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## **EFFECTIVENESS OF SUPPLEMENTAL TEACHING AT HOME FOR GRADE SCHOOL LEARNERS**

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### **Abstract**

This study on effectiveness of supplemental teaching at home for grade school learners was conducted to introduce an intervention that will assist learners with difficulties in mathematics and involve the parents in enhancing the skills needed to achieve the learning competencies.

The study sought to answer the question: How may the effectiveness of home-based supplemental teaching strategy be described? Specifically it sought answers to the following questions: (1). How may the pupils' profile be described in terms of: size of the family, economic status and educational attainment of parents; (2). How may the conduct of home-based supplemental teaching be described in terms of instructional supplemental materials, learning environment, and length of time for studying; (3). What is the level of academic achievement of grade 3 pupils in Mathematics during the first quarter of the school year 2017-2018 which is before the conduct of the home-based supplemental teaching?; (4). What is the level of academic achievement of grade 3 pupils in mathematics during the second quarter of the school year 2017-2018 which is after the conduct of the home-based supplemental teaching?; (5). Is there a significant difference in the academic achievement of grade 3 pupils in mathematics before and after the conduct of home-based supplemental teaching?; and (6). What are the problems being encountered in the conduct of home-based supplemental teaching?

The respondents of the study were 30% of the population of grade three elementary pupils together with their parents and one mathematics teacher from Macario Arnedo Elementary School. The first quarter grade in mathematics before the conduct of the home-based supplemental teaching and the second quarter grade after the intervention were used as basis for academic achievement.

Questionnaires were used for the parent-respondents to answer.

The statistical treatments utilized were percentage and frequency distribution for the demographic profile of the respondents. The researcher ranked the problems faced by the parents. In determining the significant difference of the academic achievement of the grade 3 pupils between the first and second grading periods, the researcher used the t-test for the independent sample means.

It was found out the size of the family, economic status and educational attainment of the parents should be considered in implementing the home-based supplemental teaching. An average number of children will give more time to the parents to assist each of them. Moreover, parents who work at jobs had difficulties finding their time to guide their children especially most of them needs the help of their child in taking care of his younger siblings and in doing household chores. On the other hand, educational attainment is also another factor to be considered.

The availability of supplemental materials should be taken into consideration. Moreover, learning environment should be conducive for learning and enough time should be given to the pupils to conduct the intervention. In terms of the availability of instructional supplemental materials, calculator and window cards are the most common materials that are available at home. The least common material that the respondents have is activity books and number card with pictures. In terms of learning environment; ventilation was rated very satisfactory; lighting, space, noise-free area, organization of files and gadget-free area were satisfactorily rated. The time allotted for the pupils is mostly 1-2 hours a day. This explains the previous findings that most of them are working parents that makes them have a little time for their child.

In terms of academic achievement, the findings showed that most of the pupils obtained fairly satisfactory grades in terms of their academic achievement in mathematics for the first quarter. The mean average of the grades of the grade three pupils for the first quarter is in satisfactory level. On the other hand, the findings showed an increase in the number of pupils with an outstanding level of academic achievement after the intervention. The number of pupils under the fairly satisfactory level also decreased. This increase in the academic achievement of pupils who underwent intervention show an improvement in their level of performance. However, the mean average still falls under the satisfactory level.

Through analyzing the academic performance before and after the intervention, it was uncovered that there was a significant difference in the academic achievement of grade 3 pupils in Mathematics before and after the conduct of home-based supplemental teaching. This implied that the home-based supplemental teaching is an effective intervention that can be implemented at home together with their parents-in-charge

Different problems were also encountered during the conduct of the supplemental teaching at home. The most common problem of the parents was that they need to go to work every day and do household chores which made it difficult for them to deal with the home-based supplemental teaching.

## Introduction

Teachers face a host of challenges in the classroom. They are tasked to provide interactive and facilitative classroom activities that will encourage pupils to participate and learn. They also deal with diverse learners with different learning abilities. Teachers' must provide supplemental and intensive levels of

support for pupils whose needs are not being addressed in the regular learning process. This concerns pupils who find difficulties and need instructional assistance to achieve the learning competencies.

Different strategies may be utilized to address the needs of learners who do not meet expectation. One of these is supplemental teaching, a strategy that allows a teacher to help learners who need guidance, remediation or advanced teaching.

However, teachers' assistance is not enough. The involvement of parents is also relevant in ensuring that learning does not stop. According to Child Trends Data Bank (2013), involvement allows parents to monitor school and classroom activities, and to coordinate with teachers to encourage acceptable classroom behavior and ensure that the child completes schoolwork. Supportive parents can give positive feedback on the performance of the pupils. Parents perform a significant role in providing educational opportunities at home and apply what they have learned at school in real life situation. By facilitating varied learning experiences and activities outside the school that is related to their lesson, parents become an important part in pupils' holistic development and learning. But parental involvement should not be construed as interference with the school or teacher's methods.

Presidential Decree No. 603, known as "The child and youth Welfare Code," states that the child is one of the most important assets of the nation. The molding of the character of the child starts at home. Article 3, Sec 6 states that every child has the right to education commensurate with his abilities and to the development of his skills to improve his capacity for service to himself and his fellowmen. Being primary stakeholders, parents have all the rights and reasons to be involved in their children's schooling. This means that parents and teachers should work collaboratively to capacitate pupils with the knowledge and skills they need for lifelong learning.

Parent-teacher conferences are initiated by the school to facilitate open communication between the teachers and parents in monitoring the behavior and academic performance of pupils. In these meetings, the areas of pupils' improvement that must be addressed and their achievements can be discussed. Collaboration can also be intensified especially if the learner needs more attention academically and parental involvement in the learning process is definitely called for.

The proposed intervention is home-based supplemental teaching, where parents assist their child in completing tasks that are aligned with learning competencies he needs to acquire. This will promote more meaningful learning in achieving the required learning competency through collaboration between teachers and parents. This will be done at home where parents act as teacher assisting the child in learning activities. The intervention will make use of supplemental instructional materials that will support the parent and the pupil in the conduct of home-based supplemental teaching. The learning environment will likewise be considered to promote a meaningful learning. The time allotment will be determined to manage and maximize the time to insure completion of designated activities.

Home-based supplemental teaching can have an evidently positive impact on learning and academic outcomes. This involves communicating with parents on the expectations for a specific learning area and about the value of learning at home, discussing ways on how to assist the child in completing tasks, relating school work to contemporary events, nurturing educational objectives and making measures and plans for the future. Further, this stimulating home learning environment and focusing on activities provides directed at building pupils' decision making and problem solving skills and affirming their growing independence and academic abilities.

With home-based teaching, parents will be able to assess their children's strengths, weaknesses, learning styles and interests. It will allow parents to modify their children's learning experiences to maximize learning, address weaknesses and focus on special areas of interest, deficiency or giftedness. This will greatly motivate their children to learn and develop their love for learning. Since learning will be initiated at home, it will make the pupils put consistent effort into learning.

Children can achieve more and improve their behavior when parents and entire families are involved in their educational endeavor (Bryan, 2005). A child who is cherished and well cared for usually develops good study habits if supported by the parents or guardians at home. When parents are reachable, open-minded and reasonable then the child will strive towards educational achievement. Bryan's study show that study habits are affected by parenting and the way parents will motivate their child in forming good study habits.

Home- based supplemental teaching provides learners easy access to instruction at home. It helps them to better understand and apply the competencies outside the four walls of the classroom. Thus, it does not equal the depth and breadth of the typical school program. It only enhances teachers' and parents' rapport as well as parents' and learners' connection with regard to learning process.

Parenting is a convergent term of the various nurturance practices of parents. It is considered to be an important determinant which affects the whole life of a child. In fact, it is one of the hardest tasks to describe the parent's efforts as he would hope to succeed in parenting (Gadeyne, Ghesquiere and Onghena, 2004). One way to succeed in parenting is providing a quality education and supporting the children in developing their skills and abilities and assisting them in improving their weaknesses

This study was conducted to propose an intervention titled home-based supplemental teaching and to determine its effectiveness through testing the significant difference in the academic achievement before and after the intervention. This intervention can be helpful to the pupils, parents, teachers and the community. Moreover, it determined the important factors to consider in providing the intervention such as the supplemental instructional materials, learning environment and length of time in studying, and the problems usually encountered in the conduct of the intervention. Recommendation to improve the intervention process was given to ensure its effectivity. This study can be used to encourage and maintain good study habits of the pupils and strengthen the parent-child attachment. The study was conducted at Macario Arnedo Elementary School which is located at Purok 3 Capalangan Apalit, Pampanga. It was named after the first elected provincial governor of Pampanga, Don Macario Arnedo, the third child of the wealthy and prominent Don Joaquin Arnedo and the former Doña Marie de la Paz Y Sioco. Their family was known for their generosity to the poor and hospitality to the rich and famous during the Spanish occupation of the Philippines.

The study aimed to introduce an intervention that will assist learners with difficulties in mathematics and involve the parents in enhancing the skills needed to achieve the learning competencies.

## **Statement of the Problem**

The general problem of the study is: How may the effectiveness of home-based supplemental teaching strategy be described?

Specifically, this study sought answers to the following questions:

1. How may the pupils' profile be described in terms of:
  - 1.1 size of the family
  - 1.2 economic status, and
  - 1.3 educational attainment of parents?
2. How may the conduct of home-based supplemental teaching be described in terms of:
  - 2.1 instructional supplemental materials
  - 2.2 learning environment, and
  - 2.3 length of time for studying?
3. What is the level of academic achievement of grade 3 pupils in mathematics during the first quarter of School Year 2017-2018, before the conduct of the home-based supplemental teaching?
4. What is the level of academic achievement of grade 3 pupils in mathematics during the second quarter of the School Year 2017-2018, after the conduct of the home-based supplemental teaching?
5. Is there a significant difference in the academic achievement of grade 3 pupils in mathematics before and after home-based supplemental teaching?
6. What problems are encountered in the conduct of home-based supplemental teaching?

## Methods

The researcher used the descriptive- quantitative research method to describe the home-based supplemental teaching in terms of instructional supplemental materials, learning environment and time allotment. She conducted home-based supplemental teaching and set out to prove its effectiveness. To do this, she determined the difference in the academic achievement of the respondents before and after the conduct of the intervention by comparing the first and second quarter grades of the pupil-respondents.

The researcher administered questionnaires to the parent-respondents to determine their demographic profile and the problems they faced in the course the intervention. This method factually fulfilled the objective of the study which was to test the effectiveness of home-based supplemental teaching as carried out by parents.

To measure the academic achievement of the pupils in mathematics, the researcher prepared a template for the teacher to fill out. The template consisted of the name of the pupil-respondents with their corresponding grades in mathematics during the first and second quarters.

## Population and Sample of the Study

The study was conducted at Macario Arnedo Elementary School during School Year 2017-2018. The school is located at Purok 3 Capalangan, Apalit, Pampanga. It was named after the first elected provincial governor of Pampanga, Don Macario Arnedo, the third child of the wealthy and prominent Don Joaquin Arnedo and the former Doña Marie de la Paz Y Sioco. Their family was known for their generosity to the poor and hospitality to the rich and famous during the Spanish occupation of the Philippines.

There are 21 teachers in this school. The researcher involved 30% of the grade three elementary pupils together with their parents and one mathematics teacher from subject school. The researcher used a questionnaire to determine the involvement of parents and effectiveness of home-based supplemental teaching. To assure adequacy, balance, and accuracy of the result, the researcher used the random sampling technique.

Table 1 presents the population and sample of pupil- respondents. 30 % of the population was be randomly selected by the researcher. With the population of 45 grade 3 male pupils and 46 grade 3 female pupils the researcher randomly selected 13 male and 14 females, with a total of 27 pupil-respondents. The parents of the selected pupils participated in the study since they conducted the home-based supplemental teaching espoused by the research.

**Table 1**

### *Population and Sample of the Study*

Pupil-respondents	Population	Sample	Percentage
Male	45	13	29 %
Female	46	14	30 %
Total	91	27	30 %

## Research Instruments

The researcher utilized a questionnaire to determine demographic profiles of respondents. The questionnaire consisted of a checklist that sought information on size of the family, economic status, educational attainment, availability of supplemental materials at home and length of time for studying. Similarly, a set of possible problems faced were listed in the last part of the questionnaire. The respondents simply checked as many problems as they have faced. The questionnaire used the likert scale in rating the learning environment through six indicators; 1. Proper ventilation; 2. Sufficient lighting; 3. Working space for studying (e.g. bookshelves, table and chair in a specific area at home); 4. Free from unnecessary noise (e.g. music, radio or TV program); 5. Organized files and learning materials; 6. Free from gadget-distraction. The following rating scale was used to assess each indicator.

The mathematics teacher was given a template to record grades showing academic achievement of pupil-respondents. The template has the name of the pupils and their corresponding grades during the first and second quarter.

The questionnaire and checklist that served as the main instrument in gathering necessary data and information had been by experts before use.

## Results and Discussion

### Part I. Demographic Profile of the Respondents

This part presents the demographic profiles of respondents focusing on the size of their family, economic status, and educational attainment of parents or guardian. These three factors were considered in the conduct of the home-based supplemental teaching because their effect is evident. The size of the family may affect the length of time for studying, especially if both parents are employed. The economic status is another factor because if the parents don't earn enough for the family, they will not be able to provide them with the learning materials needed to improve their academic achievement. The educational attainment of the parents may also be a factor because it will affect their preparedness and capacity to help the child with his lessons.

Table 2 presents the frequency and percentage distribution of the respondents' size. As can be seen in the Table, three (11.1 %) of the respondents belong to a family of three; while seven (25.9%) of them have four family members; moreover, six (22.2 %) of the respondents come from a family of five; five (18.5 %) of the respondents belong to a family of six, and lastly six (22.2%) of them belong to a family of seven or more members.

**Table 2**

*Size of the Family (Number of Children)*

<b>Size of the Family</b>	<b>Frequency</b>	<b>Percentage</b>
Family of 3	3	11.1 %
Family of 4	7	25.9 %
Family of 5	6	22.2 %
Family of 6	5	18.5 %
Family of 7 and above	6	22.2 %
<b>Total</b>	<b>27</b>	<b>100 %</b>

This shows that almost all of the respondents have average family size. There is documented evidence of the influence of family size on students' academic performance in various subjects in school (Odok, 2013). The studies of Odok, Eamon (2005), and Eristwhistle (1986), attest that small families are linked to higher educational attainment. On the other hand, large families, whether rich or poor, are difficult to maintain. They are characterized by high number of children whose rowdiness does not create favorable condition for learning. Bysenk and Locksoh (2011), affirmed that most extrovert children come from smaller homes and that they adjust more easily to school environment and can express themselves easily in the classroom. Therefore they achieve a greater academic performance as opposed to introvert children from larger families. Booth and Kee (2006) confirmed that children from larger families tend to have lower levels of education and they perform poorly in academics. However, Powell and Stellman (2010), and VanEjick and DeGraaf (2012), argued that children's academic attainment depends on time and money invested by parents. The more children there are in family; necessarily the lesser amount of investment is afforded for kids. Investments are not limited to time and money. They include other essential but intangible things such as attention.

**Table 3***Economic Status*

<b>Economic Status</b>	<b>Frequency</b>	<b>Percentage</b>
Self- employed	10	37 %
Employed	9	33.3 %
Unemployed	8	29.6 %
<b>Total</b>	<b>27</b>	<b>100 %</b>

Table 3 shows the economic status of the parent- respondents. 10 (37 %) parents are self-employed. Some of them own a small sari-sari store and other small-scale but income- generating enterprises. There are nine (33.3%) employed parents and eight (29.6 %) unemployed. These indicate that almost 70 % of the parent-respondents can sufficiently provide for basic needs of their families. But there are parents who need to find ways to meet the daily expenses of their families.

Olayinka (2009), pointed out that the family is the bedrock of society. He declared that a stable family can guarantee a stable and well-developed behavior of children. The current poor economic status of most parents and families in the country has exposed children to undesirable challenges that have negatively affected their academic performance. Family income, parental education and occupation have been linked to parental values and behaviors. Parents with serious financial problems are less likely to set goals for their children to be academically and psychosocially competent and less likely to emphasize self-regulation (Brody, Flor, and Gibson, 1999) as mentioned by Chui-Hui 2004)

**Table 4***Educational Attainment*

<b>Educational Attainment</b>	<b>Frequency</b>	<b>Percentage</b>
Undergraduate (Elementary)	0	0 %
Elementary	4	14.8 %
Undergraduate (High school)	5	18.5 %
High school	11	40.7 %
Undergraduate (College)	2	7.4 %
College	5	18.5 %
Masters' / PhD	0	0 %
<b>Total</b>	<b>27</b>	<b>100 %</b>

Table 4 shows the educational attainment of parents/ guardians attending to the child. As can be seen in the table, there is no undergraduate in the elementary level. However, four (14.8%) parents only reached the elementary level. 5 (18.5%) did not finish high school while 11 (40.7%) reached high school level which is almost half of the parent-respondents. Two (7.4 %) who made it to college but were not able to finish their course and 5 (18.5 %) parents finished college. Educational attainment of parents may affect study habits of the pupils but this is not to be taken as general truth. For we all know of cases of children

whose parents received little education but are so focused, diligent and determined to do well in school. Still, it would help if parents are knowledgeable in the content of the subjects their children are taking. In this respect, a measure of academic knowhow will definitely affect home-based supplemental teaching.

Sánchez, Reyes, and Singh (2006), identified negative domains within the family such as low parental school involvement, socioeconomic status, and educational level to explain Latino youths' educational failure. Khan et al (2015), cited Jencks (1972) that the role played by family is essential in both formal and informal education. He further stated that the parents' socio-economic status is the best predictor of student academic achievement and their parental education largely determines their socio-economic status. Indeed, parents' educational attainment influences their children's academic achievement.

## Part II. Conduct of Home-based Supplemental teaching

This part of the study discusses how the conduct of home-based supplemental teaching is conducted in terms of supplemental instructional materials, learning environment, and length of time devoted to studying.

It is important to consider factors that may affect the effectiveness of home-based supplemental teaching. One such factor is availability of supplemental materials and aids to teaching. Table 5 shows the availability of supplemental instructional materials in mathematics that were utilized by parents at home. These need not to be costly. Parents can be as resourceful as they can to obtain needed materials without spending too much.

**Table 5**

### *Availability of Supplemental Instructional Materials*

Supplemental Instructional Materials	Frequency	Percentage
Window cards	13	48.1 %
Flash cards	7	25.9 %
Activity books	4	14.8 %
Reading materials	9	33.3 %
Calculator	14	51.9 %
Measuring devices	6	22.2 %
Number Cards with pictures	3	11.1 %
Other Materials	0	0 %

As can be seen in the table, 13 (48.1 %) of the parent respondents have window cards at home. This means almost half of the pupils have the opportunity to practice the four fundamental operations in mathematics. Only seven (25.9%) of the parents have flash cards and only 4 (14.8%) have activity books. Nine parents (33.3%) have reading materials. Fourteen (51.9 %) or half of the respondents have calculators at home, Measuring device is available to six (22.2%) respondents and lastly 3 (11.1%) respondents have number cards with pictures. Mwangi (2010), explained that in the teaching - learning process, instructional materials serve to enhance retention, which makes learning more permanent. Equally, they stimulate and sustain interest in learning by providing firsthand experience with the realities of the physical and social environment. The availability of materials at home is essential in

conducting home-based supplemental teaching. It will also aid the parents in teaching their children effectively.

Table 6 presents the characteristics of the home environment, which make it conducive to learning. It focuses on proper ventilation, lighting, space, organization of files and learning materials and absence of gadgets and noise.

**Table 6**

*The Learning Environment*

Indicator	1-P	2-S	3-VS	4-E	Mean	Interpretation
1. Well-ventilated	2	14	6	5	2.52	Very Satisfactory
2. Well-lighted	1	17	4	5	2.48	Very Satisfactory
3. Adequate space and furniture (e.g. bookshelves, table and chair in a specific area at home)	3	18	6	0	2.11	Satisfactory
4. Free from distracting sounds	5	17	5	0	2	Satisfactory
5. Organized files and learning materials	4	17	6	0	2.07	Satisfactory
6. Free from gadget distraction	4	17	5	1	2.11	Satisfactory
Total Mean					2.22	Satisfactory

*1–Poor; 2-Satisfactory; 3-Very Satisfactory; 4-Excellent*

The Table shows that in terms of ventilation, half of the respondents say that the ventilation at home is satisfactory. However two respondents gave a poor rating to this category. Six respondents rated their ventilation at home as very satisfactory while five rendered an excellent rating. In general, the mean is 2.52 which indicate that the learning environment in terms of ventilation is very satisfactory, making it comfortable for the pupils to study. It is conducive for learning if room temperature is just right and the children do not feel suffocated.

In terms of lighting one respondent rated his study area as poor while 17 rated their lighting condition satisfactory. Four and five respondents gave a rating of very satisfactory and excellent respectively. Generally, the mean is 2.48 which shows that the learning environment in terms of lighting is satisfactory for the parents. A well-lighted study area will enable the child to have productive study sessions. It will not be difficult on their part when they need to read and write because they will not suffer from eye strain.

Adequate study is also essential in the conduct of home-based supplemental teaching. Three respondents rated their working space as poor, while 18 answered that it is satisfactory. Six rated it very satisfactory but no one gave an excellent rating. It has a mean average of 2.11 which means that parents find the working space satisfactory.

The area for supplemental teaching should also be free from distracting sounds so radio and television should be off. The child’s attention should be focused on studying alone. Five respondents rated this indicator poor, while 17 of them answered satisfactory. Five of the respondents were very satisfied with

the absence of noise, but no one gave an excellent rating. In general, the study area is free from distracting sounds.

Files and learning materials must be organized to enable the parents to retrieve them easily when needed. Four out of 27 respondents rated the organization of files as poor. Seventeen responded with satisfactory rating and 6 rated their files organization as very satisfactory. No one gave an excellent rating for organization of files and learning materials. The mean average for this is 2.07 which show that overall parents find it satisfactory.

In terms of being free from the distraction of gadgets, four respondents rated their home poor, while seventeen rated it satisfactory. Five respondents rated it very satisfactory while only one respondent gave it an excellent rating. Overall, the general mean for a learning environment that is free from gadget distraction is 2.11, a satisfactory rating.

Factoring in all the indicators, the mean average rating is 2.22 which indicates a satisfactory level in terms of the learning environment. This shows that the environment is somehow conducive for learning but still it can be improved. Amirul, Ahmad, Yahya, Abdullah, Adnan and Noh (2013), Tessmer and Harris (1992) listed the physical factors of learning environment to develop effective teaching. First, learning facilities including state of the furniture and learning location must be favorable for parents to assist their children with supplemental teaching at home. The location may be a classroom, a computer lab, a science lab, an office or any place where learning occurs. In all of these the learning space, seating area, temperature, sound, lighting and accessibility must be conducive.

For parents to assist their children with supplemental teaching at home, they must manage their time well. According to Sansgiry, Kawatkar, Dutta, and Bhosle (2004), basic time management skills begin with prioritizing, emphasizing most important tasks, being able to say 'no' to less important concerns, and being able to start specific activities at pre-set schedules. Parents should prioritize the education of their children by allotting ample time in monitoring their class standing and performance and assisting them with the tasks that they need to accomplish and lessons that they need to review.

Table 7 presents the length of time for supplemental teaching that parents allot for their children. Seventeen (63 %) out of 27 respondents tutor for 1-2 hours per day, while eight (30 %) of them devote for 3-4 hours, two (7 %) allot 5-6 hours. These data show that the length of time devoted to supplemental teaching is adequate enough.

**Table 7**

*Length of Time for Studying*

Length of Time for studying (hours)	Frequency	Percentage
1-2	17	63 %
3-4	8	30 %
5-6	2	7 %
7 and above	0	0 %
Total	27	100 %

**Part III. Academic achievement of the grade 3 pupils in mathematics during the first quarter of the school year 2017-2018 (before the intervention)**

This part of the study presents the level of academic achievement of the pupil-respondents before undergoing home-based supplemental teaching mathematics. Table 8 shows the level of the pupils' academic achievement in mathematics during the first quarter of School Year 2017-2018 as reflected by their grades before the intervention scheme was implemented.

**Table 8**

*Academic Achievement of Grade 3 Pupils in mathematics for the First Quarter of School Year 2017- 2018*

Scale	Frequency	Percentage	Descriptive Rating
90-100	3	11.1 %	Outstanding
85- 89	3	11.1 %	Very Satisfactory
80-84	5	18.5 %	Satisfactory
75-79	16	59.3 %	Fairly Satisfactory
74 and below	0	0 %	Did not Meet Expectation
Total	27	100 %	

The Table shows that, three (11.1 %) got a grade within 90-100 range with a descriptive rating of Outstanding. Three (11.1 %) pupils got a grade within 85- 89 bracket that shows a very satisfactory performance while five (18.5%) have satisfactory performance with a grade of 80- 84. Almost 60 % of the pupils-respondents have 75- 79 grade in the first quarter which has descriptive rating of fairly satisfactory. The data show that majority of the pupils had difficulties in mathematics for the first quarter since 59.3 % of them got a grade of 75-79. The figure indicates that pupils need extra time in studying mathematics and practicing their skills in the subject. The academic achievement of pupils must be monitored and safeguarded and parents must exert their best efforts in helping their children. For although education is not the only road to success in the world of work, parents are right to identify, evaluate, monitor and facilitate academic growth of their children. Parents care deeply about their children's academic performance, rightly believing that impressive academic credentials are a stepping stone to more career choices and job security in the future.

#### **Part IV. Academic achievement of the grade 3 pupils in mathematics during the second quarter of the school year 2017-2018 (after the intervention)**

This part of the study presents the level of academic achievement of pupil-respondents in mathematics who underwent home-based supplemental teaching. Table 9 shows their grades in mathematics during the second quarter of School Year 2017- 2018, after the conduct of the intervention program.

**Table 9**

*Academic Achievement of Grade 3 Pupils in Mathematics for the Second Quarter of School Year 2017- 2018*

Scale	Frequency	Percentage	Descriptive Rating
90-100	5	18.5 %	Outstanding
85- 89	2	7.4 %	Very Satisfactory
80-84	10	37.1 %	Satisfactory
75-79	10	37.1 %	Fairly Satisfactory
74 and below	0	0	Did not Meet Expectation
Total	27	100 %	

The Table shows that after the home-based supplemental teaching, five pupils now (18.5 %) obtained a grade of 90-100, an Outstanding rating. Two (7.4 %) pupils belong to the Very satisfactory level with a grade of 85-89 while ten (37.1 %) pupils fall under the satisfactory level. On the other hand, there are now only ten (37.1 %) pupils who obtained 75-79 grades with a fairly satisfactory level. This is a fairly good leap from the 16 pupils who got a fairly satisfactory level during the first quarter. These data show improvement in the academic achievement of pupil-respondents after systematic and coordinated intervention.

## **Part V. Significant difference between the first and second quarter academic achievement of the grade 3 pupils in mathematics**

This part of the research presents the significant difference in academic achievement of pupils during the first and second quarters of the School Year 2017-2018. The pupils were given systematic and coordinated supplemental teaching by their parents during the second quarter. The difference in their grades was tested.

Table 10 shows the significant difference of the two variables. As can be seen in the Table, first quarter grades in mathematics averaged 80.19 while the second quarter grades reached an average of 82.48. The difference of 2.29 between the two grading periods is considered statistically significant.

**Table 10**

### ***Significant Difference the First and Second Quarter Academic Achievement of Grade 3 Pupils in Mathematics***

Variables	Mean	t-value	Critical value	Decision
First Quarter Grades in Mathematics	80.19			
Second Quarter Grades in Mathematics	82.48	9.66	2.06	Reject $H_0$

As can be seen in Table 10, the obtained t-value was evaluated in 0.05 level of significance with critical value of 2.06. The test revealed that the t-value obtained was 9.66 was greater than the critical value of 2.06 at 0.05 level of significance thus the null hypothesis is rejected. This means that there is a significant difference on the academic performance of grade three learners after the conduct of home-based supplemental teaching proof that the supplemental home teaching intervention was effective in the results.

Thus, there is compelling reason to reject the null hypothesis, that the home-based supplemental teaching does not affect academic achievement of grade school learners. This suggestion of the null hypothesis meets all. The test revealed that the t-value 9.66 was greater than the critical value of 2.06 at 0.05 level of significance. From this result, it is reasonable to accept the alternative hypothesis- the home-based supplemental teaching is significant to and positively affect pupils' academic achievement.

A study conducted by Che (2010), confirms this finding. The study examined the levels of home-school communication and the various ways by which schools, parents, and school organizations such as PTA

and school councils, etc get parents involved. It found that to make the parents involved they should be welcomed into the school and the parents should feel this beyond doubt. Student-parent handbooks should be provided at the beginning of the school year, information about school events should be distributed regularly, and parents should be invited to attend at least one school activity during the school year.

This is relevant to the study at hand, which proved that as the parents assist their children in their studies, an improvement in their performance is evident. This means that pupils learn more through the help of their parents at home.

In the same light *Mc Wayne et.al* (2004), conducted a study which confirmed that parents who maintain direct and regular contact with schools experience fewer barriers to involvement. Their children demonstrate positive engagement with peers, adults, and learning.

All this research buttresses parental responsibility for learning outcomes, the aspect of parenting that emphasizes educational activities promoting school success of children. It also explains that parental involvement in early schooling of their children must be felt both at home and in school.

## **Part VI. Problems encountered by the parents during the conduct of the home-based supplemental teaching.**

The problems that the parents faced during the conduct of the home-based supplemental teaching were ranked accordingly and are presented in this part of the study.

Table 11 shows the problems faced by parents in order of frequency of occurrence. Their most common problem is having to go to work every day and do household chores when they get home, which makes it difficult for them to conduct supplemental teaching. As we have seen in the previous Table, more than 60 % of them are employed or self-employed. The second most common problem is the unavailability of learning materials necessary for the teaching and learning process. This makes it difficult for the parents to conduct the supplemental teaching at home since they do not have the materials at home. As the data on supplemental instructional materials show, all they have is window cards and calculator.

**Table 11**

### *Problems faced by the Parents During the Conduct of the Home-based Supplemental teaching*

<b>Problem faced</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Rank</b>
I have to go to work every day and still do household chores when I get home	14	51.9 %	1
We don't have materials that can be used at home for studying other than note-books of my child.	9	33.3 %	2
I have no time to assist my child with his lessons because of my work.	8	29.6 %	3
I have more than four children to take care of.	7	25.9 %	4
My child has no interest in studying at home.	6	22.2 %	5
My child needs to help me with household chores after his/her class.	5	18.51 %	6
I don't have enough knowledge on the lessons of my child.	4	14.8 %	7
There is poor lighting and ventilation in our house.	4	14.8 %	7
Our house does not have enough space for studying.	3	11.1 %	8

Next in the order of frequency is lack of time for the supplemental teaching. This is supported by the fact that almost 60 % of the parents have work to do aside from attending to their children's needs. Another problem is the number of children needing attention, aside from the child who needs to be tutored. It was highlighted in the previous data that the average family has five children. This means that most parents need to attend to their other children instead of conducting supplemental teaching for one child.

The problem on pupils' lack of interest falls on the 5th order. Only 22.2 % of the parents have difficulties in encouraging their children to study at home.

There are three other problems that the parents face but not as serious as the others. One, pupils need to help with household chores instead of studying their lessons. Two, some parents find it very hard to understand the lesson they have to teach, probably due to insufficient education on their part. And lastly, poor lighting and ventilation and cramped study space hinder their efforts.

Parents cannot avoid the aforementioned problems and challenges. They are real difficulties that affect supplemental teaching. However, their willingness and determination to help their children pursue their academic goals enable them to rise above these challenges.

## Conclusion

The academic achievement of pupils during the first and second quarters shows that they satisfactorily performed in mathematics. More pupils obtained a fairly satisfactory level of performance. Then too, there is a significant difference between the two quarterly periods, proving that home-based supplemental teaching positively affects the academic achievement of pupils.

## Recommendations

In light of the aforementioned findings and conclusions, the following recommendations are hereby humbly put forward.

1. Parents should be aware of their children's needs of their studies. For this purpose, teachers should have open and sustained communication with parents. A one-on-one parent-teacher conference should be conducted at regular intervals. This will assure that the child's performance will be treated with utmost confidentiality.
2. Classroom remediation should be done if parents cannot really assist their child at home due to lack of time. However, they should still monitor how the child is doing in school. The communication between parents and teacher should never be taken for granted.
3. Home-based supplemental teaching should be conducted to assist the pupils who are having difficulties in the lessons. The learning of a child does not stop in the four walls of the classroom. It should be supported by the parents or guardians at home. Follow-up at home will encourage the child to maintain study habits that are part of his daily routine.

4. Learning modules or self-learning kits can be produced by the teacher to be discussed at home by the parents. This way, parents will be guided on what to study at home and they will not need other materials.

5. Seminar-workshops for parents may be initiated by the school to train parents on how to conduct remediation at home. Different strategies, techniques and approaches should be learned and applied during the seminar-workshop in preparation for the remediation. Through this, they will be more skilled and knowledgeable in conducting the home-based supplemental teaching. It will be a stepping stone for them to study the lesson, teach it to the child, and help him learn.

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