

The Influence Of Digital Literacy, Interactive Learning Content And Technology Accessibility On Student Digital Engagement In Higher Education

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ABSTRACT

Penelitian yang diusulkan bertujuan untuk mengeksplorasi pengaruh Literasi Digital, Konten Pembelajaran Interaktif, dan Aksesibilitas Teknologi terhadap Keterlibatan Digital Mahasiswa di pendidikan tinggi. Untuk studi ini, pendekatan kuantitatif menggunakan survei digunakan untuk mengumpulkan data. Kuesioner dibagikan kepada 200 mahasiswa yang sedang kuliah di universitas negeri dan swasta yang dipilih melalui pengambilan sampel bertujuan. Responden diharapkan adalah mahasiswa yang belajar secara digital atau memiliki pengalaman kelas hibrida dan secara teratur menggunakan platform pembelajaran daring. Data dianalisis menggunakan regresi linier berganda. Studi ini menemukan bahwa Literasi Digital, Konten Pembelajaran Interaktif, dan Aksesibilitas Teknologi, baik secara individual maupun kolektif, secara signifikan dan positif berhubungan dengan Keterlibatan Digital Mahasiswa. Oleh karena itu, hasil penelitian mengungkapkan cara-cara untuk meningkatkan keterlibatan digital mahasiswa, termasuk meningkatkan keterampilan digital mahasiswa, merancang materi pembelajaran yang menarik, dan menyediakan akses yang lebih baik ke teknologi pendidikan. Salah satu cara utama upaya ini bermanfaat, menurut makalah ini, adalah dengan menjelaskan bagaimana pendidikan tinggi digital yang inklusif dan sukses sebenarnya dibangun dan mengapa hal itu penting.

The proposed research aims to explore the effects of Digital Literacy, Interactive Learning Content, and Technology Accessibility on Student Digital Engagement in tertiary level education. For this study, a quantitative approach using a survey was employed to gather data. Questionnaires were handed out to 200 currently enrolled students in both public and private universities who were chosen through purposive sampling. Respondents were expected to be students that digitally learn or have experience of hybrid classes and are regularly using online learning platforms. Data were analyzed using multiple linear regression. The study found that Digital Literacy, Interactive Learning Content, and Technology Accessibility, both individually and collectively, are significantly and positively related to Student Digital Engagement. The results, therefore, reveal the ways to improve students' digital involvement, including improving students' digital skills, designing interesting learning materials, and providing better access to educational technologies. One of the main ways this effort has been beneficial, according to the paper, is by shedding light on how inclusive and successful digital higher education is actually constructed and why it matters.



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INTRODUCTION

The entire digital revolution in higher education has had a significant impact on how students engage with their universities, how learning occurs, and how academic communication functions. These many digital platforms are currently being used by an increasing number of colleges to enable relatively seamless learning activities (Abdullah et al., 2024). In this situation, student digital engagement becomes an important metric that essentially demonstrates the extent of students' involvement in digital-based learning, etc. It includes their participation in online classes as well as how they use digital learning resources, traverse learning platforms, and even express their thoughts and emotions when taking online courses. High levels of student digital engagement are essential because they can enhance learning outcomes, increase academic happiness, aid in student retention, and generally make the learning process feel more stable and authentic (Mardiani et al., 2024). Conversely, low engagement may eventually result in a drop in academic performance, a lower motivation to learn, and a rise in absences from the internet. Because pupils don't all have the same access to technology or digital abilities, the situation becomes a little more problematic. Additionally, not everyone has a same background in digital learning (Nurhidayat et al., 2022).

One of the major determinants of student digital engagement in higher education is digital literacy. Digital literacy can be described as students' ability to effectively access, understand, evaluate, and use digital technology for learning (Hietajarvi et al., 2022). Those students who have excellent digital literacy skills generally become quite comfortable with online learning systems and they also, most often, avail themselves of the different digital learning resources (Hariyadi et al., 2023). For example, they are well acquainted with the functionalities of learning management systems, online collaboration tools, digital academic databases, and different types of technology-based learning media. Besides that, interactive learning content is another major determinant of student digital engagement in higher education (Nkomo et al., 2021). In fact, interactive learning content refers to the digital educational materials that have been innovatively and interactively designed in such a way that they are able to elicit students' active participation in the learning process (Rumondor et al., 2023). Some of the examples of interactive learning content are teaching videos, digital simulations, online quizzes, learning gamification, virtual discussions, and other interactive multimedia apps. Students tend to show more willingness to jump into digital learning when the material is not that monotonous and when it somehow feels like, a fun learning experience that is not only "educational" but also less dull all the time (Wardhana & Rofi'i, 2022). Also, technology accessibility matters a lot if the goal is boosting student involvement in higher education. When people say technology accessibility, educators usually mean how easy it is for learners to reach the required tech: digital devices, internet networks, learning platforms, and the digital resources needed for the study process (Mohzana et al., 2023; Henderson et al., 2015). However, not all students have equal access, particularly those from areas with less developed digital infrastructure. Participating in digital learning might become more notably challenging if a student has few resources, such as a laptop or smartphone, or if their connection is still erratic (Rofi'i et al., 2023).

This study looks at how students' digital participation in higher education is impacted by digital literacy, interactive learning resources, and technology accessibility. The project's objective is to contribute to the body of knowledge on digital education management, especially with regard to how students maintain their interest in tech-based learning environments rather than just a certain platform or tool. Additionally, because there are fewer blind spots, the work broadens the conversation about what actually motivates student involvement in digital learning environments. It is anticipated that the findings will serve as a guide for future studies on related subjects in various settings. Even while circumstances can vary greatly from campus to campus, the study should really help higher education institutions develop measures to boost student involvement in digital learning.

METHOD

This study employs quantitative techniques to examine the effects of digital literacy, interactive learning resources, and technology accessibility on students' digital participation in higher education. The empirical technique employed is a survey, with a research tool comprising a structured questionnaire, which is formed based on the indicators of each variable and is measured by a 5-point Likert scale (1-5). The study's target group was students who are currently enrolled in both public and private universities and engaged in digital-based and hybrid learning. The purposive sampling method was employed, the respondent's vector was set as active students at least in their second semester, online or hybrid learning participants for the previous semester, and frequent users of digital learning platforms. According to these parameters, the sample size for this study was 200 respondents, which was a sufficient amount for multiple linear regression analysis. Data gathering was achieved via online questionnaires through Google Forms and other digital media. A t-test was conducted for instrument validity, where an item is considered valid if the calculated t-value is greater than the t-table at a 5% significance level. Cronbach Alpha was used to determine reliability, with a threshold set at 0.70. Before we proceeded to the primary data analysis, the data were examined for several classical assumptions such as normality, heteroscedasticity and multicollinearity to ascertain the validity of the regression model. For the main data analysis method, multiple linear regression was employed to evaluate the partial and simultaneous effects of independent variables on the dependent variable, with the confidence level set at 0.05.

RESULT AND DISCUSSION

Data were processed using IBM SPSS statistic 21 on the scores of all research instruments and it is found that all of them were valid and reliable in a study which surveyed more than 200 active students from both the public and private universities. The validity test results indicated that all statement items in the variables of Digital Literacy, Interactive Learning Content, Technology Accessibility and Student Digital Engagement had a calculated t value greater than the t table at 5% significance so that all indicator were declared valid. More details about the results of the reliability test show all variables with a Cronbach Alpha value > 0.70 which means this research instrument is consistent or reliable. The residual data were distributed normally, as the results of normality test (skewness and kurtosis) indicates. The heteroscedasticity test produced no symptoms of heteroscedasticity, while the multicollinearity test indicated that the VIF values of all independent variables were below 10 and the tolerance value was above 0.10 so that it can be recognized that there is not any multicollinearity in this regression model. The result of multiple linear regression found simultaneous influence between Digital Literacy, Interactive Learning Content and Technology Accessibility on Student Digital Engagement with the significance value from F test < 0.05 . Results of t-test also revealed that three independent variables have positive and significant impact on Student Digital Engagement but partially.

Digital literacy positively affects higher education students' digital engagement and has a significance of 0.005, therefore acceptable compared to the p-value level of $\alpha \leq 0,01$. Which means the better they handle digital technology, the more involved they are in these types of learning tasks. Digital literacy of students usually plays an important role in their enthusiasm for accessing the learning materials, participating in online discussions, making use of digital learning resources, and even finishing technology-based assignments actively. Also capable of leveraging different platforms. While students who initially struggle with digital literacy adaptation have a little engagement. The findings contribute to the theory of digital competence, where one of the indicators is that digital skills promote beneficial academic participation among students. Previous studies also found that digital literacy affects satisfaction and academic performance in online learning. Hence, the role of large enrollment institutions is a prominent one in improving student digital literacy through appropriate training on the use of learning platforms offer strengthening between digital skills as well as optimizing to leverage better students digital engagement.

The results of the study suggest that Interactive Learning Content has a positive, and significant effect on Student Digital Engagement, sort of like there is a real push towards that direction. Essentially, it means the more engaging plus more responsive the learning content lecturers share , the higher the student engagement in digital learning is going to be. Students also tend to turn out more active when

the learning materials are packaged with interactive videos, digital simulations, gamification, online quizzes, and virtual discussions. And it appears that when certain platforms are used, the student learning experience can feel more immersive, in a way that is more captivating too. On the other hand, if the learning content is monotonous, and comes mostly as text documents, it tends to cut down student attention quite noticeably. Indeed, these findings appear to be consistent with the student-centered learning theory that emphasizes the importance of active learning experiences and not just passive reading. Previous studies also corroborate the idea that interactive learning materials can increase student motivation and engagement. So it seems lecturers should continue to innovate in the design of digital learning materials, making them more creative, more engaging for students, so the learning doesn't end up feeling flat, or too one dimensional.

The study findings show that the accessibility of technology has a positive and significant impact on student digital engagement in higher education. In actuality, it appears that students are more engaged in the learning process when technology is more accessible, not only in a general sense. In general, students are more likely to be engaged in their studies when they have easier access to technology, the internet, and digital learning platforms. Students are more likely to engage in digital academic activities when they have reliable internet connections, enough digital devices, and easy-to-use learning platforms. However, restricting access can be a major barrier to increasing overall involvement. These results, which highlight the significance of the availability of digital infrastructure for education in the present day, appear to be in line with the theory of technological access. Additionally, other research demonstrates how students' access to technology affects their academic engagement and happiness with online learning. If universities want students' digital participation to develop permanently rather than just temporarily, they need continuously upgrade their digital infrastructure, including Wi-Fi, computer laboratories, and reliable digital learning tools.

CONCLUSION

The study's findings show that digital literacy, interactive learning materials, and technological accessibility all have a positive and statistically significant impact on students' digital engagement in higher education, both partially and somewhat simultaneously. The study's findings show that digital literacy is essential for assisting students in using technology efficiently and increasing their level of engagement throughout the entire digital learning process. Additionally, since interesting, imaginative, and interactive learning resources can inspire students to study and encourage more frequent participation, they appear to boost engagement. Children must also have adequate access to digital gadgets, the internet, and learning platforms in order for learning to occur more successfully. This is the reason that accessibility to technology is so important. These three elements are typically used as tactical tools to improve the quality of digital education in higher education. As a result, higher education institutions are urged to increase student access to educational technology infrastructure, enhance student digital literacy initiatives, and inspire teachers to offer more innovative teaching resources. To make the research model seem more comprehensive and somewhat more rounded, more follow-up work is advised by adding other relevant components like learning motivation, digital self-efficacy, academic resilience, or online learning satisfaction. Ultimately, this research offers theoretical and practical advantages to help Indonesia continue its transition to digital higher education.

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