THE EFFICACY OF ACADEMIC ASSISTANCE FOR STUDENTS IN ENGLISH AND MATHEMATICS (AASEM) TO IMPROVE STUDENTS PERFORMANCE IN COLLEGE ALGEBRA

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Abstract

The meaning of the word tutorial in British academic parlance is a small class of one, or only a few students in which the tutor (a professor or other academic staff members) gives individual attention to the students. It is also known as supervision or refers to something more like an American discussion section that is supplemental to a large lecture course, which gives students opportunity to discuss the lectures where in they meet regularly with a guidance of the tutor. The objective of this study is to determine the efficacy of the Academic Assistance for Students in Mathematics and English in improving the academic performance of the students in College Algebra. Students who were identified to have difficulties in mathematics through the diagnostic test in mathematics and the entrance examination given by the guidance center, were subjected to attend the AASEM Program but due to some conflicts other students failed to attend the said program. This study utilized the scores of these students in the Midterm and the Final Examination to compare if the injection of tutorial lesson had an effect on the performance of the students in College Algebra.

INTRODUCTION

The history of mathematics traces the evolution of mathematical ideas and concepts beginning in prehistory. Mathematics is a systematic treatment of magnitude, relationships between figures and forms, relations between quantities expressed symbolically. Scientific and technological advances especially in the physical, biological and

social sciences, as well as industry and commerce reflect the use of mathematics. It is used as a tool to solve problems, may these be big or small. In all areas of discipline, mathematics plays a vital role.

In spite of the importance of mathematics, many students find it difficult to understand the concepts and theories, which they consider as abstract and complicated. Students are exposed to mathematics principles from pre-school to college. In college, students are required to take 6 to 9 units of mathematics subjects as required by the Commission on Higher Education (CHED).

Mathematical knowledge in the modern world is advancing at the rate faster than before, but in spite of this, a dismal result of examination in the national survey is discouraging. According to Tenedero (2002), the level of competency of the Filipino has slipped considerably in the last few years. In 1996, the Philippines ranked 39th in mathematics and 40th in science out of 41 countries that took part in the Third international math and Science Study (TIMMS). After three years, a similar study yielded the same result wherein the Philippines ranked 36th out of 38 countries, trailing Thailand, Malaysia and Indonesia. Moreover, it shows that the elementary level of pupils perform poorly with ranks near the bottom in the competitive test in science and mathematics.

Moreover, majority of the students face mathematical difficulties. Teachers who have students with learning disabilities in their classes face a challenge; however, awareness of typical learning disability characteristics and use of effective strategies can promote confidence and competence in working on problem solving (Steele and Steele, 2003).

One of the effective strategies is a good academic assistance to improve students' performance through tutoring. Many students may seem to lack the intelligence but they may have concealed intellectual capacity that has remained untapped. Hence the major role of the tutor is to help the students realize their maximum academic achievement (Bricker, 1983).

According to Simpson (1997), only a few colleges and universities offer some form of academic assistance to help the students adjust to the demands of college level. Letran is one these few institutions that has designed and developed a program that meets these demands, thus the Academic Assistance for Students in English

and Mathematics (AASEM) is created to address the need to improve mathematics learning of students with below average or poor rating in the entrance examination.

The main objective of the AASEM Program is to increase the students' level of proficiency in Mathematics so that that they can be successful in passing their entry-level mathematics subject such as Pre-Algebra for the students under the College of Liberal Arts and College of Education and College Algebra for students under the College of Business and Accountancy and other subjects requiring mathematical reasoning. Specifically, it aims to extend academic assistance to students who are slow learners based on the result of the entrance examination in mathematics and the diagnostic exam given to students. It further aims to improve the academic performance of students who are experiencing difficulties in mathematics and to lessen the failures of students at the end of the semester.

This research aimed to validate the efficacy of Academic Assistance for Students in Mathematics and English (AASEM) as a strategy to improve academic performance of the students in College Algebra. Specifically, it aimed to determine the attitude of the students who attended the program towards the AASEM with regard goals and objectives, program Itself, learning activities/instructional materials and teacher/facilitator and to find out if there Is a significant difference between the students who are attending and those who are not attending the AASEM with regard to the Midterm Examination and Final Examination to validate the efficacy of the AASEM Program.

METHODOLOGY

Research Design

The researcher used a descriptive type of research to validate AASEM as a strategy to improve students' performance in College Algebra. This study used descriptive research using the entrance examination in mathematics and diagnostic test, scores in the Midterm and Final examination in College Algebra to determine whether tutoring had a significant effect in the performance of the students in College Algebra.

Students were divided into two groups namely: those who attended and who failed to attend the AASEM program and based on the results of the entrance exam and the diagnostic test. Result of the scores of the Midterm and Final Examination were utilized to determine whether the intervention has taken effect.

Sample and Sampling Technique

The population of the study was composed of first year students and transferees who took the entrance examination of Letran who were enrolled in College Algebra for the SY 2006-2007. These were the students who obtained a below average or poor rating in the entrance examination in mathematics and below average rating in the diagnostic test. Purposive sampling was employed to determine the composition of the students who attended and who failed to attend the AASEM Program.

Instrumentation

The following instruments were utilized in collecting the research data: The Entrance Examination in Mathematics, Diagnostic Test, and the Midterm and Final Examination and the evaluation instrument of the AASEM program.

The evaluation instrument is used to determine the attitude of the students toward the AASEM with regard to the following factors: goals and objectives, program itself, learning activities/instructional materials, and teacher/facilitator and the over-all evaluation of the program.

Procedure

This study was undertaken through intervention of the tutorial program. The program was constantly held every Friday, 1-3 pm. It started last June 28, 2006, just right after the identification of samples

by the entrance and diagnostic test. The program ended on October 6, 2006, a week before the final examination.

In the ***Final Stage,*** the tutorial program ended. Both the Midterm and the Final examination scores of the students were taken into consideration.

The researcher compared the scores of both groups in the major examinations as basis for their performance in College Algebra obtained at the end of the semester. Statistical test as the t-test was used to determine whether or not there was a significant difference among these examinations and the final grade as well. At the end of the program, students were given a questionnaire as an assessment of the said program. This instrument determined the attitude of the students toward the program.

Statistical Analysis of the Data

The following statistical methods were used for the analysis of data and interpretation of results:

1. *Mean and Standard Deviation*

To describe the average score of the midterm and final examination, the average grade of the students in College Algebra, as well as the attitude of the students toward the program, the mean of each set of data were obtained. Also to measure the variation of the distribution of data in each of the above variables, the standard deviation was used and to measure the attitude of the students toward the AASEM Program, the general weighted mean was used.

2. *Student t-test*

To determine if there was a significant difference between the two groups with regards to the following variables: Midterm Examination, Final Examination and Final Grade in College Algebra, the t-test was used.

RESULTS AND DISCUSSION

Tutorial lessons aim to alleviate handicaps that keep such 'socially disadvantaged' children. Tutors must know the needs, problems, interests, resources, practices, and attitudes of the tutees (Chandra and Shah, 2000). The techniques of a tutor would become more effective if the following exemplary descriptions of a good tutor are emulated – provides the students learning task proportionate to their capabilities and gives them sincere encouragement.

Findings revealed a positive attitude of the students towards the AASEM Program Students who attended the program. Students agreed that all the goals and objectives set by the program were met having a weighted mean of 4.05. It also showed that they agreed that the program helped them sharpen their ability to reason with numbers, therefore, having the highest mean of 4.19. Likewise, it was further revealed that the students agreed having the lowest mean of 3.88 that the program made them more adequately prepared for major examinations in Mathematics. Moreover, the students have positive attitude towards the AASEM Program in Math with a weighted mean of 4.08. Students strongly agreed that the program addressed their academic difficulty having a mean of 4.31. In addition, students strongly agreed that they will encourage their friends and classmates to participate in the program with a mean of 4.48. In addition, the students who attended the AASEM agreed that all learning activities and instructional materials helped them to understand mathematical concepts and relationship better with a weighted mean of 3.97. They agreed that the exercises helped them develop and strengthen their basic skills with a highest mean of 4.09. And above all of these, the students who attended the AASEM strongly agreed that the teacher or facilitator was effective in handling the program with a weighted mean of 4.24. It also showed that the students strongly agreed that the teacher explained the purpose of the program and the objectives of each topic with a mean of 4.29, and the nature of activities, assessment of students' output and progress having a mean of 4.26. Likewise, students' strongly agree that they have learned many things from the teacher getting a mean of 4.31.The findings also revealed that the teacher was able to unlock students' difficulty in any given topic with a mean of 4.10.

The over-all rating of the AASEM Program has a weighted mean of 4.09 which suggested that this kind of program should be continuously implemented, thus the administrators of Letran should continue supporting this program by allowing the teachers and the students to use the facilities of Letran like the classroom, the air conditioning units, the overhead projector and as well as the LCD.

According to Patiak (2000) on his study "The Efficacy of Remedial Instruction and the Predictability of Selected Variables in the Academic Performance in College Algebra" the injection of remedial instruction to ordinary classroom session is more effective than not having remedial instruction, in increasing student's performance towards College Algebra since the posttest mean scores of the experimental group were significantly higher than the posttest mean scores of the control group.

The result of this study showed that at 0.05 level of significance with 84 degrees of freedom, the computed values were 3.80 and 4.32 that was more the tabular value of 1.96, therefore, the performance of the students in College Algebra between those who attended and those who failed to attend the AASEM Program differ significantly in both the Midterm and the Final Examination. This result was in consonance to the studies made by Patiak in which the performance of the students who attended and those who failed to attend the AASEM Program differed significantly in the Midterm and the Final Examination, then the AASEM Program improved the students performance in College Algebra.

CONCLUSION

In view of the foregoing findings, the researcher presents the following conclusions:

1. Since the scores in the Midterm Examination of the students who attended the AASEM Program were significantly higher than those who failed to attend, it is then concluded that the tutoring program is effective in improving the performance of the students in College Algebra.

2. Since the scores in the Final Examination of the students who attended the AASEM Program were significantly higher than those who failed to attend, it is then concluded that tutoring program is effective in improving the performance of the students in College Algebra.

Thus, it is highly recommended that an Academic Assistance in Mathematics should be part of the educational process and tutoring is one of the strategies that will help the students improve their performance. Since mathematics is inherently difficult, the Mathematics teachers should give their weak students time and attention in order for these students to learn different strategies and techniques in dealing problems in Mathematics.

REFERENCES

Bricker, Benjamin. et al. Taxonomy of Educational Objectives. New York: Mc Graw Hill, 1998.

Chandra, Arvinda and Shah, Anupama. Non-Formal Education for All, Rex Bookstore, Manila, Philippines

Patiak, Benjamin Patrick Jr., "The Efficiency of the Remedial Instruction and the Predictability of Selected Variables in the Academic Performance in College Algebra", PLM, October 2000.

Simpson, Dorothy "Mathematics Strategies for Secondary Students with Lear Learning Disabilities." Intervention in School and Clinic November 1995, pp. 91-96.

Steele, Marce M. and Steele, John W. "Teaching Algebra to Students with Learning Disabilities." Mathematics Teacher, Volume 6 No. 9, December 2003.

Tenedero, Henry. "Learning with other people (Breakthrough in Education), Manila Bulletin June 6, 2002.