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Contextualized Mathematics Instruction Based on Learning Styles in Improving Critical Thinking Skills of Grade 7 Students

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Abstract

This study was an attempt to find the effects of contextualized lesson content and instructional materials on visual and kinesthetic learners. Using an experimental research design participated by visual and kinesthetic learners, both taken as one group and separately, it revealed that respondents use contextualized lesson content and contextualized instructional materials positively. However, inferential statistics showed no significant relationship exists between the perceived use of contextualized instruction and the student's level of critical thinking skills. In addition, when taken as one group, contextualized instruction was able to develop all the critical thinking skills of the respondents, in favor of the posttest results. Comparison of the visual and kinesthetic groups also showed that contextualized instruction developed better in kinesthetic learners than in visual learners specifically in analyzing and problem-solving skills. Thus, the use of contextualized instruction is recommended in developing critical thinking skills among learners, most especially in developing analyzing and problem-solving skills in kinesthetic learners.

Keywords: *Contextualization, visual, kinesthetic, lesson content, instructional material*

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Introduction

In the most recent Programme for International Student Assessment (PISA) results, a worldwide study on the evaluation of educational systems, the Philippines got very low results. This sets the bar for all educators to be at par with other educational systems (Golla & Reyes, 2020). Mathematics is a combination of understanding and skills. Without understanding, skills are impossible to showcase. With this fact at hand, mathematics teachers now face a concern on how to better equip learners with understanding of mathematical concepts and ways to allow learners to showcase their skills (Rensaa, 2014).

As reflected in the curriculum guide from the Department of Education (DepEd), students are assessed in three components: Written Works (WW), Performance Tasks (PT) and Quarterly Assessments (QA). Understanding of mathematical concepts are exemplified through pen and paper tests by WWs and QAs, but skills must be demonstrated through PTs. The high Mean Percentage Scores (MPS) for Mathematics only demonstrates that students have high understanding of mathematical concepts but does not really equate to the fact that they are also mathematically skilled. For teachers to be able to claim that, performance tasks should be given. One of the indicators of performance readiness among learners is their level of critical thinking. These skills are used by students to understand mathematical concepts better and eventually leads to them being able to solve properly (Chukwuyenum, 2013).

Methodology

A one-group experimental pretest-posttest and descriptive study designs are used in this study. Descriptive design measures a variable against an approved scale and then quantifies it for interpretation, whereas experimental design treats variables independently and then compares the results. It also includes manipulating elements, instructional strategies, and lesson content that have recurred or have manipulative and marginally influenceable characteristics (Ongowo, 2017).

The Critical Skills Test and a survey questionnaire for learning mode inventory was used in this study. The researcher adopted a pretest – posttest control group approach in her work, which was inspired by Jeenthong et al. (2014). Two separate teaching styles was used to teach two different classes. The first group received traditional lecture training with the addition of reading materials, whereas the second group received an intervention program with the same content as the traditional program.

This study looked at the impact of applying contextualization in lesson content and instructional materials on students' Critical Thinking Skills development. The skills of the learners were assessed before and after the use of contextualized instruction and the same was compared afterwards.

The respondents of this study were 51 Grade 7 students officially enrolled for the academic year 2022–2023. The researcher administered the Learning Modality Category Test lifted from the standardized VARK Learning Modality Test to determine the class's dominant learning style.

The VARK Learning Modality Category Test and the Critical Thinking Skills Test are two of the research instruments used in the conduct of this study.

Manalo (2016) claims that learning styles reflect learners' experiences. Because people have varied learning experiences, they have a range of learning modalities. Multiple learning modalities can exist in one learner; nevertheless, it is usually considered that one should be the more developed.

VARK standardized test specifically Version 8.01 (2019) was used for profiling of the respondents. It consists of situations that are aimed at processing a student's learning style and used in a classroom environment. They just blacken the circle if they are more likely to accomplish what is suggested in each of the assertions.

Observing, analyzing, inferring, communicating, and problem solving are the five subskills of critical thinking. The researcher adopted the CTS Test of Magpantay (2022), which was evaluated by a group of mathematics professionals, including four master teachers, one head teacher, and two Mathematics Coordinators (Teacher III). There were five set of mathematical problems for pre-test and post-test, each problem has the five subskills of critical thinking. Before using the CLC and CIM to determine their first degree of CTS, pupils have to take this test. The same examination was utilized to compare the performance of the two groups after they have used the strategies.

The researcher preferred to develop new instruments in order to highlight the reliability and validity of the results, experts in the field of mathematics were invited to assess the teacher-made CTS Test. Another goal is to translate existing assessments so that the same skills are being tested and the same problem is being addressed.

Findings

Generally, the scores of the respondents in the critical thinking skills test before the use of contextualized instruction were described from fairly to satisfactory for most skills. However, after the use of the strategy, most of the scores of the respondents shifted to very satisfactory and outstanding levels. As to the perception on the use of contextualized instruction, the respondents perceive contextualized lesson as highly evident and contextualized learning materials as moderately evident. There was no significant relationship in terms of the contextualized lesson content and contextualized instructional materials and the learners' level of critical thinking skills. Significant differences were noted in terms of the level of critical thinking skills of the learners in all of the skills, in favor of the posttest scores. Comparison of the performances of the visual and kinesthetic learners also revealed that contextualized instruction developed analyzing and problem solving better in kinesthetic learners than it did with the visual ones.

Conclusion

The use of contextualized instruction was able to develop all the critical thinking skills, and was found to develop analyzing and problem-solving skills better in kinesthetic learners than in visual learners. The use of contextualized instruction was able to let learners experience a learning environment that touches their personal experiences and showcases examples which they can relate to.

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