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Parental Involvement and Students' Attitude: It's Influence on Students' Achievement in Mathematics in the Modular Distance Learning

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Abstract- With school learning continuity plans requiring children to learn at home, parents take on a daunting responsibility. They facilitate and guide their children through the self-learning modules obtain at schools in the given schedule. This paper investigated the influence of parental involvement and students' attitude in the mathematics achievement of students. It involved a population of 84 grade 10 students identified through simple random sampling. Utilizing a descriptive-co relational research design, data were gathered through survey questionnaires administered via Google forms. Results revealed that most of the students had a moving towards mastery level in their mathematics achievement and had a moderately positive attitude towards mathematics. Results further showed that there is no significant relationship between parental involvement in mathematics achievement and attitudes towards mathematics. It is suggested that schools and parents must establish a strong partnership in the education of their children.

Keywords- Achievement, Attitude, Modular distance Learning, Parental Involvement.

I. INTRODUCTION

With school learning continuity plans requiring children to learn at home, parents take on a daunting responsibility [1].

The involvement of parents significantly affects the successful conduct of teaching and learning processes particularly now that most learners were directed to stay at home to avoid contracting the COVID-19. Monitoring the learning of their children, as well as attending school activities such as parent-teacher conferences and orientations are just a few features of parental involvement [2].

In a modular distance learning modality, parents play an active role in the learning process. They facilitate and guide their children through the self-learning modules parents obtain at schools in the given schedule. Limited contact with teachers made parents or guardians the learner's model. Thus, they play a significant part in encouraging and motivating their children to learn [3].

Due to the unpreparedness of teachers, families, and learners in modular distance learning, challenges and issues concerning parental involvement have surfaced while parents are trying to assist their children [4].

Several obstacles of distance learning include parents' lack of understanding of the instructional materials, lack of interest and motivation to teach their children, unavailability of time to guide their child because of their work, and lack of patience in teaching children at home [5].

Several studies showed that academic achievement is positively associated with parental involvement [6].

Results suggested that highly involved parents had children who had higher academic achievement than those whose parents are low involved [7].

The performance of students in mathematics is still a topic of concern because knowledge of mathematics is viewed globally as very important since, through

this discipline, we acquire accuracy, consistency, and mental discipline – essential skills required for a problem-solver and critical thinker individual in today's world and the expressing concerns about under achievement in mathematics [8].

In particular, academic achievement in mathematics is positively associated with emotional and motivational skills [9]. When students perceived themselves as learners who are capable of successfully doing specific mathematics tasks, then they are more motivated to be competent in mathematics [10].

Skills in Mathematics, attitude, and self-efficacy were identified to have significantly affected the students' achievement. More so, attitudes towards Mathematics hurt their achievement maybe because of the students' notion that Mathematics is hard, complicated, and a boring subject; and teachers are strict [11].

Negative attitudes towards mathematics are an important predictor of students' underachievement in mathematics [12].

Low achievement of students in mathematics is mainly attributed to teacher-centered instruction, which is very evident in numerous countries situated in Asia [13]. In teacher-led instruction, students are obliged to receive learning from the teacher in one way and at the same pace [14].

Students' factors such as behavior, motivation, and attitude, socio-economic factors like parent's education and their economic status, and school factors in terms of materials availability and teacher characteristics were seen to have a substantial impact on the success of learning mathematics [15].

Parents' educational level had a significant positive effect on students' performance. Students' attitudes toward mathematics also had a significant effect on their mathematics performance – that is, when a student had a positive attitude toward mathematics, he or she, on average, scored higher on mathematics performance [16].

Considering the circumstances presented above, this paper aimed to investigate the influence of parental involvement and student's attitude to achievement in Mathematics in modular distance learning.

This study sought answers to the following research questions:

1. What describes the students in terms of?
- Achievement in Mathematics; and
- Attitude in Mathematics?

2. What is the extent of parental involvement in terms of?
- Schoolwork;
- Class work; and
- Parental guidance and support?

3. Is there a significant relationship between parental involvement and
- Achievement in mathematics; and
- Attitude in mathematics?

II. METHOD

1. Research Design:

This study employed a descriptive-co relational research design in investigating the influence of parental involvement and students' attitude on the mathematics achievement of junior high school students. Consequently, the survey approach was utilized to gather the students' views and insights.

The descriptive part involved describing the characteristics of the population being studied. It collected information about the students' achievement, attitude, and extent of parental involvement. On the other hand, the co relational part included correlating the variables. It established the relationship between the extent of parental involvement and the student's achievement and attitude in Mathematics.

2. Participants:

The population of this study is comprised of 84 Grade 10 students enrolled during the School Year 2021-2022 at Narra National High School, a secondary school in the Schools Division of Palawan, Philippines. Probability sampling, specifically simple random sampling was used to select the respondents. The desired number of respondents was computed using Slovin's Formula utilizing a 5% margin of error.

3. Research Instruments:

This study utilized data gathering instruments such as the achievement test in Mathematics, a researcher-made test that went through validity and

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reliability tests before administering to the respondents. This test is consists of 25 multiple-choice items covering lessons in the second quarter of Mathematics 10. Scores of students will be compared against the mastery/achievement level set by the Philippines' department of education through DepEd Memorandum No. 160, s. 2012 [17].

Survey questionnaires adopted from the study of Sulabo & Belecina (2013) were also employed [18]. The students' attitude scale was composed of 20 statements utilizing a 6-point Likert scale. The parental involvement scale consisted of three parts: the first and second parts were about the involvement of parents in their child's class work and schoolwork.

The third part was about the statements involving parental guidance and support. These questionnaires were used to collect data relative to the students' attitude in Mathematics and the extent of parental involvement as perceived by the students.

4. Data Tools and Procedures:

After establishing the validity and reliability of the data gathering instrument, necessary permissions and clearances from the concerned school authorities other agencies were sought before the actual data gathering.

The respondents were properly informed of their consent before participating in the study. The researcher administered the survey forms virtually through google forms. Gathered data were collated and tabulated for statistical analysis.

In analyzing and interpreting the collected data, descriptive and inferential statistics were employed. In describing the respondents in terms of attitude in Mathematics and the extent of parental involvement, a weighted mean was used. In correlating the parental involvement, and achievement, and attitude in Mathematics, the Pearson r correlation coefficient was utilized.

III. RESULTS AND DISCUSSION

Table 1.1 presents the achievement level of the students in mathematics. Results revealed that 4 students or 4.76% with mean percentage scores ranging from 86 – 95 have a closely approximating mastery; 39 students or 46.43% with mean percentage scores ranging from 66 – 85 have moving towards mastery.

1. Students' Achievement Level in Mathematics:

Table 1. Students' Achievement Level in Mathematics.

Mean Percentage Score	f	%	Descriptive Equivalence
96 – 100%	0	0.00	Mastered
86 – 95%	4	4.76	Closely Approximating Mastery
66 – 85%	39	46.43	Moving Towards Mastery
35 – 65%	35	41.67	Average Mastery
15 – 34%	5	5.95	Low Mastery
5 – 14%	1	1.19	Very Low Mastery
0 – 4%	0	0.00	Absolutely No Mastery
Total	84	100.00	

More so, there were 35 students who got mean percentage scores ranging from 35 – 65 which implies that 41.67% of the students belong to average mastery; and 5 students or 5.95% with mean percentage scores ranging from 15 – 34 have low mastery; and 1 student or 1.19% with mean percentage score ranging from 5 – 14 has very low mastery. Results showed that most of the students had a moving towards mastery in their achievement in Mathematics.

2. Students' Attitude towards Mathematics:

Table 2. Students' Attitude towards Mathematics.

	Mean	Description	Interpretation
Positive Statements			
I am happier in mathematics than in any subject.	3.94	Slightly Agree	Moderately Positive
Mathematics makes me feel secure.	3.99	Slightly Agree	Moderately Positive
Mathematics	4.52	Agree	Positive

is very interesting to me.			
Mathematics is a mentally stimulating subject.	4.40	Slightly Agree	Moderately Positive
I feel at ease in my mathematics class.	3.69	Slightly Agree	Moderately Positive
Mathematics is a subject in school, which I have always enjoy studying.	4.00	Slightly Agree	Moderately Positive
I find mathematics less difficult to understand than any other subject.	3.56	Slightly Agree	Moderately Positive
I find mathematics useful to problems in everyday life.	4.70	Agree	Positive
I really like mathematics .	4.08	Slightly Agree	Moderately Positive
I feel definite positive reaction to mathematics .	4.05	Slightly Agree	Moderately Positive
Composite Mean	4.09	Slightly Agree	Moderately Positive
Negative Statements			
I have never liked mathematics and it is my most dreaded subject.	2.79	Slightly Disagree	Moderately Positive
I like textbooks in science, English, and social studies a lot more than the textbook in mathematics.	3.96	Slightly Agree	Moderately Negative
The subject that I enjoy least is mathematics.	3.07	Slightly Disagree	Moderately Positive
Mathematics makes me feel as though I am lost in a jungle of numbers and I can't find my way out.	4.07	Slightly Agree	Moderately Negative
I find mathematics boring.	2.46	Disagree	Positive
When I hear the word mathematics, I have a feeling of dislike.	2.88	Slightly Disagree	Moderately Positive
It makes me nervous to solve mathematics .	4.33	Slightly Agree	Moderately Negative
Mathematics makes me feel insecure.	3.32	Slightly Disagree	Moderately Positive
No matter how hard I try, I can't understand mathematics .	3.14	Slightly Disagree	Moderately Positive
I would like mathematics better if it was not made so hard in class.	4.07	Slightly Agree	Moderately Negative
Composite Mean	3.41	Slightly Disagree	Moderately Positive

International Journal of Science, Engineering and Technology

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Legend:

Mean Score	Description	Positive Statement	Negative Statement
5.50-6.00	Strongly Agree	Highly Positive	Highly Negative
4.50-5.49	Agree	Positive	Negative
3.50-4.49	Slightly Agree	Moderately Positive	Moderately Negative
2.50-3.49	Slightly Disagree	Moderately Negative	Moderately Negative
1.50-2.49	Disagree	Negative	Positive
1.00 - 1.49	Strongly Disagree	Highly Negative	Highly Positive

Table 1.2 reveals the attitude of the students towards mathematics. It can be noted that statement number eight (8) obtained the highest mean of 4.70 which suggests that most of the students had a positive attitude in mathematics.

The majority of them agreed that mathematics is useful to problems in everyday life. However, it can be gleaned that statement number eleven (11) got the lowest mean of 2.79 which implies that the students have never liked mathematics and that they do not agree that it is the most dreaded subject. More so, this indicates that the students had a positive attitude towards mathematics.

In an online article entitled "What is the importance of mathematics in our daily lives?" it was claimed that mathematics is viewed as an influential medium needed to achieve global understanding and communication which can result in an organized and systematic way of living. The article also added that through mathematics, everyone would be able to understand the world and without it, any issues encountered in everyday living cannot be addressed and resolved [19].

In addition, the composite mean of 4.09 of the ten positive statements means that the students slightly agreed on these statements and that they have a moderately positive attitude towards mathematics.

On the other hand, the composite mean of 3.41 of the ten negative statements means that the students slightly disagreed with these statements and that they have a moderately positive attitude towards mathematics.

3. Extent of Parental Involvement in School Work:

Table 3. Extent of Parental Involvement in School Work

Indicators	Mean	Descriptive Interpretation
1. My parent/s or guardian/s participates actively in the different school activities.	1.82	Moderately Involved
2. My parent/s or guardian/s attends PTA meetings.	2.42	Highly Involved
3. My parent/s or guardian/s personally confers with school officials when called upon.	2.32	Moderately Involved
4. My parent/s or guardian/s complies with the policies of school by paying financial dues and other related matters on time.	2.62	Highly Involved
5. My parent/s or guardian/s is very much willing to share their time, talent, and effort for my welfare as well as the school.	2.18	Moderately Involved
6. My parent/s or guardian/s is very much supportive of the different wholesome school activities.	2.30	Moderately Involved
7. My parent/s or guardian/s is aware of the different school activities in my school.	2.49	Highly Involved
8. My parent/s or guardian/s support fund drive or any projects in my school by giving donations or rendering services.	2.24	Moderately Involved
9. My parent/s or guardian/s attends in my school-sponsored events such as math exhibits, math quiz, and math camp either virtual or physical.	1.42	Not Involved

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10. My parent/s or guardian/s volunteer/s in my math-related activities.	1.43	Not Involved
Composite Mean	2.12	Moderately Involved

Legend:

Scale	Interpretation
2.4 – 3.0	Highly Involved
1.7 – 2.3	Moderately Involved
1.0 – 1.6	Not Involved

Table 2.1 shows the extent of parental involvement in school work as perceived by the students. Most of the indicators yielded results of a moderately parental involvement.

Moreover, the students perceived that their parents and/or guardians were not involved on attend school-sponsored events such as math exhibits, math quizzes, math camps either virtual or physical; and that they did not volunteer in math-related activities. The composite mean of 2.12 implies that as perceived by the students, the parents and/or guardians were moderately involved in the school work of their child.

4. Extent of Parental Involvement in Class Work:

Table 4. Extent of Parental Involvement in Class Work.

Indicators	Mean	Descriptive Interpretation
1. My parent/s or guardian/s helps me in my school assignments and projects.	1.80	Highly Involved
2. My parent/s or guardian/s discusses with me my assignments in mathematics.	1.64	Not Involved
3. My parent/s or guardian/s discusses with me my mathematics difficulties.	1.74	Moderately Involved
4. My parent/s or guardian/s makes a follow-up with my teachers regarding my studies and behavior.	2.17	Moderately Involved
5. My parent/s or guardian/s personally confer/s with my teachers when called upon.	2.33	Moderately Involved
6. My parent/s or guardian/s is very much concerned with my studies.	2.64	Highly Involved
7. My parent/s or guardian/s encourages me to participate in my math class virtually or physically.	2.10	Moderately Involved
8. My parent/s or guardian/s always asks me for the lessons that I learn in mathematics.	1.82	Moderately Involved
9. My parent/s or guardian/s knows most of my classmates and friends in school.	2.30	Moderately Involved
10. My parent/s or guardian/s praises the creativity and originality I exhibited in my mathematics project or output.	2.10	Moderately Involved
Composite Mean	2.06	Moderately Involved

Legend:

Scale	Interpretation
2.4 – 3.0	Highly Involved
1.7 – 2.3	Moderately Involved
1.0 – 1.6	Not Involved

Table 2.2 presents the extent of parental involvement in class work as perceived by the students. Most of the indicators yielded results of a moderately parental involvement. On the contrary, the students perceived that their parents and/or guardians were not involved in discussing with them their assignments in mathematics.

More so, the students perceived that their parents and/or guardians were highly involved in helping them in their school assignments and projects; and that their parent/s or guardian/s is very much concerned with their studies.

International Journal of Science, Engineering and Technology

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The composite mean of 2.06 means that as perceived by the students, the parents and/or guardians were moderately involved in the class work of their child.

5. Parental Guidance and Support:

Table 5. Parental Guidance and Support.

Indicators	Mean	Descriptive Interpretation
1. My parent/s or guardian/s listen to my ideas and opinions in relation to my studies.	2.27	Moderately Involved
2. My parent/s or guardian/s give me encouragement to develop my talents and skills in mathematics.	2.27	Moderately Involved
3. My parent/s or guardian/s appreciate my efforts in improving my academic performance in mathematics.	2.46	Highly Involved
4. My parent/s or guardian/s are aware of my school-related activities.	2.43	Highly Involved
5. My parent/s or guardian/s help me to develop good study habits.	2.39	Moderately Involved
6. My parent/s or guardian/s give me some reward if I receive good grade in mathematics.	1.93	Moderately Involved
7. My parent/s or guardian/s give some valuable pointers and suggestions in order to develop my self–confidence in solving number problems.	1.83	Moderately Involved
8. My parent/s or guardian/s discuss with me issues that affect my studies.	2.19	Moderately Involved
9. My parent/s or guardian/s encourage me to join a mathematics club and any programs in mathematics like MTAP Saturday classes.	1.94	Moderately Involved
10. My parent/s or guardian/s encourage me to learn mathematics.	2.50	Highly Involved
Composite Mean	2.22	Moderately Involved

Legend:

Scale	Interpretation
2.4 – 3.0	Highly Involved
1.7 – 2.3	Moderately Involved
1.0 – 1.6	Not Involved

Table 2.3 shows the extent of parental involvement in parental guidance and support as perceived by the students. Most of the indicators yielded results of moderately parental involvement.

More so, the students perceived that their parents and/or guardians were highly involved in appreciating their child's efforts in improving their academic performance in mathematics; the parents and/or guardians are aware of their child's school-related activities; and that their parent/s or guardian/s encourage them to learn mathematics.

The composite mean of 2.22 suggests that as perceived by the students, the parents and/or guardians were moderately involved in providing parental guidance and support to their children.

Table 6. Correlation of Parental Involvement on Mathematics Achievement and Attitudes towards Mathematics

	Parental Involvement		Interpretation
Achievement in Mathematics	r	-0.300	Negligible negative correlation
	p-value	0.107	Insignificant
Attitude in Mathematics	r	-0.023	Negligible negative correlation
	p-value	0.922	Insignificant

A Pearson product-moment correlation was performed to determine the significant relationship in parental involvement on mathematics achievement and attitudes towards mathematics. Since all computed p-values of 0.107 and 0.922 were greater than the significance level of 0.05, then we

fail to reject the null hypothesis. This leads us to the conclusion that there is no significant relationship between parental involvement in mathematics achievement and attitudes towards mathematics.

This implies further that parental involvement does not significantly affect the students' achievement and attitudes towards mathematics.

The findings of this study are somewhat different from the study of Mensah and Kurancie (2013) that both argued that there is a significant positive correlation between the students' attitude and their performance in mathematics [20]. In a similar study, Nicolaidou and Philippou (2003) concluded that attitude and achievement in mathematics are significantly related [21].

Parents who were highly involved resulted in their children's high achievement in Mathematics. When parents supported their children, the students scored higher levels of achievement in Mathematics [22].

IV. CONCLUSION

Based on the analysis and interpretation of the gathered data, the following conclusions were made: The students' achievement in mathematics is described as moving towards mastery.

Meanwhile, the majority of the students agreed that mathematics is useful to problems in everyday life and disagreed that it is the most dreaded subject. It was revealed that the students had a moderately positive attitude towards mathematics.

As to the extent of parental involvement, the students perceived that their parents and/or guardians were occasionally or moderately involved in schoolwork, classwork, and in giving parental guidance and support. It was also found out that there is no significant relationship between parental involvement in mathematics achievement and attitudes towards mathematics.

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