

# Mathematics Achievements of Grade-8 Students in Modular Learning Modality: Impact on their Attitudes and Parental Involvement

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**Abstract:** The aim of this study is to investigate the impact of mathematics achievement of grade-8 students in modular learning modality on the attitudes of the grade-8 students in terms of happiness, interest, and enthusiasm and the impact of mathematics achievement on the parental involvement in terms of support and assistance. 50 grade-8 students belong to section A were utilized in MSU-Sulu Laboratory High School and their parents. The grade-8 students have answered questionnaire on their attitudes when the achievements are low, moderate and high. The researcher grouped the mathematics achievement according the average grades bracket such as 90-above as high achiever, 85-89 as moderate achievers and 75-84 as low achievers. Weighted Arithmetic Mean was used to determine the average grade. Pearson Product Moment Correlation Coefficient was used to determine the impact of the achievements on the attitudes of students and parental involvement. (10)20% of the students are high achievers, (26)56% are moderate achievers and (14)24% are low achievers. The high achievers are very happy, highly interested and very enthusiastic answering their modules. The moderate achievers are happy, interested and enthusiastic to answer their module. The low achievers are moderately happy, moderately interested, and moderately enthusiastic in answering their module. The hypothesis is rejected, there is positive high correlation between high, moderate and low achievers grade-8 students in terms of happiness, interest and enthusiasm. The parents highly supportive and exert more assistance to the high achievers, moderately supportive and exert less assistance to the moderate and low achievers. The hypothesis is rejected, there is positive high correlation between the achievements of the grade-8 students and parental involvement in terms of support and assistance. The study recommended to strengthen the follow-up orientation for both parents and students to enhance positive attitudes regardless of the level of achievements of the students. The parents should strongly support and assist the students regardless of the achievement levels.

**Keywords:** Mathematics achievements, Modular learning modality, Attitudes of Grade-8 students, Parental involvement.

## 1. Introduction

Mathematics learning is a difficult task for low learner grade-8 students. The absence of the teacher's explanation as experienced in the face-to-face learning makes it more difficult for grade-8 students to learn the mathematics concept. Lack of learning resources at home even makes it worse where parents

cannot constantly assist their children. These are some factors that can affect the learning of grade-8 students. No matter how much interest and enthusiasm of the grade-8 students to learn mathematics concept in their own way in modular learning modality, still the difficulty come to the surface. However, many fast learner students who have good background knowledge plus their intellectual capacity to learn mathematics found learning mathematics enjoyable in their own way in the modular learning modality and much interesting than any other learning modalities.

In one hand, modular learning modality allows the grade-8 students to repeat and review their learning anytime for their convenience and ask further assistance from their educated parents for further involvement to improve their abilities in mathematics learning. On the other hand, teachers are giving assessment rating based on the answers of the grade-8 students following module evaluation without teacher's guidance or consultation anyhow. These ratings manifested the achievements of the grade-8 students. Some students would react negatively, if happens to have been given low achievement where in fact the students are trying hard and expect for higher achievement. The teachers are making assessment on their own will without assessing the performance in class recitation, homework, and examination. The way to assess in modular learning modality is a self-assessment or take home examination evaluation process. The teachers are assuming some parental involvement in the process.

The teachers are assessing blindly without seeing the actual performance the students carried out answering their module. In some instances, the teacher is no longer familiar with the actual attitudes of the grade-8 students as found in the face-to-face classes. No matter how, the teachers makes its assessment more reliable and valid, there is still remaining doubtful feelings in the student's part as to how much efforts, interest, and endeavors the students exerted to aspire for higher rating or excellent proficiency level of achievement. In this case, there is impact of the grade-8 students' achievements on their attitudes. So this study will focus on the achievements of the grade-8 students as it is impacted in their attitudes, feelings, and conscience upon seeing their ratings made by their teachers in

the process of modular learning modality.

Many studies revealed the effectiveness of parental involvement in the achievements of the students during the modular learning modality amidst the COVID-19 Pandemic. There are parents who struggled to support the learning of their children. Parents are proud to see the achievements of their children who can be included in the line of those high achievers and included in the list of honors. In fact, most of the parents are expecting their children are included in the honor rolls, so they are exerting more efforts to support and assist their children in learning and answering the questions in the module. Apparently, the students were not assessed according to his works but it includes the parental involvement. Both parents and students were given assessment and become proud when the achievements are high, on the other hand, worry and disappointment would result if the students receive low achievement. This is very essential subject of researcher, therefore this research attempt to investigate and discover the impact of students' achievement on their attitudes and parental involvement in mathematics discipline.

## 2. Statement of the Problem

High Achievement levels of the students in the difficult subject to be learned such as mathematics would serve psychological motivation. In many cases, both parents and students are happy upon receiving high grades in their achievements after exerting efforts and endeavors with expectation to claim as such. The parents would feel proud and more enthusiastic to be involved more on the study of their children. Hence, this study seek to answer the following research questions: [1] What is the level of mathematics achievement of Grade-8 students in MSU-Sulu Laboratory High School using Modular Learning Modality? [2] What is the level of Students' Attitudes when receiving low level of mathematics achievement in terms of happiness, interest, and enthusiasm? [3] What is the level of parental involvement when their children achieved low level of mathematics achievement in terms of support and assistance? [4] Is there significant impact of the Grade-8 achievement levels on the students' attitudes in terms of happiness, interest and enthusiasm and parental involvement in terms of support and assistance?

## 3. Theoretical and Conceptual Framework

To give consideration to the learners in rural areas where the internet inaccessible for online learning, the Modular Learning modality is currently used by all public schools in the Philippines. Modular learning is a form of distance learning that uses Self-Learning Modules (SLM) and is highly convenient for most of the typical Filipino students. It was also the most preferred learning system of the majority of parents/guardians for their children. The SLM is based on the most essential learning competencies (MELCS) provided by the Department of Education (Guiamalon, Alon and Camsa, 2021).

Guiamalon, et.al., (2021) citing Wenner et al. (2011) found the modular approach in a remedial math course was successful, but that the success of higher levels of student participation and

completion depends on the kind of school, courses, quantitative concepts covered, assessment, and teachers teaching methods.

Guiamalon, et.al., (2021) citing Gonzales, (2015) states that modular learning is one of the teaching approaches where the students have to learn everything in the module using their own effort at their own pace. The method differs from the traditional one wherein the students just listen to learn the concepts presented by the teachers in order to surpass the difficulties faced by the students in the traditional classroom situation. The modular approach may be a good alternative since it is student-centered, self-paced, and requires no note-taking. Using a module compared to using a textbook in the traditional methods meant to increase active learning and improve critical thinking, problem-solving skills.

Guiamalon, et.al., (2021) citing Cheng and Bakar (2017) emphasized standardized textbooks have their own styles, and the organization of their contents, depth of coverage of materials, may affect the teaching and learning environment, the use of a module presents a more flexible learning environment for both instructors and learners.

Bartolome, et. al., (2017) emphasized that parental involvement refers to the amount of participation a parent has when it comes to the schooling of his/her children. Some schools foster healthy parental involvement, but sometimes parents has hesitations if they will involve themselves with their children's education. It has been advocated in Western countries. However, there is a body of literature that examines the significance of social and cultural influences and the effects of parents' involvement in and expectations of their children's development and learning. It is important for schools to recognize the existence of cultural variations in parent involvement because there are differences among parents with diverse background on when, why, and how they are involved in their children's education. Parenting is important in the Philippine society because family is viewed as a center to one's social world.

Bartolome, et.al., (2017) citing Harris and Goodall (2007) states that parental involvement can encompass a whole range of activities with or within the school while parents view parental engagement as offering support to students while teachers tend to view it as a means to improved behavior.

Bartolome, et.al., (2017) citing Mwai Kimu (2012) concludes in his qualitative study on Parent Involvement in Public Primary Schools in Kenya that a society needs to increase its level of educational involvement and that starts with the support by the parents. Parent-school linkages can be enhanced through the teacher/parent relationship because teachers are the main linkage of parents to the school, the teacher/parent relationship is critical to pupils' success and parent involvement.

## 4. Parental Involvement Theory

Moggach (2006) theorize that listening to parents, encouraging their participation and giving them more power and responsibility – result in better functioning school. Jackson & Davies (2000) parents who participate in decision-making experience greater feelings of ownership are more committed

to supporting the school's mission.

One of the psychological motivations to develop the happiness, interest and enthusiasm of Grade-8 students is their achievements. When the achievement is high, there is great probability that the level of happiness, interest, and enthusiasm is also high while when the achievement is low there is probability that the happiness, interest and enthusiasm is also low. Parental involvement can also be affected by the level of achievement of the students. Precisely, when the achievement is high parental involvement in terms of support and assistance is also high and when low it is also low. This study will investigate the impact of the Grade-8 students' achievements on their attitudes and parental involvement. Figure 1 shows the interaction of the variables. The Grade-8 students' achievements is the independent variables. The students' attitudes in terms of happiness, interest and enthusiasm as well as the parental involvement in terms of support and assistance are the dependent variables.

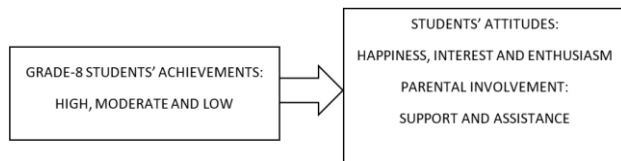


Fig. 1. Conceptual framework

## 5. Literature Review

Modular learning modality is the major discourse and solution to the continuing education in the province of Sulu includes the MSU-Sulu Laboratory High School. In the research of Silkwood (2000) on the comparison of the traditional teaching versus modular learning, citing Mike Jensen of Paonia (Colorado) High School felt that using modules to manage classroom and lab environments provides great opportunities for teaching technology, but felt that one of the greatest advantages of this educational reform was the ability to more easily manage large classes. Modular distribution to the students in large number is manageable by the teachers, but to the effectiveness in the learning process remained further studies.

Sadiq (2014) emphasized that the use of self-learning modules in teaching is another form of individual used instructions. This is called modular approach of teaching and learning (Sadiq, 2014 citing Jayasree, 2004) if self-learning modules are available on some topics they can be given to the students as assignments for self-learning scientific attitude refers to an individual's outlook towards life. Attitude is a method condition / a stabilized method set which express itself in a tendency to react to any member of the class of stimuli in the same general way.

Sadiq (2014) citing Robert Ebel (1997) Modules are increasingly being used in many countries as a way of organizing a language curriculum. As a consequence, many course books are now structured on the basis of "modules" rather than "units". The concept of "module" is strictly linked to the idea of a flexible language curriculum.

Sadiq (2014) citing Taneja (1989) defined module as a unit of work in a course of instruction that is virtually self-contained and a method of teaching that is based on the concept of building up skills and knowledge in discrete. A module is a set of learning opportunities organized around a well - defined topic which contains the elements of ordinate dictation, categorical objectives, edifying cognition activities, and evaluation utilizing criterion - referenced measures Sadiq (2014) citing UNESCO (1988) A module covers either a single element of subject matter content or a group of content elements composing a discrete unit of subject matter or area of adeptness. A module has placidly defined, objectives; preferably in behavioral form (Sadiq, 2014) citing Daries, 1981). Varieties of teaching methods that will fixate on cumulating methods that can best realize the creative and constructive engagement with learning activities that leads to understanding (Sadiq, 2014) citing Ramsden (1992). Even very good designed modules, with very well defined learning outcomes, can fail if the edification strategies employed are infelicitous to inspire and support the learners towards meeting the desired learning outcomes.

Sadiq (2014) citing Toohey (1999) offers the following definition: "A teaching strategy is a plan for learning, and it includes the presentations which the teacher might make, the exercises and learning activities designed for students, av-aids which will be supplied or suggested for students to work with, in which they show of their growing understanding and capability will be collected." Modular teaching is one of the most widespread and recognizes teaching learning techniques in many countries including other Western countries and Asian region. Modular approach is used almost in all subjects like natural science, specifically in biology and medical education and even in social sciences as well as in computers education.

Sadiq (2014) citing David (2001). It considering the individual differences among the learners which necessitate the planning for adoption of the most appropriate teaching techniques in order to help the individual grow and develop at her/his own pace.

In the same research of Silkwood (2000) citing Steven (1996) from the University of British Columbia emphatically rejected the veracity of the statement, arguing that modules are not student-centered but "module-centered," and that module designs constrict student freedom of choice and expression of response. He added, "If the end of technology education is to impress students and administration with a glance at someone's narrow idea of the future, or train students in the use of certain narrow-minded technologies, then modules may be effective. But if the end is technological sensibility and political astuteness for students as citizens, then modules are irrelevant". Setting up the aim and objectives of the module instruction is common and considered part of the module preparation. The effectiveness and proper usage of the module may differ instinctively from one student to another. The level of efficiency may vary from one teacher to another.

In the case of the DepEd the module preparation is confined to some teachers whom the DepEd officials recognized them as knowledgeable for the subject areas. Couple of teachers are

sitting together to write for the module. The parents who are expected to assist the education of their children frantically criticize the measure of difficulty experienced by the students.

Sadiq (2014) emphasized that the system of taking in modules has turned into a piece of all level of instructions. Teaching through module is a self - taking in bundle managing one particular topic/ unit. It could be utilized within any setting helpful to the learner and may be finished at the learner's own particular pace. Sufficient hypotheses further more practices are accessible for the useful requisition of secluded educating in our classrooms. Consequently, a study was directed so as to check the adequacy of modular teaching. Got information was investigated, analyzed and results were drawn.

Parental involvement has greater implication to the success of modular learning at home. However, not all parents are well equipped with resources suited to give their children the technological needs such as computer, laptop, tablets and cellphone to give them access to social media in the internet. Students can easily provide answers to the questions in the module when they utilize the social media that can be useful to guide them access the answers to their problems in the module.

Sadiq (2014) claimed that it's clear that many university students with a certain level of interactive technology embraced, but at the same time continually demanding more to fulfill their diversified needs of learning. Embrace the technology demands of their own class. According to the curve can be applied to today's generation of time university use technology every day and classes. The real challenge faced by university students is that higher inculcation is different from school and students cannot expect spoon-feeding. Increasingly, university heads are keen to verbalize about a partnership between institution and students.

Sadiq (2014) citing Knight (2002) points out that material on design work for edifiers orchestrating Programmes in higher inculcation are insubstantial. He suggests that there is a desideratum for advice on programmed design and argues for texts to be developed to target concrete learning skills. The focus is the design of modules which form part of Programmes in higher inculcation. This study was focused to find out the effectiveness of modular approach in teaching in order to assess the student learning, performance and achievement.

Assessment of learning determines the level of achievement as usually developed in the evaluation process of the modular learning. Students may acquire low, moderate and high achievement level based on the modular standard assessment. In the main time, assessment is associated with the parental assistance of some parents who are able to support the students in answering the module.

## 6. Method

Descriptive correlation research was adopted in the study. The study is conducted in MSU-Sulu Laboratory High School utilizing 50 grade-8 students belong to section A. Checklist questionnaire was used to investigate the attitudes of the grade-8 students in terms of happiness, interest and enthusiasm. The questionnaire was validated statistically using split-half method to measure the reliability at Cronbach's Alpha .891 and

Correlation between forms .834. The checklist questionnaire to investigate the parental involvement in terms of support and assistance was validated statistically using split-half method to measure the reliability at Cronbach's Alpha .923 and Correlation between forms .872. The primary data for the achievement levels was obtained from the mathematics teacher. The achievement levels were analyzed using the DepEd grading system such as a grade of 90-above given the proficiency level excellent. The grades 85-89 given the proficiency level very satisfactory and 80-84 given the proficiency level satisfactory and 75-79 given the proficiency level below satisfactory and 74-below needs improvement. In this study there was fusion of the achievement levels such as 75-84 as low achievers, 85-89 moderate achievers and 90-above high achievers. Weighted Arithmetic Mean was used to analyzed the average grade as indicator of the achievement level. Pearson Product Moment Correlation Coefficient was used to test the hypothesis on the impact of achievement on the attitudes and parental involvement.

## 7. Results and conclusion

The aim of this study is to investigate the impact of mathematics achievement of grade-8 students in modular learning modality on the attitudes of the grade-8 students in terms of happiness, interest, and enthusiasm and the impact of mathematics achievement on the parental involvement in terms of support and assistance. 50 grade-8 students belong to section A were utilized in MSU-Sulu Laboratory High School and their parents. The grade-8 students have answered questionnaire on their attitudes when the achievements are low, moderate and high. The researcher grouped the mathematics achievement according the average grades bracket such as 90-above as high achiever, 85-89 as moderate achievers and 75-84 as low achievers. Weighted Arithmetic Mean was used to determine the average grade. Pearson Product Moment Correlation Coefficient was used to determine the impact of the achievements on the attitudes of students and parental involvement. (10)20% of the students are high achievers, (26)56% are moderate achievers and (14)24% are low achievers. The high achievers are very happy ( $\mu = 4.56$ ), highly interested ( $\mu = 4.92$ ) and very enthusiastic ( $\mu = 4.67$ ) answering their modules. The moderate achievers are happy ( $\mu = 4.25$ ), interested ( $\mu = 4.32$ ) and enthusiastic ( $\mu = 4.27$ ) to answer their module. The low achievers are moderately happy ( $\mu = 2.95$ ), moderately interested ( $\mu = 3.41$ ), and moderately enthusiastic ( $\mu = 3.48$ ) in answering their module. The hypothesis is rejected ( $r = .732$ ;  $p = 0.000$  at  $\alpha = 0.05$ ), there is positive high correlation between high, moderate and low achievers grade-8 students in terms of happiness, interest and enthusiasm. The parents highly supportive ( $\mu = 4.72$ ) and exert more assistance ( $\mu = 4.63$ ) to the high achievers, moderately supportive ( $\mu = 3.23$ ;  $2.97$ ) and exert less assistance ( $\mu = 2.43$ ;  $2.34$ ) to the moderate and low achievers respectively. The hypothesis is rejected ( $r = .821$ ;  $p = 0.000$  at  $\alpha = 0.05$ ), there is positive high correlation between the achievements of the grade-8 students and parental involvement in terms of support and assistance.

The study recommended to strengthen the follow-up orientation for both parents and students to enhance positive attitudes regardless of the level of achievements of the students. The parents should strongly support and assist the students regardless of the achievement levels.

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