Research Article

The Difficulties of Theoretical and Applied Learning for Mathematics Subject in Primary Schools *

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Abstract

Mathematics one of the important subject in primary schools, it is the best criteria for evaluating the ability of students level for learning and understanding. The problem is the students felt weakness and anxious in mathematics subject especially those students in the grade one to three, moreover, sometimes they fail in mathematics become to a factor to fail other scientific subjects, for these reasons the teachers should be teaching mathematics carefully and use modern methodologies for teaching mathematics. This study aims to find the factor of difficulties of teaching mathematics in the primary classes as well as the complexities in the mathematics curriculum in these classes. For addressing this issue, we use a sampling method for collecting data and analyzing method for analyzing data collected. For collecting real data, ten relative questions proposed then answered by one hundred teachers through their experience and their knowledge. The result of the study shows that the mathematics subject needs to improve through teachers' experience and to improve the mathematics curriculum. Moreover, this results leads for the teachers to solve general issues of mathematics in the primary school, especially among grade one to grade three.

Keywords: Teaching mathematics, difficulties in mathematics, difficulties in learning

1. INTRODUCTION

Mathematics is considered one of the most important subjects because it is a science which contains others fields, the base of growth and development in the human mind with the enhancements throughout years mathematics never loses its importance even the advance of technology and revolution of science are most likely related to mathematics and the equations of math. Therefore in this era and the previous eras, math is considered as a crucial subject that because humans tend to use math in all fields in their lives such medical fields, engineering, banks, branches of technology, economy, accounting, marketing (Churchill, 1944; Tyson, 1924).

The scholars regard mathematics as the base of knowledge, they try to teach new generations with a new style and innovative techniques, but mathematics is correspondent with mind and intuition of human, in consequence, they face difficulties learning the subject there they need further attention and helping them to control over the obstacles. It is known that the abilities to acquire the science among students are limitless and the obstacles for them are not the same but in general, the children who enter the school for the first times they face difficulties learning the subject, especially primary schools especially in the grade one to three (Geary, 2004).

In basic stages, specifically in grade one, two, and three, the students face hurdles like reading and writing numbers. Students usually face difficulties in this stage because of lacking ability,

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concentration and the movement in their hand in taking pen in an unhealthy way and writing the numbers and solving the problems even their families face obstacles this cause educational and mental issues in the near future. Identifying and solving those problems the students have are a crucial and enormous task that the teacher should consider them. To define the difficulties they face, some problems are simple and pass through times, but some are consistent and dangerous for student's learning education for instance as emerged that out of twenty students, a student has a dangerous difficulty in learning mathematics. Therefore, teachers should identify the problems and find to solve the problem as soon as possible. The difficulties that students face in learning mathematics are the mathematical terms and the fact in math as well as the usage, writing the numbers, solving the mathematical problems and analyzing according to a research by education statistics in the USA shows that a student out of four to five students has difficulty with solving the simple problem in mathematics. This proportion indicated that nearly 22% percent of the students have difficulties but this proportion is different according to Arabic Numbers when students enter the school they get familiar with a subject is called mathematics, sometimes the teachers tell the students to take it seriously and practice a lot with solving problems (Graham, Bellert, Thomas, & Pegg, 2007; Mazzocco & Myers, 2003).

The problem is teachers in Kurdistan region's primary school have a lot of issues during teaching mathematics. In this paper, we conducted an experimented to find how teachers in primary schools, especially in grade one to three tech mathematic subject easily. For finding the factors for addressing difficulties of mathematics learning, we prepare a questionnaire form, and we will ask the teachers to answer the questions through their experience then we analyze the answers for selecting the answers and organizing for formulation the answers. The paper is organized as follows: Background explains the related work of our research and important points about difficulties in learning mathematics. The Method prepared research process for solving the problem. Finding presents the result of the implementation research process. Discussion and Conclusion presents result from discussion and conclusion of the research.

2. BACKGROUND

In this section, we present important relevant works about difficulties in learning mathematics especially for primary levels, some related works that present new methods for teaching in primary schools with factors to learn students in schools, the types of difficulties in learning mathematics, and the level of difficulties in learning among students.

Related Works

There are many works that exist about mathematics difficulties; here, we present the most relevant and recent works. A group of researchers present mathematics learning challenges, in their study, builds on teachers' professional knowledge about mathematics learning difficulties, based on the input of 918 primary school teachers, an attempt is made to develop an overview of difficult curriculum topics in primary school mathematics (Van Steenbrugge, Valcke, & Desoete, 2010). In another work, the researcher assessed mathematics learning difficulties in a primary for grade four by using a mixed methods approach (Mundia, 2017). In the new research, the researchers tried to examine the mathematics skills of fourth-grade children from Kosovo in relation to their background characteristics seventy-six children, out of 233 tested, who were identified with learning difficulties in mathematics were further assessed during fifth and sixth grades, in mathematics skills and reading comprehension. The findings showed that there were no gender differences in mathematics achievement, whereas children's urban or rural locations, as well as their socio-economic status, were observed to have a substantial impact on mathematics performance of children in the main sample, but not for those in the subsample (Salihu, Aro, & Rasanen, 2018). Overall, the difficulties in mathematics

still open issues among researchers and need to solve. In recent works, the teaching aids in mathematics presented for decreasing difficulties of learning mathematics (Alshatri, Wakil, Jamal, & Bakhtyar, 2019).

In previous works, we present a new approach for improving teaching and learning, especially through technology among them phenomenon based learning approach (Wakil, Rahman, Hasan, Mahmood, & Jalal, 2019). In the ones, we present how enriching classroom by using new technology(Wakil, Qaisar, & Mohammed, 2017), the result of this research presented that the learning increased 22.9% after using technology for teaching inside classrooms. In another work, we found the side effect of electronic games on the students GPA (Wakil, Omer, & Omer, 2017) when using games helps students to think if they use it under control, but they decreased their GPA when used 1-3 hours per day by -2.41%, as well as using social networks, have an effect on the students GPA (Wakil, Nasraddin, & Abdulrahan, 2018). Also, we explained how ICT subject has a positive role in the Primary schools (Wakil, Muhamad, Sardar, & Jalal, 2017) when exams the schools when studied ICT subject better evolved and increased teaching process compared with other schools. Moreover, we found effective Microlearning in the process learning(Mohammed, Wakil, & Nawroly, 2018) this learning a new style of learning and memorizing information in students mind for long times. Moreover, in our recent works, we present the effects of technology in teaching other sciences(Nawzad, Rahim, & Said, 2018). In another work we present student ability to learn computer programming languages, the basic of programming is mathematics, this research illustrated that the students have the ability to learning more knowledge including programming languages (Wakil, Khdir, Sabir, & Nawzad, 2019).

Types of Difficulties in Learning Mathematics

The difficulties in learning mathematics identified for various types like the follows (Breen, 2001, 2004; Skemp, 2012; Tall & Vinner, 1981):

- Mathematics regards to all computations, numbers, scales, geometry, and algebraic subjects, which used when we analyzed the question at the same time it includes terms, rules, and theories. On the other hand, the concept of mathematics is a concept that encompasses all concepts and mathematical terminology that related to the dealing with on number and math analytic which related to numbers. For this reason, many of the problems and difficulties faced by students are the numbers and calculations which are affected on the students in the primary stage and continue until the preparatory and university, which affects their life. Due to the science of mathematics is an abstract science, and in terms of component, it is non-scientific.
- Many researchers talked about the obstacle in learning mathematics by students as well as they talked about confusion and fear of mathematics, there is an inverse relationship between the phenomenon of confusion of the mathematics by students and passes in mathematics.
- Another of the problem of teaching math that student faced was that the way of learning mathematics is very tough that make students disappointment. This way often is taught only students the rules and laws without giving the time to the students to think, analyze, and create a special law for themselves. Many teachers during the lesson are depending only on the exercises in the book and less depending on the other topic that related to mathematics. As helping to increase the ability of the student to learn, will lead to a lack of thinking student's invention, such as:
    1. No separating the geometrical shapes such as diamond, circle, rectangular, triangular, semi parallelogram.
    2. The difficulty in writing numbers, proportioning the numbers in written and not knowing the meaning of numbers.

3. The majority of students are having depression and lacking intuition this is because of having the problem in their conscience.

Level of Difficulties in Learning among Students

Is a classification that includes several areas, as follows:

- The easy obstacle occurs due to some factors such problem in hearing, seeing, and nerves which can be solved in years.
- The average obstacle: it occurs on those students and children who have difficulties in linguistics, memorizing, and concentration.
- The complex obstacle: it emerges in those students who have various difficulties in learning such as genetic disorder, sick minded, mind diversity, and mind growing.
- Various factors make learning mathematics to be difficult among students in grade one to three, some are from innate, and some are external, divided into three groups.

First: The factors which have connections with the educational system education and learning system is not at the level that the student is pivotal in learning mathematics. Specifically, it prepares the students to get high marks, or it doesn't help them to use their intuitions or doesn't prepare them mentally and learn mathematics with enthusiasm, in this system some points are seen:

1. Teaching mathematical subjects according to the old system which is concerned more about quantity, not quality.
2. Not having enough activities in books such as mathematical games which help the students solve the problems.
3. Having so many subjects in the program which takes more times to be completed and this needs reducing and condensation of the subjects.

Second: The factors that have connections with the students; in this system, some points are seen:

1. The weakness of student mentally to get the meaning of the terminology of mathematics and rules and trick.
2. The carelessness of the student and not concerned to load the knowledge and keeping them in mind and not capabilities in shifting the written into the mathematical sentence.
3. Students are more concerned about other subjects like entertainment; students tend to neglect mental subjects.
4. The students study mathematics to pass the exam, not for learning and concentrating.
5. According to the researches, the weakness of some students are those students who have problems in hearing, seeing, speaking, etc.
6. The Mental issue is one of the reasons why students are weak in mathematics, and the Researches show that psychological issues have a direct impact on learning mathematics among students.

3. METHODOLOGY

In this section, the description of the research process is presented. It provides information concerning the method that was used in undertaking this research as well as a justification for the use of this method. This study consists of five phases, as shown in Figure 1.

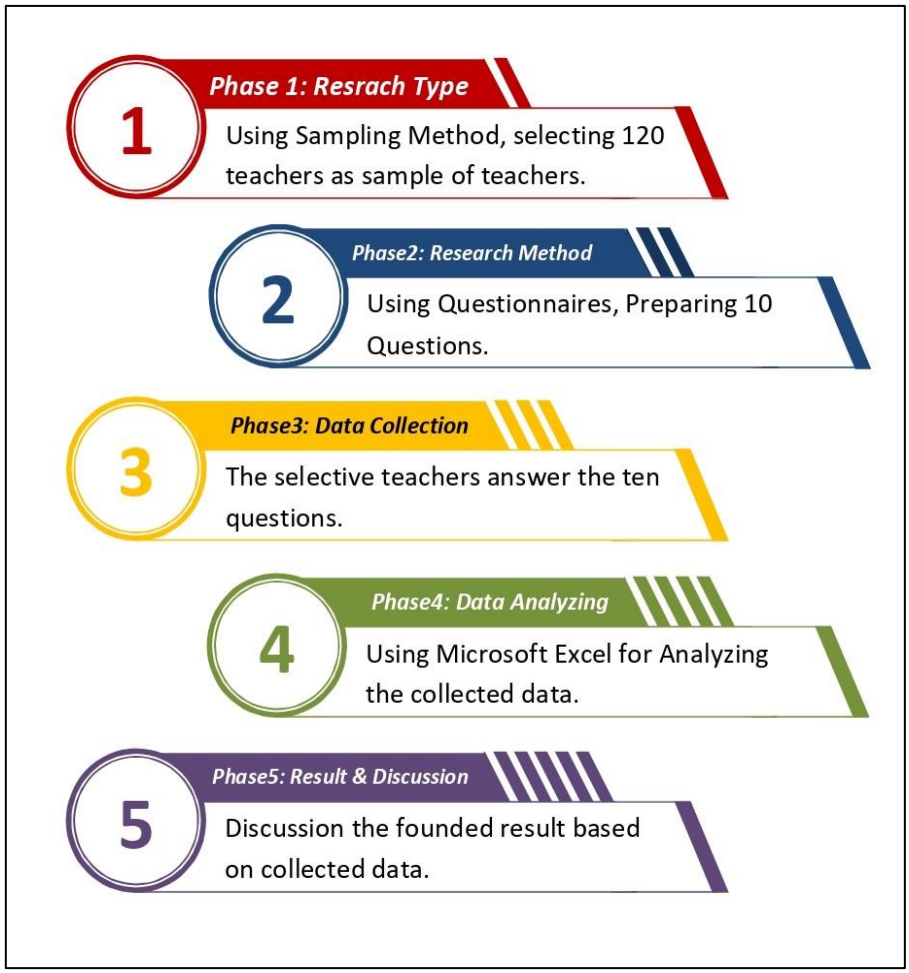

Figure 1: Research Process

3.1. Research Type

This section explains the method of this research, which is undertaken. The research type is the sampling method, as well as utilizing the analysis method, a questionnaire was held through distributing the predefined questions in the forms over a Hundred and Twenty (120) participants (teachers) as a model within the city of Sulaimani in Kurdistan-Iraq then hundred (100) teachers filled and completed the questionnaire as shown in Table 2.

The first part of the questionnaire indicated the gender, age, and the years of experience (service as a teacher) of the participants, as mentioned in Table 1.

Table 1. Participate in a Questionnaire Based Study.

Gender		Age		Years of experience	
Male	Female	20-39	40-59	10-21	22-33
55	45	61	39	67	33
Total: 100		Total: 100		Total: 100	

3.2. Research Methodology

Based on the objectives of this study, ten questions derived which are dealing with teaching mathematics then passed to the participants through the questionnaire as placed all questions in a form.

3.3. Data Collections

After distributing the survey forms over 120 mathematics teachers, we asked them to fill it, 100 forms have filled, and 20 forms are rejected completely. The collected data prepared for analyzing.

3.4. Data Analyzing

Analyzing the collected data has been done through using Microsoft Excel software then to illustrate more clearly there are some charts generated based on the analyzed data. The collected data more clear by presenting a bar chart and easy to analyze results.

4. RESULT AND DISCUSSION

The result will be present by the bar chart, and we will discuss the results based on finding and present the factors of reducing difficulties of teaching mathematics. Moreover, we will discuss how the teacher uses the modern way in the learning process.

After receiving more than 100 opinions from different teachers on difficulties in learning mathematics in those classes that taught in grade 1 to 3 of the primary school. After analyzing the results, the difficulties can be determined thus this finding helps to overcome and tackle the obstacles and difficulties in learning mathematics which make the lesson easier to develop the level of students' thinking, love the material and convey much information in less time that was in yes and no question, mostly asked by participants. Table 2 shows the answers to participates for important questions in our survey.

Table 2. Important questions to the participate in a questionnaire.

No.	Questions	Yes by %	To some extent by %	No by %
Q1	The reason for the weakness of the learning mathematics, due to misuse teaching method?	78	9	13
Q2	A large number of students in the classroom and the school environment caused the obstacle in learning mathematics?	89	7	4
Q3	Is the inability of the receipt of the mathematics by teachers, it is a factor not to learn mathematics?	90	5	5
Q4	Do the family and the environment have a negative impact on learning mathematics?	65	12	23
Q5	Does non-use of technology have an effect on the student in learning mathematics?	55	13	32
Q6	Is the economy has obstacle in learning mathematics?	74	19	7
Q7	Putting mathematics in the last daily schedule lesson has an impact on learning mathematics by students?	78	13	9
Q8	Lack of student presence in mathematics, has an effect in learning of mathematics by the student?	90	7	3
Q9	The weakness of the student in reading and writing creates an obstacle to learning mathematics?	95	2	3
Q10	Poor vision and hearing are considered an obstacle to learning mathematics?	84	11	5

Above table presents the result of participates for each question. In the Q1, the question is "The reason for the weakness of the learning mathematics, due to misuse teaching method?" the participates returned yes by rating 78%, for to some extent the rate is 9%, and the rate of no is 13%. But in the Q2, the question is "A large number of students in the classroom and the school environment caused the obstacle in learning mathematics?'' the participates returned yes by rating 89%, for to some extent the rate is 7%, and the rate of no is 4%. In the Q3, the question is "Is the inability of the receipt of the mathematics by teachers, it is a factor not to learn mathematics?" the participates returned yes by rating 90%, for to some extent the rate is 5%, and the rate of no is 5%. Also, in the Q4, the question is "Do the family, and the environment has a negative impact on learning mathematics?" the participates returned yes by rating 65%, for to some extent the rate is 12%, and the rate of no is 23%. But, in the Q5, the question is "Does non-use of technology affect the student in learning mathematics?'' the participates returned yes by rating 55%, for to some extent the rate is 13%, and the rate of no is 32%. Then, in the Q6, the question is "Is the economy has an obstacle in learning mathematics?" the participates returned yes by rating 74%, for to some extent the rate is 19%, and the rate of no is 7%. In the Q7, the question is "Putting mathematics in the last daily schedule lesson has an impact on learning mathematics by students?'' the participates returned yes by rating 78%, for to some extent the rate is 13%, and the rate of no is 9%. Furthermore, in the Q8, the question is "The TA is an attractive and effective lesson by students." the participates returned yes by rating 90%, for to some extent the rate is 7%, and the rate of no is 3%. As well, in the Q9, the question is "The weakness of the student in reading and writing creates an obstacle to learning mathematics?" the participates returned yes by rating 65%, for to some extent the rate is 3%, and the rate of no is 7%. The final question is "Poor vision and hearing are considered an obstacle to learning mathematics?" the participates returned yes by rating 84%, for to some extent the rate is 11%, and the rate of no is 5%. As illustrated in Figure 2.

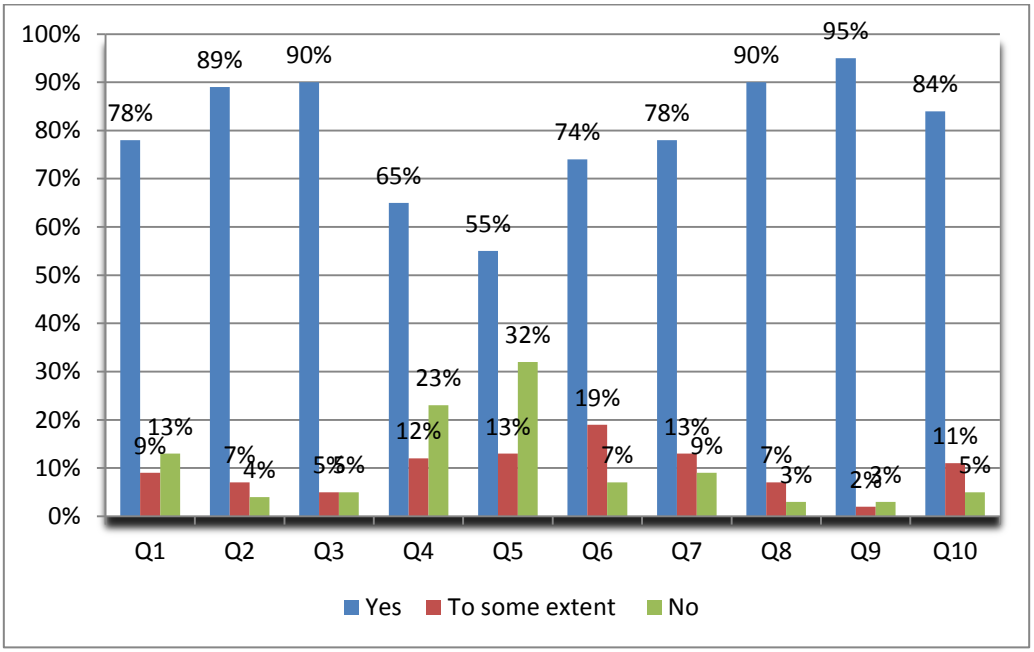

Figure 2: Bar chart of answers important questions from participations.

Generally, the mathematics teachers returned answers based on their experience, and they think learning mathematics regards to more than one factors. Mostly they rated "Yes" for all questions, meaning they agree with the above questions. As presented in Figure 2, rating "Yes" for all questions between 55% to 95%, when rating "No" has a low rating between 3% to 32%, same rating "NO", rating "to some extent" has a low rating between 5% to 19%. Finally, the result of this work will be

guiding for learning mathematics in the primary schools and help the teachers how to improve learning mathematics.

5. CONCLUSION

This study presents the factors of difficulties of learning mathematics, which used a sampling method for collecting data, as well as the used analysis method for extracting and analyzing the collected data. The result of this study is the teachers should be the ability in teaching mathematics and should be they use teaching aids, because some teachers ignore individual in teaching mathematics, on the other side student's parents do not observe and enchase their children. They ignore their attendance in class. Moreover, lack of belief in themselves for analyzing question, fear, and anxiety when they go to the board or stand in front of the teacher. The obstacle to learning mathematics will change according to classes. The mathematics teacher should be updated learning through the modern mechanism and use new technology and tools to develop the learning process..

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