Flexible Learning Implementation, Technological Adaptation, and Learning Engagement in Relation to Self-Efficacy among Business Administration Students

Jonnaline E. Bacuñata[1], Nenita I. Prado[2]

Liceo de Cagayan University

DOI: https://doi.org/10.51244/IJRSI.2026.1309000266

Received: 08 October 2026; Accepted: 13 October 2026; Published: 24 October 2026

ABSTRACT

This study examined the levels of flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy, as well as the relationships among these variables among Business Administration students in selected higher education institutions in Region X, Philippines. A descriptive-correlational research design was employed. Data were collected from 343 Business Administration students from Northern Bukidnon State College, Northwestern Mindanao State College of Science and Technology, and Camiguin Polytechnic State College using a researcher-made questionnaire. Descriptive statistics, including mean and standard deviation, were used to determine the levels of the study variables, while Pearson product-moment correlation was employed to examine their relationships with students' self-efficacy. The findings showed that flexible learning implementation was rated high, with an overall mean of 4.23 (SD = 0.59). Technological adaptation was likewise rated high (M = 4.19, SD = 0.54), as was learning engagement (M = 4.29, SD = 0.51). Students' self-efficacy also obtained a high overall rating (M = 4.25, SD = 0.52). Correlation analysis revealed significant positive relationships between self-efficacy and flexible learning implementation ($r = .672$, $p < .001$), technological adaptation ($r = .822$, $p < .001$), and learning engagement ($r = .843$, $p < .001$). Among the three variables, learning engagement demonstrated the strongest relationship with self-efficacy. The findings suggest that students' academic confidence is closely associated with their experiences of flexible learning, ability to adapt to technology, and active engagement in learning. Strengthening these learning conditions may provide supportive environments that foster students' confidence and continued participation in their academic work.

Keywords: students' self-efficacy, flexible learning implementation, technological adaptation, learning engagement

INTRODUCTION

The increasing use of flexible and technology-supported learning has changed how students access, participate in, and experience higher education. Flexible learning provides opportunities for institutions to respond to diverse student needs through different instructional approaches and learning arrangements. However, its effectiveness depends not only on the delivery of instruction but also on students' ability to access learning resources, adapt to technology, and remain engaged in academic activities. These considerations are particularly relevant as higher education institutions continue to integrate technology into teaching and learning.

In the Philippine higher education context, flexible learning has become an important approach to maintaining educational continuity and supporting learner-centered instruction. The Commission on Higher Education institutionalized guidelines for flexible learning through CHED Memorandum Order No. 4, series of 2020. Despite these developments, differences in technological resources, digital literacy, system reliability, and institutional support may influence students' experiences in flexible learning environments. Previous studies have likewise emphasized the importance of instructional design, technological readiness, and institutional support in online and flexible learning settings (Martin et al., 2020; Rapanta et al., 2020; Tsai et al., 2020; Kim & Pek, 2021).

Students' learning engagement is another important consideration in flexible learning. Engagement involves behavioral participation, emotional involvement, and cognitive investment in learning activities. In environments where students are expected to manage greater responsibility for their learning, sustained engagement may be particularly important to their academic experience. Studies have shown that engagement strategies and students' interaction with digital learning technologies are important elements of effective online learning (Martin & Bolliger, 2018; Nkomo & Fouché, 2021). At the same time, self-efficacy, or students' confidence in their ability to perform academic tasks and persist in challenging situations, remains an important aspect of successful learning. Research has associated self-efficacy with students' motivation, engagement, and academic performance (Mega et al., 2017; Schunk & DiBenedetto, 2020; Cruz et al., 2023).

Despite the growing literature, the variables considered in the present study have often been examined separately or within different educational contexts. Comparatively fewer studies have examined flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy together among Business Administration students in regional Philippine higher education institutions. This is particularly relevant in Region X, where students and institutions may experience varying levels of technological readiness, institutional support, and access to flexible learning resources. The existing literature therefore provides a basis for further examining how these learning-related conditions are associated with students' academic self-efficacy.

The present study addresses this gap by examining the levels of flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy among Business Administration students in selected higher education institutions in Region X. It also examines the relationships between students' self-efficacy and flexible learning implementation, technological adaptation, and learning engagement. By focusing on these relationships, the study provides empirical evidence that may contribute to a better understanding of students' experiences in flexible learning environments and inform educational practices that support their academic confidence and engagement.

THEORETICAL AND CONCEPTUAL FRAMEWORK

The study draws on four complementary theoretical perspectives. First, Constructivist Learning Theory provides a basis for understanding flexible learning as an approach in which students actively participate in constructing knowledge through learning experiences, interaction, and independent exploration. Second, the Technology Acceptance Model (TAM) provides a perspective on technological adaptation, particularly how students' perceptions and experiences with digital technologies relate to their use of technology-supported learning environments. Third, the Community of Inquiry (CoI) Framework provides a basis for understanding learning engagement in flexible and technology-mediated settings through teaching, social, and cognitive processes. Finally, Social Cognitive Theory (SCT) provides the theoretical foundation for students' self-efficacy, emphasizing the role of personal beliefs, learning experiences, and environmental conditions in students' confidence and persistence in academic tasks. These perspectives collectively provide a theoretical basis for examining flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy. The manuscript similarly identifies these four perspectives as the theoretical foundations of the study.

Conceptually, flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy are treated as distinct but related constructs. Flexible learning implementation represents students' experiences of instructional delivery, learning accessibility and inclusivity, and assessment and feedback. Technological adaptation reflects digital literacy, system reliability, and institutional support, while learning engagement encompasses behavioral, emotional, and cognitive engagement. Students' self-efficacy represents confidence in learning tasks, belief in academic abilities, and motivation and persistence. The relationships among these constructs were examined using descriptive statistics and Pearson product-moment correlation, consistent with the study's descriptive-correlational design.

Statement of the Problem

This study examined the levels of flexible learning implementation, technological adaptation, learning

engagement, and self-efficacy among Business Administration students and the relationships of the first three constructs with students' self-efficacy. Specifically, it sought to answer the following questions:

1. What is the level of flexible learning implementation in terms of instructional delivery, learning accessibility and inclusivity, and assessment and feedback?
2. What is the level of technological adaptation in terms of digital literacy, system reliability, and institutional support?
3. What is the level of learning engagement in terms of behavioral, emotional, and cognitive engagement?
4. What is the level of students' self-efficacy in terms of confidence in learning tasks, belief in academic abilities, and motivation and persistence?
5. Is there a significant relationship between students' self-efficacy and flexible learning implementation, technological adaptation, and learning engagement?

Significance of the Study

The findings would provide an integrated view of students' experiences with flexible learning implementation, technological adaptation, learning engagement, and self-efficacy. For higher education institutions and academic leaders, the results would provide a basis for strengthening flexible learning practices, technological support, and learning resources that respond to students' academic needs. For faculty members, the findings would guide the design of instructional strategies and learning activities that promote meaningful engagement and support students' confidence in performing academic tasks. For students, the study would highlight the importance of active participation, technological competence, and confidence in managing academic responsibilities within flexible learning environments. For future researchers, the study could serve as a reference for examining these constructs in other academic programs, institutions, and educational contexts.

SCOPE AND LIMITATION OF THE STUDY

The study focused on Business Administration students enrolled in selected higher education institutions in Region X, namely Northern Bukidnon State College, Northwestern Mindanao State College of Science and Technology, and Camiguin Polytechnic State College. It examined flexible learning implementation in terms of instructional delivery, learning accessibility and inclusivity, and assessment and feedback; technological adaptation in terms of digital literacy, system reliability, and institutional support; learning engagement in terms of behavioral, emotional, and cognitive engagement; and students' self-efficacy in terms of confidence in learning tasks, belief in academic abilities, and motivation and persistence. The study also examined the relationships between these variables and students' self-efficacy.

The study was limited to 343 Business Administration students who participated in the survey during the second semester of Academic Year 2025–2026. It relied on self-reported responses and was confined to the selected institutions and participants; therefore, the findings should not be generalized to all Business Administration students or higher education institutions. The study focused on students' perceptions and experiences of flexible learning, technological adaptation, learning engagement, and self-efficacy and did not examine predictive or causal effects, which are addressed separately in the subsequent publication.

REVIEW OF RELATED LITERATURE

Flexible learning has become an important component of contemporary higher education as institutions adopt learner-centered and technology-supported approaches to accommodate diverse learning needs. It provides flexibility in the time, place, pace, and mode of learning while supporting continuity and accessibility in education (Bozkurt et al., 2020). In higher education, effective implementation requires appropriate instructional design, accessible learning opportunities, and assessment practices that support students' learning experiences (Martin et al., 2020; Rapanta et al., 2020). The literature therefore presents flexible learning as a multidimensional approach that extends beyond the use of technology to include instructional delivery, accessibility and inclusivity, and assessment and feedback.

Within the present study, flexible learning implementation encompasses instructional delivery, learning accessibility and inclusivity, and assessment and feedback. Instructional delivery concerns the teaching strategies, learning materials, and activities provided across flexible learning modalities. Learning accessibility and inclusivity emphasize students' ability to access learning resources and opportunities despite differences in circumstances and learning needs. Assessment and feedback involve clear expectations, appropriate assessment strategies, and timely feedback that support students' learning progress. Existing literature emphasizes that intentional course design, effective instructional practices, and meaningful feedback are important elements of quality flexible learning.

Technological adaptation represents another important dimension of students' experiences in flexible learning environments. The increased use of digital platforms requires students to develop the skills necessary to access, evaluate, and use technology for academic purposes. At the same time, effective technology-supported learning depends on reliable systems and adequate institutional support. Previous studies have emphasized the importance of technological competence, digital readiness, system reliability, and institutional support in facilitating students' participation in technology-mediated learning (Tsai et al., 2020; Kim & Pek, 2021). In the present study, technological adaptation is reflected through digital literacy, system reliability, and institutional support.

Learning engagement is likewise an important consideration in flexible learning. It refers to students' active participation and investment in academic activities and is commonly reflected through behavioral, emotional, and cognitive dimensions. Behavioral engagement involves participation and effort, emotional engagement reflects students' interest and involvement, while cognitive engagement concerns the mental effort invested in understanding and applying knowledge. Studies have emphasized the importance of meaningful interaction, instructional support, and purposeful learning activities in sustaining engagement in online and flexible learning environments (Bond & Bedenlier, 2019; Nkomo & Fouché, 2021). These dimensions provide a broader understanding of students' involvement in the learning process.

Students' self-efficacy provides an important psychological dimension of the learning experience. It refers to students' beliefs about their ability to perform academic tasks, manage learning demands, and persist when difficulties arise. In flexible learning environments, self-efficacy may be particularly relevant because students are required to exercise greater independence in managing academic responsibilities and learning technologies. Recent literature has associated self-efficacy with students' motivation, persistence, engagement, and academic experiences (Schunk & DiBenedetto, 2020; Cruz et al., 2023). In the present study, self-efficacy is reflected in confidence in learning tasks, belief in academic abilities, and motivation and persistence.

The relationships among flexible learning implementation, technological adaptation, learning engagement, and self-efficacy have received increasing attention in higher education research. Existing studies suggest that effective instructional practices, accessible learning resources, technological competence, institutional support, and active engagement are relevant to students' learning experiences. However, these constructs are often examined separately or in different educational contexts. The manuscript identifies limited empirical evidence integrating these variables among students in regional higher education institutions, particularly in Region X.

Taken together, the literature supports an integrated view in which flexible learning implementation, technological adaptation, and learning engagement represent important dimensions of students' learning experiences, while self-efficacy reflects students' academic confidence and persistence. Nevertheless, limited research has examined these constructs simultaneously among Business Administration students in Philippine higher education. Accordingly, the present study examines the levels of these constructs and their relationships with students' self-efficacy among Business Administration students in selected higher education institutions in Region X.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue IX September 2026

METHODOLOGY

This section describes the procedures used to examine flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy among Business Administration students. It outlined the research design, participants, research instrument, data collection procedures, and statistical analyses used to examine the study objectives.

Research Design

This study employed a quantitative, descriptive, and correlational designs to determine the levels of flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy among Business Administration students, as well as the relationships among these variables.

Data were gathered through a researcher-made survey questionnaire consisting of items measuring flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy.

Descriptive statistics, particularly mean and standard deviation, were used to determine the levels of the study variables for Problems 1–4, while Pearson product-moment correlation was applied to establish the relationships between students' self-efficacy and flexible learning implementation, technological adaptation, and learning engagement for Problem 5.

Research Locale

The study was conducted in selected public higher education institutions (HEIs) in Region X, Philippines. The respondents were Business Administration students from Northern Bukidnon State College (NBSC), Northwestern Mindanao State College of Science and Technology (NMSCST), and Camiguin Polytechnic State College (CPSC).

These institutions were purposively selected to represent public higher education settings within the region where flexible learning and technology-supported instruction are implemented. The selected institutions provided a suitable context for examining students' experiences of flexible learning implementation, technological adaptation, learning engagement, and self-efficacy.

Participants and Sampling Procedure

The participants were third-year Bachelor of Science in Business Administration students from three public higher education institutions in Region X: Northern Bukidnon State College (NBSC), Northwestern Mindanao State College of Science and Technology (NMSCST), and Camiguin Polytechnic State College (CPSC). From a total population of 668 students, a minimum sample size of 245 participants was determined using the Raosoft Sample Size Calculator. A total of 343 valid responses were obtained, consisting of 178 participants from NBSC, 112 from NMSCST, and 53 from CPSC.

A stratified random sampling technique was employed, with each participating institution serving as a stratum and participants randomly selected from each institution. Participation was voluntary, and only students who provided informed consent were included in the study.

Research Instrument

Data were gathered using a structured questionnaire adapted from validated instruments to measure Flexible Learning Implementation, Technological Adaptation, Learning Engagement, and Students' Self-Efficacy among Business Administration students. The questionnaire was divided into two parts: Part I measured Flexible Learning Implementation, Technological Adaptation, and Learning Engagement, while Part II measured Students' Self-Efficacy. The instrument used a 5-point Likert scale and was administered uniformly across the participating institutions to ensure consistency of responses.

Data Analysis and Scoring Procedure

Data were analyzed using descriptive and inferential statistics. Mean and standard deviation were computed to determine the levels of flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy. All variables were measured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Mean scores were interpreted using the following ranges: 4.51–5.00 (Very High), 3.51–4.50 (High), 2.51–3.50 (Moderately High), 1.51–2.50 (Low), and 1.00–1.50 (Very Low). Pearson product-moment correlation was applied to examine the relationships between students' self-efficacy and flexible learning implementation, technological adaptation, and learning engagement.

Ethical Considerations

This study complied with ethical standards for research involving human participants. Institutional approval was obtained prior to data collection, and participation was voluntary with informed consent secured from all respondents. Anonymity and confidentiality were ensured, with no collection of personally identifiable information. All data were securely stored and used solely for academic purposes, and the study adhered to principles of academic integrity, including plagiarism screening.

Presentation, Analysis, and Interpretation of Data

This section presents the results of the study based on data collected from third-year Business Administration students in selected higher education institutions. Descriptive statistics, including mean and standard deviation, were used to determine the levels of flexible learning implementation, technological adaptation, learning engagement, and students' self-efficacy, while Pearson product-moment correlation was used to examine their relationships.

Problem 1. What is the level of students' flexible learning implementation as perceived by participants in terms of instructional delivery, learning accessibility and inclusivity, and assessment and feedback?

Table 1

Summary of Mean Scores for the Level of Participants' Flexible Learning Implementation

No.	Item	Mean	SD	Description	Interpretation
1	Instructional Delivery	4.25	0.66	Agree	High
2	Learning Accessibility & Inclusivity	4.16	0.63	Agree	High
3	Assessment & Feedback	4.28	0.62	Agree	High
	OVERALL	4.23	0.59	Agree	High

Students demonstrated a high level of implementation of flexible learning overall (M = 4.23, SD = 0.59). Assessment and Feedback obtained the highest mean (M = 4.28), followed by Instructional Delivery (M = 4.25) and Learning Accessibility and Inclusivity (M = 4.16). These findings suggest that students generally viewed assessment practices, instructional delivery, and access to learning opportunities positively. The relatively high rating for assessment and feedback indicates that students perceived these aspects as supportive of their learning progress, while the results for instructional delivery and accessibility suggest that the learning arrangements generally addressed their academic needs. However, the comparatively lower mean for learning accessibility and inclusivity indicates an area that may warrant further attention to ensure that learning resources and opportunities remain accessible to all students. This interpretation is consistent with Martin et al. (2020), who emphasized the importance of intentional course design in online learning, and Rapanta et al.

(2020), who highlighted the role of purposeful pedagogical planning in supporting meaningful learning experiences in technology-mediated environments.

Problem 2. What is the level of students' technological adaptation among participants in terms of digital literacy, system reliability, and institutional support?

Table 2

Summary of Mean Scores for the Level of Participants' Technological Adaptation

No.	Item	Mean	SD	Description	Interpretation
1	Digital Literacy	4.20	0.63	Agree	High
2	System Reliability	4.18	0.62	Agree	High
3	Institutional Support	4.20	0.60	Agree	High
	OVERALL	4.19	0.54	Agree	High

Students demonstrated a high level of technological adaptation overall (M = 4.19, SD = 0.54). Digital Literacy and Institutional Support obtained the highest mean scores (M = 4.20), followed by System Reliability (M = 4.18). These findings suggest that students generally perceived themselves as capable of using digital technologies for academic activities and viewed the technological assistance provided by their institutions positively. These findings suggest that students generally perceived themselves as capable of using digital technologies for academic activities and viewed the technological assistance provided by their institutions positively. The high rating for Institutional Support highlights the importance of institutional assistance in helping students navigate technology-supported learning environments. Such support may include access to digital resources, technical guidance, and assistance in addressing technology-related difficulties. Although System Reliability also received a high rating, its slightly lower mean suggests that maintaining stable and accessible digital platforms remains important for supporting students' learning experiences. These findings are consistent with Tsai et al. (2020), who discussed the relevance of technological readiness and digital competence in online learning, and Al-Fraihat et al. (2020), who highlighted the importance of system quality and institutional technological support in students' learning experiences.

Problem 3. What is the level of students' learning engagement of participants in terms of behavioral engagement, emotional engagement, and cognitive engagement?

Table 3

Summary of Mean Scores for the Level of Participants' Learning Engagement

No.	Item	Mean	SD	Description	Interpretation
1	Behavioral Engagement	4.32	0.56	Agree	High
2	Emotional Engagement	4.28	0.55	Agree	High
3	Cognitive Engagement	4.28	0.56	Agree	High
	OVERALL	4.29	0.51	Agree	High

Students demonstrated a high level of learning engagement overall (M = 4.29, SD = 0.51). Behavioral Engagement obtained the highest mean (M = 4.32), followed by Emotional Engagement and Cognitive Engagement (both M = 4.28). These findings suggest that students generally participate actively in academic activities, demonstrate positive emotional involvement in learning, and exert mental effort in understanding their lessons. The slightly higher rating for behavioral engagement indicates that students' participation and involvement in learning tasks are particularly evident in their learning experiences. Meanwhile, the high ratings for emotional and cognitive engagement suggest that students also recognize the importance of maintaining interest in their studies and applying effort to academic tasks. These findings are consistent with Bond and Bedenlier (2019), who emphasized that engagement in technology-supported learning involves active participation, emotional connection, and cognitive effort. Similarly, Wang et al. (2021) discussed the

association of student engagement with persistence, deeper information processing, and academic outcomes. The results imply that higher education institutions and instructors should continue providing meaningful learning activities, supportive instructional strategies, and opportunities for active participation to sustain students' engagement in flexible learning environments.

Problem 4. What is the level of students' self-efficacy in terms of confidence in learning tasks, belief in academic abilities, and motivation and persistence?

Table 4

Summary of Mean Scores for the Level of Participants' Self-efficacy

No.	Item	Mean	SD	Description	Interpretation
1	Confidence in Learning Tasks	4.28	0.54	Agree	High
2	Belief in Academic Abilities	4.27	0.55	Agree	High
3	Motivation and Persistence	4.20	0.60	Agree	High
	OVERALL	4.25	0.52	Agree	High

Students demonstrated a high level of self-efficacy overall (M = 4.25, SD = 0.52). Confidence in Learning Tasks obtained the highest mean (M = 4.28), followed by Belief in Academic Abilities (M = 4.27) and Motivation and Persistence (M = 4.20). These findings suggest that students generally believe they can accomplish academic requirements and have confidence in their ability to succeed in their studies. The high rating for Belief in Academic Abilities also reflects students' positive perceptions of their academic competence. Although Motivation and Persistence obtained the lowest mean among the three dimensions, its high rating indicates that students generally remain motivated and are willing to sustain effort when facing academic challenges. These findings are consistent with Bandura's (1997) view of self-efficacy as beliefs about one's capability to perform actions needed to achieve desired outcomes. They also align with Doo and Bonk (2020), whose study examined the relevance of self-efficacy to learning-related processes in a technology-mediated university learning environment. The findings imply that instructors should continue providing supportive learning experiences, constructive feedback, and opportunities for students to develop confidence and persistence in completing academic tasks.

Problem 5. Is there a significant relationship between self-efficacy and flexible learning implementation, technological adaptation, and learning engagement?

Table 5

Correlation between self-efficacy: flexible learning implementation, technological adaptation, and learning engagement

Variables	r	P-value	Interpretation
Instructional Delivery	.556**	.000	Highly Significant
Learning Accessibility & Inclusivity	.647**	.000	Highly Significant
Assessment & Feedback	.656**	.000	Highly Significant
Flexible Learning Implementation	**.672****	**.000**	**Highly Significant**
Digital Literacy	.678**	.000	Highly Significant
System Reliability	.740**	.000	Highly Significant
Institutional Support	.757**	.000	Highly Significant
Technological Adaptation	**.822****	**.000**	**Highly Significant**
Behavioral Engagement	.800**	.000	Highly Significant

Emotional Engagement	.742**	.000	Highly Significant
Cognitive Engagement	.775**	.000	Highly Significant
Learning Engagement	**.843****	**.000**	**Highly Significant**

*p <0.05, significant, ** p < .01, highly significant

All correlations were positive and statistically significant (p < .001). Learning Engagement showed the strongest relationship with Students' Self-Efficacy (r = .843), followed by Technological Adaptation (r = .822) and Flexible Learning Implementation (r = .672). These results suggest that students who reported greater engagement in their academic activities, stronger adaptation to technology, and more positive experiences with flexible learning also tended to report higher self-efficacy. The strong relationship between Learning Engagement and Self-Efficacy indicates that students' active participation, emotional involvement, and cognitive effort are closely associated with their confidence in managing academic tasks.

This finding is consistent with Doo and Bonk (2020), who examined the relationship between self-efficacy and learning engagement in a technology-supported learning environment. Similarly, the positive relationship between Technological Adaptation and Self-Efficacy highlights the relevance of students' digital competencies and technological experiences, consistent with Bahcivan et al. (2024), who discussed the association between digital literacy and university students' self-efficacy. Meanwhile, the significant relationship between Flexible Learning Implementation and Self-Efficacy is consistent with Talosa et al. (2021), who emphasized the relevance of supportive learning conditions to students' learning experiences and confidence. These findings imply that higher education institutions and instructors should continue to provide engaging learning activities, accessible learning resources, reliable technological support, and constructive feedback. However, because the analysis is correlational, the findings establish associations rather than causal effects.

CONCLUSION

Based on the findings of the study, the participants have high levels of flexible learning implementation, technological adaptation, learning engagement, and self-efficacy. There is a significant positive relationship between students' self-efficacy and flexible learning implementation, technological adaptation, and learning engagement. These findings suggest that students' academic self-efficacy is closely associated with their experiences of flexible learning, technological adaptation, and engagement. Overall, the study highlights the importance of supportive and engaging flexible learning environments in fostering students' confidence in managing their academic responsibilities.

RECOMMENDATION

Based on the study's findings and conclusions, the following recommendations are proposed to enhance students' self-efficacy in higher education institutions.

Academic Administrators and Program Coordinators may use the findings as a basis for reviewing learning support services, technology-related assistance, and instructional practices that respond to students' needs in flexible learning settings.

Higher Education Institutions may consider strengthening flexible learning practices by ensuring accessible learning resources, reliable technological systems, adequate institutional support, and effective assessment and feedback mechanisms.

Faculty Members may enhance instructional strategies and learning activities that encourage behavioral, emotional, and cognitive engagement while providing timely and constructive feedback to support students' academic confidence.

Students are encouraged to actively participate in learning activities, develop their digital competencies, and practice effective strategies for managing academic tasks and challenges in flexible learning environments.

Future Researchers may replicate the study in other academic programs, institutions, or regions and examineother factors that may be associated with students' self-efficacy and experiences in flexible learning environments.

REFERENCES

1. Alkhalifah, A., & Al-Wutayd, O. (2020). The sudden transition to synchronized online learning during the COVID-19 pandemic: Its impact on students' learning experiences. BMC Medical Education, 20(1), 285.
2. Bond, M., & Bedenlier, S. (2019). Facilitating student engagement through educational technology: Towards a conceptual framework. Journal of Interactive Media in Education, 2019(1), 11.
3. Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S. R., Al-Freih, M., Pete, J., Olcott, D., Jr., Rodes, V., Aranciaga, I., Bali, M., Alvarez, A. V., Roberts, J., Pazurek, A., Raffaghelli, J. E., Panagiotou, N., de Coëtlogon, P., ... Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. Asian Journal of Distance Education, 15(1), 1–126.
4. Commission on Higher Education. (2020). CHED memorandum order no. 4, series of 2020: Guidelines on the implementation of flexible learning. CHED.
5. Cruz, J. P., & Gomez, E. M. (2023). Flexible learning readiness and academic engagement of university students in Northern Mindanao. Asia Pacific Journal of Educational Research, 6(2), 45–58.
6. Cruz, M. C. A. D., Lumanlan, A., Felix, H. G., Dizon, I., Valerio, A., Dayrit, E., Sison, S. J., Gaña, R., & Gatchalian, E. J. (2023). Self-efficacy, motivation, and academic performance of students during the flexible learning mode. Brazilian Journal of Science, 2(9), 22–36.
7. Cruz, R. P., Dizon, J. C., & Manalo, J. B. (2023). Self-efficacy and academic engagement among college students in flexible learning environments. Asia Pacific Education Researcher, 32(2), 145–158.
8. Dawson, P., Henderson, M., Ryan, T., Phillips, M., Boud, D., & Molloy, E. (2019). Technology and feedback design: Principles and considerations for effective practice. Assessment & Evaluation in Higher Education, 44(5), 688–699.
9. Dixson, M. D., Greenwell, M. R., Rogers-Stacy, C., Weister, T., & Lauer, S. (2017). Student engagement in online courses. Online Learning Journal, 21(4), 140–158.
10. Doménech-Betoret, F., Abellán-Roselló, L., & Gómez-Artiga, A. (2017). Self-efficacy, satisfaction, and academic achievement. Frontiers in Psychology, 8, 1193.
11. Doo, M. Y., & Bonk, C. J. (2020). The effects of self-efficacy, self-regulation and social presence on learning engagement in a large university class using flipped learning. Journal of Computer Assisted Learning, 36(6), 997–1010. https://doi.org/10.1111/jcal.12455
12. Gutiérrez-Ángel, N., Sánchez-García, J.-N., Mercader-Rubio, I., García-Martín, J., & Brito-Costa, S. (2022). Digital literacy in the university setting: A literature review of empirical studies between 2010 and 2021. Frontiers in Psychology, 13, 896800. https://doi.org/10.3389/fpsyg.2022.896800
13. Haider, A. S., & Al-Salman, S. (2023). Institutional support and digital learning satisfaction. Interactive Learning Environments, 31(6), 1105–1123.
14. Kim, L. E., & Pek, S. (2021). Teacher preparedness, institutional support, and student engagement in online learning: A mediated analysis. Computers & Education, 171, 104238.
15. Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. Online Learning Journal, 22(1), 205–222.
16. Martin, F., Dennen, V. P., & Bonk, C. J. (2020). A synthesis of systematic review research on online learning from 2009 to 2018. Computers & Education, 159, 104009.
17. Mega, C., Ronconi, L., & De Beni, R. (2017). Motivational and affective predictors of self-efficacy and academic performance. Learning and Individual Differences, 52, 22–28.
18. Moriña, A. (2017). Inclusive education in higher education: Challenges and opportunities. European Journal of Special Needs Education, 32(1), 3–17.
19. Müller, C., Mildenberger, T., & Steingruber, D. (2023). Learning effectiveness of a flexible learning study programme in a blended learning design: Why are some courses more effective than others? International Journal of Educational Technology in Higher Education, 20(1), 10.

20. Nkomo, L. M., & Fouché, C. (2021). Synthesis of student engagement with digital technologies. Education and Information Technologies, 26, 2033–2053.
21. Phan, H. P., Ngu, B. H., Chen, S. H. A., Wu, L., Shi, S., & Lin, R. (2020). Predicting and enhancing students' self-efficacy and academic achievement: Fresh evidence from a SEM analysis. Educational Psychology, 40(5), 627–647.
22. Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning design. Postdigital Science and Education, 2(3), 923–945.
23. Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. Contemporary Educational Psychology, 60, 101832.
24. Talosa, A. D., et al. (2021). [Reference details should be taken from the final reference list in the dissertation before inclusion.]
25. Tsai, C. C., Chai, C. S., & Liang, J. C. (2020). Understanding learners' online learning self-efficacy: The role of digital skills and readiness. Computers & Education, 157, 103111.
26. Tsai, C.-L., Cho, M.-H., Marra, R., & Shen, D. (2020). The self-efficacy questionnaire for online learning (SeQoL). Distance Education, 41(4), 472–489. https://doi.org/10.1080/01587919.2020.1821604
27. Tsang, J. T. Y., So, M., Chong, A. C. K., Lam, B., & Chu, A. M. Y. (2021). Higher education during the pandemic: The impact of system reliability on students' engagement and performance. Journal of Educational Technology & Society, 24(3), 1–15.
28. UNESCO. (2020). Education in a post-COVID world: Nine ideas for public action. UNESCO.
29. UNESCO. (2023). Global education monitoring report 2023: Technology in education—A tool on whose terms? UNESCO.
30. Van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. Computers in Human Behavior, 72, 577–588.
31. Wang, Q., Fang, Q., & Zhou, Y. (2021). Emotional and cognitive engagement as mediators in online learning: Linking instructional design to academic outcomes. The Internet and Higher Education, 50, 100806.
32. Xie, K., Hensley, L., & Law, V. (2019). Self-regulated learning, motivation, and persistence in blended learning environments. The Internet and Higher Education, 41, 1–13.
33. Yang, X., Sun, Z., & Lin, W. (2022). Instructor emotional support and student emotional engagement in online learning environments. Educational Technology Research and Development, 70(3), 1125–1145.
34. Yokoyama, S. (2024). Impact of academic self-efficacy on online learning outcomes. EXCLI Journal.
35. Zhao, Y., Pinto Llorente, A. M., & Sánchez Gómez, M. C. (2021). Digital competence in higher education research: A systematic literature review. Computers & Education, 168, 104212.