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Parents' Involvement in the Modular Learning and Students' Mathematics Performance

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ABSTRACT

Parents' involvement plays a vital role for student's development. The sudden shift of the education system brought by the Covid-19 Pandemic from school based learning to students learn at the comfort of their homes, puts every parent as significant role in facilitating students learning, particularly in the use of modular learning. This quantitative study was conducted to determine the correlation between parents' involvement in modular learning and students' mathematics performance of Grade 8 students of MSU-Buug Campus Laboratory Junior High School who were enrolled in A.Y.2022-2023. The questionnaire-checklist was administered to the 53 respondents. The findings revealed that parents' level of involvement in terms of 1.1 direct involvements is "Highly Involved" and 1.2 indirect involvements is "Highly Involved" and the level of their mathematics performance is "Very Satisfactory". Statistical analysis showed that there is no significant correlation between direct parents' involvement and students' mathematics performance. It was further revealed that there is no significant correlation between indirect parents' involvement in modular learning and students' mathematics performance among Grade 8 students of MSU-Buug Campus Laboratory Junior High School. Therefore, the students' learning is based on their own intelligence and not affected by the amount of involvement of their parents. It is suggested that parents are encouraged to create a conducive learning environment at home for a better concentration of their children in learning Mathematics.

Keywords: parent's involvement, direct involvement, indirect involvement, mathematics performance, MSU-Buug Laboratory High School

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1. INTRODUCTION

Parents are essential part on students' success. They are the source of strength and comfort that every child holds in. Thus, they play a crucial role to students' outcomes. Parents are not only the provider of child's basic needs and assistance but as well as the provider of love,care, time, encouragement and companion were seen to be an important factor of developing student well-being.

In the Philippines, parents' role has become more evident in students learning process due to the changes brought by the COVID-19 pandemic. The sudden shift of the education system from the school based learning to students learns at the comfort of their homes, puts every parent as significant role in facilitating students learning, particularly in the use of modular
learning. Since learning happens without the physical presence of the teachers, the parent takes the responsibility to ensure that the students acquire quality education. This involvement has been associated with a number of positive outcomes (Gomes,S.2015) with respect to academic performance, socialization and coping students' behaviour. In the case of mathematics, there are teachers who proposed suggestions to parents on how to handle their children's difficulties during their homework in order to develop their self- regulatory performance and their perseverance in working mathematical tasks (Panaoura,R.2017).

Previous research has reviewed parental guidance and assistance in mathematics learning.The study has shown that some parents do not understand on how to provide proper mathematics tutoring. They guide children, but inadequate or rigid tutoring skills using strategies contrary to those used by classroom teachers certainly confused children, hence causing a negative impact on learning (Maloney, E. et al., 2015). Other results include the lack of parental understanding related mathematics basic concepts, inadequate learning media utilization, and parents' desire for children to get instantaneous good grades (Jamaluddin,M. et al., 2018). However, no research has examined mathematics guidance implementation in low grades, especially during pandemic, because the Covid-19 situation is new. Parental involvement in a form of interest and support 'at home' majority influence children's mathematics learning outcomes and abilities. However, many parents are unaware about current educational practices and how they can be more involved in the process.

Modular learning allows learners to review and repeat their learning anytime for their convenience. They can also ask help from their parents to further understand the lessons and tasks in the modules. However, teachers rate students assessment based on students works without knowing that the submitted output is really the actual work of the students and not of their parents work in answering the modules.

Many studies revealed the effectiveness of parents' involvement in students' achievement during the modular learning in the midst of the COVID-19 pandemic. Even though parents have struggled in supporting their child's learning, they still continuously supporting and assisting their child's learning. Parents make an effort in encouraging their children to study despite the difficulties of learning at home. Parents who helped their children in completing the tasks before the submission date of the modules. Clearly, students' assessment is not only based on students works itself as it includes parents' involvement. Given the crucial role of parents involvement in providing guidance and learning to their children in this pandemic.

Parents' involvement is not an index on pupils high academic performance since there is no relationship of parents' involvement and their performance academically (Matolo,M. et.al. 2022).This simply implied that with or without parents' involvement the students academic performance may or may not be affected..The same result was found that parents' involvement and students' level of achievement in mathematics have no significant relationship(Santillan, J.K.& Bearneza, F.J, 2023). This simply mean that parents' involvement was not a guarantee to improve the level of achievement in mathematics of the respondents.

On the other hand Indirect parents' involvement strategies are more beneficial to students than direct parents' involvement strategies.This simply mean that the respondents can benefit more on indirect compared to direct parents' involvement (Myers, S. A. 2021).

With these facts the researcher, therefore investigate and discover the impact of parents' involvement in modular learning whether direct and indirect parents' involvement and students' mathematics performance.

1.1 THEORETICAL FRAMEWORK

This study was anchored to Cognitive Development Theory. Jean Piaget proposed a theory of cognitive development in children and emphasized the constructive role of experience with peers and family members. The basic assumption of his theory was that young children are active learners with a constant drive to match their internal constructions (their own view of the real world) and external constructions (the external realities they face with in their surroundings) (Piaget,J.,1981). The interaction between the environment and social factor resulted more actively engaged child and create more learning opportunities, particularly the interaction with their parents who has the vital part of the child environment(Athey,C.,2007). For instance, involvement activities such as practicing interactive homework creates opportunities for children to interact meaningfully with their parents such that children construct their own knowledge within both a social and physical environment through this process (Bailey,L.B.,2004). As a consequence, this theory supports the idea that parent involvement is a crucial factor in children's development and achievement.

Affected partially by Piaget's views, Lev Vygotsky emphasized the relationship between human beings and their environment, both physical, and social, in his sociocultural theory. To him, the influences of social and cultural factors on development and learning are abundant (Vygotsky,L.,1978). Human beings are surrounded by family members and are impacted by the culture in which they live (Rieber,R.W. & Robinson,D.K., 2004). Interaction of children with their family members of the community is extremely important for their education and growth because their first teacher is the family and their first learning occurs in the neighbourhood. With this, children gain knowledge about the world through this interaction.

Attribution theory suggests parental involvement in mathematics depends heavily on the controllable or uncontrollable factors involved in the task and the connected need for achievement (Weiner,B., 1988). The notion of controllably separates causes under a person's control from causes one cannot control. Ability, for instance, is classified as a stable, internal cause, while effort is classified as unstable and internal. Attributing an outcome to a stable cause such as ability or skill has a stronger influence on expectancy for future success than attributing an outcome to an unstable cause such as effort. This is an important point when considering parental roles and why certain parents become more involved than others, as one's beliefs about the cause of children's successes or failures have important implications for what the parent may choose to do or not to do regarding the child's achievement.

In relation to this theories, this study will analyse the interaction of parents and promotes opportunity to actively engage children in learning. In addition as ascertain by the developmental constructivism, it is important to examine the child's learning in mathematics.

1.2 STATEMENT OF THE PROBLEM

This study aims to determine the significant relationship between parents' involvement and students' mathematics performance.

Specifically, this study sought to answer the following questions:

1. What is the level of parents' involvement in terms of:
   1.1 direct involvement ?
   1.2 indirect involvement?
2. What is the level of students' mathematics performance?
3. Is there a significant relationship between direct parents' involvements and students' mathematics performance?
4. Is there a significant relationship between indirect parents' involvement and students' mathematics performance?

2. METHODOLOGY

2.1 RESEARCH DESIGN

This study used a descriptive- correlational method of research which was designed and aimed to determine the relationship between parent's involvement and the student's mathematics performance of grade 8 students in MSU Laboratory High School academic year 2022-2023.

2.2 RESEARCH RESPONDENTS

The researchers used the purposive random sampling to gather the information needed in the study. The respondents of this study were the Grade 8 students of MSU Laboratory High School Department who are officially enrolled in Academic Year 2022-2023.

Table 1. Number of Respondents

Section	No. of Respondents
Roxas	18
Quezon	20
Garcia	15
Total	**53**

Table 1 shows the number of respondents in each section of grade 8 students, section Roxas with 18 respondents, section Quezon with 20 respondents and section Garcia with 15 students for a total of 53 respondents.

2.3 RESEARCH INSTRUMENT

The instrument used in gathering the necessary data for the study was the questionnaire-checklist. The first part was the questionnaire adapted from Gumapac, J.R., et al. 2021 with four options always (4), often (3), seldom (2), and sometimes (1). The questionnaires were divided into two sub parts. The first subpart of the survey questionnaire checklist will measure the level of parents' involvement in terms of direct parents' involvement and the second subpart will measure the level of the indirect parents' involvement. The said questionnaire was reliable with the Cronbach's alpha value of 0.791 and 0.748 respectively with interpretation of acceptable. For the students' mathematics performance, the data gathered was based on the final grade in mathematics of the Grade 8 students of MSU Laboratory High School Academic Year 2021-2022.

2.4 DATA GATHERING PROCEDURE

The data will be gathered through the following steps:

First, a letter of approval was secured before conducting the study.

Second, the researchers properly wrote a letter addressed to the Vice Chancellor for academic Affairs (OVCAA). Third, after gaining the approval from the Vice Chancellor for academic Affairs (OVCAA), a letter of permission was given to the Principal of MSU Laboratory High School, then to the class adviser, requesting to allow the researchers to conduct a survey checklist among the Grade 8 students.

Fourth, the prepared questionnaire checklists were given to the respondents. Finally, after the students submitted their responses, the data that are generated from the questionnaire checklists were collected, checked, tabulated, computed, analyzed, and interpreted by the researchers. During the process of gathering the data for this research, the researchers made sure to follow and observe the standard health protocols such as the proper wearing of face mask and face shield, hand sanitation, and observe one meter social distancing.

2.5 STATISTICAL TOOLS

The researchers tested the normality of the data gathered and found out that the data were normally distributed. Thus, Pearson r, was used to test the relationship between variables.

3. RESULTS

The presentation of results was organized based on the order of the statement of problem in chapter 1. In addition, tables were utilized to guarantee clear and concise comprehension of the study.

Table 2. Legend Scale Interpretation

Points	Description	Scale	Verbal Interpretation
4	Always	3.25-4.00	Very Highly Involved
3	Often	2.50-3.24	Highly Involved
2	Seldom	1.75-2.49	Moderately Involved
1	Sometimes	1.00-1.74	Less Involved

Table 2 shows the 4-point scale with descriptions and interpretations. As shown in the table the scale ranges from 3.25 to 4.00 with the description always and has a verbal interpretation of very highly involved, the scale ranges from 2.50 to 3.24 with the description often and has a verbal interpretation of highly involved, the scale ranges 1.75 to 2.49 with the description seldom and has a verbal interpretation of moderately involved, and the scale ranges from 1.00 to 1.74 with the description sometimes and has a verbal interpretation of less involved.

Table 3. Level of Direct Parents' Involvement of Modular Learning

Items	Weighted Mean	Description
1. My parents buy school supplies for me to use in my MDL.	3.06	Often
2. My parents scheduled a series of breaks for me.	2.87	Often
3. My parents cook nutritious meals for me and ensure that I get enough sleep.	2.85	Often
4. My parents advise me to use my time properly in answering each Exercise in my mathematics module.	2.77	Often
5. My parents persuade me and tell	2.72	Often

me that I am capable of completing any work or activity.		
6. My parents attend parent-teacher conference and meetings in school.	2.70	Often
7. My parents urge me to speak up about my positive views and thoughts about my education .	2.66	Often
8. My parents recognize and celebrate my academic accomplishments and achievements.	2.38	Seldom
9. My parents provide a conducive learning environment at home for me .	2.28	Seldom
10. My parents praise and congratulate me every time I can complete assigned activity in my module.	1.94	Seldom
Overall Weighted Mean	**2.62**	**Often**

Legend: Always 3.25-4.00 Very highly involved, Often 2.50- 3.24 Highly involved,Seldom 1.75-2.49 Moderately involved , Sometimes 1.00-1.74 Less involved

These results indicate that majority of the items in direct parents' involvement of modular learning were described as often. As shown in the table , 7 out of 10 items obtained the description of often and the remaining 3 items obtained the description of seldom. Moreover, item 1 "in terms of buying school supplies to use MDL obtained the highest mean of 3.06 and item 10 "praise and congratulate child every time they can complete assigned activity in module obtained the lowest mean of 1.94.Therefore, the total average of direct parents' involvement is 2.62 which mean "Often" that correspond to "Highly Involved".

Table 4. Level of Indirect Parents' Involvement in Modular Learning

Items	Weighted Mean	Description
1. My parents spend time and study together with me in my mathematics modules.	3.28	Always
2. My parents use mother-tongue or first language to better explains mathematics concepts/ ideas to me.	3.25	Always
3. My parents cook nutritious meals for me and ensure that I get enough sleep.	3.24	Often
4. My parents show me how to use mnemonics and acronyms to answer the activities in my module.	3.19	Often
5. My parents provide examples to explain mathematics ideas or concepts to me.	3.09	Often
6. My parents push me to make a mathematics reviewer.	2.89	Often
7. My parents post my weekly schedule to be guided in the time to be spent in answering my mathematics module.	2.78	Often
8. My parents assist me in solving mathematics problems.	2.62	Often
9. My parents explain an activity's direction to me so that I can understand and respond to the activity or task.	2.58	Often
10. My parents use variety of visual aids like pictures, poster, charts, tables,flashcards, and videos to teach me better of the concepts in mathematics subject.	2.42	Seldom
Overall Weighted Mean	**2.93**	**Often**

Legend: Always 3.25-4.00 Very highly involved, Often 2.50- 3.24 Highly involved,Seldom 1.75-2.49 Moderately involved , Sometimes 1.00-1.74 Less involved

These results indicate that majority of the items in indirect parents' involvement of modular learning were described as often. As shown in the table,7 out of 10 items obtained the description of often and the remaining 2 out of 10 and 1 out of 10 items were described as always and seldom respectively .Moreover, item 1 " spend time and study together with me in my mathematics modules"obtained the highest mean of 3.28 and item 10 " use variety of visual aids like pictures, poster, charts, tables,flashcards, and videos to teach me better of the concepts in mathematics subject. obtained the lowest mean of 2.42. Therefore, the total average of indirect parents' involvement is 2.93 which mean "Often"that correspond to "Highly Involved".

Table 5. Level of Academic Performance of the Students

Interval	Frequency	Percentage	Interpretation
90-100	13	24.53%	Outstanding
85-89	20	37.74%	Very Satisfactory
80-84	14	26.42%	Satisfactory
75-79	6	11.31%	Fairly Satisfactory
Below 75	0	0%	Did Not Meet the Expectation
Overall Average Grade	**85.49**	**100%**	**Very Satisfactory**

The results indicate that majority of the participants gained a grade point average, between 85-89 corresponding to 20 out of 53 or 37.74% with the interpretation of "very satisfactory" . Moreover, 6 out of 53 or 11.31% of the students gained 75-79 grade point average.The overall average grade is 85.49 with the interpretation of "very satisfactory.Therefore, the GPA test scores indicate that all of the participants achieved grade points well above average.

Table 6. Significant Correlation between Parents' Direct Involvement and Students Mathematics Performance.

Statistical Test Results	Remarks	Interpretation
R Value = -0. 1233	Negative, weak correlation	---
P Value = 0.379078	Greater at .05 level of Significance	not Significant

As revealed in the findings that Parents' Direct Involvement and Students Mathematics performance yield the R-value of -.1233. The finding further revealed that the P-value is 0.379078 which is greater than 0.05 level of significance was registered. Therefore, the hypothesis is accepted since the variable tested is not statistically correlated. In accordance with the study of Myers (2021) revealed that there was no significant impact on students mathematical GPA if parents determined that they helped their child put together the education/career plan. Although this variable was not statistically significant. It should be noted that it was found to be negatively impact student mathematical GPA. Thus, coinciding with the idea that direct parent involvement strategies are not beneficial to student's academic achievement.

Table 7. Significant Correlation between Parents' Indirect Involvement and Students Mathematics Performance.

Statistical Test Results	Remarks	Interpretation
R Value = -.0603	Negative, weak correlation	---
P Value = 0.667986	Greater at .05 level	not

	of Significance	Significance

As revealed in the findings that the extent parents' indirect involvement and students mathematics performance yield the R-value of -.0603. The finding further revealed that the P-value is 0.667986 which is greater than 0.05 level of significance was registered.

Therefore, the hypothesis is accepted since the variable tested is not statistically correlated. In line with the study of Jakaria,Q., et. al (2022) revealed that parents were oftentimes involved in the learning of their children using self- learning modules in Science, English, Mathematics and Filipino. In like manner, these pupils obtained a very satisfactory level of academic performance in the four subject areas. There is no significant relationship on the extent of the parents' involvement using self-learning module along the four variables with academic performance of their children. Further, there is no significant difference on the extent of the parents' involvement using self-learning module along the variables tested.

4. CONCLUSION

According to the study's findings, parents of Grade 8 students of MSU-Buug Campus Laboratory Junior High School are highly involved in terms of direct and indirect parents' involvement in their children's modular learning in mathematics. During this pandemic, they devoted their time and energy to their child's learning, turning the home into an active learning environment. Since their children are capable of completing the tasks in their self-learning modules, as evidenced by their very satisfactory academic performance, parents' involvement in their children's learning is limited to supporting, advising, monitoring, and motivating them rather than inherently helping them answer their modules. Additionally, it is concluded that parental involvement is not reliable indicator of students' academic performance. This means that students learning is based on his own intelligence and not affected by the amount of involvement of their parents.

5. RECOMMENDATIONS

Based on the results of the study, the following recommendations are given:

1. Students are urged to enhance their sense of responsibility in learning mathematics independently.
2. Parents are encouraged to create a conducive learning environment at home for a better concentration of their child in learning Mathematics.
3. Teachers are highly encouraged to find strategies that are effective in facilitating the students in learning and in performing Mathematics.
4. Future Researchers are encouraged to conduct related studies in a larger population to test the significance of the parents' involvement to the mathematics performance of the students.

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