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Attitude towards the Use of Practical Work Approach in Teaching Mathematics

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Abstract: Practical Work Approach has been proven as an effective strategy for improving pupils' performance in mathematics. Hence, this study determined the attitude towards the use of Practical Work Approach in teaching Mathematics. Specifically, this study sought answers to the following questions: What is the attitude of the respondents towards the use of PWA in teaching Mathematics?; What are the problems met by the teachers in using PWA in teaching Mathematics? and What measures can be undertaken to solve the problems?
A researcher-made questionnaire was the main instrument used to determine the attitude towards the use of Practical Work Approach in teaching Mathematics. After careful tabulation, statistical treatment, analysis and interpretation of data, the following findings were revealed. The respondents' attitude towards the use of Practical Work Approach in teaching Mathematics is *Highly Positive*. The most common problem met by the teachers in using PWA in teaching Mathematics is about preparation of instructional materials. This is so because teachers have limited time to prepare those materials due to too much work loads. In addition, there is no available room to store those materials.
Based on the conclusions drawn from the study, the researcher recommended that the institution may establish a learning resource center for mathematics with the function of gathering and designing instructional materials which may be used by teachers to store all the materials prepared by Mathematics teachers. Lastly, further studies be undertaken to find out other factors that affect the use of PWA in teaching mathematics including problems met by pupils on the use of PWA.
Keywords: Attitude, Practical Work Approach.

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Introduction

Mathematics is a language of science that allows one to describe the universe and predicts its future behavior. It provides a central and important way of thinking. It is regarded as a language because of its power to represent and communicate ideas concisely. Thus, it is important for pupils to learn so they are able to make sense of mathematical situations and to communicate about these situations with others. Learning how to look at the real situation from a mathematical perspective and talk about the situation to make a mathematical solution

are important parts of learning mathematics. Learning the language of mathematics develops gradually, and has to be continually connected to what students understand to make it meaningful.

Mathematical communication is assessed through analysis of pupils' ability to read, listen, write, speak and represent mathematics in clear and logical modes and through their ability to translate information from one mode to another in displaying one's thinking and reasoning (Dossey and Schoenfield, 2003). Pupils learn mathematics as they talk and write about what they are doing. They become actively engaged in doing mathematics when asked to think about strategies, and solutions. Writing about mathematics helps pupils reflect on their own work and clarify ideas for themselves.

It is imperative that pupils realize the importance of mathematics in man's day-to-day activities in this technologically-driven world. It must be instilled into their minds that mathematics is becoming an absolute necessity for it plays a significant role in the education of every individual (Marasigan, 2019).

The low achievement of Filipino pupils in mathematics is an important issue that must be resolved and its causes must be traced. Many researchers say that it can be strongly associated with poor quality of instruction. The low achievement in mathematics is therefore a clear manifestation that there are problems in mathematics instruction and more so, mathematics education. Most of the mathematics teachers agree that innovative teaching strategy, approaches, and techniques must be adopted to make the teaching and learning of mathematics meaningful and enjoyable. The possibility of improving mathematics education is clear only if the pupils can perceive the subject as being useful and non-threatening. Progress in mathematics education is critically dependent upon a firm foundation.

The present condition of mathematics education in the Philippines has prompted the Department of Education particularly those who are in the area of Mathematics to continuously look for effective method of teaching. It has resulted in the adoption of Practical Work Approach (PWA) in teaching the subject. This approach of teaching involves hands-on and minds-on activities to develop concepts, investigate relationship among those concepts, solve problems and engage the teacher and the learners in mathematical thinking.

PWA is an approach of teaching Mathematics today. This is based on investigation and involves presenting real-life problems. Pupils are guided to understand the process required for a task. They are also encouraged to discuss with one another and with the teacher. This method of teaching gives confidence to pupils to flexibly apply the skills they have learned.

For effective implementation of this method of teaching, various trainings had been conducted to teachers on how to use this strategy in teaching mathematics. The drive of encouraging teachers to use it is still on going. There are also researches which had proved its effectiveness; however, it is observed that some teachers are still hesitant to use it.

This phenomenon signified that there are considerations that must be cleared about the use of PWA in teaching Mathematics. First, the attitude of the teachers and pupils towards this method of teaching; second, whether trained teachers use it; and third, the reason of this reactions. This consideration prompted the researcher to examine carefully the reaction of teachers towards this particular method of teaching. PWA has been proven as an effective strategy for improving pupils' performance in mathematics.

A lot of money has been spent for teachers' training on how to use this strategy. Yet, trained teachers seldom use it for it shows that there are factors that affect them. Teachers may not be enthusiastic to use PWA in teaching mathematics probably because they are not provided with their needs in using it. This study would like to determine the attitude of teachers towards the use of PWA and identify the problems met in using the said approach with the end view of presenting possible measures to remedy the problems.

Objective of the Study

This study determined the attitude of teachers towards the use of Practical Work Approach (PWA) as applied in teaching Mathematics at Tanauan South Central School. Specifically it sought answers to the following questions: What is the attitude of the respondents towards the use of PWA in teaching Mathematics?; What are the problems met by the teachers in using PWA in teaching Mathematics? and What measures can be undertaken to solve the problems?

Methodology

This study determined the attitude of teachers towards the use of Practical Work Approach as applied in Mathematics through the use of descriptive method type of research. In order to determine the nature of the variables involved, a self-constructed questionnaire was utilized and distributed to teachers of Tanauan South Central School. Data were gathered from 20 mathematics teachers from the said school. The data gathered were treated through the use of mean, frequency and ranking. To facilitate the computation of data, the MINITAB Statistical Software was utilized. To be able to interpret the gathered data, the following scale with its corresponding interpretation was used:

Scale	Mean Ranges	Verbal Interpretation
4	3.51 – 4.00	Strongly Agree/Highly Positive
3	2.51 – 3.50	Agree/Positive
2	1.51 – 2.50	Disagree/Negative
1	1.00 – 1.50	Strongly Disagree/Highly Negative

Results and Discussion

This part of the study determined the attitude of teachers towards the use of Practical Work Approach as applied in Mathematics. It also ascertained the problems met by the teachers in using the approach. The data were presented using mean, frequency and ranking.

1. Teachers' Attitude towards the Use of Practical Work Approach in Teaching Mathematics

This part of the study determined the attitude of teachers towards the use of Practical Work Approach (PWA) in teaching Mathematics. It reveals the computed mean for each statement with its corresponding interpretation.

Table 1. Teacher's Attitude toward the Use of Practical Work Approach in Teaching Mathematics

Statements	Mean	Verbal Interpretation
Practical Work Approach is… 1. a teaching strategy which have I always enjoyed using.	3.55	Strongly Agree
2. interesting to me and I enjoyed teaching Mathematics using this	3.45	Agree

approach.		
3. very useful in helping my pupils understand mathematical concepts.	3.70	Strongly Agree
4. helpful in developing my pupils' analytical thinking skills.	3.40	Agree
5. applicable to pupils regardless of their abilities.	3.45	Agree
6. effective in discussing mathematical problems.	3.75	Strongly Agree
7. appropriate in solving real-life problems.	3.55	Strongly Agree
8. valuable in arousing the interest of my pupils	3.45	Agree
9. helpful to my pupils for it trains them to work independently.	3.75	Strongly Agree
10. encouraging because less supervision is given to my pupils.	3.80	Strongly Agree
Composite Mean	**3.59**	**Highly Positive**

It can be gleaned from the table that the respondents' attitude towards the use of Practical Work Approach in teaching Mathematics is *Highly Positive* with a composite mean of 3.59. This means that the teachers found this approach very helpful in attaining good performance among pupils. Real-life situations are given which makes learning more meaningful and plausible.

2. Problems Met by Teachers in Using Practical Work Approach

This part of the study presents the problems met by teachers in using Practical Work Approach. It reveals the frequency and ranking for each problem.

Table 2. Problems Met by Teachers in Using Practical Work Approach in Teaching Mathematics

Problems Met by Teachers	Frequency*	Rank
1. Big number of classes	17	3
2. Time consuming	12	7
3. Difficult to apply to slow learners	9	9
4. Lack of available instructional guide	14	6
5. Too much work load of teachers	18	2
6. Less pupils' interest in mathematics	15	5
7. Limited support given to teachers	11	8
8. Materials are difficult to prepare and proper storage of these materials is not available	19	1
9. Lack of trainings of teachers on how to use PWA	16	4
10. Lack of interest of teachers to use PWA	8	10
*Multiple Responses**		

The table discloses the problems met by teachers in using Practical Work Approach in teaching mathematics. It can be seen from the table that the respondents find it hard to use Practical Work Approach because the materials are difficult to prepare and the school lacks proper storage for these materials. The table also reveals that among the problems met by the respondents, lack of interest of teachers to use PWA got the lowest rank.

3. Measures to Solve the Problems towards the Use of Practical Work Approach

After knowing the problems met by teachers in using Practical Work Approach, the researcher proposed several measures that can be undertaken to solve the problems. The proposed measures are presented in tabular form.

Table 3. Measures to Solve the Problems towards the Use of Practical Work Approach

Measures to Solve the Problems
1. Give teachers enough time in preparing instructional aids for the use of PWA by reducing their work loads.
2. Provide teachers with instructional guides on how to use PWA in teaching mathematics.
3. Provide adequate in–service trainings for teacher on how to use PWA.
4. Provide incentives to teachers who can develop instructional device that can be used to utilize PWA in teaching mathematics.
5. Encourage teachers to use PWA in teaching mathematics.
6. Close monitoring of schools by the Head of the agency on the application of PWA.
7. Check lesson plan of teachers from time to time to determine whether PWA is being used in their classes or not.

Table 3 presents the measures to solve the problems towards the use of Practical Work Approach in teaching Mathematics. As shown on the table, enough time must be given to teachers in preparing instructional aids for the use of PWA by reducing their work loads. Teachers must be provided with instructional guides on how to use PWA in teaching mathematics. Adequate in-service training and incentives to teachers must also be provided to encourage teachers to use PWA in teaching mathematics.

The Head of the agency must monitor closely the school and lesson plan of teachers must also be checked from time to time to determine whether PWA is being used in their classes or not.

Conclusion and Recommendation

The study revealed that the respondents' attitude towards the use of Practical Work Approach in teaching Mathematics is *Highly Positive*. The most common problem met by the teachers in using PWA in teaching Mathematics is about preparation of instructional materials. This is so because teachers have limited time to prepare those materials due to too much work loads. In addition, there is no available room to store those materials.

Based on the conclusions drawn from the study, the researcher recommended that the institution may establish a learning resource center for mathematics with the function of gathering and designing instructional materials which may be used by teachers to store all the materials prepared by Mathematics teachers. Lastly, further studies be undertaken to find out other factors that affect the use of PWA in teaching mathematics including problems met by pupils on the use of PWA.

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