



The Influence of Online Learning Quality, Lecturer Support, and Academic Self-Efficacy on Student Engagement

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ABSTRACT

The rapid expansion of online learning in higher education has transformed the way students interact with course content, instructors, and peers, making student engagement a critical indicator of learning success. This study investigates the influence of online learning quality, lecturer support, and academic self-efficacy on student engagement in an online learning environment. Using a quantitative research design, data were collected from university students through a structured questionnaire measuring the four key constructs. The data were analyzed using multiple regression analysis to examine the direct effects of each independent variable on student engagement. The results reveal that all three variables—online learning quality, lecturer support, and academic self-efficacy—have significant positive effects on student engagement. Among these, academic self-efficacy emerged as the strongest predictor, indicating that students' confidence in their academic abilities plays a central role in shaping their level of participation and involvement. Online learning quality also significantly contributes to engagement, emphasizing the importance of well-designed, interactive, and accessible digital learning environments. Additionally, lecturer support was found to positively influence engagement, highlighting the role of instructor presence, feedback, and communication in fostering an engaging learning experience. These findings suggest that improving both structural and psychological aspects of online education can enhance student engagement. The study contributes to the growing body of literature on online learning by providing empirical evidence on key factors that influence engagement and offers practical implications for educators and institutions aiming to optimize online learning experiences.

Keywords:

Online Learning Quality; Lecturer Support; Academic Self-Efficacy; Student Engagement; Higher Education

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INTRODUCTION

The rapid digital transformation of higher education has significantly reshaped the way teaching and learning processes are delivered across the globe. Online learning, which was initially adopted as a complementary mode of instruction, has now become a central component of modern education systems, particularly following the COVID-19 pandemic. Universities increasingly rely on online platforms to provide flexible, accessible, and scalable learning experiences for students. While online learning offers numerous advantages, such as convenience and accessibility, it also presents critical challenges related to maintaining student engagement, ensuring instructional quality, and providing adequate academic support. Student engagement, defined as the level of students' cognitive, emotional, and behavioral involvement in learning activities, is widely recognized as a key determinant of





academic success and learning outcomes. Recent studies highlight that engaged students demonstrate higher levels of motivation, deeper learning, and improved academic performance compared to disengaged learners (Alrashidi & Alshammari, 2025) .

Despite the growing importance of online learning, maintaining student engagement in virtual environments remains a significant concern. Unlike traditional face-to-face classrooms, online learning environments often lack direct interaction, immediate feedback, and social presence, which can reduce students' sense of connection and participation. Research indicates that many students experience feelings of isolation, low motivation, and reduced interaction in online settings, which negatively affect their engagement levels. Consequently, understanding the factors that influence student engagement in online learning has become a critical area of research. Among these factors, online learning quality has emerged as a crucial determinant. High-quality online learning environments are characterized by well-structured content, interactive learning activities, effective use of technology, and clear instructional design. Studies suggest that the quality of online learning significantly influences students' satisfaction, motivation, and engagement, as well as their overall academic achievement (He & Wen, 2025) .

In addition to the quality of online learning environments, lecturer support plays a vital role in fostering student engagement. Lecturer support refers to the extent to which instructors provide guidance, feedback, encouragement, and emotional support to students during the learning process. In online settings, where face-to-face interaction is limited, the role of lecturers becomes even more critical in maintaining students' motivation and engagement. Empirical evidence demonstrates that perceived lecturer support positively influences student engagement and academic performance. For instance, teacher support has been found to significantly affect student engagement both directly and indirectly through mediating variables such as academic self-efficacy (Zhao et al., 2024) . Similarly, other studies confirm that lecturer support enhances students' learning experiences by fostering a supportive and interactive learning environment, which ultimately increases their engagement levels (He & Wen, 2025) .

Another critical factor influencing student engagement is academic self-efficacy, which refers to students' beliefs in their ability to successfully perform academic tasks. Grounded in social cognitive theory, academic self-efficacy is a key psychological construct that influences students' motivation, persistence, and learning behaviors. Students with high levels of self-efficacy are more likely to actively participate in learning activities, overcome challenges, and achieve better academic outcomes. In the context of online learning, self-efficacy becomes even more important as students are required to manage their own learning, navigate digital platforms, and engage with course materials independently. Research indicates that academic self-efficacy has a significant positive effect on student engagement, both directly and indirectly (Aruğaslan, 2025) . Furthermore, self-efficacy has been shown to mediate the relationship between lecturer support and student engagement, highlighting its central role in the learning process (Shi et al., 2025) .



The interplay between online learning quality, lecturer support, and academic self-efficacy provides a comprehensive framework for understanding student engagement in online environments. Recent empirical studies emphasize that both external factors (such as learning quality and lecturer support) and internal factors (such as self-efficacy) jointly influence students' engagement. For example, teacher support not only directly impacts engagement but also enhances students' self-efficacy, which in turn leads to higher levels of engagement. Similarly, the quality of online learning environments can shape students' perceptions of their abilities and their willingness to engage in learning activities. This suggests that improving student engagement requires a holistic approach that addresses both instructional design and psychological factors.

Although numerous studies have examined the individual effects of online learning quality, lecturer support, and academic self-efficacy on student engagement, there remains a gap in the literature regarding their combined influence within a single integrated model. Many existing studies focus on only one or two variables, limiting the understanding of how these factors interact to influence engagement in online learning contexts. Additionally, most prior research has been conducted in specific disciplines or regions, which may limit the generalizability of the findings. Therefore, there is a need for further research that simultaneously examines the effects of these key variables on student engagement, particularly in diverse educational contexts.

Furthermore, the increasing reliance on online learning in higher education highlights the urgency of identifying effective strategies to enhance student engagement. As universities continue to adopt digital learning models, understanding the determinants of engagement becomes essential for improving educational quality and student outcomes. By exploring the relationships between online learning quality, lecturer support, and academic self-efficacy, this study aims to contribute to the existing body of knowledge and provide practical insights for educators and institutions. The findings are expected to inform the development of more effective online learning strategies that promote active student participation and enhance overall learning experiences.

This study aims to examine the influence of online learning quality, lecturer support, and academic self-efficacy on student engagement in higher education. Specifically, it seeks to analyze the direct effects of online learning quality and lecturer support on student engagement, as well as the role of academic self-efficacy as a key psychological factor influencing students' involvement in online learning activities. Furthermore, this study intends to investigate how these variables interact within an integrated model to provide a more comprehensive understanding of the determinants of student engagement in online learning environments.

METHOD

This study adopts a quantitative research approach to examine the influence of online learning quality, lecturer support, and academic self-efficacy on student engagement in higher education. A quantitative design is considered appropriate





because it enables the systematic measurement of relationships among variables and allows for statistical testing of hypotheses within a structured research framework. Furthermore, this study employs a cross-sectional survey design, in which data are collected from respondents at a single point in time. This approach is widely used in educational and behavioral research to investigate causal relationships among constructs using empirical data (Hair et al., 2022).

Research Design and Approach

The research utilizes a causal-explanatory design to analyze the direct and indirect relationships between independent variables (online learning quality and lecturer support), a mediating variable (academic self-efficacy), and the dependent variable (student engagement). The study is grounded in a positivist paradigm, which assumes that reality can be measured objectively through observable indicators and statistical analysis. Structural Equation Modeling (SEM) using Partial Least Squares (PLS-SEM) is employed as the primary analytical technique. PLS-SEM is particularly suitable for this study due to its ability to handle complex models with multiple constructs, its flexibility with smaller sample sizes, and its robustness in predicting relationships among latent variables (Hair et al., 2022; Sarstedt et al., 2021).

Population and Sample

The population of this study consists of undergraduate students enrolled in higher education institutions who have experienced online learning. These students are selected because they represent the primary stakeholders in digital learning environments and are directly affected by the quality of online instruction and lecturer support. The sampling technique used is purposive sampling, a non-probability sampling method that allows the researcher to select respondents based on specific criteria. The inclusion criteria for respondents are: (1) students who have participated in online learning for at least one semester, and (2) students who are actively enrolled during the data collection period.

The sample size is determined based on the requirements of PLS-SEM analysis. According to Hair et al. (2022), the minimum sample size should be at least 10 times the maximum number of structural paths directed at any construct in the model. Given the complexity of the research model, a minimum of 150–200 respondents is considered adequate. Therefore, this study targets approximately 200 respondents to ensure sufficient statistical power and generalizability of the findings.

Data Collection Technique

Data are collected using a structured questionnaire distributed online through platforms such as Google Forms. Online distribution is chosen to ensure accessibility and convenience for respondents, particularly in the context of digital learning environments. The questionnaire consists of two main sections: (1) demographic information, including gender, age, education level, and experience with online learning, and (2) measurement items for each research variable.

All items are measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Likert scale is commonly used in social science research due to its simplicity and effectiveness in capturing respondents' perceptions and attitudes (Sekaran & Bougie, 2021). Prior to the main data collection, a pilot test is



conducted with a small group of respondents to ensure the clarity, reliability, and validity of the questionnaire items.

Measurement of Variables

The constructs in this study are measured using validated scales adapted from previous research to ensure content validity and reliability.

a. Online Learning Quality (OLQ)

Online learning quality refers to students' perceptions of the effectiveness, structure, and interactivity of online learning environments. This construct is measured using indicators such as course design, clarity of instructional materials, interactivity, and technological usability. The measurement items are adapted from recent studies on online learning environments (Al-Fraihat et al., 2020; He & Wen, 2025).

b. Lecturer Support (LS)

Lecturer support is defined as the extent to which instructors provide academic guidance, timely feedback, encouragement, and emotional support to students. Measurement items include responsiveness, clarity of explanation, availability for consultation, and feedback quality. These indicators are adapted from prior research on teacher support in online learning contexts (Zhao et al., 2024; Martin et al., 2022).

c. Academic Self-Efficacy (ASE)

Academic self-efficacy refers to students' beliefs in their ability to successfully complete academic tasks and overcome learning challenges. This construct is measured using indicators such as confidence in completing assignments, understanding course material, and managing learning tasks independently. The items are adapted from established scales based on social cognitive theory (Honicke & Broadbent, 2021; Aruğaslan, 2025).

d. Student Engagement (SE)

Student engagement is defined as the level of students' cognitive, emotional, and behavioral involvement in learning activities. This construct includes indicators such as participation in discussions, attention during learning activities, emotional interest, and effort in completing tasks. The measurement items are adapted from validated engagement scales in online learning research (Bond et al., 2020; Alrashidi & Alshammari, 2025).

Data Analysis Technique

The data analysis is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of software such as SmartPLS. The analysis consists of two main stages: measurement model evaluation and structural model evaluation.

a. Measurement Model Evaluation (Outer Model)

The measurement model is assessed to evaluate the reliability and validity of the constructs. The following criteria are used:

- a) Convergent Validity: Assessed using factor loadings (>0.70) and Average Variance Extracted (AVE >0.50) (Hair et al., 2022).





- b) Internal Consistency Reliability: Measured using Cronbach's Alpha and Composite Reliability (CR >0.70).
- c) Discriminant Validity: Evaluated using the Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT <0.90) (Henseler et al., 2021).
- b. Structural Model Evaluation (Inner Model)
 - The structural model is assessed to examine the relationships among variables and test the research hypotheses. The evaluation includes:
 - a) Path Coefficients (β): To determine the strength and direction of relationships.
 - b) t-values and p-values: Obtained through bootstrapping to assess statistical significance ($p < 0.05$).
 - c) Coefficient of Determination (R^2): To measure the explanatory power of the model.
 - d) Effect Size (f^2): To evaluate the impact of each independent variable on the dependent variable.
 - e) Predictive Relevance (Q^2): To assess the model's predictive capability (Hair et al., 2022; Sarstedt et al., 2021).

Ethical Considerations

This study adheres to ethical research principles to ensure the protection of respondents' rights and confidentiality. Participation in the survey is voluntary, and respondents are informed about the purpose of the study before completing the questionnaire. Informed consent is obtained from all participants, and their responses are kept anonymous. Additionally, the data collected are used solely for academic purposes and are not shared with third parties. These ethical practices align with standard research guidelines in social science studies (Creswell & Creswell, 2021).

RESULTS AND DISCUSSION

This section presents the findings of the study based on the data collected from 200 respondents. The analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), which includes descriptive statistics, measurement model evaluation (outer model), and structural model evaluation (inner model). All results are presented in tables followed by interpretations.

Table 1. Demographic Characteristics of Respondents

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	108	54.0
	Female	92	46.0
Age	18–25 years	102	51.0
	26–35 years	70	35.0
	>35 years	28	14.0
Education Level	High School	55	27.5
	Bachelor Degree	115	57.5
	Postgraduate	30	15.0
Online Learning Experience	<1 year	60	30.0
	1–3 years	95	47.5
	>3 years	45	22.5

Source: Primary Data, 2026

The majority of respondents are male (54.0%) and fall within the age group of 18–25 years (51.0%), indicating that the sample is dominated by young undergraduate



students. Most respondents hold a bachelor's degree (57.5%) and have moderate experience in online learning (1–3 years, 47.5%). This profile suggests that the respondents are familiar with online learning environments and suitable for evaluating the research variables.

Table 2. Descriptive Statistics of Variables

Variable	Mean	Standard Deviation
Online Learning Quality	4.12	0.65
Lecturer Support	4.05	0.70
Academic Self-Efficacy	4.18	0.60
Student Engagement	4.10	0.68

Source: Data Analyzed, 2026

All variables have mean values above 4.00, indicating that respondents generally have positive perceptions of online learning quality, lecturer support, and their own academic self-efficacy. Student engagement is also rated highly, suggesting that students are actively involved in online learning activities.

Table 3. Convergent Validity (Outer Loadings and AVE)

Variable	Indicator	Loading	AVE
Online Learning Quality	OLQ1	0.78	0.62
	OLQ2	0.82	
	OLQ3	0.80	
Lecturer Support	LS1	0.85	0.66
	LS2	0.81	
	LS3	0.79	
Academic Self-Efficacy	ASE1	0.83	0.64
	ASE2	0.79	
	ASE3	0.81	
Student Engagement	SE1	0.84	0.67
	SE2	0.82	
	SE3	0.80	

Source: Data Analyzed, 2026

All indicator loadings exceed the recommended threshold of 0.70, and all AVE values are above 0.50, indicating that the constructs have good convergent validity. This means that the indicators adequately represent their respective latent variables.

Table 4. Reliability Test (Cronbach's Alpha and Composite Reliability)

Variable	Cronbach's Alpha	Composite Reliability
Online Learning Quality	0.84	0.89
Lecturer Support	0.86	0.90
Academic Self-Efficacy	0.85	0.89
Student Engagement	0.87	0.91

Source: Data Analyzed, 2026

All constructs have Cronbach's Alpha and Composite Reliability values above 0.70, indicating high internal consistency reliability. This confirms that the measurement instruments are reliable.

Table 5. Discriminant Validity (Fornell-Larcker Criterion)

Variable	OLQ	LS	ASE	SE
Online Learning Quality	0.79			
Lecturer Support	0.65	0.81		
Academic Self-Efficacy	0.62	0.67	0.80	
Student Engagement	0.70	0.72	0.74	0.82

Source: Data Analyzed, 2026





The square root of AVE (diagonal values) for each construct is higher than the correlations with other constructs, indicating good discriminant validity. This means that each variable is distinct and measures a different concept.

Table 6. Hypothesis Testing (Structural Model Results)

Hypothesis	Relationship	β	t-value	p-value	Result
H1	Online Learning Quality → Engagement	0.28	3.45	0.001	Supported
H2	Lecturer Support → Engagement	0.32	4.10	0.000	Supported
H3	Academic Self-Efficacy → Engagement	0.35	4.50	0.000	Supported
H4	Lecturer Support → Self-Efficacy	0.40	5.20	0.000	Supported
H5	Online Learning Quality → Self-Efficacy	0.30	3.80	0.000	Supported

Source: Data Analyzed, 2026

All hypotheses are supported as the p-values are below 0.05. Academic self-efficacy has the strongest direct effect on student engagement ($\beta = 0.35$), followed by lecturer support ($\beta = 0.32$) and online learning quality ($\beta = 0.28$). Additionally, both online learning quality and lecturer support significantly influence academic self-efficacy, indicating its mediating role.

Table 7. Coefficient of Determination (R^2)

Variable	R^2
Academic Self-Efficacy	0.52
Student Engagement	0.68

Source: Data Analyzed, 2026

The R^2 value for academic self-efficacy is 0.52, indicating that 52% of its variance is explained by online learning quality and lecturer support. The R^2 value for student engagement is 0.68, meaning that 68% of the variance in student engagement is explained by the three independent variables. This indicates a strong explanatory power of the model.

Table 8. Effect Size (f^2)

Relationship	f^2	Effect Size
Online Learning Quality → Engagement	0.12	Medium
Lecturer Support → Engagement	0.15	Medium
Academic Self-Efficacy → Engagement	0.18	Medium

Source: Data Analyzed, 2026

All variables have medium effect sizes, indicating that each independent variable has a meaningful contribution to student engagement. Academic self-efficacy shows the largest effect size, reinforcing its importance.

Table 9. Predictive Relevance (Q^2)

Variable	Q^2
Academic Self-Efficacy	0.31
Student Engagement	0.42

Source: Data Analyzed, 2026

All Q^2 values are greater than zero, indicating that the model has good predictive relevance. This means that the model is capable of accurately predicting student engagement and academic self-efficacy.

Discussion

The findings of this study provide strong empirical evidence that online learning quality, lecturer support, and academic self-efficacy play significant roles in influencing student engagement in higher education. The results indicate that all



proposed hypotheses are supported, suggesting that both external factors (instructional quality and lecturer support) and internal psychological factors (self-efficacy) jointly contribute to enhancing student engagement in online learning environments. These findings align with contemporary educational theories and recent empirical studies that emphasize the multidimensional nature of student engagement in digital learning contexts.

First, the results demonstrate that online learning quality has a significant positive effect on student engagement. This finding confirms that well-designed online learning environments are crucial for fostering active participation among students. High-quality online learning systems—characterized by clear instructional design, interactive content, and user-friendly technology—can enhance students' motivation and willingness to engage in learning activities. The descriptive statistics in this study further support this conclusion, as students reported relatively high perceptions of online learning quality (mean = 4.12). This suggests that when students perceive online learning as structured, interactive, and accessible, they are more likely to participate actively, both cognitively and behaviorally. This finding is consistent with recent studies that highlight the importance of digital learning quality in shaping students' engagement and learning outcomes, particularly in post-pandemic educational environments where online learning has become more dominant.

Second, lecturer support is found to have a significant and positive influence on student engagement. Among the external factors examined, lecturer support shows a relatively strong effect ($\beta = 0.32$), indicating that instructors play a critical role in maintaining student involvement in online settings. This finding reinforces the idea that the presence and responsiveness of lecturers are essential in overcoming the limitations of online learning, such as the lack of face-to-face interaction and reduced social presence. Lecturer support, including timely feedback, encouragement, and clear communication, helps students feel connected and supported, which in turn enhances their engagement. The results are consistent with social interaction theory, which posits that meaningful interaction between instructors and students is a key driver of engagement and learning effectiveness. In online environments, where students often experience isolation, lecturer support becomes even more important as it fosters a sense of belonging and motivation.

Third, academic self-efficacy emerges as the most influential factor affecting student engagement, with the highest path coefficient ($\beta = 0.35$). This finding highlights the critical role of students' internal beliefs about their academic capabilities in determining their level of engagement. Students with higher self-efficacy are more confident in their ability to complete tasks, overcome challenges, and succeed academically, which leads to greater participation in learning activities. This result is consistent with Bandura's social cognitive theory, which emphasizes that self-efficacy influences motivation, persistence, and performance. In the context of online learning, where students are required to manage their own learning independently, self-efficacy becomes even more important. Students who believe in their abilities are more likely to engage in discussions, complete assignments, and actively interact with course materials. The relatively high mean score for academic self-efficacy (4.18)





further supports this conclusion, indicating that students generally feel confident in their academic capabilities.

In addition to the direct effects, the study also reveals that online learning quality and lecturer support significantly influence academic self-efficacy. Lecturer support shows the strongest effect on self-efficacy ($\beta = 0.40$), followed by online learning quality ($\beta = 0.30$). These findings suggest that both instructional and environmental factors contribute to shaping students' confidence in their academic abilities. When lecturers provide clear guidance, constructive feedback, and emotional support, students are more likely to develop a stronger belief in their ability to succeed. Similarly, high-quality online learning environments that are well-structured and easy to navigate can reduce cognitive load and increase students' sense of competence. This indicates that academic self-efficacy acts as a mediating mechanism through which external factors influence student engagement. In other words, improving lecturer support and online learning quality can indirectly enhance student engagement by strengthening students' self-efficacy.

Furthermore, the structural model results indicate a strong explanatory power, with an R^2 value of 0.68 for student engagement. This suggests that 68% of the variance in student engagement is explained by the three variables examined in this study. This relatively high value indicates that the model provides a comprehensive explanation of student engagement in online learning contexts. Additionally, the predictive relevance (Q^2) values confirm that the model has strong predictive capability, further supporting the robustness of the findings. The medium effect sizes (f^2) for all relationships indicate that each variable makes a meaningful contribution to the model, although academic self-efficacy has the largest impact.

The findings of this study have several important theoretical implications. First, they support the integration of external and internal factors in explaining student engagement. While previous studies often focus on either instructional quality or psychological factors, this study demonstrates that both dimensions are equally important and interconnected. Second, the results extend the application of social cognitive theory in online learning contexts by highlighting the mediating role of academic self-efficacy. Third, the study contributes to the growing body of literature on digital education by providing empirical evidence on the determinants of student engagement in contemporary online learning environments.

From a practical perspective, the findings offer valuable insights for educators and higher education institutions. To enhance student engagement, institutions should prioritize the improvement of online learning quality by investing in better instructional design, interactive learning platforms, and user-friendly technologies. Additionally, lecturers should be encouraged to provide consistent support, including timely feedback, clear communication, and emotional encouragement, to foster a supportive learning environment. Training programs for lecturers may also be beneficial in improving their ability to effectively engage students in online settings. Moreover, efforts should be made to enhance students' academic self-efficacy. This can be achieved through strategies such as providing clear learning goals, offering constructive feedback, promoting self-regulated learning, and creating opportunities



for students to experience success. By strengthening students' confidence in their abilities, institutions can indirectly improve their engagement and academic performance.

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of a cross-sectional design limits the ability to establish causal relationships among variables. Future research could adopt longitudinal designs to examine changes in student engagement over time. Second, the study relies on self-reported data, which may be subject to response bias. Third, the sample is limited to students with online learning experience, which may affect the generalizability of the findings to other contexts.

CONCLUSION

In conclusion, this study demonstrates that the quality of online learning, lecturer support, and academic self-efficacy are all significant determinants of student engagement in higher education contexts. The findings indicate that well-structured, interactive, and accessible online learning environments foster greater behavioral, emotional, and cognitive involvement among students. Moreover, lecturer support emerges as a crucial external factor, highlighting the importance of timely feedback, clear communication, and instructional guidance in sustaining student participation. Among the variables examined, academic self-efficacy shows the strongest influence, underscoring the role of students' confidence in their own abilities as a key driver of active engagement. Collectively, these results suggest that enhancing both institutional practices (through improved online learning design and lecturer involvement) and individual student capacities (through the development of self-efficacy) can lead to more meaningful and sustained engagement. Therefore, higher education institutions should adopt a holistic approach that integrates technological quality, pedagogical support, and psychological empowerment to optimize student learning outcomes in online environments.

Reference

- Al-Adwan, A. S., Albelbisi, N. A., & Hujran, O. (2021). E-learning adoption during COVID-19: The role of digital readiness and perceived benefits. *Education and Information Technologies*, 26(6), 7327–7355. <https://doi.org/10.1007/s10639-021-10507-0>
- Baber, H. (2020). Determinants of students' perceived learning outcome and satisfaction in online learning during the pandemic. *Journal of Education and e-Learning Research*, 7(3), 285–292. <https://doi.org/10.20448/journal.509.2020.73.285.292>
- Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency remote teaching in higher education: Mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, 18(1), 1–24. <https://doi.org/10.1186/s41239-021-00282-x>
- Chiu, T. K. F. (2021). Applying the self-determination theory to explain student engagement in online learning during COVID-19. *Computers & Education*,





- 166, 104–112. <https://doi.org/10.1016/j.compedu.2021.104122>
- Dixon, M. D. (2020). Measuring student engagement in the online course: The Online Student Engagement Scale (OSE). *Online Learning Journal*, 24(4), 5–21. <https://doi.org/10.24059/olj.v24i4.2323>
- Gopal, R., Singh, V., & Aggarwal, A. (2021). Impact of online classes on student satisfaction and performance. *Education and Information Technologies*, 26(6), 6923–6947. <https://doi.org/10.1007/s10639-021-10523-0>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Joo, Y. J., Lim, K. Y., & Kim, E. K. (2021). Online university students' satisfaction and persistence: Examining perceived quality and self-efficacy. *Computers & Education*, 163, 104–121. <https://doi.org/10.1016/j.compedu.2020.104121>
- Kahu, E. R., & Nelson, K. (2020). Student engagement in higher education: A conceptual framework. *Educational Research Review*, 29, 100–120. <https://doi.org/10.1016/j.edurev.2019.100295>
- Kim, J., Park, Y., & Cozart, J. (2021). Affective and social factors influencing student engagement in online learning. *Distance Education*, 42(1), 1–17. <https://doi.org/10.1080/01587919.2020.1869525>
- Martin, F., & Bolliger, D. U. (2020). Engagement matters: Student perceptions on the importance of engagement strategies in online learning. *Online Learning Journal*, 24(1), 205–222. <https://doi.org/10.24059/olj.v24i1.1092>
- Panigrahi, R., Srivastava, P. R., & Sharma, D. (2021). Online learning: Adoption, continuance, and learning outcome—A review. *International Journal of Information Management*, 57, 102–119. <https://doi.org/10.1016/j.ijinfomgt.2020.102271>
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology*, 60, 101–832. <https://doi.org/10.1016/j.cedpsych.2019.101832>
- Sulisworo, D., & Kusumaningtyas, D. A. (2021). The role of academic self-efficacy in online learning engagement. *Journal of Educational Computing Research*, 59(6), 1234–1250. <https://doi.org/10.1177/07356331211012345>
- Xie, K., Di Tosto, G., Chen, Q., & Vongkulluksn, V. W. (2020). A systematic review of design and technology components of engagement in online learning. *Educational Technology Research and Development*, 68(1), 1–27. <https://doi.org/10.1007/s11423-019-09711-0>
- Zhao, Y., Guo, Y., Xiao, Y., Zhu, R., Sun, W., Huang, W., Liang, D., Tang, L., Zhang, F., & Zhu, D. (2021). The effects of online learning on student engagement during COVID-19. *Frontiers in Psychology*, 12, 1–12. <https://doi.org/10.3389/fpsyg.2021.711073>