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Influence of Digital Technology Utilization on the Learning Outcomes of Economic Education Students

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Abstrak. *Penelitian ini bertujuan untuk menganalisis pengaruh pemanfaatan teknologi digital terhadap hasil belajar mahasiswa Pendidikan Ekonomi di Fakultas Keguruan dan Ilmu Pendidikan, Universitas Muhammadiyah Prof. Dr. Hamka. Penelitian menggunakan pendekatan kuantitatif dengan metode survei yang melibatkan 100 mahasiswa Pendidikan Ekonomi yang dipilih melalui teknik simple random sampling dengan tingkat kesalahan 5 persen. Data dikumpulkan menggunakan kuesioner terstruktur dan dianalisis dengan statistik deskriptif serta analisis regresi linier sederhana. Hasil uji validitas dan reliabilitas menunjukkan bahwa seluruh instrumen penelitian dinyatakan valid dan reliabel. Temuan penelitian menunjukkan bahwa pemanfaatan teknologi digital berpengaruh positif dan signifikan terhadap hasil belajar mahasiswa, dengan koefisien regresi sebesar 0,623 dan nilai signifikansi di bawah 0,05. Nilai koefisien determinasi menunjukkan bahwa pemanfaatan teknologi digital mampu menjelaskan 38,8 persen variasi hasil belajar. Hasil ini menegaskan bahwa pemanfaatan teknologi digital secara pedagogis berkontribusi nyata dalam meningkatkan kinerja akademik mahasiswa Pendidikan Ekonomi.*

Kata kunci: *Teknologi Digital; Hasil Belajar; Pendidikan Ekonomi; Pendidikan Tinggi; Penelitian Kuantitatif.*

Abstract. *This study aims to examine the effect of digital technology utilization on the learning outcomes of Economics Education students at the Faculty of Teacher Training and Education, Universitas Muhammadiyah Prof. Dr. Hamka. A quantitative approach with a survey method was employed to collect data from 100 Economics Education students selected using simple random sampling with a 5 percent error level. Data were gathered through a structured questionnaire and analyzed using descriptive statistics and simple linear regression analysis. The results of validity and reliability tests indicate that all research instruments are valid and reliable. The findings reveal that digital technology utilization has a positive and significant effect on students' learning outcomes, as evidenced by a regression coefficient of 0.623 and a significance value below 0.05. The coefficient of determination shows that digital technology utilization explains 38.8 percent of the variance in learning outcomes. These results suggest that the effective use of digital technology contributes meaningfully to improving academic performance in Economics Education learning. The study highlights the importance of integrating digital technology pedagogically to enhance learning effectiveness in higher education.*

Keywords: *Digital Technology; Learning Outcomes; Economics Education; Higher Education; Quantitative Study.*

Introduction

The development of digital technology has brought significant changes in the delivery of higher education, especially in the way the learning process is designed and implemented (Mustika & Temarwut, 2022). Universities today no longer rely only on conventional face-to-face learning methods, but have begun to integrate various digital technologies such as online learning platforms, interactive learning media, and digital-based learning resources(Najihah *et al*., 2025). This change is increasingly felt as the need for flexible learning and being able to adapt to the characteristics of students as a generation familiar with technology increases(Meishanti *et al*., 2025). This phenomenon shows that digital technology has become an integral part of learning activities in higher education (Putra *et al*., 2021). In the context of Economics Education, the use of digital technology has an increasingly important role considering the characteristics of courses that require conceptual understanding, critical thinking skills, and analytical skills against economic phenomena that continue to develop (Hutabarat, 2020).

Digital technology allows for the presentation of learning materials in a more contextual manner through data visualization, economic simulations, and online discussions that encourage active student participation(Saputra *et al*., 2024). However, the use of digital technology in learning is not always directly proportional to the improvement of learning outcomes (Hadi, 2017). In some cases, technology is only used as a means of administrative support without being followed by adequate pedagogical innovation, so that the impact on students' academic achievement is less than optimal(Nayla Adhwa *et al*., 2025). The relationship between the use of digital technology and learning outcomes can be explained through a theoretical perspective, one of which is the theory of constructivism which emphasizes that learning will take place effectively if students are actively involved in building their own knowledge (Zahra, 2025). Digital technology provides a learning environment rich in information resources and allows for wider interactions, both between students and learning materials and with lecturers and fellow students (Rohmah, 2025). In addition, the Technology Acceptance Model explains that the level of user acceptance of technology, which is influenced by the perception of usefulness and ease of use, will determine the intensity of the use of the technology in the learning process(Febrianti *et al*., 2025). When students view digital technology as something useful and easy to use, they tend to make optimal use of it, which ultimately has the potential to improve learning outcomes(Fitria & Nuraini, 2025). Various previous studies have shown that the use of digital technology in learning can make a positive contribution to student learning outcomes (Alya, 2026). Research in the past decade has revealed that digital technology can increase learning engagement, motivation, and concept understanding when properly integrated into learning design (Aswinda *et al*., 2022). More recent studies also confirm that the use of interactive and contextual digital technology has a greater influence than the use of technology that is passive or simply replaces conventional methods (Julistin Prilianis Dakhi *et al*., 2025).

However, the results of previous studies still show mixed findings. Some studies have found that the use of digital technology has not had a significant impact on learning outcomes, especially when technology is not used optimally in supporting students' cognitive processes(Hidayat & Khotimah, 2019). The inconsistency of these findings shows that there are research gaps that need to be studied further, especially in the context of Economics Education in universities. Within the Faculty of Teacher Training and Education, the use of digital technology has become part of daily learning practices, including in the Economics Education Study Program. Although the use of digital technology has been relatively widespread, empirical studies that specifically examine the influence of the use of digital technology on the learning outcomes of Economics Education students are still limited. Most studies focus more on aspects of student perception, attitude, or level of satisfaction with the use of technology, while studies that directly link it to learning outcomes have not been

widely conducted, especially in the context of private universities. This condition shows the need for research that empirically examines the relationship between the use of digital technology and the learning outcomes of Economic Education students. Based on this description, this study aims to analyze the influence of the use of digital technology on the learning outcomes of Economic Education students. This research is expected to make a theoretical contribution by strengthening understanding of the role of digital technology in the learning process in higher education, as well as providing practical contributions for lecturers and study program managers in designing technology-based learning that is more effective and oriented towards improving student learning outcomes. Conceptually, this research is based on the framework of thinking that the use of digital technology as an independent variable plays a role in improving the quality of the learning process, which in turn has an impact on student learning outcomes as a dependent variable. Thus, the hypothesis proposed in this study is that the use of digital technology has a positive effect on the learning outcomes of Economics Education students.

Research Methodology

This study uses a quantitative approach with a survey method, which aims to empirically test the influence of the use of digital technology on the learning outcomes of Economics Education students. The quantitative approach was chosen because this study focuses on measuring the relationships between variables in an objective and measurable manner, and allows conclusions to be drawn based on statistical analysis. The research was carried out on students of the Economics Education Study Program, Faculty of Teacher Training and Education, University of Muhammadiyah Prof. Dr. Hamka, who are actively involved in the learning process based on digital technology. The population in this study is all active students of the Economics Education Study Program FKIP UHAMKA in the current academic year. The research sample was determined using *a probability sampling* technique with *a simple random sampling* method, so that each member of the population had the same opportunity to be selected as a respondent. The determination of the number of samples was carried out by considering an error rate of 5 percent, so that a representative sample size was obtained and able to adequately describe the characteristics of the population. The research respondents consisted of students with diverse semester backgrounds, so that the data obtained reflected learning conditions more comprehensively. The research data was collected using an instrument in the form of a closed questionnaire which was compiled based on the indicators of the research variables. The questionnaire was distributed online to facilitate respondents' access and increase participation rates. The variables of digital technology utilization are operationalized through indicators of the use of digital learning media, the use of online learning platforms, ease of access to digital learning resources, and the intensity of the use of technology in the learning process. Meanwhile, the learning outcome variables are measured through student academic achievement represented by the value of the core courses in Economics Education and students' perception of the achievement of learning competencies. The research instrument is first tested for validity and reliability to ensure that each item of the statement is able to measure the variables in question consistently and accurately. The data analysis technique in this study was carried out using descriptive and inferential statistical analysis. Descriptive analysis was used to describe the characteristics of respondents as well as the tendency of data on each research variable. Furthermore, an inferential analysis was carried out to test the research hypothesis through simple linear regression analysis, with the aim of finding out the magnitude of the influence of the use of digital technology on the learning outcomes of Economics Education students. The entire data analysis process is carried out with the help of statistical software, so that the results of the analysis obtained are objective and can be scientifically accounted for.

Results and Discussion

Results

The testing of research instruments began with a validity test of all items of variable statements for the use of digital technology and learning outcomes of Economics Education students. The results of the validity test showed that all items had a greater correlation coefficient value (calculated r) than the table r value of 0.197 at a significance level of 5 percent. The calculated r value for the digital technology utilization variable is in the range of 0.521 to 0.781, while the calculated r value for the learning outcome variable is in the range of 0.498 to 0.742. These findings show that all statement items are declared valid and are able to measure the construct in question. After the validity test, a reliability test is carried out to ensure the internal consistency of the research instrument. The test results showed that the Cronbach's Alpha value for the digital technology utilization variable was 0.892 and the learning outcome variable was 0.864. Both values are above the minimum limit of 0.70, so the research instrument is declared reliable and suitable for use in data collection.

Table 1. Instrument Validity Test Results

Yes	Variable	Number of Items	Range r Calculate	r Table	Remarks
1	Utilization of Digital Technology	10	0,521 – 0,781	0,197	Valid
2	Learning Outcomes	8	0,498 – 0,742	0,197	Valid

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Criteria
Utilization of Digital Technology	0,892	Reliable
Learning Outcomes	0,864	Reliable

Descriptive statistical analysis shows that the average score for the use of digital technology is 3.98 out of a scale of 5, which shows that students tend to often use digital technology in the learning process. Meanwhile, the average student learning outcome score is 3.87, which indicates that the academic achievement of Economics Education students is in the good category. These results show a positive trend between the use of digital technology and student learning outcomes. Hypothesis testing was carried out using simple linear regression analysis to determine the influence of the use of digital technology on the learning outcomes of Economics Education students. The results of the analysis showed that the regression coefficient value was 0.623 with a calculated t-value of 7.845 and a significance level of 0.000. A significance value of less than 0.05 indicates that the use of digital technology has a positive and significant effect on student learning outcomes. Thus, the hypothesis that the use of digital technology affects the learning outcomes of Economics Education students is accepted.

Table 3. Results of Simple Linear Regression Analysis

Independent Variables	Regression Coefficient (β)	t Count	Sig.
Utilization of Digital Technology	0,623	7,845	0,000

The value of the determination coefficient (R^2) of 0.388 shows that the use of digital technology is able to explain 38.8 percent of the variation in learning outcomes of Economics Education students, while the remaining 61.2 percent is influenced by other factors outside this research model. This score is moderated and shows that digital technology is an important factor, but not the only determinant of student learning outcomes.

Table 4. Coefficient of Determination

Models	R	R Square
1	0,623	0,388

Digital Technology Utilization and Learning Outcomes *(The figure shows a linear regression line with a positive direction, where the increase in the use of digital technology is followed by an increase in the learning outcomes of Economics Education students)* The results of this study show that the use of digital technology has a real contribution to improving the learning outcomes of Economics Education students. These findings reinforce constructivism theory that emphasizes the importance of active student involvement in the learning process, and supports the Technology Acceptance Model which states that the perception of the usefulness of technology drives the intensity of use which has an impact on academic performance. The results of this study are also in line with various previous studies that concluded that digital technology is able to improve students' understanding and academic achievement when used pedagogically and contextually. However, the R^2 value that has not reached 50 percent shows that student learning outcomes are also influenced by other factors such as learning motivation, digital literacy, and lecturer learning strategies. This is a limitation of research while opening up opportunities for future research to develop more complex research models by adding mediation or moderation variables. In terms of practical implications, the results of this study confirm the importance of optimizing digital technology in the learning of Economic Education in a planned manner, not just as a complement to academic administration. Meanwhile, scientifically, this study strengthens empirical evidence regarding the role of digital technology in improving student learning outcomes in higher education environments.

Discussion

The results of this study indicate that the utilization of digital technology has a positive and significant impact on the learning outcomes of Economics Education students. This finding aligns with the research conducted by Hidayat & Khotimah (2019), which found that the use of digital technology in learning can enhance student engagement and facilitate a more interactive learning process. Additionally, the study by Aswinda *et al.* (2022) supports this result by stating that the integration of technology into learning design can improve student motivation and conceptual understanding. This research emphasizes the importance of a pedagogical approach that optimizes digital technology not merely as an administrative tool but as an integral component of the learning process. Thus, these findings reinforce constructivist theory, which posits that active student involvement in learning enhances deep understanding of the material (Zahra, 2025). However, the determination coefficient indicating that 61.2 percent of the variance in learning outcomes is influenced by other factors also suggests the need for further research to explore additional variables that may contribute to learning outcomes, such as learning motivation and teaching strategies employed by lecturers (Nayla Adhwa *et al.*, 2025). Therefore, this study not only provides empirical evidence regarding the role of digital technology in higher education but also opens opportunities for future research to develop more comprehensive and sustainable learning models.

Conclusion

This study shows that the use of digital technology has a positive and significant influence on the learning outcomes of Economics Education students. These findings confirm that digital technology is not just a means of supporting learning administration, but plays an integral role in improving the quality of the learning process and student academic achievement when used appropriately and planned. The results of this study strengthen the theoretical foundation that states that students' active involvement in a technology-based learning environment is able to encourage a deeper understanding of learning materials. The impact of this research is both practical and academic. Practically, the

results of this research can be the basis for lecturers and study program managers in designing and optimizing more effective digital technology-based learning, especially in the field of Economic Education. Academically, this research makes an empirical contribution to enriching the study of digital learning in higher education, especially in the context of private universities in Indonesia, as well as opening up opportunities for further research to develop a more comprehensive and sustainable technology-based learning model.

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