
DEVELOPMENT OF A WORKSHEET FOR ENHANCING THE FUNDAMENTAL MATHEMATICAL OPERATION SKILLS OF SEVENTH GRADERS

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ABSTRACT

This study aims to develop a worksheet helpful for enhancing seventh graders' fundamental mathematical operation skills. Utilizing the single case study design, 67 purposively chosen students served as respondents. A teacher-made instrument was used to determine which of the fundamental skills were most challenging for the respondents. Data were treated using the most appropriate statistical tools. Findings revealed that subtraction with regrouping was most challenging. Thus, the need to revitalize the pedagogic process by employing contextualized worksheets to aid the understanding of this specific mathematical competency.

Key Words: Contextualized Worksheet, Fundamental Mathematical Operation Skills, Mathematics Learning.

1. INTRODUCTION

Existing literature suggests that learning mathematics is essential to every individual because it serves as a foundation for mental and logical thinking. Mathematics is often a complex discipline due to its abstract nature (Malik, 2012). So, it is imperative to enhance the knowledge of mathematics, especially beginning at a younger age, because it helps individuals solve real-life problems. These may include financial management, critical reasoning, among others. Unfortunately, children's exposure to the mathematics world is predominantly affixed to the primary concepts and operations (Davydov, 2018). With this, children need to be reviewed and trained more on their basic mathematics operation skills as these are the primer on creating the foundation of each learner's academic discipline towards mathematics. Knowing how to add, subtract, multiply, and divide is a big step in understanding what mathematics could offer more.

Multiple studies have shown that people perceive mathematics negatively and difficult. For example, according to Jameel & Ali (2016) and Varaidza & Makondo (2018), students naturally perceive mathematics as a complex subject. Similarly, Chandi et al. (2018) claimed that students view mathematics as one of the most challenging subjects to learn, affecting their performances in the said subject.

Given the contestation above, there is a need to develop a positive and genuine attitude towards mathematics as it may bring about interest and positive attitudes towards it. One of the ways to develop this is to expose the young learners to contextualized materials that would aid in understanding the most fundamental concepts of this content. Thus, this study then intends to develop a worksheet helpful for enhancing seventh graders' fundamental mathematical operation skills. This study will only focus on using Mathematics Worksheets containing only the four fundamental operations to improve the pupils' basic mathematics operation skills. Therefore, the worksheets' contents will only be on the four fundamental operations.

2. REVIEW OF RELATED LITERATURE

Various studies have shown that using concrete materials can lead to more meaningful student concept development. According to Ojose and Sexton (2009), manipulative is nearly universally used in mathematics classes. The utilization of textbooks is as prevalent as it gets for a good cause. This is seconded by Ruzic and O'Connell (2018), who claimed that the long-term use of worksheets and manipulative objects impacts the students' achievement. This is true in learning mathematics. Tuimur and Chemwei (2015) explained that using mathematics worksheets in addressing poor math performance has a positive impact on the students' performances. Instructional Materials (IMs) are things that teachers use to simplify their teaching, such as worksheets. By motivating the learners to learn, these instructional resources bring learning to life and make it more enjoyable. Additionally, utilizing the instructional materials in the classroom can assist the teachers in effectively explaining new concepts, resulting in the student's mastery of the topics being taught to them.

Furthermore, Amir (2019), students can develop their knowledge with worksheets, promoting interaction between students and lecturers and students with students. Students also can create their own learning experience through the workbook. Students are motivated to learn after attending lectures using worksheets based on their interpretation of their studies. They are almost willing to learn through worksheets with problems and existing solutions with the step-by-step process. According to various studies, teachers commonly utilize mathematics textbooks as their primary source of teaching. A textbook in mathematics plays a vital role in describing and interpreting abstract material into operations that teachers and students can do (Ham and Heinze, 2018).

3. METHODOLOGY

This study used the case study design. A case study is an in-depth study of a particular research problem rather than having a statistical survey or comprehensive comparative inquiry. It is usually used to narrow down a broad research topic into one or few easily researchable examples (Cohen–Swerdlik, 2009). It utilized 67 purposively chosen students who served as respondents. A teacher-made instrument was used to determine which fundamental skills were most challenging for the respondents. The test result was based on what competencies need development using reinforcement material in a contextualized worksheet. The results were treated through the most appropriate statistical tools.

4. RESULTS

Statistically treated data showed that the seventh graders' students are most challenged in solving subtraction with regrouping. Most of the time, they mess up in solving the said operation, especially those digits that have regrouped. This was the common problem of the teachers regarding the addition and subtraction skills of their pupils. One of the teachers stated that the pupils could easily solve addition and subtraction problems without regrouping. However, they already tend to mess up if the problem or equation already involves regrouping. A participant stated that solving regrouping equations was tricky for the students. Solving addition and subtraction problems with regrouping includes additional processes that pupils could find confusing. One of the factors that could probably explain this is the difficulty in solving the entirety of all mathematical operations. A respondent claimed that the learners' decreased performance is due to several factors, including the learners' availability of materials and entry knowledge.

Clearly, one of the remedies given by the teachers is to provide them with contextualized materials to help the learners.

5. CONCLUSION

This study aims to develop a worksheet helpful for enhancing seventh graders' fundamental mathematical operation skills. Findings revealed that subtraction with regrouping was most challenging. Thus, the need to revitalize the pedagogic process by employing contextualized worksheets to aid the understanding of this specific mathematical competency. Instructional material indeed plays a crucial role in the teaching and learning episodes. These materials certainly aid in cognition and ease of facilitating instruction, which are both advantageous to the learning facilitators and the students.

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