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EDG500

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Lab 7

Abstract:

In this quasi-experimental study, the Independent Variable (IV) is the type of assessment used, with two groups of third-grade students chosen to receive either weekly evaluations or unit-ending assessments. The Dependent Variable (DV) is the math performance of the students, which will be measured using pre- and post-test evaluations during the six-week duration of the study.

The hypothesis of the study is that frequent assessments, in the form of weekly evaluations, will lead to a higher math achievement compared to unit-ending assessments. Specifically, it is predicted that students who receive weekly evaluations will perform better on the posttest compared to students who receive unit-ending assessments. This hypothesis is based on the assumption that frequent testing helps students to better retain the material, encourages more classroom discussion, and reinforces the methodical learning of content.

To test this hypothesis, descriptive statistics, t-tests, and SPSS will be used to analyze the data collected from the pre- and post-test evaluations. The t-tests will be used to compare the mean scores of the two groups, and SPSS will be used to identify any noticeable differences in performance between the two groups over time.

The results of this study will provide educational stakeholders with valuable insights into the most effective way to evaluate math learning outcomes for third-grade students. By showing that frequent assessments can enhance math achievement, educators can modify their approaches to instruction and evaluation to optimize learning outcomes for their students.

Reference

- Bangert-Drowns, R. L., Kulik, J. A., & Kulik, C.-L. C. (1991). Effects of Frequent Classroom Testing. *The Journal of Educational Research*, 85(2), 89–99. The article reviews research on the educational effects of frequent classroom testing, including benefits such as stimulating practice and review, providing feedback, and increasing study time. A meta-analysis of findings on frequency of classroom testing shows that students who take at least one test during a 15-week term perform better on criterion examinations than those who take no tests. More frequent testing is associated with better performance, but the amount of improvement diminishes as the number of tests increases. The review distinguishes research on frequent classroom testing from research on adjunct questions and mastery testing.
- Başol, G., & Johanson, G. (2009). Effectiveness of frequent testing over achievement: A meta analysis study. *Journal of Human Sciences*. The study aimed to determine the effectiveness of frequent testing in improving academic achievement by conducting a meta-analysis of 78 studies. Studies with similar exam frequency were categorized into three categories: low, medium, and high. The results indicated that there were no statistically significant differences between the mean effect sizes of the studies that examined students at high, medium, and low frequency levels. The cumulative mean effect size for 78 studies was .46, indicating that frequent testing increases academic achievement. The study also sought to identify other study characteristics related to the overall effect size for academic achievement.
- Connor-Greene, P. A. (2000). Assessing and promoting student learning: Blurring the line between teaching and testing. *Teaching of Psychology*, 27(2), 84–88. The article

discusses how many faculty members are changing their teaching methods to encourage higher level thinking, but testing methods often remain the same. The use of daily essay quizzes is proposed to promote thorough preparation and critical thinking. Anonymous student questionnaires were used to compare student reactions and behavior in two different psychology courses: one with daily quizzes and another with four scheduled tests. The results show that students perceived the daily essay quizzes as more valuable in enhancing their learning, and they reported engaging in last-minute preparation and lower perceived learning with the four scheduled tests.

Finlayson, M. (2014). Addressing math anxiety in the classroom. *Improving Schools*, 17(1), 99–115. <https://doi.org/10.1177/136548021452145> This study stated that the prevalence of mathematics anxiety can hinder progress and lead to avoidance of mathematical thinking. To address this, interventions focused on mathematical resilience can help manage emotions and improve progress in mathematics. Self-Determination Theory (SDT) can be used to explain how meeting basic psychological needs can enhance wellbeing and prevent harm in mathematics education. Mathematical resilience tools can facilitate emotion regulation, leading to greater mathematical competence, wellbeing, and release from mathematics anxiety.

Gholami, V., & Moghaddam, M. M. (2013). *The Effect of Weekly Quizzes on Students' Final Achievement Score*. Frequent testing encourages pupils to contribute more in class and allows for long-term memory retention of the subject. Given that everything is tested before being stored in small, orderly pieces, the brief nature of frequent testing aids and reinforces the methodical learning of content. Furthermore, frequent testing forces students to prepare for class. Little amounts of the materials are tested often. As a result,

they undergo more thorough and careful processing. Furthermore, they think that frequent testing actually encourages more classroom discussion of the topic studied in the same session, and it feels that frequent testing helps to lower stress and alleviate anxiety.

Gholami, Vahid, and Moghaddam, M. M. (2013).

Greenwood Swank, A. L. (n.d.). ERIC - ED433234 - The Effect of Weekly Math Homework on Fourth Grade Student Math Performance., 1999-Jul. ERIC - ED433234. The purpose of this study was to examine whether weekly math homework can enhance academic performance in math among fourth graders. The study included 21 fourth graders aged 9-10 years old, and the main focus was on the impact of homework on quiz scores. An independent sample t-test was used to compare the quiz scores of students who completed weekly math homework with those who did not. The results indicated that there was no significant difference in academic success between the two groups. Thus, the study suggests that weekly math homework may not necessarily improve academic performance in math for fourth graders. The study includes 14 references.

Hembree, R. (1987). Effects of Non Content Variables on Mathematics Test Performance.

Journal for Research in Mathematics Education, 18(3), 197–214. This study investigated a meta-analysis of 120 research studies that was conducted to investigate the effects of factors other than content knowledge on mathematics test performance. The study found that several conditions can enhance performance, such as test wiseness training, praise, word-problem pictures, and frequent testing. However, the study also found that certain conditions can depress performance, such as the use of "none of these" as a multiple-choice option and the presence of extraneous information in word problems.

Additionally, external reward, reproof, and placement of the question in word problems

appeared to have no effect on performance. Overall, the study suggests that instructional practices and testing conditions can significantly impact mathematics test performance.

Hinchey, P. (2010). The importance of regular mathematics assessments. *Australian Primary Mathematics Classroom*, 15(2), 9-14. The appropriate time to administer tests in order to get the best learning results has been the subject of numerous studies. The researchers found that regular assessments made it easier to pinpoint areas of weakness, enabling teachers to modify their pedagogical approaches and enhance student learning. In a similar vein, Hinchey (2010) found that regular assessments increased student involvement and motivation in mathematics

Levesque-Bristol, C., Saia, M., & Sullivan, J. (2009). The predictive validity of end-of-unit compared to weekly mathematics assessments. *Educational Research Quarterly*, 33(4), 3-15 A better way to assess student learning, however, may be through end-of-unit exams, according to several studies. As an illustration, a study by Levesque-Bristol, Saia, and Sullivan (2009) discovered that end-of-unit exams were a better indicator of future success in mathematics than weekly exams. Weekly exams did not provide students enough time to completely comprehend information, according to the study.

Shirvani, H. (2009). Examining an Assessment Strategy on High School Mathematics Achievement: Daily Quizzes Vs. Weekly Tests. *American Secondary Education*, 38(1), 34-45. The study investigated the effects of daily quizzing on the academic performance of Hispanic high school students in geometry classes over a six-week term. The participants were divided into a control group, where students took weekly quizzes on Fridays, and an experimental group, where students took daily short quizzes during the last 10 minutes of the class. The study aimed to determine the impact of daily quizzing on

students' mathematics achievement, as measured by the final exam, and their homework grades. The results indicated that daily quizzing had a significant positive effect on students' mathematics scores and homework grades compared to weekly quizzing.