Difficulties Encountered by Grade 8 Students in Using Mathematics SLMs

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Abstract — This study looked into the difficulties encountered by students' in using Mathematics Self Learning Modules (SLMs) in relation to the performance of Grade 8 students in Dipolog City National High School during the third quarter of the School Year 2020-2021. The descriptive correlation method of research was employed utilizing the standardized questionnaires. Data were gathered from the sample of 136 Grade 8 students coming from six (6) sections in Dipolog City National High School .Frequency count, percentage distribution, weighted mean, and chi-square were the statistical tools used in treating the data gathered. Ninety of the Grade 8 students respondents were 14 years old . Eighty of the respondents were females. The difficulty of the students in using Mathematics Self Learning Modules is somewhat difficult in personal difficulty and emotional difficulty, difficult in terms of social difficulty. Their performance was approaching proficiency. There existed a significant relationships between the students' difficulties encountered and their performance in the subject.

Keywords — SLMs, Difficulties, Performance

I. Introduction

Learning is in the form of individualized instruction that allows learners to use Self Learning Modules (SLMs) in print or digital format/electronic copy, whichever is applicable in the context of the learner and other learning resources like learner's materials, textbooks, activity sheets, study guides and other study materials.

Self-learning modules are self-contained unit or package of student materials for use by individual where the learner is free to choose what to learn, how to learn, when to learn and where to learn. The use of Self Learning Modules encourages independent study. One of the benefits of using modules for instruction is the acquisition of better self-study or learning skills among students. Students engage themselves in learning the concepts presented in the module. They develop a sense of responsibility in accomplishing the tasks provided in the module. With little or no assistance from others, the learners progress on their own. They are learning how to learn; they are empowered (Nardo, M.T.B,2017).

In Self Learning Modules the students will answer multiple subjects like English, Filipino, Mathematics, Science, Aral Pan, T.L.E, ESP, and MAPEH. Among these subjects, the students find Mathematics as formidable, difficult or impenetrable. The students find it hard to answer the questions and activities present in the Mathematics Self Learning Modules.

It is commonly accepted that Mathematics is difficult, obscure, and of little interest to certain people. The study of Mathematics carries with it a stigma and people who are talented in Mathematics are often treated as though they are quite normal.

Mathematics has importance over and above the application of basic numeracy skills. It is also the prime vehicle for developing student's logical thinking and higher-order cognitive skills. Mathematics also plays a major role in a number of other scientific fields such as physics, engineering and statistics.

In this connection, a positive attitude towards Mathematics among students is an important goal of mathematics education in many jurisdictions.

Mateo (2011), the teacher is the most critical factor in attaining quality education and the single most potent element in the complete structure of an effective ,mathematical program. The teacher takes the responsibility of monitoring the progress of the learners. The learners may ask assistance from the teacher via email, telephone, text message /instant messaging among others. Where possible, the teacher shall do home visits to learners needing remediation or assistance (Llego,n.d.)

Along this context, the researcher was prompted to undertake the study because the students difficulties encountered in using Mathematics Self Learning Modules must be corrected and therefore rectified earlier as possible in order to raise the performance in Mathematics. In a fast changing world bringing about myriad of challenges and changes students have to be prepared of all kinds of eventualities that will probably threaten their existence. Identifying the causality of the weak foundation in the subject must be determine and must be given to avert its adverse effect.

Moreover, the students difficulty in understanding and internalizing basic concept and principles as well as mastering the skills in solving problems prompted the researcher to undertake the study and how the students cope up with these difficulties.

Literature Review

The increasing recognition of the importance and economic utility of Mathematics and its cultural significance cannot be overemphasized today, Consequently, the promotion of favorable attitudes towards Science and learning Mathematics becomes extremely critical as there is a noticeable decline of interest in the subject by young people.

Early literature suggest that the school-related variables are important to the development of students' attitude in Mathematics. Among the students' factors, attitude is regarded by many researchers as a key contributor to higher or lower performance in mathematics, (Ngussa & Mbuti, 2017). Attitude refers to a learned tendency of a person to respond positively or negatively towards an object, situation, concept or another person (Sarmah & Puri, 2014). Attitudes can change and

develop with time (Syyeda, 2016), and once a positive attitude is formed, it can improve students' learning (Mutai, 2011).

On the other hand, a negative attitude hinders effective learning and consequently affects the learning outcome henceforth performance (Joseph, 2013). Therefore, attitude is a fundamental factor that cannot be ignored. The effect of attitude on students' performance in mathematics might be positive or negative depending on the individual student.

Several studies have demonstrated that attitudes towards mathematics are directly and significantly associated with students' performance. For instance, Mensah and Kurancie (2013) conducted a study in Ghana and found a significant positive correlation between students' attitude and performance.

The weak students cannot demonstrate mathematical literacy in situations which may impede their functioning in society and economic environment (Wisniowski,2014). Mathematical competence has been identified as one of the competencies essential for personal fulfillment, active and productive citizenship, social belongingness and employability in the modern society. If students do not acquire and possess these much needed competencies for life, then inevitably they will not possibly be very successful in personal and professional life.

Emotions directly influence undesirably the respondents' ability and interest in achieving mathematics competencies because of differences in personality, cognitive level, and development. In the emotional dimension, the high achievers were highly motivated and more persistent; they were highly motivated/ teacher dependent.

Self Learning Modules prove to be a boon for students due to their enriched features. They perform the role of an efficient teacher. Students become independent thinkers and learn to accept responsibility. • Self-learning modules give the opportunity to develop a good work ethic. . Along with it, knowledge through Self Learning Modules also helps to inculcate self-study habits and self-confidence among students which are very much essential to enhance learning.

Self learning modules are designed to provide with a solid knowledge base and actualize learning experiences. They aim to enhance students' long-term learning by allowing them to: - pace and monitor your own learning - frame the materials/concepts in your own terms - Come up with your own examples of the concept and their application to teaching-learning process and everyday life.(Jogan, 2016).

The teacher serve as a facilitator of learning to provide basic information about each topic and to structure the course so that they will most likely learn from the materials and the tasks. But the final output will depend on students' own efforts.

II. Methodology

This study employed descriptive correlation research utilizing the questionnaire technique. According to Calderon as cited by Alberto, et. Al (2011), descriptive method is also known as statistical research, it describes data and characteristics about the population or phenomenon being studied particularly on the difficulties encountered in Mathematics in using Self learning modules. It is also correlational because it attempted to show relationship between independent and dependent variable used. According to Creswell (2012, p.338) correlational design describe the measure of degree of association (relationship) between two or more variables or set of scores.

The respondents of the study were the 136 Grade 8 students from the six (6) sections of Grade 8 of Dipolog City National High School from the total population of 207 using Slovin's formula.

The study utilized standardized questionnaires on Revised Fennema-Sherman Mathematics Attitude Scale. The standardized scale contained 45 statements reflecting their attitude towards Mathematics. The items were grouped in terms of personal difficulty, emotional difficulty and social difficulty. To determine the level of difficulty in using Mathematics Self Learning Modules the five point Likert type scale format was used. After all the questionnaires were retrieved, the data were tallied and tabulated, and further statistically treated using frequency count, percentage, weighted mean and chi-square test.

III. Results and Discussion

Table 1   Profile of the Students in Terms of Age

Age	Frequency	Percentage (%)
13	35	21.73
14	90	66.17
15	6	4.41
16	5	3.67
Total	S= 136	100%

The table presents the percentage distribution of the respondents' profile in terms of age. It can be seen in the table that 5 0r 3.67% of the students belonged to the 16 years, only 6 or 4.41% were 15 years old, while 35 or 21.73% belonged to age 13, and finally 90 or 66.17% of the students were 14 years old .This indicates that the age of students in Grade 8 were 14 years old. This proves that the students go to school at the right age based on the grade level that they enrolled. It is therefore concluded that among the High School Students, those who often experienced difficulties in Mathematics mostly students at that age.

The findings mean that the students were in adolescent stage. This implies that disoriented with the new face of the world and they feel somehow bewildered with themselves and eventually tend to become harsh. They have the interest in inter-acting with peers during learning activities. They move from concrete to abstract thinking and seek more responsibility both at home and at school. The findings supported by (Meece & Eccles, 2010) who explained that during adolescence stage the students expected to get to and from classes on their own, manage time wisely, organize and keep up with materials for multiple classes, be responsible for all classwork and homework from multiple teachers, and at the same time develop and maintain a social life. Students are trying to build new friendships and maintain ones they already have. Peer acceptance is particularly important.

Table 2   Profile of the Students in Terms of Gender

Age	Frequency	Percentage (%)
Male	56	41.17
Female	80	58.82
Total	136	100%

As presented in the table, 56 or 41.17% were males 80 or 58.82% were females. This shows that a large percentage of the respondents were females. Thus, more than half of the population was dominated female.

The result clearly stated that nowadays majority of the students who were persistent in their studies were women. It is therefore concluded that among the High School students, those who have difficulties in Mathematics are mostly women. It can affect to their academic performance.

It is corroborated by Fernandez (2012), she revealed a great majority of respondents at 71.82% were females. Along this line, it cannot be argued that mostly female attended to school as compared to male counterparts. It is best concluded that female counterparts were positive enough to pursue their college even without the presence of money. In the long run, they become successful because they are resourceful and can find means in order to survive and finish studies in all means. This evident most women are patient and can understand the financial crisis experienced by families.

Table 3 Students' Difficulty in Mathematics

Indicator	Weighted Mean	Interpretation
Personal Difficulty		
1. Interested in Mathematics Subject	2.881	Somewhat Difficult
2. Positive Attitude towards the subject	3.180	Somewhat Difficult
3. Can get good grades in Mathematics	2.981	Somewhat Difficult
4. Being away from parents, siblings and other relatives	3.212	Somewhat Difficult
5. Developed critical thinking in solving the problems	2.861	Somewhat Difficult
6. Useful for my future work	3.553	Difficult
7. Resourceful in answering the problem	3.424	Difficult
8. Mathematics is easy subject	2.951	Somewhat Difficult
9. Can do well in Mathematics	3.361	Somewhat Difficult
10. Answered the SLM on myself	3.012	Somewhat Difficult
11. The teacher is concern in the progress of Mathematics SLM subject	3.541	Difficult
12. The teacher will communicate the parents/guardians	3.421	Difficult
13. The teacher will have immediate feedback on the performance of the students	2.962	Somewhat Difficult
14.The teacher is responsible in helping the students to feel that the subject is penetrable.	3.492	Somewhat Difficult
15. Strive harder to make my parents proud	3.283	Somewhat Difficult
Average Weighted Mean	3.208	Somewhat Difficult
Emotional Difficulty		
1.Motivated in doing Mathematics activities	3.071	Somewhat Difficult
2.High self-esteem or believing on one' Capabilities	3.102	Somewhat Difficult
3.Feeling of security	3.113	Somewhat Difficult
4.Feeling of maturity	2.992	Somewhat Difficult
5.Confident to solve Math problem	2.764	Somewhat Difficult
6.Motivated to explore more	3.122	Somewhat Difficult
7.Establish desirable relationship with parents and siblings	3.341	Somewhat Difficult
8. Understand the Activities given in the SLM	3.301	Somewhat Difficult

9.Active in doing Math in the SLM	3.531	Difficult
10. Handle more easy in Mathematics	3.272	Somewhat Difficult
11.Independent in solving Math problem	3.293	Somewhat Difficult
12. Smart to solve Mathematics problems in SLM	3.004	Somewhat Difficult
13.Women can do just as well as men in Mathematics	2.981	Somewhat Difficult
14.More faith to solve Math problems	3.361	Somewhat Difficult
15. Male and female could be genius in Mathematics	3.014	Somewhat Difficult
Average Weighted Mean	3.151	Somewhat Difficult
Social Difficulty		
1.Answer the SLM modules with the help of the friends and peers.	3.992	Somewhat Difficult
2. Make the activities in the modules with the help of the family members.	3.842	Somewhat Difficult
3.Doing household chores for family.	3.541	Difficult
4. Less academic tasks and projects assigned.	3.551	Moderately Difficult
5. Determined to do the activities in the SLM	3.421	Somewhat Difficult
6. Encourage to answer the SLM when the parents is supportive	3.022	Somewhat Difficult
7. Responsible in taking care of my brothers/sisters.	2.980	Somewhat Difficult
8.Parents lack knowledge to assist their child/children	3.431	Difficult
9. Listen to my parents advises and encouragement	3.422	Difficult
10. Independent on myself.	2.961	Somewhat Difficult
11. Ability to give clear directions and logical explanations.	3.893	Difficult
12. Sufficient examples is given in the SLM.	3.631	Difficult
13.Questions and activities are properly distributed in the SLM.	3.552	Difficult
14.Relate the lesson in the actual life situations.	3.482	Somewhat Difficult
15. Recognize the value of lifelong learning.	3.473	Difficult
Average Weighted Value	3.479	Difficult
Overall Average Weighted Value	3.279	Somewhat Difficult

The table reveals that the difficulty of student-respondents in Mathematics using SLMs is somewhat difficult. This obtained an over-all weighted value of 3.279.

The level of difficulty is "somewhat difficult" in personal difficulty with an average weighted value of 3.208. Item 5 "Developed critical thinking in solving the problems", obtained a weighted value of 2.861, which is the lowest weighted value and is described as "somewhat difficult". Item 11 "The teacher is concern in the progress of Math SLM subject " obtained a weighted value of 3.541. Lastly, Item 6 " Useful for my future work" has a weighted value of 3.553 described as difficult and has the highest weighted value.

On the other hand, on the emotional difficulty the average weighted value is 3.151 described as "somewhat difficult". ". Item 13 "Women can do just as well as men in Mathematics" obtained a weighted value of 2.981 described as "somewhat difficult". Item 7 "Establish desirable relationship with parents and siblings" obtained a weighted value of 3.341 described as "somewhat difficult". Item 9 "Active in doing Math in the SLM" obtained a weighted value of 3.531 described as "somewhat difficult".

On the 3rd perspective which is social difficulty, it was obtained an AWG of 3.479 which is "difficult". Item 10 "Independent on myself" obtained a weighted value of 2.961 which is described as " somewhat difficult". Item 11"Ability to give clear directions and logical explanations" obtained a weighted value of 3.893 described as "difficult". Item 1" Answer the SLM modules with the help of the friends and peers " obtained a weighted value of 3.992.

Base on the result, it is perceived that the respondents difficulty in personal and emotional is somewhat difficult and difficult in terms of social difficulty.

The result of this study is best supported by (Salma & Rodrigues, 2012).Problem Solving does not only include and require computation but there is a need to understand and analyze the problem, it is important that students comprehend the problems.

According to Aclon, et. al., (2013) that students lacked positive attitude in mathematical problem. This implies that students continually find problem solving in Mathematics difficult for they have no appropriate attitude to deal with the subject.

The behavioral aspect of attitude is the tendency to respond in a certain way towards learning mathematics (Mensah et al., 2013). Students feeling is confident in doing mathematics is linked with being successful in mathematics, which is regarded as a positive behavior. If students are not confident in doing mathematics, they may not experience success, and unsuccessful behavior is regarded as negative feelings. When students see the importance of mathematics in real lives, they feel engaged, confident and connected to their learning (Attard, 2012).

The result supports the idea that parents should make their children feel they are understood, cared for and well-provided financially because being away from the family is difficult for them.

Table 4 Students' Performance in Mathematics

Grade Range	Frequency	Description
90% and above	15	Advanced
85-89%	21	Proficient
80-84%	80	Approaching Proficiency
75-79%	20	Developing
74% and below	0	Beginning
Mean Grade	83.071	Approaching Proficiency

Table 5 reflects the performance of the students in Mathematics. It discloses that that the over-all performance of students in Mathematics obtained the mean of 83.071 which is described as "approaching proficiency". It can be gleaned from the table that no respondents has grade that falls within the range 74% and below described as " beginning", fifteen (15) respondents grade were the range of 90% and above which is described as " advanced". Twenty (20) respondents have grades within the range of 75-79% described as " developing", Twenty one (21) respondents have grades within the range of 85-89% described as " proficient", and Eighty (80) respondents have grades within the range 80-84% described as " approaching proficiency".

This means that the age of 14, the students are not considered beginners anymore, because their performance on the subject is described as approaching proficiency. They are slightly advanced in terms of mathematical ideas and eventually portrayed proficiency with regards to Mathematics.

This findings is corroborated by (Gold et al. (2012) Most of the studies analyzing achievement related relative age effects at the beginning of formal schooling have found that relatively older students perform better academically than relatively younger students: For German students, the effects in favor of older students for reading in Grade 1 but similar achievement already by Grade 2. A study by Kawaguchi (2011) states effects in favor of older students in Grade 4 mathematics in Japan.

Table 5 Significant Relationship between the Students' Difficulties in Mathematics in Terms of Personal Difficulty, Emotional Difficulty, and Social Difficulty and Their Performance

Factors Compared	Personal Difficulty				
	α	p-value	x^2	Interpretation	Action/ Decision
Mathematics Performance	$\alpha = 0.05$	.000017	18.4709	Significant relationship at $p < .05$	H$_0$ was rejected
Factors Compared	Emotional Difficulty				
	α $\alpha = 0.05$	p-value .000038	x^2 16.98	Interpretation Significant relationship at $p < .05$	Action/ Decision H$_0$ was rejected
Mathematics Performance					
Factors Compared	Social Difficulty				
	α $\alpha = 0.05$	p-value .013769	x^2 6.0675	Interpretation Significant relationship at $p < .05$	Action/ Decision H$_0$ was rejected
Mathematics Performance					

Table 5 shows the test of significant relationship between the students' difficulties in Mathematics in terms of personal difficulty, emotional difficulty and social difficulty and their performance in Mathematics using Self Learning Modules. In personal difficulty, it reveals that the p-value of 0.000017 is less than the 0.05. This leads to the rejection of the null hypothesis. Thus, there is a significant relationship between the students' difficulties in Mathematics in terms of personal difficulty using SLMs and their performance on the subject. The p-value of 0.000017 discloses the fact that the students' difficulty in Mathematics is directly related to their performance on the subject.

Then again, in emotional difficulty the p-value of 0.000038 is less than 0.05. This leads to the rejection of the null hypothesis. Therefore, there is a significant relationship between the students' difficulties in Mathematics in terms of emotional difficulty using Self Learning Modules and their performance on the subject. The p-value of 0.000038 discloses the fact that the students' difficulty in Mathematics is directly related to their performance on the subject.

Diversely, in social difficulty the p-value of 0.013769 is less than 0.05. This leads to the rejection of the null hypothesis. Therefore, there is a significant relationship between the students' difficulties in Mathematics in terms of social difficulty using Self Learning Modules and their

performance on the subject. The p-value of 0.013769 discloses the fact that the students' difficulty in Mathematics is directly related to their performance on the subject.

The findings was corroborated by Lang Chen (2018) positive attitude towards Math predicts Math achievement in students. When student display a positive attitude towards Math, improvement can be seen in emotions, motivation, confidence, engagement, working memory and numerical processing.

Moreover, the findings was supported by Wongwanich, et. al., (2015). These findings are important to students' problem solving process and it will lead to the development of mathematical problem solving diagnostic test.

IV. Conclusion

The study reveals that the level of difficulties in Mathematics in using Self Learning Modules is somewhat difficult in terms of personal difficulty and emotional difficulty and difficult in terms of social difficulty. The students performance in Mathematics is approaching proficiency. There is a significant relationship between the difficulties encountered by the students in relation to their performance in the subject.

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