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Parent-Teacher Partnership and its Effect on Students' Numeracy Skills

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ABSTRACT: This study focused on the effect of parent-teacher partnership in improving students' numeracy skills in Grade 7 in Calatrava National High School- Malanog Annex. The participants of this study are the two sections of Grade in Calatrava National High School-Malanog Annex. The participants are selected using purposive sampling. In this sampling method, only the underachievers are chosen as participants. One section was assigned to the experimental group, and the other was to the control group. The students' numerical grades in the 2nd and 3rd quarters served as the basis for their numeracy skills; students were given four written compositions created by the researcher and four performance challenges.

The instrument used in data-gathering underwent validity testing. Three experts in the field of Mathematics were asked to evaluate the content of the researcher-constructed written works and performance tasks. They rated it using the criteria of Good and Scates. The statistical tools used for the data treatment are mean, and an independent sample t-test was used. The findings revealed that the level of numeracy skills before and after the control group and experimental group is interpreted as average (80-84). Results also show no significant difference between the level of numeracy skills of the control and experimental group before the intervention. After the intervention, the control group's level of numeracy abilities significantly differed from that of the experimental group. This shows that the parent-teacher intervention relationship enhances students' numeracy abilities.

KEYWORDS: Parent-teacher partnership and Numeracy Skills

INTRODUCTION

Numeracy is the aptitude with, knowledge of, or quality of being numerate, according to the Oxford English Dictionary [7]. Although Numeracy is used in many English-speaking countries, it is more common to speak of quantitative or mathematical literacy [6]. The PISA study defines mathematical literacy (instead of Numeracy) as the capacity to identify, understand, and engage in mathematics and make well-founded judgments about the role that mathematics plays.

Mathematics is a challenging subject to master for students from primary school to university [12]. According to math experts, developing procedural skills and conceptual comprehension of mathematics requires a variety of cognitive abilities [14]. This covers, among other things, creating arguments, reasoning about mathematical objects, producing proofs, and creating representation [4]. These procedures are considered to be the cornerstone of effective outcomes that are then linked to achievement outcomes [8].

As cited in the study, Mathematics is learned for many reasons. Firstly, the mastery of basic Mathematics skills is needed to cope with the demand of life [2]. Such demands include being numerically literate, gaining tools for future employment, developing the prerequisites for further education, and appreciating the relationship between Mathematics and technology. Secondly, mathematics is the Sciences language, and many disciplines depend on this subject as a symbolic means of communication. Thirdly, Mathematics education can be essential in developing students' general decision-making and problem-solving skills.

The Philippine Basic Education follows kindergarten + 12 years to complete its Basic Education Program, as the Philippine Department of Education adopted the K-12 curriculum in 2012. Due to the poor quality of the Philippine Basic Education, as demonstrated by Filipino pupils' low accomplishment on both the National Achievement Test and the third international study on mathematics and science, this decision was made [13]. Despite the low performance of Filipino learners and the diversity of the Philippine classroom situations, some research reveals the positive side of poor-performing Filipino students, such as that Filipino students are developmentally ready to learn competencies assigned by curriculum makers [5]; and that the effort of Filipino students to learn can increase their Mathematical ability [11].

A recent U.N. report states that "the COVID-19 epidemic has created the largest disruption to educational systems in history, affecting over 1.6 billion pupils across more than 190 countries and all continents. Ninety-four percent of students around

the world have been harmed by the school and other learning space closures, with the percentage rising to 99 percent in low- and lower-middle-income nations."

Teachers have been forced to use innovative teaching strategies in order to educate their students and maintain relationships with their communities in the face of the severe learning crisis brought on by the Coronavirus pandemic. As part of a new approach to practical education in the new normal, instructors and parents must once again collaborate in the best interests of pupils. A vital link between kids and schools is their parents. The OECD reports that 62% of principals believe that parents or guardians make a significant contribution to students' academic success. Several OECD nations have incorporated guidelines on working with parents in their curriculum framework in recognition of the significance of collaboration with parents in boosting learning outcomes for kids. Parents are important educational stakeholders who have the power to demand that schools take responsibility for their children's education.

The faculty of Calatrava National High School - Malanog Annex visited a random residence during the first quarter of the academic year 2021–2022. Through this, the researcher found out that some of the parents are helping their students in answering their modules, while others are not. This inspires the researcher to investigate the impact of parent-teacher collaboration on student learning.

This study aims to investigate how parent-teacher collaboration can benefit students' numeracy skills.

STATEMENT OF THE PROBLEM

This study's main goal is to ascertain how the parent-teacher partnership affects the improvement of grade 7 students' numeracy abilities at Calatrava National High School - Malanog Annex throughout the academic year 2021–2022.

This research specifically aims to respond to the following queries:

1. What is the level of numeracy skills of the students before and after the Parent-Teacher Partnership of the control and experimental group?
2. Is there a significant difference between the level of numeracy skills of the control group and the experimental group before the Parent-Teacher Partnership?
3. Is there a significant difference between the level of numeracy skills of the control group and the experimental group after the Parent-Teacher Partnership?

HYPOTHESIS

The following are the null hypothesis of this study.

1. There is no significant difference between the level of numeracy skills of the control group and the experimental group before the Parent-Teacher Partnership.
2. There is no significant difference between the level of numeracy skills of the control group and the experimental group after the Parent-Teacher Partnership.

THEORETICAL FRAMEWORK

This study is anchored on the Sociocultural Theory of Lev Vygotsky (1962) [16]. It is related to the collaboration between parents and teachers in meeting the needs of the learners. This theory states that students' learning could be more effective if provided with support or scaffolding. It also proposes that a child's development is best understood concerning social and cultural experiences. In addition, social interaction is seen as a critical force in development. Through the assistance provided by more experienced people in social development, the child gradually learns to function intellectually independently. Thus, the social world mediates individual cognitive development.

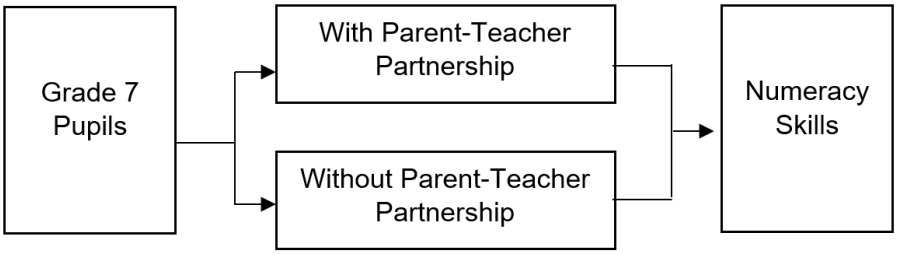
As reiterated by Thorndike (1930) in his theory of readiness, the best learning is sequential and ordered [10]. Therefore, efficient learning follows on best sequence or timeline. Applying this principle provides us with the many readiness activities and materials we develop for children. It has evolved the sequential courses in Mathematics, Science, and literature and the prerequisite coursework and activities.

In this study, the researcher created a weekly home learning plan for the parent-teacher partnership to assist students in learning Mathematics.

CONCEPTUAL FRAMEWORK

The principal concept of this study is focused on determining the effect of Parent-Teacher Partnership in improving the numeracy skills of Grade 7 students in Calatrava National High School – Malanog Annex during the School Year 2021-2022.

Figure 1 shows the schematic diagram of the effect of the Parent-Teacher Partnership in improving the numeracy skills of the students.



RESEARCH DESIGN

A Quasi-experimental design was conducted on the Grade 7 students of Calatrava National High School-Malanog Annex. In this research design, participants are not randomly assigned to groups. A pre-test was administered to the control and experimental group. Treatment is administered to the experimental group while being withheld from the control group. After the treatment, a post-test was administered to both groups. This research design aims to identify the impact of a particular intervention, program, or event (a "treatment") by comparing treated units (households, groups, villages, schools, firms, etc.) to control units.

RESPONDENTS OF THE STUDY

The study participants were the two sections of Grade 7 students of Calatrava National High School – Malanog Annex enrolled during School Year 2021-2022. The participants are 20 students, ten students in each section. One section was assigned as the experimental group, and the other was the control group.

RESEARCH INSTRUMENT

Four written works created by the researchers and four performance assignments will be provided to students in order to determine the students' numerical grades, which serve as the foundation for their numeracy skills. Each written work is constructed using two competencies, while each performance task is constructed using one competency.

The instruments used came from DepEd standardized materials provided to the teachers. The Department of Education (DepEd) has released guidelines to ensure the sustained quality in the implementation of modular distance learning guidelines on the evaluation of Self-Learning Modules (SLMs) for the School Year (S.Y.) 2020-2021.

The instrument used in data-gathering underwent validity testing. Three experts in the field of Mathematics were asked to evaluate the content of the researcher-constructed written works and performance tasks. The validation of the research instrument resulted in a mean score of 4.74, which means that the research instrument was valid to a very high degree.

RESULTS

Table 1 shows the level of numeracy skills of the control group before and after the Parent-Teacher Partnership. The result shows that the control group perceived an "Average" level of numeracy skills (M=80.10, SD= 0.316) before the parent-teacher partnership. Moreover, the control group also perceived an "Average" level of numeracy skills (M=81.30, SD=1.567) after the parent-teacher partnership.

Based on the findings, the control group perceived an average level of numeracy skills before and after the parent-teacher partnership. This implies that the numeracy skills of the control group have slightly increased before and after the parent-teacher partnership.

Table 1. Level of numeracy skills of the control group before and after the Parent-Teacher Partnership

Time	Mean	SD	Interpretation
Before	80.10	0.316	average
After	81.30	1.567	average

Note: Mean Scores: 90 - 100 (Very high), 85 - 89 (High), 80 - 84 (Average), 75 - 79 (Low), and Below 75

Table 2 shows the level of numeracy skills of the experimental group before and after the Parent-Teacher Partnership. The result shows that the experimental group perceived an average level of numeracy skills (M=80.20, SD= 0.422) before the parent-teacher partnership. However, the experimental group also perceived an "Average" level of numeracy skills (M=83.00, SD=1.826) after the parent-teacher partnership.

This implies that the numeracy skills of the experimental group have highly increased before and after the parent-teacher partnership.

Table 2. Level of numeracy skills of the experimental group before and after the Parent-Teacher Partnership

Time	Mean	SD	Interpretation
Before	80.20	0.422	average
After	83.00	1.826	average

Note: Mean Score: 90 – 100(Very high), 85 – 89(High), 80 – 84(Average), 75 - 79 (Low), and Below 75 (Very low)

Table 3 shows no significant difference in the level of numeracy skills of the control group and experimental group before the Parent-Teacher Partnership [t (18) = -0.600, p = 0.556] at 0.05. This implies that both groups had an average level of numeracy skills before the intervention was implemented in the experimental group.

This affirmed an online article that states that Mathematics is a subject that needs focus and attention [15]. Since modular distance learning lacks teachers' guidance, students indeed have a hard time understanding, analyzing, and solving each equation and problem. This brings to students not being able to comprehend the lessons in the module very well.

However, the results contradict a study that states that modular distance learning improves students' math performance [1]. The academic performance of students is not affected by their perception regarding the modular distance learning approach.

Table 3. Test for significant difference between the level of numeracy skills of the control group and experimental group before the Parent-Teacher Partnership

	Mean	t	df	p	Interpretation
Control	80.10	-0.600	18	0.556	Not significant
Experimental	80.20				

Table 4 above shows a significant difference in the level of numeracy skills of the control group and experimental group after the Parent-Teacher Partnership [t (18) = -2.234, p = 0.038] at a 0.05 level of significance. This implies that the experimental group has a higher level of numeracy skills than the control group after the Parent-Teacher Partnership intervention was implemented. The result also implies that the parents and the teacher played their roles in the Parent-Teacher Partnership, which caused a significant change in the numeracy skills of the students.

This is an affirmation of a study that is using parents as partners trained in providing at-home numeracy support is a viable means for increasing students' early mathematics performance [9]. In addition, a concept that supports the result states that the Parental Roles in Students' Learning of Mathematics show that parental involvement is a significant predictor of student mathematics achievement [3].

Table 4. Test for significant difference between the level of numeracy skills of the control group and experimental group after the Parent-Teacher Partnership

	Mean	t	df	p	Interpretation
Control	81.30	-2.234	18	0.038	Significant
Experimental	83.00				

Note: $p < 0.05$

CONCLUSION

The level of numeracy skills of the control group before and after the Parent-Teacher Partnership is "Average." Nevertheless, the numeracy skills of the control group slightly increase after the Parent-Teacher Partnership.

The level of numeracy skills of the experimental group before and after the Parent Teacher partnership is "Average." Though, the numeracy skills of the experimental group highly increased after the Parent-Teacher Partnership.

The test for significant difference between the level of numeracy skills of the control group and experimental group before the Parent-Teacher Partnership employing an independent sample t-test shows that there was no significant difference between the level of numeracy skills of the control group and experimental group before the Parent-Teacher Partnership.

The test for significant difference between the level of numeracy skills of the control group and experimental group after the Parent-Teacher Partnership employing an independent sample t-test shows a significant difference between the level of numeracy skills of the control group and experimental group after the Parent-Teacher Partnership.

RECOMMENDATION

The Department of Education's goal is to provide equitable access to high-quality primary education so everyone can build a foundation for lifelong learning and serve the public good. Department of Education is recommended to provide the best strategies and best practices for parents and teachers to improve the home-school learning experience with Filipino learners through conducting seminars and training not just for teachers but also for parents.

School administrators oversee establishing, implementing, and assessing district and school systems and policies, as well as providing instructional leadership. It is highly recommended that School Administrators must offer training and seminars to teachers and parents to promote the parent-teacher partnership for the betterment of students.

Curriculum Planners organize various curriculum elements, such as the core objectives, subject, unit definitions, activities, assessments, and resources. It is recommended that must improve the curriculum integrates parents' involvement.

Teachers should develop a strong relationship with parents. Teachers must share their personalities and learn the character of parents. Teachers should make time to communicate with parents.

Parents should participate in every program in school and help teachers monitor the student's performance by communicating with teachers.

Students should have time management in doing school activities. He must follow his parents and teacher for the betterment of his future.

Future Researchers should examine the various effect of parent-teacher partnerships.

REFERENCES

1) Aksan, J. (2021). Effect of Modular Distance Learning Approach to Academic Performance in Mathematics of Students in Mindanao State University-Sulu Senior High School amidst COVID-19 Pandemic. Retrieved from https://journalsocialsciences.com/index.php/oaijss/article/view/64
2) Cabatay, Henry I. et al. (2011). Predictors of Academic Success and Achievement for College Algebra.
3) Cai, J., Moyer, J., Wang N. (1999). Parental Roles in Student's Learning of Mathematics. Retrieved from https://www.tandfonline.com/doi/pdf/10.1080/10848959.1999.11670147
4) Esmonde, I. (2009). Ideas and Identities: Supporting Equity in Cooperative Mathematics Learning. Retrieved from https://journals.sagepub.com/doi/10.3102/0034654309332562
5) Felipe, A. (2006). Unexpected learning competencies of Grades 5 and 6 pupils in public elementary schools: A Philippine report. Retrieved from https://files.eric.ed.gov/fulltext/EJ854353.pdf
6) Goos, M., Dole, S., Geiger, V. (2012). Numeracy across the curriculum. Retrieved from https://www.researchgate.net/publication/47554089_Numeracy_across_the_curriculum
7) Kus, M. (2018). Numeracy. https://files.eric.ed.gov/fulltext/EJ1179949.pdf
8) Lobato, J. (2008). On Learning Processes and the National Mathematics Advisory Panel Report. Retrieved from https://doi.org/10.3102/0013189X08327999
9) Lore, M., Wang, A., Buckley, M. T. (2016). Effectiveness of a Parent-Child Home Numeracy Intervention on Urban Catholic School First Grade Students. Retrieved from https://files.eric.ed.gov/fulltext/EJ1101491.pdf
10) Pappas, C. (2013). Edward Thorndike's Connectionism Theory. https://elearningindustry.com/connectionism
11) Sangcap, P. (2010). Mathematics-related Beliefs of Filipino College Students: Factors Affecting Mathematics and Problem-Solving Performance. Procedia Social and Behavioral Sciences, 8, 465–475.
12) Shafie, N., Shahdanb, T., & Liew, M. (2010). Mastery Learning Assessment Model (MLAM) in Teaching and Learning Mathematics. Retrieved from https://www.researchgate.net/publication/251713122_Mastery_Learning_Assessment_Model_MLAM_in_Teaching_and_Learning_Mathematics
13) Tatsuoka, K., Corter, J. & Tatsuoka, C. (2004). Patterns of Diagnosed Mathematical Content and Process Skills in TIMSS-R across a Sample of 20 Countries. American Educational Research Journal, 41(4), 901-926 https://www.researchgate.net/publication/250184953_Patterns_of_Diagnosed_Mathematical_Content_and_Process_Skills_in_TIMSS-R_Across_a_Sample_of_20_Countries

14) Watson, S. & Gable, R. (2012). Unraveling the Complex Nature of Mathematics Learning Disability: Implications for Research and Practice. Learning Disability Quarterly 36(3), 178–187: sagepub.com/journalsPermissions.nav DOI: 10.1177/0731948712461489.
15) Villa, S.M. (2021). Challenges encountered by students in Mathematics using the modular distance approach. Retrieved from https://www.pressreader.com/philippines/panay-news/20210303/281741272152636
16) Vygotsky, L. (1962). Vygotsky's Sociocultural Theory of Cognitive Development. Retrieved from https://www.simplypsychology.org/vygotsky.html