



Republic of the Philippines
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Project: CET SCI-TVIST: Comparing the Effectiveness of Teaching Science Classes Through Textbooks Versus Incorporating Science Teachings Into Students' Daily Life



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ABSTRACT

The fundamental concern is whether or whether introducing science lessons into students' daily lives is more effective than teaching science classes exclusively from textbooks. Understanding how various teaching strategies affect student learning will be the main goal of the study. The action research conducted aimed to establish that teaching science to students outside of the classroom is more effective than relying solely on textbooks. The specific goal was to increase the number of outputs achieved by selected Grade 8 students at Jacobo Z. Gonzales Memorial National High School. To achieve this, a quasi-experimental research design was employed, and data analysis involved the use of descriptive and inferential statistics with appropriate statistical tools. The data collected through the instrument were meticulously tallied, tabulated, analyzed, and interpreted. The study's results indicated a significant improvement in the number of outputs retrieved from both the control and experimental groups that utilized the monitoring tool. This improvement was observed from Week 1 to Week 8 of the Third Quarter. Based on these findings, recommendations for research enhancement have been provided. It demonstrates that the experimental groups experienced a significant increase in student engagement, clarity of explanations, classroom interaction and discussion, as well as the ability to apply science knowledge in daily life. These findings suggest the value of teaching science outside the traditional classroom setting.

INTRODUCTION

In this study, the two alternative approaches of delivering science lessons—teaching science classes simply from textbooks versus integrating science lessons into students' daily lives—are contrasted, beginning with the 2020 DepEd Order No. 19 Series. Due to the COVID-19 public health emergency, DEPED must be creative and resourceful in providing high-quality, readily accessible, relevant, and empowering education. Teaching science has always been a difficulty for teachers because it may be difficult to make the subject attractive and engaging for students. By incorporating science into daily life, teachers may make science instruction more engaging and relevant for their students. The students' understanding the science enables them to adapt to the environment D. King, I. Ginns 2015. On the other hand, teaching science entirely from textbooks can provide a more structured approach to teaching science. The results of this study will aid in understanding the benefits and drawbacks of each technique and facilitate the creation of improved action plans.

The fundamental concern is whether or whether introducing science lessons into students' daily lives is more effective than teaching science classes exclusively from textbooks. Understanding how various teaching strategies affect student learning will be the study's main goal. "It is an approach aiming to create interest and excitement related to the living environment and a teaching environment which contributes to its continuity" L.J. Rennie, L.H. Parker 1996. The study will also examine how teaching science in everyday situations can aid students in better comprehending and using the ideas they acquire in science classes.

According to earlier studies, teaching science to kids in their everyday lives can be more beneficial than only using textbooks. This is because students can apply the ideas they learn to actual circumstances, which can aid in their understanding and retention of those ideas. A better knowledge of the significance of science in daily life can also be fostered by incorporating science lessons into daily life. "In the curricula with real-life content, which take those as a base, "context" can only be effective if it is suitable personally for students and related to their lives apart from their own school environment" C. Murphy 1995. However, other studies have pointed out possible issues with this strategy, including the challenge of successfully integrating science instruction into daily life and the possibility for specific subjects to be overemphasized.

The major arguments are that infusing science lessons into students' daily lives is more beneficial than only teaching science through textbooks. Furthermore, there is disagreement regarding the most efficient way to apply science lessons in daily life. "Thus, effective learning will come to appearance if the students associate a concept and its applications with the real world including their cultures, families or peers" O. De Jong 2006. While some contend that it should be accomplished through practical exercises, others contend that it should be accomplished through more indirect techniques like dialogue and introspection. The idea that teaching science solely from textbooks is useless has merit since it emphasizes the value of getting students involved in active learning. Furthermore, this viewpoint recognizes the necessity for students to be able to apply the ideas they learn to

actual circumstances. “Yet, the teaching practices with real life content do not only make the learning meaningful, but also create more enjoyable and interesting learning environment” H. J. Choi, S. D. Johnson 2006. Yet, this viewpoint has a flaw in that it misses the advantages of textbook-based instruction, such as the capacity to provide pupils a thorough overview of a subject. The idea that making scientific lessons a part of students' daily lives makes sense and has benefits because it acknowledges how much better concepts can be understood and applied by students when they can apply them to actual situations. The majority of research publications conclude that teaching science to students outside of the classroom can be more effective than teaching science just through textbooks. The research studies also contend that for the strategy to be effective, teachers must successfully incorporate science lessons into classroom instruction.

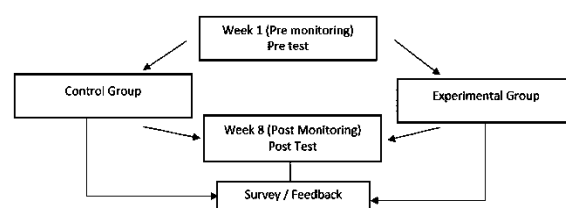
To determine the most effective strategies to properly integrate science instruction into students' daily lives, more study is required. Moreover, more study is needed to assess the long-term consequences of different teaching approaches on student learning. By comparing the effectiveness of teaching science classes using only textbooks versus bringing science lessons into students' daily lives, this study will attempt to close any knowledge gaps in this area. The study will also try to determine the best strategies to effectively incorporate science lectures into students' daily life to optimize learning results.

METHODOLOGY

The research adopted a quasi-experimental design and centered around two Grade 8 sections within Jacobo Z. Gonzales Memorial National High School. A total of 60 students

participated, divided equally between the control and experimental groups, each comprising 30 students. These Grade 8 students were selected based on their performance in the science class under evaluation, with a deliberate focus on sections with the lowest recorded outputs. Both the control and experimental groups exhibited similar, lower levels of academic performance in science. The researcher supplied a monitoring and assessment tool to facilitate the study's implementation.

The researcher used survey forms to assess and collect feedback from participants regarding the execution of different aspects or categories of the study. These survey forms were designed to gauge the participants' perceptions and opinions about the study's various components. The survey forms likely contained questions or rating scales that allowed participants to provide their feedback and rate different elements of the study. The data collection process is visually outlined in the flow chart provided below for clarity. Figure 1



Part I. Pre Test Week 1 and Post Test Week 8 Administration (Interpretation of Mean, SD and MPS

Part II. Survey Checklist

The pre-test and post-test approach will be used to check the review's importance and the viability of the mediation. At first, a pre-test will survey the members' pattern information or execution before carrying out the intercession. Following the intercession's presentation, similar members will go through a post-test to assess the effect. The Mean, Standard

Deviation and MPS will be utilized in evaluating and large execution improvement. By looking at the pre-test and post-test results, the researcher can gauge the mediation's viability, especially in the trial bunch where a critical expansion in MPS would show a positive effect.

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The researcher employed a descriptive survey and assessment test for both the control and experimental groups. The data collected through these instruments were meticulously organized, tallied, and then tabulated. Subsequently, the data was subjected to analysis and interpretation employing both descriptive and inferential statistics. Key statistical tools like the Mean, Average, Standard Deviation (SD), Mean Mastery Performance Score (MPS), T-Test, and P-Value were utilized in the analysis.

RESULTS

A. Comparison of status of Pre Test and Post-test of Control Group on MPS, Mean and SD

The data indicates that, in the pre-test phase, the Experimental and Control groups had similar Mean Percentage Scores (MPS) of 34.58% and 35.33%, respectively, with moderate Standard Deviations (SD) of 13.83 and 14.13, reflecting consistent performance levels. In the post-test, the Experimental group exhibited significant improvement, achieving an MPS of 56.58% with a

higher SD of 22.63, suggesting both substantial progress and increased variability in outcomes. In contrast, the Control group showed a more modest post-test gain, reaching an MPS of 43.67% with an SD of 17.47. These results indicate that the experimental intervention had a notable positive impact on the Experimental group's scores, leading to higher MPS with greater variability, while the Control group's improvement was more limited, likely influenced by factors other than the experimental treatment

B. Comparison of status of Pre Test and Post Test of Control Group

In the comparison of pre-test and post-test status for the Control group, the Mean Percentage Score (MPS) increased by 8.33%. The T-statistic, measuring the significance of this change, was -0.51, indicating a less substantial change. The p-value was remarkably low at 1.44E-10, signifying strong statistical significance. This suggests that the improvement in the Control group was not attributed to random chance, with the observed change being highly significant and unlikely to have occurred by random fluctuations alone. In contrast to the Control group, the Experimental group exhibited a more notable increase in Mean Percentage Score (MPS) of 22.00%. The T-statistic for this change was 8.8, underscoring the substantial and meaningful nature of the improvement. The p-value was 0.038, indicating statistical significance at a confidence level of less than 0.03. This points to a significant and positive effect of the experimental intervention on the Experimental group's test scores, as the observed changes were not likely due to random chance but rather a result of the intervention.

C. Comparison of the status of the Survey after the study on Control and Experimental Group

Survey List of Experimental and Control Group after the conduct of the study.

1. Clarity of Explanations
2. Engagement in the Classroom
3. Interaction and Discussion in the Classroom
4. Ability to apply science in daily life.

The survey results for both the Experimental and Control groups after the study reveal valuable insights. In terms of the Clarity of Explanations, the Experimental group reported an average rating of 3.70, which was notably higher than the Control group's average of 3.10, with a statistically significant difference (p -value < 0.01), signifying that the experimental intervention had a substantial positive impact. Similar significant improvements were observed in Engagement (Experimental: 3.23, Control: 2.93), Interaction and Discussion (Experimental: 3.53, Control: 3.20), and Materials and Resources (Experimental: 3.30, Control: 3.07), all with p -values < 0.10 . These findings collectively indicate that the study had a significant and beneficial effect on various aspects of the classroom experience, including clarity, engagement, interaction, and ability to apply science knowledge in daily life, enhancing the overall educational environment.

DISCUSSIONS

The study compared two teaching methods: traditional textbook-based science instruction and integrating science into students' daily lives. Initially, both groups displayed similar performance. However, after the intervention, the group that incorporated science into daily life showed a more substantial improvement in academic performance. Survey responses from this group

highlighted enhanced clarity, engagement, interaction, and ability to apply science in daily life, underscoring the positive impact of integrating science into everyday routines on the classroom experience. This suggests that a real-life, hands-on approach to science education had a beneficial effect on students' academic performance and overall learning experience. This study has shed light on the profound impact of integrating science into students' daily lives compared to traditional textbook-based instruction. The substantial improvements observed, ranging from increased clarity to enhanced engagement and interaction, within the group that embraced science in their daily experiences, underscore the effectiveness of this innovative approach. This research drives home the point that science education becomes far more meaningful when students see its direct relevance in their everyday lives. It not only deepens their understanding but also sparks genuine enthusiasm for the subject. This study emphasizes the transformative potential of hands-on, experiential learning, urging educators to explore creative ways of seamlessly weaving science into students' daily routines, thereby revolutionizing the learning process and elevating educational outcomes.

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