

Improving The Student's Ability on Multiply Fractions with Whole Numbers Using Technique Pillar Methods for Year 5 Primary School

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Abstract: Mathematics is one of the most important core subjects in the Malaysian Education System. However, there are challenges with regards to the Mathematics teaching methods in primary schools especially in multiplication of fraction. Therefore, this study was conducted to introduce Technique Pillar Method to overcome the multiplication problems of fractional with the whole numbers. A total of 30 student from 5 Ibnu Khaldun Class, at SK Telok Gong, Port Klang, Selangor were involved in this study. This study was conducted using questionnaire, observation, pretest and post test learning. This study has also conducted planning and compilation action aimed at solving the multiplication of mixed numbers with whole numbers in a simple way. This study found that the Technique Pillar Method has positive impact to the student's achievement. Therefore, this technique is recommended as an alternative besides the current teaching methods. Further studies should be conducted to involve large populations sample to make more meaningful conclusion.

Keywords: Technique Pillar Method, Multiplication, Fraction.

1. INTRODUCTION

Fractional topic is the most important topic in mathematic subject. It involves the skill to multiplying whole numbers with fraction. In the context of teaching in primary schools, students are often faced with these problems (Shamsul & Mohd 2016). Students are found difficulties to master the multiply the fraction with whole numbers. They always take long time to understand and able to do the calculation. This is coupled with the weaknesses faced by students which need to memorize the multiplication for each numbers (Christina Lau Yuan 2012; Norazlin 2015; Shamsul & Mohd 2016). Consequently, they tend to not interested and less focused on the learning activities. Hence, more creative approaches are needed to teach students (Hajar & Suguneswary 2016; Khalid 2016) .

The problem that has been identified among the students is to answer questions or exercises involving the multiplication of fraction with whole numbers. It happened because:

- a. Pupils did not memorize the multiplication table
- b. Pupils still unable to do the division and multiplication operations
- c. Pupils do not attempt to solve fraction multiplication questions with a whole number

Although various problems were identified, this study only focuses on fraction multiplication topics.

This research is conducted to achieve following objectives:

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- i. To evaluate the pupils interest in learning mathematics;
- ii. To identify the level of pupils in terms of the skills in multiplication fraction with whole numbers;
- iii. To identify how Technique Pillar Method could increase student performance and achievement in learning mathematics
- iv. To suggest the improvement on learning and teaching of Mathematics method

2. METHODOLOGI

This study has been done by used quantitative method. It is consider quantitative method because all the data is carried out from the pre and post test is in the form of marks value. This study has been done by following 7 steps as shows in Table 1.0

Table 1.0 Step of research activity

No.	Activity	Date
1.	Planning for observation	9.3.2018
2.	Data collection from observation and pre test	10.4.2018
3.	Analysis observation data	10.5.2018
4.	Implementation of Intervention/Action	12.6.2018 - 21.8.2018
5.	Post test	12.9.2018
6.	Data analysis for post test	21.9.2018
7.	Research reflection	3.10.2018

2.1 SAMPLES

The respondents selected in this study were 30 students from Year 5 Ibnu Khaldun, SK Telok Gong. The chosen pupils are among those with moderate and weak achievement. Some of them have different backgrounds in terms of academic level. Their achievement grades are extremely low where they have failed in pre-test. The respondents were selected from lower income families. They also been selected base on the analysis of pretest and review of their exercise books and worksheet.

2.2 PRELIMINARY PROBLEM SURVEY

Preliminary survey has been conducted before the real collection data is conducted. The survey of the problem is aim at to understand the main problem which is face by the student. The survey is done by identified the level of their skill in multiply the fractional with the whole numbers. The observation also has been conducted during the learning session and questionnaires to be fill up by the student.

a. Pre Test

Pre- test has been conducted to identify the ability of students in the multiplication of fraction and to search the main concept problem that face by pupils.

b. Observation

The exercise book of the student has been check to get the pictures of student ability in this topic. While the behavior of the students had been observed before treatment is conducted. The criteria of observation as I the Table 2.0

Table 2.0 Observation Criteria

Category	Code
Like to go out from the class	A
Doing other works during class	B
Dreaming	C
Disturbing friends	D
Love to talk	E

c. Questionnaire

Students have been given a set of questionnaire to be fill up and to answer questions regarding their perception towards Mathematics subject

2.3 Real study

The real study or gathering information to the respondent has been done first by introducing Technique Pillar Method to the pupils. This is to identify how far this method can influence and improve the ability of the pupils. Then the post test analysis has been conducted to evaluate the pupils performance.

2.4 Treatment by using Technique Pillar Method

Technique Pillar Method for multiply fractional with whole number is the easy way to improve pupils understanding. This technique make use the concept of multiplication by using picture and diagram.

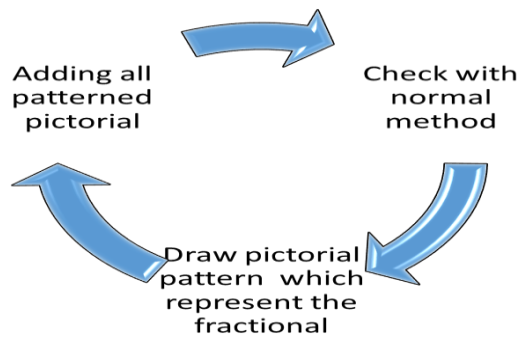
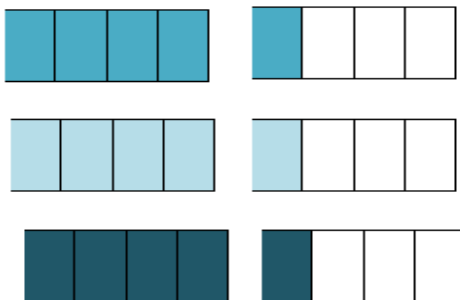


Diagram 2. Pillar Method

Example :

1) $1\frac{1}{4} \times 3 =$

Step 1 : Draw the shaded piktorial representing fraction of equal number and whole numbers



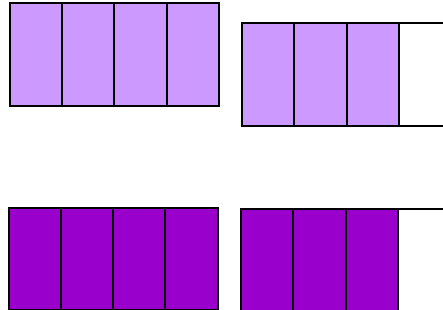
Step 2 : To get the final result, add the results of all the shaded parts



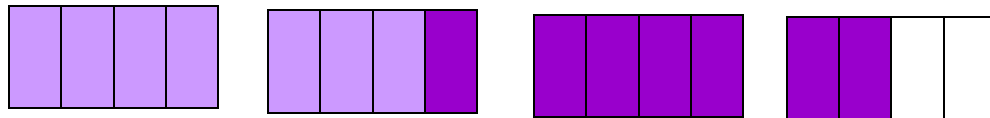
$$\frac{15}{4} = 3\frac{3}{4}$$

2) $1\frac{3}{4} \times 2 =$

Step 1 : Draw the shaded pictorial representing fraction of equal number and whole numbers



Step 2 : To get the final result, add the results of all the shaded parts



$$\frac{14}{4} = 3\frac{2}{4} = 3\frac{1}{2}$$

2.6 Data Analysis

The data analysis has been conducted by using descriptive statistic which consist with percentage value.

3. STUDY FINDING

3.1 Pre test

Before the treatment has been conducted, the pretest shows that the knowledge and ability among the student in this topic is very low. Pupils cannot understand the true concept. The pre- test shows that only 75 % achieve gred E and 25% achieve gred D. Tabel 3.0 shows the achievement of the student in pretest.

Table 3.0 Pre Test Achievement

GRED	MARKS	ACHIEVEMENTS	
		Bil	%
A	80 – 100	-	
B	60-79	-	
C	50-59	-	
D	40-49	10	25%
E	0-39	30	75%
PASS		10	25
FAIL		30	75%

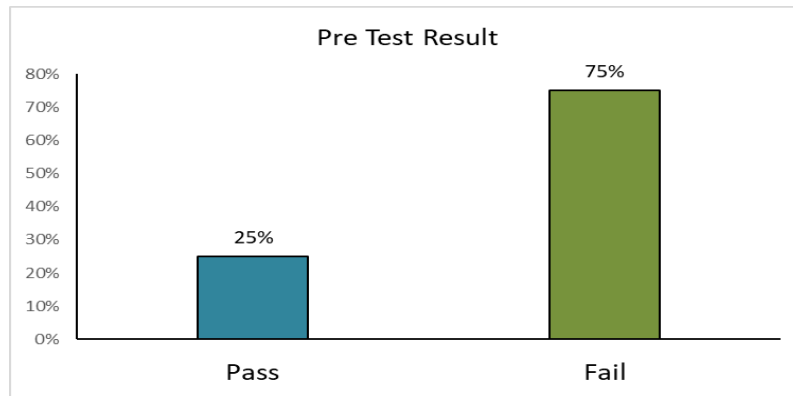


Figure 1.0 Pre Test Results

3.2 Observation

The observation that has been conducted, reveals most of the pupils before treatment not pay attention during learning session. The pupils also not actively participate in the learning activity. Most of them have the perception the topic is too complex. Some of the pupils not remember the multiplication which is needed in this topic. Beside of that, some of pupils also give the reason to leave out the class because they are boring and cannot understand the topic well.

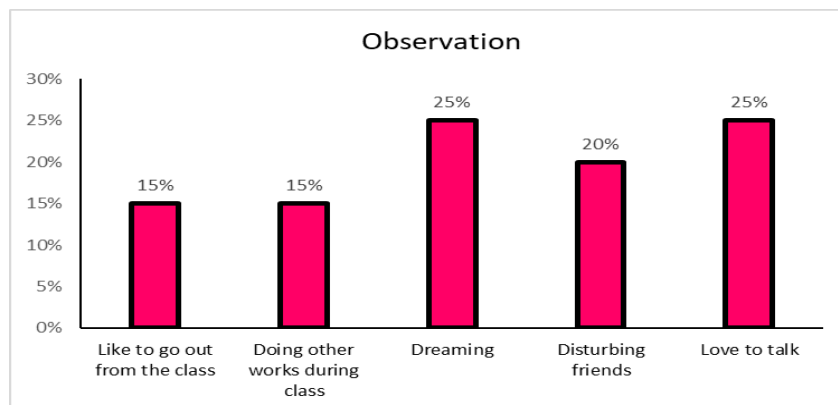


Figure 2.0 Observation before treatment

3.3 Questionnaire

Questionnaires or survey after the treatment is aim to gather the information regarding the effectiveness of Technique Pillar Method specifically in multiplying the fraction with whole number.

3.4 Study Finding After Treatment

a. Observation

Observation after the treatment found, most of the pupils has improve their behavior towards learning mathematics. In terms of motivation an interest the students show some improvement:

- i. Pupills can solve the problem easily by using Technique Pillar Method
- ii. Do the assigment more carefull.
- iii. Recheck their answer after finish doing an assignment.
- iv. The behavior changes when 90% of the pupils can do their home exercise
- v. The pupils more close with the teacher
- vi. They are more responsible during the learning session in the class

3.5 Comparison between pre and posttest

After the Pillar Method is implemented, drastic improvement in pupils behavior has been seen in terms of their achievement. Although, they face problems at the start, but they can apply this method effectively. Teaching and learning using the 'Technique Pillar Method' can increase the mastery of fraction multiplication concepts with whole numbers. In addition, the 'Technique Pillar Method' also provides positive behavioral change among students. Figure 3.0 shows that the improvement in terms of the student achievement is increase more than 50%.

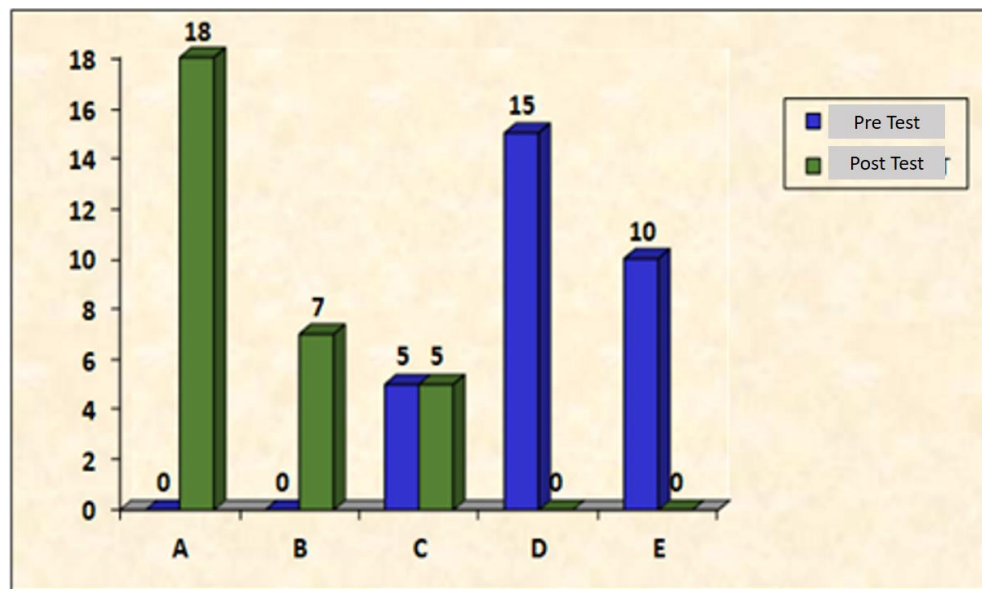


Figure 3.0 Comparison Pre and Post Test

4. SUGGESTION AND CONCLUSION

Through this study we have found that 'Technique Pillar Method ' has successfully be us to attract the students attention in learning. This method or technique is an encouragement to all students to increase the interest in ability in Mathematical skills. 21st Century Learning is a transformation in the education world by improving conventional teaching and learning methods to be more dynamic and creative way of learning. The use of this technique not only attracts pupils to learn mathematic but it also can positively change behavior among the pupils and indirectly improves pupils achievement.

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