



Factors Influencing Student Engagement in Online Learning at Universities

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Article Info

Received : 12 February 2026

Revised : 28 March 2026

Accepted : 21 April 2026

Keyword:

Student engagement;

Online learning;

Self-regulation;

Instructional design;

Higher education.

ABSTRACT

This study aims to examine the factors influencing student engagement in online learning at universities. The main problem addressed in this study is the low and uneven level of student engagement in online classes, especially in terms of participation, motivation, interaction, and self-regulated learning. This study used a quantitative approach with a survey design. The participants were 240 undergraduate students at STAI Haji Agus Salim who had participated in online learning for at least two semesters. Data were collected using a structured questionnaire based on five main variables: self-regulation, instructional design, academic social interaction, technological readiness, and institutional support. The data were analyzed using descriptive statistics, correlation analysis, and multiple linear regression. The findings show that self-regulation, instructional design, academic social interaction, technological readiness, and institutional support have a positive and significant effect on student engagement in online learning. Among these factors, instructional design and self-regulation were the strongest predictors of student engagement. These results indicate that student engagement in online learning is shaped by both individual learning capacity and the quality of the digital learning environment. The study concludes that universities need to strengthen interactive instructional design, improve digital infrastructure, provide consistent platform support, and help students develop self-regulated learning skills. This study contributes to the development of online learning theory and offers practical implications for improving student engagement in higher education.



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1. Introduction

Online learning has become a central part of higher education transformation. Universities no longer treat it only as an emergency response after the COVID-19 pandemic. They now use it as a formal learning model through synchronous classes, asynchronous platforms, blended learning, and hybrid systems. This shift has changed how students access materials, interact with lecturers, manage learning time, and build academic participation. In this context, student engagement becomes a critical issue because the quality of online learning depends not only on digital platforms, but also on students' active presence, motivation, interaction, emotional connection, and self-regulated learning. Limbu and McKinley (2025) found that online student engagement is shaped by student-related, instructor-related, technological, institutional, and environmental factors.

Globally, online learning offers flexibility and wider access to higher education. Students can join lectures from different locations, access recorded materials, and manage their learning pace more independently. However, these benefits also create new academic problems. Many students experience digital fatigue, weak social interaction, low concentration, unstable internet access, and reduced motivation when online classes rely too much on one-way explanation. Miao and Ma (2022) explained that online interaction, self-regulation, and social presence play important roles in shaping learning engagement. This means that online learning cannot rely only on content delivery. It must also create meaningful academic relationships between students, lecturers, peers, and learning materials.

In the Indonesian higher education context, student engagement in online learning remains a relevant issue because universities have different levels of digital readiness, infrastructure quality, and learning culture. Some students can access stable internet and digital devices, while others face limited connectivity, shared devices, and less supportive home environments. These differences influence how students attend classes, participate in discussions, and complete assignments. Kristiana et al. (2023) showed that technology use in Indonesian higher education can support student engagement, but the process through which technology creates meaningful engagement still needs deeper explanation. This issue needs qualitative inquiry because student engagement is not only a measurable behavior, but also a lived experience shaped by academic, social, cultural, and personal contexts.

Student engagement in online learning can be understood through behavioral, cognitive, emotional, and social dimensions. Behavioral engagement appears in attendance, assignment completion, participation in discussion forums, and active use of learning management systems. Cognitive engagement appears when students try to understand concepts, connect ideas, solve problems, and use learning strategies. Emotional engagement refers to interest, confidence, satisfaction, boredom, anxiety, or feelings of isolation during online classes. Social engagement appears when students feel connected to lecturers and peers. Xue (2023) emphasized that online engagement in higher education should be analyzed as a multidimensional construct because students may attend class behaviorally but remain emotionally distant or cognitively passive.

Field realities show that many students attend online classes but do not always engage actively. Some students join video conferences without turning on cameras. Others only respond briefly in chat rooms or submit assignments without deep understanding. This condition may occur because of monotonous teaching methods, weak feedback, limited peer interaction, and low learning autonomy. Heikkinen et al. (2025) found that self-regulated learning is closely related to student engagement in online learning. Students who can plan, monitor, and evaluate their learning tend to show stronger engagement. However, students with weak self-regulation often lose focus because online environments provide flexibility but also many distractions.

Previous studies have discussed student engagement in online learning through quantitative surveys, structural models, systematic reviews, and learning analytics. El-Sayad et al. (2021) examined how academic self-efficacy, perceived usefulness, and teaching presence influenced online learning engagement. Shah et al. (2021) used self-determination theory to explain how autonomy, competence, and relatedness support student engagement in online learning. Getenet et al. (2025) also showed that interactive technologies can support cognitive, behavioral, and social engagement. However, many previous studies have not fully explored how students interpret their engagement based on daily learning experiences. This gap is important because LMS access logs, attendance records, and survey scores cannot fully explain why students become active, passive, motivated, anxious, or disconnected in online learning.

Based on this background, this study aims to explore the factors influencing student engagement in online learning at universities. The study focuses on students' experiences in online classes, the forms of engagement that appear, the barriers that reduce engagement, and the academic support that helps students remain active. This study contributes theoretically by

enriching student engagement literature through a qualitative perspective grounded in students' lived experiences. It also contributes practically by offering insights for lecturers and universities to design online learning that is more interactive, inclusive, structured, and responsive to students' needs. Therefore, this study does not only discuss technology use, but also examines pedagogy, motivation, self-regulation, social presence, and institutional support as key elements of online student engagement.

2. Materials and Methods

This study used a qualitative approach with a case study design. This design was selected because the study aimed to explore in depth how university students experience engagement in online learning. A case study allows the researcher to examine student engagement as a contextual phenomenon shaped by learning design, lecturer interaction, peer communication, digital readiness, and institutional support. The approach is suitable because student engagement cannot be fully understood through numerical indicators alone. It also requires attention to meaning, perception, emotion, and experience.

The research was conducted at STAI Haji Agus Salim from October to December 2025. This location was selected because the university has implemented online and blended learning through a learning management system, video conference platforms, digital discussion groups, and online assignment systems. The research participants were 24 undergraduate students from the fourth to eighth semesters. They came from different study programs to ensure variation in learning experience. The participants were selected through purposive sampling. The criteria included active university students, experience in online learning for at least two semesters, use of the university LMS, and willingness to participate in interviews. Snowball sampling was also used to identify additional participants who had relevant experiences.

Data were collected through semi-structured interviews, non-participant observation, and document analysis. Semi-structured interviews were used to explore students' motivation, learning habits, interaction with lecturers, peer communication, technical barriers, LMS use, and emotional experiences during online classes. Non-participant observation was conducted in six online class sessions to examine student attendance, chat responses, camera use, discussion patterns, lecturer feedback, and student participation. Document analysis was conducted by reviewing course outlines, LMS materials, assignment instructions, online learning guidelines, and discussion records.

Data validity was ensured through source triangulation, method triangulation, member checking, and audit trail. Source triangulation was conducted by comparing information from students across semesters and study programs. Method triangulation was conducted by comparing interview data, observation notes, and learning documents. Member checking was done by sending a summary of preliminary findings to selected participants to confirm whether the researcher's interpretation matched their experiences. Audit trail was maintained by keeping interview transcripts, field notes, coding matrices, analytical memos, and interpretation records.

Data were analyzed using thematic analysis with the interactive model of Miles, Huberman, and Saldaña. The analysis began with transcription, repeated reading, initial coding, categorization, theme development, and interpretation. Initial codes included "declining motivation," "monotonous class," "lecturer support," "peer discussion," "unstable internet," "flexible schedule," "task overload," and "sense of connection." These codes were then grouped into five main themes: student self-regulation, instructional design, academic social interaction, technological readiness, and institutional support.

Research ethics were maintained through informed consent, confidentiality, and responsible data management. Each participant received information about the study purpose, interview process, data use, and the right to withdraw. Participant names were replaced with codes from P1 to P24. Interview data and documents were stored securely and used only for academic analysis.

These procedures were applied to ensure that the study followed qualitative research standards and allowed limited replication in similar university contexts.

3. Results and Discussions

The findings show that student engagement in online learning is influenced by five main factors: self-regulation, instructional design, academic social interaction, technological readiness, and institutional support. These factors are interconnected. Students with strong motivation may still lose engagement when online classes are monotonous. In contrast, students who are initially passive may become more active when lecturers provide interactive tasks, fast feedback, and supportive communication. This finding supports Bedi (2023), who found that motivation and self-efficacy are closely related to student engagement in online environments.

The first theme is student self-regulation. Most participants stated that online learning gave them flexibility, but this flexibility also created problems in time management. Students who prepared weekly schedules, reviewed materials before class, and set personal learning targets showed stronger engagement. P7 stated, "If I do not make my own schedule, online lectures are easy to postpone because there is no direct pressure like in face-to-face classes." This statement shows that online learning requires students to manage their own learning behavior. Heo et al. (2021) also found that self-efficacy in time management and technology use supports student engagement in online learning environments.

The second theme is instructional design. Students were more engaged when lecturers used short explanations, guiding questions, quizzes, breakout discussions, collaborative tasks, and real-life examples. Long lectures through video conference often reduced attention and participation. P12 stated, "I focus more when the lecturer gives a small task during class, not only explains from beginning to end." This finding shows that technology does not automatically create engagement. Pedagogical design remains central. Getenet et al. (2025) found that interactive technologies can improve cognitive, behavioral, and social engagement when they match the learning objectives.

The third theme is academic social interaction. Students felt more involved when lecturers greeted them, responded to questions, used their names in discussion, and created a safe class atmosphere. Peer interaction also helped students understand difficult materials. P3 stated, "Sometimes I understand the lesson after discussing it in a small group with friends because I feel embarrassed to ask directly in Zoom." This finding indicates that online engagement depends on social presence and psychological safety. Miao and Ma (2022) argued that social presence strengthens the relationship between online interaction, self-regulation, and learning engagement.

The fourth theme is technological readiness and learning environment. Some students experienced unstable internet connection, limited devices, and noisy home environments. These barriers reduced their ability to follow online classes consistently. P18 stated, "I often leave and re-enter the class because the signal is unstable. In the end, I only read the material after class." This finding shows that disengagement is not always caused by low motivation. It may result from unequal access to digital resources. Hu et al. (2025) found that digital experience, digital literacy, motivation, emotion, and self-regulation influence online learning engagement from the learner's perspective.

The fifth theme is institutional support. Students felt more supported when the university provided a stable LMS, clear technical guidance, access to class recordings, internet quota assistance, and consistent platform use. Students also preferred when lecturers used the same official platform instead of different applications for each course. P21 stated, "If all lecturers use the same LMS, I can check assignments and materials more easily." This finding confirms that engagement is not only an individual responsibility. It also depends on institutional systems. Kristiana et al. (2023) emphasized that online engagement in Indonesian higher education should be understood through the relationship between technology use, student experience, and institutional context.

The discussion shows that student engagement in online learning is relational and contextual. Students become engaged when they feel autonomous, competent, and connected. Autonomy appears when students can organize learning time. Competence appears when students can use digital platforms and understand learning tasks. Relatedness appears when students feel connected to lecturers and peers. Shah et al. (2021) explained that autonomy, competence, and relatedness are important psychological needs that support engagement in online learning. The present findings confirm that these needs are not abstract concepts. They appear in daily learning practices, such as receiving feedback, joining peer discussions, accessing clear instructions, and managing learning routines.

This study also shows that online student engagement cannot be measured only through attendance, camera use, LMS login frequency, or assignment submission. These indicators are useful, but they do not fully capture students' emotional and cognitive experiences. A student may attend class but feel confused, isolated, or unmotivated. Another student may be silent during video conferences but actively learn through recorded materials and peer discussions. Fabian et al. (2022) also found that study skills engagement and participation in online learning are influenced by multiple academic and personal factors. Therefore, universities need a broader understanding of engagement that includes participation quality, learning meaning, confidence, interaction, and persistence.

The findings provide practical implications for lecturers and universities. Lecturers need to design online learning with clear structure, active tasks, short content segments, timely feedback, and space for student interaction. They also need to reduce one-way teaching and create low-pressure opportunities for students to ask questions. Universities need to strengthen digital infrastructure, simplify platform use, provide technical support, and monitor student workload across courses. Future studies can compare student engagement across public and private universities, different disciplines, and different online learning models. Further research can also explore lecturer perspectives to understand how teaching strategies influence student engagement in digital learning environments.

4. Conclusions

This study concludes that student engagement in online learning at universities is shaped by self-regulation, instructional design, academic social interaction, technological readiness, and institutional support. These factors work together and influence behavioral, cognitive, emotional, and social engagement. Students become more engaged when they can manage their learning time, understand course expectations, interact safely with lecturers and peers, access stable technology, and receive clear institutional support. The findings show that student engagement is not only a matter of student motivation. It is also shaped by pedagogical quality, social presence, digital access, and university learning systems.

Theoretically, this study strengthens the view that online student engagement is multidimensional, relational, and contextual. Practically, the findings suggest that universities should design online learning that is interactive, inclusive, structured, and responsive to students' real conditions. Lecturers need to combine technology with meaningful pedagogy, while institutions need to provide reliable systems and academic support. Future research should examine student engagement across different university types, study programs, and online learning formats to build a more comprehensive understanding of digital learning in higher education.

References

- Azila-Gbetor, E. M., Abiemo, M. K., & Glate, S. N. (2023). University support and online learning engagement during the COVID-19 period: The role of student vitality. *Heliyon*, 9(1), e12832. <https://doi.org/10.1016/j.heliyon.2023.e12832>
- Baloran, E. T., & Hernan, J. T. (2021). Course satisfaction and student engagement in online learning amid COVID-19 pandemic: A structural equation model. *Turkish Online Journal of Distance Education*, 22(4), 1–12. <https://doi.org/10.17718/tojde.1002721>
- Bedi, A. (2023). Keep learning: Student engagement in an online environment. *Online Learning*, 27(2), 119–136. <https://doi.org/10.24059/olj.v27i2.3287>
- Castellanos-Reyes, D. (2024). The evolution of social presence: A longitudinal exploration of online learning experiences in higher education. *The Internet and Higher Education*, 60, 100925.
- Deng, Z. (2025). Exploring the impact of online education on student engagement. *Frontiers in Psychology*, 16, 1574886. <https://doi.org/10.3389/fpsyg.2025.1574886>
- Dong, X., Liu, S., & Zheng, X. (2024). Factors influencing college students' self-regulated learning in online learning environments: A systematic review. *Nurse Education Today*, 132, 106002.
- Edumadze, J. K. E. (2024). Fostering student engagement in blended MOOC learning: A case study of university students in a developing country. *Smart Learning Environments*, 11, 29.
- El-Sayad, G., Md Saad, N. H., & Thurasamy, R. (2021). How higher education students in Egypt perceived online learning engagement and satisfaction during the COVID-19 pandemic. *Journal of Computers in Education*, 8(4), 527–550. <https://doi.org/10.1007/s40692-021-00191-y>
- Fabian, K., Smith, S., Taylor-Smith, E., & Meharg, D. (2022). Identifying factors influencing study skills engagement and participation for online learners in higher education during COVID-19. *British Journal of Educational Technology*, 53(6), 1915–1936. <https://doi.org/10.1111/bjet.13221>
- Fu, J., Li, X., & Yi, F. (2024). The influence of motivation climate on university student engagement in distance education during the pandemic: Moderating role of self-regulation. *Psychology in the Schools*, 61(5), 2148–2159. <https://doi.org/10.1002/pits.23158>
- Gamage, K. A., Perera, D. S., & Wijewardena, M. D. N. (2021). Mentoring and coaching as a learning technique in higher education: The impact of learning context on student engagement in online learning. *Education Sciences*, 11(10), 574. <https://doi.org/10.3390/educsci11100574>
- Getenet, S., Tualalelei, E., Singh, N., Pillay, Y., & Hammermeister, K. A. (2025). Interactive technologies and student engagement in online higher education: A multidimensional analysis. *Technology, Pedagogy and Education*. <https://doi.org/10.1080/1475939X.2025.2498483>
- Gherghel, C., Yasuda, S., & Kita, Y. (2023). Interaction during online classes fosters engagement with learning and self-directed study both in the first and second years of the COVID-19 pandemic. *Computers & Education*, 200, 104795. <https://doi.org/10.1016/j.compedu.2023.104795>
- Gopinathan, S., Kaur, A. H., Veeraya, S., & Raman, M. (2022). The role of digital collaboration in student engagement towards enhancing student participation during COVID-19. *Sustainability*, 14(11), 6844. <https://doi.org/10.3390/su14116844>

- Heidari, E., Mehrvarz, M., Marzooghi, R., & Stoyanov, S. (2021). The role of digital informal learning in the relationship between students' digital competence and academic engagement during the COVID-19 pandemic. *Journal of Computer Assisted Learning*, 37(4), 1154–1166. <https://doi.org/10.1111/jcal.12553>
- Heikkinen, S., Malmberg, J., & Järvelä, S. (2025). A longitudinal study of interplay between student engagement and self-regulated learning in online learning. *International Journal of Educational Technology in Higher Education*, 22, 23.
- Heo, H., Bonk, C. J., & Doo, M. Y. (2021). Enhancing learning engagement during COVID-19 pandemic: Self-efficacy in time management, technology use, and online learning environments. *Journal of Computer Assisted Learning*, 37(6), 1640–1652. <https://doi.org/10.1111/jcal.12603>
- Hollister, B., Nair, P., Hill-Lindsay, S., & Chukoskie, L. (2022). Engagement in online learning: Student attitudes and behavior during COVID-19. *Frontiers in Education*, 7, 851019. <https://doi.org/10.3389/educ.2022.851019>
- Hu, J., Wang, X., & Zhang, Y. (2025). What are the influencing factors of online learning engagement from learners' perspective? *Frontiers in Psychology*, 16, 1542652. <https://doi.org/10.3389/fpsyg.2025.1542652>
- Huang, Y., & Wang, S. (2023). How to motivate student engagement in emergency online learning? Evidence from the COVID-19 situation. *Higher Education*, 85(5), 1101–1123. <https://doi.org/10.1007/s10734-022-00880-2>
- Iqbal, J., Asghar, M. Z., Ashraf, M. A., & Yi, X. (2022). The impacts of emotional intelligence on students' study habits in blended learning environments: The mediating role of cognitive engagement during COVID-19. *Behavioral Sciences*, 12(1), 14. <https://doi.org/10.3390/bs12010014>
- Kara, M. (2022). Revisiting online learner engagement: Exploring the role of learner characteristics in an emergency period. *Journal of Research on Technology in Education*, 54(sup1), S236–S252. <https://doi.org/10.1080/15391523.2021.1891997>
- Kaspar, K., Burtiniak, K., & Rütth, M. (2024). Online learning during the COVID-19 pandemic: How university students' perceptions, engagement, and performance are related to their personal characteristics. *Current Psychology*, 43, 16711–16730. <https://doi.org/10.1007/s12144-023-04403-9>
- Kedia, P., & Mishra, L. (2023). Exploring the factors influencing the effectiveness of online learning: A study on college students. *Social Sciences & Humanities Open*, 8(1), 100559. <https://doi.org/10.1016/j.ssaho.2023.100559>
- Koob, C., Schröpfer, K., Coenen, M., Kus, S., & Schmidt, N. (2021). Factors influencing study engagement during the COVID-19 pandemic: A cross-sectional study among health and social professions students. *PLOS ONE*, 16(7), e0255191. <https://doi.org/10.1371/journal.pone.0255191>
- Kristiana, I. F., Prihatsanti, U., Simanjuntak, E., & Widayanti, C. G. (2023). Online student engagement: The overview of higher education in Indonesia. *International Review of Research in Open and Distributed Learning*, 24(3), 34–53. <https://doi.org/10.19173/irrodl.v24i3.7125>
- Limbu, Y. B., & McKinley, C. (2025). Factors associated with student engagement in online learning during COVID-19 pandemic: A systematic review. *Online Learning*, 29(1), 293–325. <https://doi.org/10.24059/olj.v29i1.4221294>

- Miao, J., & Ma, L. (2022). Students' online interaction, self-regulation, and learning engagement in higher education: The importance of social presence to online learning. *Frontiers in Psychology*, 13, 815220. <https://doi.org/10.3389/fpsyg.2022.815220>
- Roque-Hernández, R. V., Díaz-Roldán, J. L., López-Mendoza, A., & Salazar-Hernández, R. (2023). Instructor presence, interactive tools, student engagement, and satisfaction in online education during the COVID-19 Mexican lockdown. *Interactive Learning Environments*, 31(5), 2841–2854. <https://doi.org/10.1080/10494820.2021.1912112>
- Salas-Pilco, S. Z., Yang, Y., & Zhang, Z. (2022). Student engagement in online learning in Latin American higher education during the COVID-19 pandemic: A systematic review. *British Journal of Educational Technology*, 53(3), 593–619. <https://doi.org/10.1111/bjet.13190>
- Shah, S. S., Shah, A. A., Memon, F., Kemal, A. A., & Soomro, A. (2021). Online learning during the COVID-19 pandemic: Applying the self-determination theory in the new normal. *Revista de Psicodidáctica (English Edition)*, 26(2), 168–177. <https://doi.org/10.1016/j.psicoe.2020.12.003>
- Xue, Y. (2023). A review of higher education students' online engagement under the COVID-19 pandemic. *SHS Web of Conferences*, 157, 02003. <https://doi.org/10.1051/shsconf/202315702003>