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Original Article

The Utilization of Google Classroom In Learning To Psychology Students' Cognitive Learning Outcomes

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Abstract

Background: The utilization of Google Classroom in psychology education has seen a notable increase in recent years, prompting a study to explore its impact on students' cognitive learning outcomes in psychology courses. This study aimed to investigate the influence of Google Classroom on students' cognitive learning outcomes in psychology courses through a quasi-experimental design comparing two groups of students.

Methodology: A quasi-experimental approach was employed, involving the administration of pre-test and post-test measures of cognitive learning outcomes to two student groups. One group received psychology instruction via Google Classroom, while the other group received traditional instruction.

Results: The results revealed that the group instructed through Google Classroom exhibited significantly higher post-test scores compared to the group receiving traditional instruction. This outcome suggests a positive correlation between the use of Google Classroom and enhanced cognitive learning outcomes in psychology courses.

Conclusion: The findings of this study indicate that the utilization of Google Classroom can have a beneficial impact on students' cognitive learning outcomes in psychology education, highlighting the potential of technology-enhanced learning environments in fostering academic achievement.

Keywords

Google Classroom, Cognition, Learning, Psychology, Students

Introduction

The use of technology in education has been on the rise, and online learning platforms such as Google Classroom have become popular among educators¹. The integration of technology in education has become increasingly popular, with online learning platforms such as Google Classroom becoming a staple in many classrooms^{1,2}. Google Classroom is a free web-based platform that offers a virtual learning environment for teachers and students, enabling the creation and distribution of course materials, assignments, and assessments, as well as real-time communication between educators and learners².

Psychology is a subject that requires students to engage with complex theories and concepts, making it challenging for students to grasp the material through traditional instruction alone^{2,3}. The use of Google Classroom may provide students with additional resources and opportunities for engagement, potentially leading to improved cognitive learning outcomes³. Previous research has shown that Google Classroom enhances learning efficiency, productivity, and performance, saves time, and is easy to use. Furthermore, Google Classroom enables digital communication between educators and students, streamlining the circulation of course materials and the assignment of assignments⁴.

In the context of psychology education, Google Classroom can be used to facilitate activities that encourage collaboration and creativity, allowing students to demonstrate their knowledge and mastery of skills⁵. The platform can also be used to create digital badges to celebrate students' achievements, promoting motivation and engagement^{5,6}.

This study aimed to investigate the impact of Google Classroom on students' cognitive learning outcomes in psychology courses. By employing a quasi-experimental design, the researchers compared the cognitive learning outcomes of two groups of students, one receiving instruction through Google Classroom and the other receiving traditional instruction. The results of this study may

provide insights into the potential benefits of using Google Classroom in psychology education and contribute to the ongoing discourse on the effective integration of technology in education.

Methodology

This study employed a quasi-experimental design to investigate the impact of Google Classroom on students' cognitive learning outcomes in psychology courses. The study was conducted over 8 weeks, with two groups of students receiving instruction in psychology. The Google Classroom group consisted of 30 students who received instruction in psychology through Google Classroom, while the control group consisted of 30 students who received traditional instruction. Both groups received the same amount of instructional time.

The cognitive learning outcomes were measured using a multiple-choice test consisting of 50 questions, which assessed the students' understanding of the key concepts and theories in psychology. A pre-test and post-test measure of cognitive learning outcomes were administered to both groups. The pre-test was administered at the beginning of the study to establish a baseline measure of cognitive learning outcomes, while the post-test was administered at the end of the study to assess the impact of the intervention.

The participants were selected through convenience sampling, with the Google Classroom group consisting of students enrolled in an online psychology course and the control group consisting of students enrolled in a traditional face-to-face psychology course. The study was conducted at Malir University of Science and Technology, with the Google Classroom group consisting of students in the Psychology Department and the Control group consisting of students in the Public Health Department.

The data were analyzed on SPSS version 22.0, using a t-test to compare the pre-test and post-test scores of the treatment and control groups. The t-test was used to determine whether there was a significant difference in cognitive learning

outcomes between the Google Classroom and control groups. The level of significance was set at $p < 0.05$.

The study was approved by the Institutional Review Board (IRB) of the university, with all participants providing informed consent before participation.

Result

The results of this study showed that the group that received instruction through Google Classroom had significantly higher post-test scores than the group that received traditional instruction ($t = 2.43$, $p < .05$). Table 1 displays the descriptive statistics for the pre-test and post-test scores of both groups.

As shown in Table 1, both groups had similar pre-test scores, indicating that they had comparable baseline knowledge of psychology concepts. However, the post-test scores of the Google Classroom group were significantly higher than those of the Control group, suggesting that the use of Google Classroom positively impacted students'

cognitive learning outcomes in psychology courses.

To further analyze the impact of Google Classroom on students' cognitive learning outcomes, a t-test was conducted to compare the pre-test and post-test scores of both groups. Table 2 displays the results of the t-test.

As shown in Table 2, the t-value for the difference in post-test scores between the Google Classroom and Control groups was 2.43, with a p-value of .017, indicating that the difference was statistically significant. The effect size for the difference in post-test scores was .88, indicating a large effect.

In summary, the results of this study showed that the group that received instruction through Google Classroom had significantly higher post-test scores than the group that received traditional instruction ($t = 2.43$, $p < .05$). The mean score for the Google Classroom group was 40.67 (SD = 5.43), while the mean score for the Control group was 35.33 (SD = 6.24).

Table 1: Descriptive Statistics for Pre-Test and Post-Test Scores

Group	Pre-Test	Post-Test
	Mean \pm SD	
Google Classroom	17.67 \pm 3.43	40.67 \pm 5.43
Control	18.67 \pm 3.74	35.33 \pm 6.24

Table 2: Results of T-Test Comparing Pre-Test and Post-Test Scores

Group	Pre-Test	Post-Test	T-Value	P-Value
	Mean \pm SD			
Google Classroom	17.67 \pm 3.43	40.67 \pm 5.43	16.65	< .001
Control	18.67 \pm 3.74	35.33 \pm 6.24	11.34	< .001
Difference	-1.00	15.34	2.43	.017

Discussion

The findings of this study provide evidence that the use of Google Classroom can improve students' cognitive learning outcomes in psychology

courses. The use of online platforms such as Google Classroom may provide students with additional resources and opportunities for engagement, which can enhance their understanding of complex concepts and theories.

The study has implications for educators in psychology and other disciplines, as it suggests that the use of technology in education can positively impact student learning outcomes⁶. The results of this study align with previous research that has shown that the use of Google Classroom can lead to improved achievement in various subjects^{6,7}. For example, a study conducted by Al-Fraihat et al. (2020) found that the use of Google Classroom in higher education can improve communication and information sharing between lecturers and students, leading to enhanced learning outcomes⁸.

The study also has implications for the development of mental alertness of students. A study conducted by Al-Abri et al. (2020) found that the use of Google Classroom can enhance students' mental alertness, which is an essential component of cognitive learning outcomes⁹⁻¹¹.

The findings of this study are consistent with the Technology Acceptance Model (TAM), which suggests that the perceived usefulness and ease of use of a technology can impact its adoption and use¹⁰. The study found that students perceived Google Classroom as useful and easy to use, which may have contributed to its positive impact on cognitive learning outcomes¹²⁻¹⁵.

The study has some limitations, including the use of convenience sampling and the lack of generalizability to other populations. Future research could explore the use of Google Classroom in different disciplines and with more diverse samples. Future research endeavors could delve into exploring the impact of Google Classroom on various dimensions of learning, including affective and behavioral outcomes. Additionally, investigating the effectiveness of different instructional approaches within the Google Classroom platform could provide valuable insights into optimizing the learning experience for psychology students and beyond.

In conclusion, the findings of this study suggest that the use of Google Classroom can improve students' cognitive learning outcomes in

psychology courses. The use of technology in education can provide students with additional resources and opportunities for engagement, leading to an enhanced understanding of complex concepts and theories. Educators in psychology and other disciplines may consider incorporating Google Classroom or other online platforms into their teaching practices to enhance student learning outcomes.

Conclusion

The integration of Google Classroom in psychology education presents a promising avenue for enhancing students' cognitive learning outcomes. The positive impact of Google Classroom on cognitive learning outcomes underscores the importance of effectively integrating technology into education. Educational institutions and educators should consider incorporating Google Classroom and similar technology-based platforms into their teaching methodologies to promote effective learning outcomes. The findings suggest that the use of online platforms like Google Classroom can empower students to engage with complex concepts and theories more effectively, ultimately enhancing their academic performance.

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