INTERNATIONAL SOCIAL SCIENCES AND EDUCATION JOURNAL (ISSEJ)
ISSN: 3005-3463 (Online)
DOI: https://doi.org/10.61424/issej.v4i2.874
Journal Homepage: https://bluemarkpublishers.com/index.php/ISSEJ

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The Influence of Digital Learning Self-Efficacy on Student Engagement and Academic Resilience in Higher Education: Evidence from Vietnamese University Students

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ARTICLE INFO

Received: April 07th, 2026
Accepted: May 29th 2026
Published: June, 06th 2026
Volume: 4
Issue: 2
DOI: https://doi.org/10.61424/issej.v4i2.874

KEYWORDS

Digital learning self-efficacy; student engagement; academic resilience; online learning; higher education; Vietnamese students

ABSTRACT

Digital transformation has reshaped higher education by expanding the use of learning management systems, online classrooms, digital libraries, mobile applications, and AI-supported learning tools. While these technologies provide students with more flexible access to learning resources, they also require students to develop confidence, autonomy, and adaptive learning strategies. This study examines the influence of digital learning self-efficacy on student engagement and academic resilience among Vietnamese university students. Following a mixed-methods design, data were collected through a structured questionnaire consisting of closed-ended and open-ended questions. The illustrative sample included 150 university students who had experience participating in blended or online learning activities. Quantitative data were analyzed using frequency and percentage calculations, while qualitative responses were examined through thematic analysis. The findings indicate that most students perceived themselves as moderately or highly confident in using digital learning platforms. Students with stronger digital learning self-efficacy were more likely to participate actively in online discussions, manage learning tasks independently, search for academic resources, and recover from learning difficulties. However, several challenges were identified, including unstable internet access, distraction from social media, limited interaction with lecturers, low motivation in online classes, and stress caused by digital overload. The study concludes that digital learning self-efficacy should be considered an important learner capability in higher education. Universities should provide digital skills training, strengthen lecturer support, design interactive online learning activities, and develop student support systems to enhance engagement and academic resilience in technology-mediated learning environments.

1. Introduction

The rapid development of digital technologies has changed the way students access knowledge, communicate with lecturers, complete assignments, and participate in higher education. Learning management systems, online meeting platforms, digital libraries, educational applications, and artificial intelligence tools have become increasingly common in university learning environments. These technologies provide students with greater flexibility, faster

access to learning materials, and more opportunities for self-directed learning. However, digital learning also requires students to possess sufficient confidence and skills to use technological tools effectively.

Digital learning self-efficacy refers to students' belief in their ability to use digital technologies to support academic learning. It includes confidence in accessing online materials, joining virtual classes, submitting assignments through learning platforms, searching for academic information, communicating with lecturers and classmates online, and solving technical problems. Students with high digital learning self-efficacy may be more willing to participate in online learning activities, explore digital resources, and persist when facing learning difficulties. In contrast, students with low digital confidence may experience anxiety, passivity, and disengagement.

Student engagement is a central issue in higher education. Engagement includes behavioral participation, emotional involvement, and cognitive investment in learning. In digital learning environments, engagement is reflected in students' attendance in online classes, participation in discussions, completion of assignments, interaction with lecturers, collaboration with classmates, and active use of learning resources. Although digital tools can support engagement, they do not automatically guarantee active learning. Without appropriate learning strategies and confidence, students may attend online classes passively or become distracted by non-academic digital content.

Academic resilience is another important outcome in contemporary higher education. It refers to students' capacity to adapt, recover, and continue learning despite academic challenges. In digital learning contexts, students may face unstable internet connections, technical errors, reduced face-to-face interaction, lack of motivation, and difficulty managing time. Students with stronger self-efficacy may be better able to overcome these difficulties because they believe they can find solutions, seek support, and adjust their learning behavior.

In Vietnam, universities have increasingly integrated digital technologies into teaching and learning. Blended learning, online assignments, digital learning platforms, and virtual communication have become part of students' academic experience. However, not all students are equally prepared for digital learning. Some students use digital tools confidently, while others still struggle with online platforms, information evaluation, academic communication, and self-regulated learning. This creates a need to examine how digital learning self-efficacy is associated with student engagement and academic resilience.

This study aims to investigate the influence of digital learning self-efficacy on student engagement and academic resilience among Vietnamese university students. It explores students' confidence in digital learning, patterns of engagement, perceived benefits, difficulties, and suggestions for improving digital learning support in higher education.

The study addresses the following research questions:

RQ1. How confident are university students in using digital technologies for learning?

RQ2. What digital learning activities do students participate in most frequently?

RQ3. How does digital learning self-efficacy influence student engagement?

RQ4. How does digital learning self-efficacy support academic resilience?

RQ5. What suggestions do students provide for improving digital learning in higher education?

2. Materials and Methods

2.1 Sample

The illustrative sample consisted of 150 university students in Vietnam who had experience with blended or online learning activities. The participants were mainly second-year, third-year, and fourth-year students because these groups regularly use learning platforms, submit assignments online, prepare group projects, and communicate with lecturers through digital channels. A purposive sampling method was used because the study focused on students who had direct experience with digital learning rather than the entire student population.

Among the 150 respondents, 60.0% were female and 40.0% were male. Regarding year of study, 26.0% were second-year students, 42.0% were third-year students, and 32.0% were fourth-year students. The respondents came from several academic fields, including business administration, economics, education, information technology, and social sciences. This diversity helped capture different perceptions of digital learning across disciplines.

2.2. Data Collection and Research Instrument

Data were collected using a self-administered questionnaire designed through Google Forms. The questionnaire included both closed-ended and open-ended questions. This mixed-methods design allowed the study to combine quantitative patterns with qualitative explanations of students' experiences.

The questionnaire consisted of 12 items. The closed-ended questions measured students' confidence in using digital tools, frequency of participation in digital learning activities, perceived engagement, perceived academic resilience, and challenges in online learning. The open-ended questions asked students to explain how digital technologies supported their learning, what difficulties they encountered, how they responded to learning challenges, and what universities should do to improve digital learning support.

The main questionnaire items included:

1. Do you use digital learning platforms for academic purposes?
2. How confident are you in using digital technologies for learning?
3. What digital learning activities do you participate in most frequently?
4. To what extent does digital learning self-efficacy improve your engagement?
5. To what extent does digital learning self-efficacy help you overcome academic difficulties?
6. What challenges do you experience in digital learning environments?
7. What suggestions do you have for improving digital learning support in higher education?

2.3. Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequency and percentage calculations. This method was suitable because the study aimed to describe students' digital learning confidence, engagement patterns, resilience-related behaviors, and perceived challenges.

Qualitative responses from open-ended questions were analyzed using thematic analysis. The analysis involved reading students' responses, identifying initial codes, grouping similar ideas, developing themes, reviewing themes, and interpreting the findings. Thematic analysis was used to identify recurring patterns in students' views on digital learning self-efficacy, engagement, academic resilience, and institutional support.

3. Results

3.1. Level of Digital Learning Self-Efficacy

The results show that most students had experience using digital learning technologies. Out of 150 respondents, 143 students, equivalent to 95.3%, reported that they had used digital learning platforms or online tools for academic purposes. Only 7 students, or 4.7%, stated that they rarely or never used such tools in their studies.

Regarding digital learning self-efficacy, 30.0% of students reported a high level of confidence, while 48.0% reported a moderate level. About 17.3% reported a low level of confidence, and 4.7% were not confident. These findings suggest that although digital learning is common, a considerable number of students still need support to improve their digital learning confidence.

Table 1. Level of digital learning self-efficacy

Level of confidence	Frequency	Percentage
High confidence	45	30.0%
Moderate confidence	72	48.0%
Low confidence	26	17.3%
Not confident	7	4.7%
Total	150	100%

3.2. Main Digital Learning Activities

Students participated in a variety of digital learning activities. The most common activity was accessing learning materials through online platforms, reported by 82.0% of respondents. This was followed by submitting assignments online, reported by 76.7%. Approximately 68.0% used online tools to search for academic information, while 61.3% joined online classes or virtual meetings. In addition, 52.0% participated in online group discussions, and 38.0% used digital tools for self-assessment or quizzes.

Table 2. Main digital learning activities

Digital learning activity	Frequency	Percentage
Accessing online learning materials	123	82.0%
Submitting assignments online	115	76.7%
Searching for academic information	102	68.0%
Joining online classes or virtual meetings	92	61.3%
Participating in online group discussions	78	52.0%
Taking online quizzes or self-assessments	57	38.0%
Communicating with lecturers online	53	35.3%

The results indicate that students mainly use digital technologies for accessing materials and completing required tasks. More interactive activities, such as communicating with lecturers and participating in group discussions, were less frequent. This suggests that digital learning is still more task-oriented than interaction-oriented for many students.

3.3. Perceived Benefits of Digital Learning Self-Efficacy

Most students perceived digital learning self-efficacy as beneficial. About 80.7% agreed that digital confidence helped them complete academic tasks more efficiently. Around 74.0% believed that it improved their ability to search for learning resources, while 69.3% stated that it helped them participate more actively in online classes. In addition, 62.7% believed that digital learning confidence helped them manage assignments and deadlines more effectively.

Thematic analysis of open-ended responses identified four major benefits: learning efficiency, access to resources, independent learning, and better communication.

Table 3. Perceived benefits of digital learning self-efficacy

Thematic category	Frequency	Example response
Learning efficiency	82	Digital tools help me complete tasks faster and organize my study materials.
Access to resources	70	I can find readings, videos, and explanations more easily.
Independent learning	58	When I do not understand something, I can search for more information by myself.
Better communication	44	Online platforms help me ask lecturers and classmates questions outside class.

These findings suggest that digital learning self-efficacy enables students to use technology not only for completing assignments, but also for developing more independent and resourceful learning habits.

3.4. Digital Learning Self-Efficacy and Student Engagement

The results show that students perceived a positive connection between digital learning self-efficacy and engagement. About 52.0% believed that digital confidence increased their participation in learning activities. Approximately 32.0% stated that it had a moderate influence, while 16.0% were uncertain or perceived little influence.

Table 4. Perceived influence on student engagement

Perception	Frequency	Percentage
Strongly increases engagement	78	52.0%
Moderately increases engagement	48	32.0%
Little or no influence	14	9.3%
Not sure	10	6.7%
Total	150	100%

Qualitative responses showed that students with stronger digital confidence were more likely to attend online classes, ask questions, use supplementary materials, and contribute to group work. However, some students noted that digital tools could also create distractions if students lacked self-discipline.

Table 5. Digital learning self-efficacy and student engagement

Thematic category	Frequency	Example response
Active participation	47	I feel more willing to join online discussions when I know how to use the platform.
Resource exploration	42	I search for extra materials after class when I am confident using digital tools.
Group collaboration	35	Digital tools make group work easier because we can share documents and discuss online.
Digital distraction	39	Sometimes I open social media while studying online, so I lose focus.

3.5. Digital Learning Self-Efficacy and Academic Resilience

Academic resilience was also associated with students' confidence in digital learning. Around 58.0% of students believed that digital confidence helped them overcome academic difficulties, while 29.3% reported a moderate influence. Only 12.7% believed that digital confidence had little effect on their ability to recover from learning challenges.

Table 6. Perceived influence on academic resilience

Perception	Frequency	Percentage
Helps overcome difficulties	87	58.0%
Moderately helpful	44	29.3%
Little influence	12	8.0%
Not sure	7	4.7%
Total	150	100%

Open-ended responses indicated that students used digital tools to review recorded lectures, search for alternative explanations, contact classmates, and manage missed lessons. These behaviors helped them continue learning when they faced difficulties such as illness, absence, technical errors, or poor understanding of course content.

3.6. Challenges in Digital Learning

Despite the benefits, students identified several challenges. The most common challenge was distraction from social media or non-academic content, reported by 60.0% of respondents. This was followed by unstable internet connection, reported by 54.7%. About 47.3% experienced reduced motivation in online classes, while 42.0% reported limited interaction with lecturers. In addition, 34.7% reported stress caused by too many digital platforms or online tasks.

Table 7. Main challenges in digital learning

Challenge	Frequency	Percentage
Distraction from social media or non-academic content	90	60.0%
Unstable internet connection	82	54.7%
Reduced motivation in online classes	71	47.3%
Limited interaction with lecturers	63	42.0%
Digital overload from many platforms or tasks	52	34.7%
Difficulty evaluating online information	46	30.7%

These findings suggest that digital learning self-efficacy is necessary but not sufficient. Students also need learning discipline, lecturer support, stable infrastructure, and clear digital learning design.

3.7. Suggestions for Improving Digital Learning Support

Students provided several suggestions for improving digital learning in higher education. The most frequent suggestion was that universities should provide digital skills training. Students also recommended that lecturers design more interactive online activities, provide clear instructions for digital assignments, and combine online learning with face-to-face interaction. Some students suggested that universities should provide technical support and reduce the number of disconnected platforms.

Table 8. Suggestions for improving digital learning support

Thematic category	Frequency	Example response
Digital skills training	66	Students should be taught how to use learning platforms and search for reliable information.
Interactive teaching design	58	Online classes should include discussion, quizzes, and group activities.
Clear assignment instructions	51	Lecturers should explain clearly how to submit tasks and use digital tools.
Technical support	39	The university should support students when they have problems with online platforms.
Balanced blended learning	46	Online learning should be combined with face-to-face learning.

4. Discussion

This study examined the influence of digital learning self-efficacy on student engagement and academic resilience in Vietnamese higher education. The findings show that digital learning technologies are widely used by students, especially for accessing materials, submitting assignments, searching for information, joining online classes, and collaborating with classmates. These results indicate that digital learning has become an ordinary part of university learning rather than an exceptional or temporary practice.

The first important finding is that most students reported moderate or high digital learning self-efficacy. This suggests that many students have adapted to technology-mediated learning environments. However, the presence of students with low confidence indicates that universities should not assume that all young learners are automatically digitally competent. Digital familiarity for entertainment or social networking does not always translate into academic digital competence. Students may still need guidance on learning platforms, academic information search, digital communication, and responsible use of online resources.

The second important finding concerns student engagement. Students who felt more confident in using digital learning tools were more likely to participate in online discussions, explore additional learning resources, communicate with classmates, and manage assignments. This suggests that digital learning self-efficacy can function as a psychological enabler of engagement. When students believe that they can use digital tools effectively, they are more willing to participate actively. In contrast, students who lack confidence may avoid interaction, depend on others, or attend online classes passively.

The third important finding relates to academic resilience. Students reported that digital confidence helped them recover from learning difficulties by reviewing materials, searching for alternative explanations, asking questions online, and collaborating with classmates. This indicates that digital learning self-efficacy supports adaptive learning behavior. In higher education, academic resilience is not only about personal motivation but also about knowing how to mobilize available learning resources. Digital technologies can expand these resources when students know how to use them.

The findings also reveal that digital learning creates several challenges. Distraction from social media, unstable internet connection, reduced motivation, limited interaction, and digital overload were commonly reported. These challenges show that technology alone cannot improve education. Effective digital learning requires appropriate pedagogical design, student support, lecturer presence, and institutional infrastructure. Without these conditions, digital learning may become fragmented, passive, or stressful.

This study has practical implications for universities and lecturers. Universities should provide structured digital skills training for students, especially those in the early years of study. Such training should go beyond technical operation and include online learning strategies, academic information evaluation, digital collaboration, and time management. Lecturers should design online and blended learning activities that encourage participation, reflection, and interaction rather than simply uploading materials. Institutions should also reduce platform fragmentation and provide timely technical support.

Finally, the Vietnamese higher education context requires a balanced approach to digital learning. Online tools should not be treated as a replacement for meaningful teaching interaction. Instead, they should be integrated into blended learning models that combine flexibility with academic guidance. Digital learning self-efficacy should be developed as part of students' broader academic capability, together with self-regulation, critical thinking, collaboration, and resilience.

5. Conclusions

This study investigated the influence of digital learning self-efficacy on student engagement and academic resilience among Vietnamese university students. The findings show that most students use digital learning technologies regularly and perceive digital confidence as beneficial for learning efficiency, access to resources, independent learning, and communication. Students with stronger digital learning self-efficacy are more likely to participate in learning activities, explore additional resources, collaborate with peers, and overcome academic difficulties.

However, the study also identifies several challenges, including distraction, unstable internet access, reduced motivation, limited interaction with lecturers, digital overload, and difficulty evaluating online information. These findings indicate that digital learning self-efficacy is important but must be supported by institutional policies, pedagogical design, and technical infrastructure.

Based on the findings, the study proposes several recommendations. First, universities should provide digital learning skills training for students. Second, lecturers should design interactive online and blended learning activities that promote participation and reflection. Third, students should be guided to evaluate online information critically and manage digital distractions. Fourth, institutions should provide technical support and simplify the use of digital platforms. Finally, future research should collect real data from multiple universities, compare disciplines, and

examine the long-term effects of digital learning self-efficacy on academic performance, student well-being, and learning outcomes.

Although this study provides useful insights, it has limitations. The current manuscript uses illustrative survey results and should be validated with actual empirical data before journal or conference submission. Future studies should use larger samples and apply more advanced statistical methods, such as regression analysis, structural equation modeling, or comparative analysis between students with different levels of digital learning experience.

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