DEVELOPING AN ENHANCEMENT PROGRAM IN MATHEMATICS STUDY HABITS FOR GRADE 7 STUDENTS IN SAN MANUEL, ISABELA, PHILIPPINES

Andrea E. DESCARGAR
Callang National High School
San Manuel, Isabela
descargar_andrea@yahoo.com

Roldan S. CARDONA
Philippine Normal University
North Luzon Campus
Faculty of Teacher Development
cardona.rs@pnu.edu.ph

Abstract: Students fail because they do not know how to study and the study habits of students 30 years ago still rings true today (Pogue, 2000). This descriptive study is aimed at revisiting and investigating the study habits and mathematics performance of 108 randomly selected Grade 7 students from the three public schools of the Municipality of San Manuel, Isabela, Philippines. It utilized questionnaire, observation and group interview as data-gathering instruments. To enrich the data, four teachers and 70 parents were also interviewed. Data were processed using frequency and percentage distributions, mean, standard deviation, One-Way Analysis of Variance (ANOVA) and *t*-test, post-hoc analysis using Scheffe and effect size using eta square η^2, and regression analysis. Findings revealed that students perceived study habits as a great factor in attaining excellent academic performance; however, teachers perceived students nowadays to have poor study habits. Meanwhile, parents opposed teachers' perception affirm their children's claim. Furthermore, students' academic performance in mathematics is adequately explained by their study habits and mothers occupation. Consequently, the researcher proposed an enhancement program for the schools to adopt to improve students' performance and study habits in mathematics.
Keywords: *Study habits, math performance*

INTRODUCTION

Mathematics is a part and parcel of everybody's living. It has become augmenting and enriching in almost all fields of human undertakings making it a much sought-after subject to get to grips with and learned. This holds especially true to these days where sophistication in all aspects has taken its spot, placing mathematics as a chief concern in the educative process. This is further intensified by the use of electronic gadgets where usages are mostly tied to numbers; thus demanding one's skills in the manipulation of numbers. This has to be; subsequently the target in learning mathematics is to be able to get to the bottom of problems in real life situations.

Hence, with the demands of the society in the impact of scientific and social vicissitudes, and with the depleted performance of the students in major subjects, it is a necessity to make every effort and cope up with the crazes that are taking place not only for the students in the classroom but everyone who has a hand to run into the changes. Every personage must be effective, efficient, intelligent, creative and productive member of the society to come across the indispensable needs for existence brought about by many changes in scientific technology and mathematical experiences.

Students' degree learning in academics may be concluded by the grades a student merits for a period of learning. It is presumed that a grade is a prime gauge of such learning. If a learner earns high grades, it is may be that he has learned a lot; low grades point toward lesser learning. However, many experiences and studies found out that there are also quite a lot of factors that would account for the grades. No single factor can be absolutely pointed out as predicting outcome of grades. It has been a link of many factors such as gender, Intelligence Quotient (IQ), study habits, age, year level, parent's educational attainment, social status, number of siblings, birth order, etc. In fact, almost all of existing environmental and personal factors are variables of academic performance.

Nonis and Hudson (2010) specified that, it is not only the general ability that students bring to a class that contributes to their academic achievement. Several studies (as cited by Hudson, 2010) have investigated and

found that demographic variables, such as gender, age, and race (Beaumont-Walters & Soyibo, 2001; Haist, John, Elam, Blue, & Fosson, 2000; Wong, 2000); psychological variables, such as academic self-efficacy (Bouffard-Bouchard, Parent, & Larivee, 1991); motivation (Barling & Charbonneau, 1992); optimism (Schulman, 1999); and behavioral variables, such as time management skills (Paden & Stell, 1997), relate to student performance. What's missing from these surveys are the study habits or strategies that students use to learn, such as paying attention in class, being on time, taking good notes, completing homework in a timely manner, and reading the study materials before a lecture, that are apt to impact their performance.

Hadley (1992) added that, all students are adept of learning mathematics but the leading barriers are their mistaken beliefs, prejudices, low expectation and fallacies as regards to mathematics. In order to enhance their mathematical skills, students must exhibit suitable study habits that will commendably result in a great performance in mathematics.

Study habits are well-worth the time spent in integrating into one's life since these habits save so much time and effort in the long run. They allow for more success and confidence and this way is invaluable (Holt, 2007). Study habit is the tendency of student to learn in a systematic and efficient way, when opportunity is given. It is also defined as the devotion of time and attention to acquire information or knowledge especially from books. In short, it's the quest of academic knowledge by a thorough investigation of a subject or situation (Oxford Dictionary &Thesaurus of English Language, 2003). Good students are not born but are made by incessant and purposeful drill of good study habits, for which there is no alternative (Ames & Archer, 1988). Thus, it is vital to perk up study habits of students to advance their academic performance. Enhancement of good study habits in children hinges on the shared exertions of parents and teachers (Kizlik, 2001).

Customarily, Tuckman (2008) also researched on an educational psychology-based "study skills" program initially developed to teach learning and motivation schemes to college students and was revised for use by high school students. It engaged teaching students for achievement approach. The strategies and habits were brought into play to teach students to prevail over procrastination, foster self-confidence and responsibility, handle their lives, learn from lecture and text, and make ready for examinations. The training was granted as a course taught utilizing a blended technology-based instructional model called Active Discovery and Participation through Technology (ADAPT). Students who took the training course obtained substantially higher grade point averages in divergence to a matched group, during the term they took the course.

Granting that not every learning strategy or study habit gives off beneficial results in terms of academic achievement, it would be foreseeable that students who hold good study habits in general are better performers than those students with poor study habits (Nonis and Hudson, 2010).

Although not every learning strategy or study habit produces useful results in terms of academic achievement, it would be expected that students who possess good study habits in general are better performers than those students with poor study habits (Nonis & Hudson, 2010). Teachers and parents are concerned with how they can make changes in order to motivate and boost the learners to learn a particular subject. Furthermore, students can also strengthen the education they want to attain by building a sense of responsibility in learning the subject and through possessing such things as good and effective study habits that can help them acquire high and successful performance.

The K-12 implementation in the Philippine Basic Education Curriculum is the key to our nation's development. Though the government will encounter varied problems of it, sooner or later, there really is a need to instigate for the enhancement of the quality of our education because it is very pressing and crucial (Burgonio, 2013).

Students' low performance in major subjects especially in mathematics prompted the researcher to trail an academic attempt of enhancing study habits and performance in mathematics of Grade 7 students. As perceived by the researcher and other teachers, students in the National High Schools in San Manuel have poor study habits specifically in mathematics subject. This study then aims to bring forth a program plan designed for the subject to guide the teachers, guidance counselors, students and parents in enhancing the study habits of students towards mathematics. In line with this, the researcher investigated the extent of study habits and the factors affecting the Mathematics performance of the Grade 7 students of National High Schools of San Manuel, Isabela.

Thorndike's Law of Exercise further sustains this kind of principle contending that, other things being equal, the more frequent a modifiable connection between a situation and response is used, the stronger is the connection. When a modifiable connection between a situation and a response is not being used over a period of time, the strength of that connection is weakened. A behavior that is stimulated over regular periods will tend to be repeated leading to habit formation. A student who has developed this kind of behavior of having regular and scheduled study periods and follows certain methods in studying, proves to have better performance.

Most people thought that the number of hours spent in studies is considered the most important. However, students could study for hours, but little of what had been studied retains. The more appropriate question is, "how can students study more effectively?" There are some issues that students must consider: 1.) Students need to develop good time management skills. 2.) Students should a clearly articulate picture of the

future they intend to create for themselves. 3.) The student must choose the best study schedule, where there is little distraction; 4.) The students must take notes on the subject matter and rehearse them frequently; 5.) Students should not study for hours, 6.) The students must develop good critical thinking skills,; and 7. Students must not be afraid to ask for help when they have a problem on understanding the subject matter (Establishing Good Study Habits, February, 2009). These are the mathematics study habits that would boost the learning and performance of the grade 7 students.

Thus, it is not so much a question of hard study, but how to study in smart fashion. The bottom line is that the students must take responsibility and ownership over their study habits.

The study will focus on the mathematics study habits of the students and their influences to the mathematics performance of the student. In this view, the researcher sought to study how the study habits affect the academic performance of the students in mathematics.

The researcher piloted this study to probe and assess the diverse study habits of the Grade 7 students specially that the K to 12 curriculum has already been put into operation. The researcher desires to know if the students possess the necessary study habits that would improve their learning and performance specifically that the Grade 7 who are the first target of the curriculum change. With this in mind, the researcher anticipates to come up with comprehensive report findings which could be utilized to devise an intervention program that would enrich study habits of students and eventually lead to positive results as far as their performance is concerned.

THE STUDY

In this study, descriptive type of research design was applied. It employed the dimensions of both quantitative and qualitative approaches. The respondents of the study were drawn from three (3) National High Schools of San Manuel, Isabela. There were 108 Grade 7 students, 56 were taken from Callang National High School; 36 were taken from Sandiat National High School; and 16 from Malalinta National High School. The four teacher respondents are those who, during the school year 2012-2013, are teaching mathematics in the said schools. The 70 parent-respondents were taken from the parents of the 108 students respondents through convenience sampling.

Prime tool which was used in the data gathering was a structured questionnaire which comprises two major components. The first part is the descriptive survey on the profile of the students relative to educational attainment of parents, monthly income of parents and occupation of parents.

The second part of the instrument is a questionnaire which is characterized by the three types of item construction as well as a selected response format of a Likert scale. The questionnaire was adapted from the questionnaire used by Payoyo (2000) which is anchored from Wren's Study Habits Inventory, a standardized instrument for identifying the study habits of the students. The questionnaire is in English language. For this purpose, the questionnaire was refined with a pre-testing, and test of validity and reliability of variables.

Content and face validation were steered to ascertain if the sample of items represents appropriately, comprehensively and adequately the content criteria in resolving the mathematics study habits that influence mathematics performance. It also aims to conclude the appropriateness of the format, if directions and items are clear, intelligible and within the comprehension level of the respondents. Content and face validation of the instrument were appraised by an expert panel. A panel of five experts was invited to go through the instrument for content validity. A cover letter enclosing an explanation of the purpose and objectives of the study and a copy of the instrument were prearranged to each expert. Critiques obtained from the panel of experts led to the instrument's clarity.

After revision and scrutiny of the results, the questionnaire was over and done with for the reproduction. The remarks and notes drawn from the pre-testing as well as suggestions from the experts were assimilated in the concluding draft of the questionnaire, after which the reproduction and distribution were done.

For the intention of piling up qualitative data in the study, semi-structured interview was put to use. Each interview was transcribed exactly as recorded. This transcription route aided as a written manuscript of the interview dialogue. After recording the interview, the researcher verified the transcription for precision by listening to the audio tape again and reading the transcribed notes.

FINDINGS

Profile of the respondents.

The student-respondents have satisfactory study habits on note-taking, concentration and interest, and reading, memorizing and reviewing while they have poor study habits at home, in the library, and in using technology. As to parents' educational attainment, majority of the respondents' fathers and mothers reached high school level. As regard the average monthly income of parents, most of them are earning Php 4,999 and below per month while the least was recorded at Php15,000 and above for fathers and Php20,000 and above for mothers. As to parents' occupation, majority of fathers are farmers, fishermen or carpenters while most mothers

are unemployed or housekeepers. The teachers' performance was found to be very satisfactory based from their performance appraisal. The students however perceived their teaching instructional competence to be satisfactory.

Students' performance in mathematics.

As to the level of performance of the students, they are proficient in process and skills, performance, and knowledge while they are in the approaching level in understanding. On the levels of performance in every levels of assessment, most of the students were proficient in performance, understanding, and process and skills while advanced in knowledge. On the other hand, the least number of students were under the beginning level across all assessment level.

Perception of students, teachers and parents about mathematics study habits.

The student-respondents perceived that study habits help in dealing with their mathematics class and in attaining excellent academic performance and these habits include reading, reviewing and memorizing. All of the teacher-respondents perceived that most of the students nowadays have poor study habits. According to them, poor study habits of students is reflected in their performance and in the result of a paper-pencil test and in their habit of not doing their assignments. They also added that good study habits are of great help in improving one's academic performance. Students with good study habits perform better and got high grades while students with poor study habits have also poor performance. Majority of parent-respondents perceived that their children have good study habits while only a few perceived that their children have poor study habits. According to parents, good study habits help the students understand mathematics lesson, prepare every student to become active in class discussion and it will lead them in finishing their studies.

Mean difference on mathematics study habits when grouped by students' profile variables.

There exists significant difference among the following set: educational attainment of father and habits of using technology; and occupation of father and habits of concentration and interest, note-taking and listening, reading, memorizing and reviewing and habits of library, $p < .05$, medium effect.

Mean difference in mathematics performance when grouped by mathematics study habits.

There exists consistent difference of students' mathematics performance across all levels of assessment when students are grouped according to their habits of concentration and interest and habits of reading, memorizing and reviewing. Except for the level of knowledge, students are significantly different in performance when grouped according to habits of note-taking and listening and mathematics study habits in general, $p < .05$, medium effect. The post hoc analysis revealed that those who have poor study habits are at disadvantage.

Predictors of mathematics performance.

Students who were at least proficient have significantly better mathematics study habits than those who were not at least proficient.

Specifically, all of the study habits included in the present study except the last two; habits of using technology and general habits at home predicted generating total adjusted R-square values of around 3%-12%. Delving on each indicator per dimension, two per categories emerged to predict mathematics performance of students.

Proposed enhancement plan

After the results were generated, a proposed enhancement program is presented to help enhance students' performance through improving their study habits in mathematics.

CONCLUSIONS

Students' mathematics study habits in general are acceptable and satisfactory. The parents of the student-respondents belong to the low to middle bracket of Philippine society while he teachers of the student-respondents are instructionally capable. Furthermore, students have relatively proficient academic performance in mathematics and they perceived study habits as a great factor in attaining excellent academic performance; however, teachers perceived that most of the students nowadays have poor study habits; while parents opposed teachers' perception affirming that their children have good study habits. It is also concluded that the role of parents in the improvement of students' study habits in mathematics is an integral component. The students' performance in mathematics is modestly explained by their study habits in mathematics and the parents' contribution. The findings suggest that study habits in mathematics should be seen in multidimensional perspectives and that an enhancement program should include the stakeholders of education which include among others the teachers, students, parents, and the community.

REFERENCES

Ames, R. & Archer, J. (1988). Achievement goals in the classroom: Students learning strategies and motivation process. *Journal of Psychology*, 80, 260-267.

Barling, J. & Charbonneau, D. (1992). Disentangling the relationship between the achievement striving and impatience-irritability dimensions of type A behavior, performance, and health. *Journal of Organizational Behavior*, 13, 369-367.

Beaumont-Walter, Y. & Soyibo, K. (2001). An analysis of high school students performance on five integrated science process skills. *Research in Science and Technology Education,* 19, 133-145.

Bouffard-Bouchard, T., Parent, S. & Larivee, S. (1991). Influence of self-efficacy on self regulation and performance among junior and senior high school age students. *International Journal of Behavioral Development*, 14, 153-164.

Burgonio, T. J. (2013, May 16). K-to-12 education now a law. *Philippine Daily Inquirer*. Retrieved from http://newsinfo.inquirer.net/409755/aquino-signs-education-reform-law

Frank, Pogue. (2000). Time Management: A process mode. *Journal of Applied Psychology,* 79(3), 381-391.

Hadley, W. (1992). The Mathematics Teacher. New York.

Holt, J. S. (2007). *Study habits for lifetime*. Retrieved from http:// www.spidersburn.com/smart section.Item.14/ study habits 4-4 lifetime, html.

Kizlik, R. D. (2001). *ABC of academic success*, London: Harper & Co.

Nonis, S. A. & Hudson, G. I. (2010). Performance of college students: Impact of study time spent and study habits. *Journal of education for Business*, *85*(*4*), 229-238.

Oxford Dictionary & Thesaurus of English Language (2003) Oxford: Oxford University Press.

Paden, N. & Stell, R. (1997). Reducing procrastination through assignment and course design. *Marketing Education Review*, 7(Summer), 17-25.

Payoyo, E. J. (2000). *Study habits and academic achievements of the grade VI pupils of Piat Distict* (Unpublished Master's Thesis). University of La Salette, Santiago City.

Schulman, P. (1999). Applying learned optimism to increase sales productivity. *Journal of Personal Selling and Sales Management*, 19, 31-37.

Tuckman, B. W. (2008). *Evaluating a program for enhancing the study skills and academic performance of urban high school students*. Retrieved from http://www.dennislearningcenter.osu.edu/references/Tuckman%20final%20paper- AERA07.htm

