
**DEVELOPMENT OF A CONTEXTUALIZED WORKSHEET FOR TEACHING GRADE
TEN MATHEMATICS**

Mariano D. Gillo

Faculty, College of Education, Eastern Visayas State University, Tacloban City, the Philippines

ABSTRACT

This study determined the pedagogical practices in Mathematics of the grade 10 teachers, specifically on teaching strategies and instructional materials they employed towards developing a contextualized learning kit they could utilize to augment the performance of the target learners. Fifteen teachers were chosen as respondents to elicit data relative to the teaching strategies and materials to facilitate teaching and learning for this content subject. Thematically analyzed data showed that cooperative Learning, lecture-type, game-based learning, and real-life examples are the common strategies they utilize, while technology-based materials and contextualized learning sheets serve as the main tools to teach the subject matter. While these practices are laudable, taking things holistically, there is a need to develop contextualized material such as a worksheet to help teachers facilitate the subject matter with ease.

Key Words: Contextualized Worksheet, Learning Materials, Instructional Pedagogy.

1. INTRODUCTION

Mathematics serves as the foundation for a person's scientific skills. According to Nyaumwe (2013), knowledge of this subject matter is considered a vital component of human intellect and reasoning to understand the world and the specific environment in which the person lives. Furthermore, a considerable number of studies have proven that mathematics is incredibly significant in human existence and crucial in students' academic progression and economic growth.

Phonapichat et al. (2014) argued that the primary purpose of learning mathematics is to enable pupils to solve problems in everyday life. Pinter (2012), however, argued that learning mathematics is beyond solving the mathematical problem as it is instrumental in daily life.

Many teachers have reported that most learners are challenged with this subject. These could be attributed to a lack of engagement, and negative attitudes about mathematics may be contributing to the learners' difficulties (NETRC, 2011). Accordingly, Lorbis (2019) claimed that educators must ensure to meet the needs of their students to achieve the desired learning outcomes despite the factors like disinterest among learners in the subject matter. Evidently, in the classroom, it has been observed that students have low levels of engagement in mathematics, which serves as a challenge to most learning facilitators of the subject matter. According to Baroody et al. (2016), students who have low levels of engagement with mathematics sometimes opt out of studying mathematics after the compulsory years, resulting in fewer career opportunities in fields that need mathematics expertise. A common determinant of performance in this subject area, specifically in basic education, is the learners' performance in the National Achievement Test (NAT). Present

data showed that young Filipino learners poorly perform in this learning area (Maminta et al., 2019).

Therefore, there is thus need to improve the facilitating of the subject matter. Wallit (2016) suggested that mathematics teachers must use the arts of teaching Mathematics as a mechanism to improve students' knowledge and memory of critical concepts and terminology in this learning area. As a result, they are more interested in their art's subject, which involves drawing and coloring things. It simply demonstrates that teachers who incorporate more artistic and creative teachings find that their pupils' engagement in math increases, and their academic progress follows. In addition, Lorbis (2019) claimed that educators must meet the needs of their students to achieve the desired learning outcomes. One of the established techniques is using contextualized materials such as a worksheet. This contention serves as the basis for the conduct of this study.

2. REVIEW OF RELATED LITERATURE

Mathematics is one of the essential subjects in our daily lives. Learning math is crucial to rapid change and technological advancements in today's environment. Mathematical knowledge is necessary to comprehend the mechanical environment and link it with the rapidly expanding information technology. Learning mathematics satisfies most human needs in various parts of daily life. Several studies proved that contextualization is being carried out and defined in various ways. For example, Mazzeo et al. (2003) presented the original concept as different teaching strategies designed to ensure a smooth learning experience. On the other hand, Theall (2014) claimed that contextualized learning materials assist students in locating and creating meaning through experience, drawing on prior knowledge to expand on previously acquired knowledge. Meanwhile, Dumanjog (2019) argued that contextualized materials could boost student motivation, learning, and perseverance because these materials could activate learners' prior knowledge and encourage more effective problem-solving.

Using contextualized materials is vital, especially for studies such as that conducted by Mata et al. (2012), which suggest materials available in the community are effective tools for learning and are helpful given the attitude towards the learners' mathematics. Additionally, Subramanian, Mahmoud, Ahmad, and Yusoff (2017), identified the reasons for poor student engagement in classrooms. They also considered emotional components such as students' negative emotional states, such as anger, worry, or boredom, and lecturers' emotional states. Meanwhile, Marpa (2016) reported that students engage behaviorally and cognitively but not much engaged effectively. Therefore, the use of these materials must be paired off with specific strategies such as the AIM (Arts in Math), a game-based teaching strategy, a problem-solving strategy, and cooperative learning to ensure effective and efficient teaching and learning in this learning area.

3. METHODOLOGY

The present study utilized the narrative inquiry as its design. Fifteen teachers were chosen as respondents to elicit data relative to the teaching strategies and materials to facilitate teaching and learning for this content subject. Data were thematically analyzed using Braun and Clarke's six-step thematic analysis as mechanism for data interpretation. Results served as the basis for developing a contextualized worksheet for teaching grade 10 Mathematics.

4. RESULTS

Thematically treated data revealed that cooperative learning, storytelling, lecture-type, and game-based learning are the common teaching strategies utilized by grade 10 mathematics teachers. According to Unal (2017), cooperative learning was also considered to make learning more enjoyable for pupils by motivating them. They will have the opportunity to collaborate on a common goal. These activities are beneficial because they may teach children the importance of cooperating and working with people different from them. Students with various skills might be paired together to contribute effectively to the task in their manner. It encourages students to engage in reasonable discussion and provides a chance for them to do so. On the other hand, storytelling is defined by Walters et al. (2018) to elicit more engagement, connections, and understanding of mathematical concepts that support their comprehension. Meanwhile, lecturing helps students grasp the "why" behind their actions. Furthermore, individual facts might distract from the overall message (Unal, 2017). Finally, Asfar (2019) emphasized that a game-based learning strategy lets students exercise their minds into coming to a solution by relating it to real-life situations, which is more effective.

Meanwhile, as regards instructional materials, grade ten teachers commonly utilize technology-based instructional tools as one of the materials for instruction. According to Kurt (2018), technological advancements have substantially expanded today's learning resources. As a result, we now have newer materials, such as the computer, numerous software applications, LCD projectors, interactive TV, and many more. Another tool that teachers use includes contextualized learning sheets. According to Kalchik and Oertle (2010), contextualizing materials is based on a constructivist educational theory that involves pupils and teachers in active classroom activities, ensuring that learning is learner-centered and engaging.

5. CONCLUSION

The main purpose of this study was to develop a contextualized worksheet for teaching grade ten mathematics. As educators, we must ensure that we can meet the needs of our students to achieve the desired learning outcomes. Many problems are encountered in teaching Mathematics, such as lack of interest among learners. So, it is necessary to develop contextualized materials that may greatly help teachers deliver quality education to the learners. Findings from this academic undertaking revealed that the grade 10 mathematics teachers have laudable pedagogic practices in facilitating the subject matter, especially as regards teaching strategies. However, there is a need to improve the usage of instructional tools such as contextualized learning materials. Hence, the main findings of this study.

REFERENCES

- Asfar, A. (2019). Case-based games learning strategies to improve conceptual understanding in mathematics. *J. Phys.: Conf. Ser.* 1663 012060
- Baroody, A.E., Rimm-Kaufmann, S.E., Larsen, R.A., & Curby, T.W. (2016). A multi-method approach for describing the contributions of student engagement on fifth grade students' social competence and achievement in mathematics, *Learn. Individ. Differ.*, 48, pp. 54-60
- Dumanjog, N.E (2019). Effectiveness of contextualized learning activities in teaching force. (pp. 850-851)
- Kalchik, S. & Oertle, K.M. (2010). The theory and application of contextualized teaching and learning in relation to programs of study and career pathways. *Transition highlights.*

- on_of_Contextualized_Teaching_and_Learning_in_Relation_to_Programs_of_Study_and_Career_Pathways_Transition_Highlights_Issue_2
- Kurt, S. (2018). Educational technology: An overview. *Educational Technology*. Retrieved January 21, 2022, from <https://educationaltechnology.net/educational-technology-an-overview/>
- Lorbis, J.C. (2019). Utilization of contextualized teaching and learning (CTL) approach in grade two araling panlipunan. Southern Luzon State University, Graduate School.
- Mata, M. D., Monteiro, V., & Peixoto, F. (2012). Attitudes towards mathematics: Effects of individual, motivational, and social support factors. *Child development research*. <https://doi.org/10.1155/2012/876028>
- Maminta, L.G et al 2019 J. Phys.: Conf. Ser. 1340 012057
- Marpa, E. (2016). Exploring factors on the learning engagement in mathematics of the outcome-based teacher education curriculum (OBTEC) students. *International Journal of Scientific and Research Publications*, Volume 6, Issue 5, May 2016 680 ISSN 2250-3153
- Mazzeo, C. (2003). *Building bridges to college and careers: Contextualized basic skills programs at community colleges*. Brooklyn, NY: Workforce Strategy Center.
- NETRC. (2011). National achievement test for grade six. Certificate of Rating. Institutional Performance Profile.
- Phonapichat, P., Wongwanich, S., & Sujiva, S. (2014). An Analysis of Elementary School Students' Difficulties in Mathematical Problem Solving. *Procedia - Social and Behavioral Sciences*, 116(2014), 3169–3174. <https://doi.org/10.1016/j.sbspro.2014.01.728>
- Pintér, K. (2012). On teaching mathematical problem-solving and problem posing. PhD Thesis, University of Szeged, Szeged.
- Subramainan, L., Mahmoud, M.A., Ahmad, M.S., & Yusoff, M.Z. (2017). A simulator's specifications for studying students' engagement in a classroom. In *International Symposium on Distributed Computing and Artificial Intelligence* (pp. 206-214). Springer, Cham. https://doi.org/10.1007/978-3-319-62410-5_25.
- Unal, M. (2017). Preferences of teaching methods and techniques in mathematics with reasoning. *Universal Journal of Educational Research*. 5(2): 194-202, 2017, DOI: 10.13189/ujer.2017.050204, pp: 195)
- Wallit, L. V. (2016). Enhancing the performance of grade VI-C pupils of Buyagan elementary school through the use of Arts in Math (AIM). *National Convention on Statistics*, 3-4 October Mandaluyong City.
- Walters, L.M., Green, M.R., Goldsby, D., & Parker, D. (2018). Digital storytelling as a problem-solving strategy in mathematics teacher education: How making a math-eo engages and excites 21st-century students. *International Journal of Technology in Education and Science (IJTES)*, 2(1), 1-16.
- Theall, L. (2014). Simple random sampling. Retrieved from <https://www.scribbr.com/methodology/simple-random-sampling/>