex, year level, and mathematics achievement.

3. Significant differences in the respondents' attitudes towards mathematics may also be explained by the significant interaction between their year level and mathematics achievement.

4. The observed variance in the students' attitudes towards mathematics may also be attributed to the significant interaction between their sex and achievement in mathematics.

5. The more the number of mathematics subjects the students had, the more problems they encountered in the study of mathematics.

6. Lower mathematical ability students suffered more problems than the average and the high ability level students.

7. In general, the most common problems in the study of mathematics encountered by the students whether they were grouped by sex, year level, or mathematics achievement were similar.

Recommendations

Based on the aforementioned findings and conclusions the following recommendations are hereby addressed to the administrators, faculty members, and students of De La Salle Santiago Zobel School:

1. For the school administrators. The following courses of actions could help alleviate, if not totally eliminate the problems of the mathematics students of the school:

1.1 Strengthening the Faculty Development Program. To help the teachers keep abreast with the recent trends and innovations in the field of mathematics, formal studies, seminars, in-service training and the like should be offered on a regular, periodic basis to the

mathematics teachers. These will help develop teachers' teaching competencies in terms of subject matter mastery and acquisition of skills in teaching methodology to make the teaching and learning of mathematics more meaningful, interesting, and challenging.

1.2 Evaluation of the mathematics curriculum and textbooks. An evaluation of the mathematics curriculum and of the mathematics textbooks prescribed by the school may be undertaken in consideration of the felt problems of the students, particularly those who had two mathematics subjects. Remedial programs in mathematics may be offered to the slow learners.

2. For the mathematics teachers. Taking into account the major problems suffered by the students in the study of mathematics, the following suggestions could be considered:

2.1 Every student should be given an opportunity to recite or to go the board. This could encourage students to

participate actively in discussions and at the same time surface out areas of the lessons that need reinforcement or remediation. Likewise, the practice could foster greater satisfaction on the part of the students who explicitly indicated their desire to be given this opportunity.

2.2 The teacher should use a variety of teaching methods or techniques in teaching mathematics.

2.3 Since the students generally did not have positive attitudes towards mathematics, the teachers should exert efforts towards developing more positive attitudes towards mathematics among them. Responding to the problems which the students suffered in the study of mathematics could be one way of attaining this end.

2.4 Drill and review exercises should be strengthened to help the students retain their mathematics lessons better.

2.5 The teachers should give more word

problems to the students and further improve the students' ability to analyze and solve such problems.

2.6 It is also important that teachers regulate their teaching pace based on the needs and ability levels of the learners.

3. For the students. A number of students' problems in the study of mathematics were student-related factors. Hence, it is suggested that they try to develop patience, determination, and self-discipline, to help overcome their difficulties in the study of the subject. Likewise, they should try to develop and practice correct study habits and schedule regular study periods at home. Asking for tutorial help and joining the mathematics club would likewise solve a number of their problems in the study of mathematics.

4. For the parents. Parents could help significantly in solving some of their children's problems in the study of mathematics. Considering the problems encountered by students as revealed in this study, there is a need for the parents to see to it that their children schedule a regular study period at home. They also need to provide support and encouragement to their children in their study of mathematics. Specifically, parents of

the first year students should motivate their children to study harder to improve their grades in mathematics and should refrain from ignoring or reprimanding them for not getting high grades in the given subject.

5. For future researchers

5.1 Students in the year levels having elective subjects in mathematics encountered more problems than those who had only one mathematics course. This is one area of concern that needs further investigation and identification of probable solutions.