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THE RELATIONSHIP BETWEEN LMS USAGE AND THE LEARNING INDEPENDENCE OF DISTANCE EDUCATION STUDENTS

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Abstrak
Penelitian ini bertujuan untuk menganalisis hubungan antara penggunaan *Learning Management System* (LMS) dan kemandirian belajar mahasiswa pada konteks pendidikan jarak jauh. Penelitian menggunakan pendekatan kuantitatif dengan desain korelasional. Subjek penelitian merupakan mahasiswa Program Studi Pendidikan Ekonomi Akuntansi Universitas Negeri Semarang yang mengikuti pembelajaran jarak jauh. Data dikumpulkan menggunakan kuesioner yang mengukur penggunaan LMS dan kemandirian belajar. Instrumen penelitian terlebih dahulu diuji validitas dan reliabilitasnya, kemudian data dianalisis menggunakan statistik deskriptif, uji normalitas, uji linearitas, dan analisis korelasi nonparametrik. Hasil penelitian menunjukkan bahwa penggunaan LMS tidak memiliki hubungan yang signifikan dengan kemandirian belajar mahasiswa. Hubungan antara kedua variabel menunjukkan arah positif dengan kekuatan yang sangat lemah. Temuan ini menunjukkan bahwa pemanfaatan LMS tidak secara otomatis mencerminkan kemampuan mahasiswa dalam mengelola proses belajarnya secara mandiri. Kemandirian belajar merupakan konstruk yang kompleks dan dapat dipengaruhi oleh berbagai faktor, baik yang berasal dari mahasiswa maupun lingkungan pembelajaran. Hasil penelitian mengimplikasikan pentingnya pengembangan lingkungan pembelajaran digital yang tidak hanya menyediakan akses terhadap materi, tetapi juga mendukung pengelolaan, pemantauan, dan evaluasi proses belajar mahasiswa.

Kata Kunci: Pembelajaran Jarak Jauh; Belajar Mandiri; Regulasi Belajar; Teknologi Pembelajaran; Lingkungan Digital.

Abstract
This study aims to analyze the relationship between the use of a Learning Management System (LMS) and students' learning independence in the context of distance education. A quantitative approach with a correlational design was employed. The research subjects were students from the Economic Education and Accounting Study Program at Universitas Negeri Semarang who were participating in distance learning. Data were collected using questionnaires measuring LMS usage and learning independence. After testing the research instruments for validity and reliability, the data were analyzed using descriptive statistics, normality tests, linearity tests, and non-parametric correlation analysis. The results indicate that the use of an LMS does not have a significant relationship with students' learning independence. The relationship between the two variables is positive but very weak. These findings suggest that the utilization of an LMS does not automatically reflect a student's ability to manage their learning process independently. Learning independence is a complex construct influenced by various factors stemming from both the students themselves and the learning environment. The study's results highlight the importance of developing digital learning environments that not only provide access to materials but also support the management, monitoring, and evaluation of students' learning processes.

Keywords*: Distance Learning; Independent Learning; Self-Regulated Learning; Learning Technology; Digital Environment.*

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INTRODUCTION

Advancements in information and communication technology have transformed the delivery of higher education. The use of digital technology enables learning processes to occur more flexibly, without relying entirely on face-to-face interactions. This shift is particularly significant in Open and Distance Learning (ODL), where students engage in learning activities while separated from their instructors by space and time. While this offers flexibility in accessing education, it also requires students to manage their learning processes more independently. Students must manage their time, set priorities, comprehend course material, complete assignments, and monitor their learning progress responsibly. These competencies are linked to self-regulated learning, which encompasses the planning, execution, monitoring, and evaluation of a student's learning activities (Biwer et al., 2021). Learner autonomy is a crucial factor in the success of distance learning, as students bear greater responsibility for their learning processes compared to traditional face-to-face education. Research on distance learning students indicates that while they employ various self regulated learning strategies in online environments, certain aspects such as time management, help-seeking, and the application of specific study strategies require further strengthening (Santoso et al., 2022). Research on independent learning skills in distance education also emphasizes the importance of students' ability to manage their learning activies in environments where direct instructional interaction is limited (Nurlia et al., 2022). These findings suggest that digital learning environments must provide support systems that enable students to manage their learning activities in a focused and sustainable manner. One technology widely utilized in digital learning is the Learning Management System (LMS).

An LMS provides an integrated environment for accessing course materials, submitting assignments, obtaining information, communicating with instructors, and participating in various academic activities. By offering structured access to learning resources and activities, an LMS allows students to organize their studies according to their individual needs and available time. Research on LMS based online learning has demonstrated a link between LMS usage and students' capacity for independent learning (Manafe et al., 2021). Research on the relationship between LMS acceptance and students' self-regulated learning also highlights the relevance of LMS utilization in supporting students' learning regulation (Halimah et al., 2024). The use of Moodle via mobile devices demonstrates that specific LMS features can assist students in managing their learning activities (Atmoko & Kuswandono, 2022). Similarly, web-based virtual classroom environments can facilitate independent learning by providing online interaction and features that support students in managing their learning activities (Amri et al., 2022). Furthermore, student perceptions regarding ease of use and the benefits of LMS features are crucial considerations, as the utilization of technology is determined not only by system availability but also by how students accept and use it (Araka et al., 2021).

Numerous prior studies have examined the relationship between LMS-based learning environments and self-regulated learning capabilities. Research on the development of LMS-based learning indicates that an LMS can serve as part of a learning environment that supports students' independent learning activities (Sugiyono, 2022). Other studies on Moodle-based learning also show that LMS usage can foster the development of students' self-regulated learning skills (Pratiwi, 2022). Research on technology-suppoted learning also highlight the role of self-regulated learning in shaping students's learning outcomes within digitally mediated learning environments (Tonge et al., 2023). An LMS environment designed with self-regulation principles in mind can support students in managing their activities, motivation, and reflection throughout the learning process (Khiat & Vogel, 2022). Research in other digital learning environments similarly indicates that the implementation of LMS and various online learning systems can be linked to the development of

students' self-regulation skills, provided that learning activities and features are utilized appropriately (Sugiyono et al., 2023; Kibirige & Odora, 2023). However, the relationship between LMS usage and learning autonomy extends beyond the mere presence of technology. Factors such as acceptance, system quality, ease of use, information quality, accessibility, and perceived benefits also influence how students utilize digital learning environments (Solichin & Wijaya, 2021). Research on Moodle acceptance indicates that perceived ease of use, perceived usefulness, facilitating conditions, instructor characteristics, and social factors can all influence student acceptance of learning technology (Amri, 2022). Other research indicates a link between the level of LMS acceptance and students' self-regulated learning capabilities (Halimah et al., 2024). Furthermore, an analysis of student interactions with the LMS reveals that system usage patterns can reflect learning behavior characteristics associated with self-regulation in online learning (Çakiroğlu et al., 2024). The relationship between student characteristics, self-regulated learning, and technology acceptance indicates that the benefits of learning technologies must be understood in relation to user characteristics and the learning context (Barz et al., 2024). Recent research also demonstrates that learning activities designed via Moodle can foster conditions that support the development of students' self-regulated learning. Studies on LMS and learning autonomy show that LMS platforms can support student independence; however, this relationship must be understood within the specific learning context and the nature of technology usage (Rahayu et al., 2024). Broader studies on self regulated learning in online and blended learning environments underscore the importance of self regulation skills in students' digital learning processes (Xu et al., 2023). Recent systematic reviews further indicate that digital technology can support self-regulated learning strategies, though its impact depends on technology design, student characteristics, and the manner in which the technology is utilized during the learning process (Faza & Lestari, 2025). While prior research has extensively addressed LMS, technology acceptance, and self-regulated learning, the findings reflect diverse areas of focus. Some studies concentrate on the development or effectiveness of LMS-based learning, others examine technology acceptance, and some analyze student behavior based on system interaction data.

This landscape suggests a need to strengthen empirical evidence regarding the relationship between LMS usage and learning autonomy, particularly among students engaged in distance education. The nature of distance education characterized by spatial and temporal separation places greater demands on students regarding autonomy and responsibility for their own learning. Consequently, this study offers a novel contribution by empirically examining the relationship between LMS usage and learning autonomy specifically within the context of distance education students. This novelty lies not in the development of a new LMS, but in testing the relationship between these two variables within a distance learning framework where students serve as the primary managers of their own learning activities. Based on this gap, the research problem addresses whether there is a significant relationship between the use of a LMS and the learning independence of distance education students. Accordingly, the research hypothesis proposes that a significant relationship exists between LMS usage and the learning independence of distance education students. This study aims to analyze the relationship between LMS and student learning independence within the context of Open and Distance Learning.

METHOD

This study employs a quantitative approach with a correlational design to analyze the relationship between the use of an LMS and the learning independence of distance education students. A correlational design was selected because the study does not involve administering a treatment or establishing experimental groups; instead, it measures two variables and analyzes the relationship between them. The independent variable in this study is LMS usage (X), while the dependent

variable is student learning independence (Y). The research subjects were students from the Economic Education (Accounting) program at Universitas Negeri Semarang (Class of 2021) who were participating in distance education.

The study population consisted of 164 students, while the sample comprised 100 students. Sampling was conducted using the simple random sampling technique, ensuring that every member of the population had an equal chance of becoming a research respondent. Data were collected using a questionnaire designed to measure LMS usage and student learning independence. The LMS usage instrument consisted of 10 statements (X1–X10), while the learning independence instrument consisted of 15 statements (Y1–Y15). Each instrument item utilized a five-point rating scale; the scores for individual items were then summed to obtain total scores for LMS usage and learning independence. Prior to the main analysis, the instruments underwent validity and reliability testing to ensure that the statements could consistently measure the research variables. Data collection involved distributing the instruments to respondents and gathering data based on their responses to each statement.

The collected data were checked for completeness, coded according to the variable and item number, and tabulated for statistical analysis. Subsequently, each respondent's score was calculated by summing the scores of all items within each variable to obtain the total scores for LMS usage and learning independence. Data analysis was performed using IBM SPSS Statistics 26. Instrument validity was assessed by examining Corrected Item-Total Correlation values, while instrument reliability was tested using the Cronbach's Alpha coefficient. Descriptive analysis was employed to determine minimum and maximum values, the mean, and the standard deviation. Normality testing was conducted using the Shapiro-Wilk test, whereas a linearity test was used to determine whether there were any deviations from a linear relationship between the two variables. As the normality test results indicated that the data for both variables were not normally distributed, the relationship between the variables was analyzed using Spearman's rho correlation at a 5% significance level ($\alpha = 0.05$). Testing decisions were based on significance values, with a p-value < 0.05 indicating a statistically significant relationship.

RESULT

The research findings were derived from an analysis of data collected from 100 students majoring in Economic Education (Accounting) at Universitas Negeri Semarang (Class of 2021). The analysis was conducted to assess the quality of the research instruments, examine the data characteristics regarding the variables of LMS usage and learning independence, and investigate the relationship between these two variables. The analytical procedures included instrument validity and reliability testing, descriptive statistics, normality testing, linearity testing, and correlation analysis to examine the relationship between LMS usage and student learning independence.

Table 1. Validity Test Results for the LMS Usage Variable (X)

Statement item	Corrected Item-Total Correlation	Information
X1	0.580	Valid
X2	0.628	Valid
X3	0.555	Valid
X4	0.582	Valid
X5	0.616	Valid
X6	0.576	Valid
X7	0.571	Valid
X8	0.604	Valid
X9	0.591	Valid
X10	0.570	Valid

Based on Table 1, all items in the LMS usage instrument have Corrected Item-Total Correlation values greater than 0.30. The correlation values for each item range from 0.555 to 0.628. Thus, all 10 statement items in the LMS usage instrument are deemed valid and suitable for use in the research analysis.

Table 2. Validity Test Results for the Learning Independence Instrument (Y)

Statement item	Corrected Item-Total Correlation	Information
Y1	0.749	Valid
Y2	0.768	Valid
Y3	0.743	Valid
Y4	0.719	Valid
Y5	0.682	Valid
Y6	0.728	Valid
Y7	0.682	Valid
Y8	0.706	Valid
Y9	0.722	Valid
Y10	0.715	Valid
Y11	0.731	Valid
Y12	0.677	Valid
Y13	0.691	Valid
Y14	0.713	Valid
Y15	0.722	Valid

Based on Table 2, all items in the learning independence instrument have Corrected Item-Total Correlation values above 0.30. The correlation values for each item range from 0.677 to 0.768. Thus, all 15 statement items of the learning independence instrument are deemed valid and suitable for use in the research analysis.

Table 3. Instrument Reliability Test Results

Variable	Cronbach's Alpha	N of Items	Information
Use LMS	0.870	10	Reliable
Independent Learning	0.947	15	Reliable

Based on Table 3, the LMS usage instrument, comprising 10 statements, yielded a Cronbach's Alpha value of 0.870, while the learning independence instrument, comprising 15 statements, yielded a Cronbach's Alpha value of 0.947. Both values indicate that the instruments possess good internal consistency. Consequently, all items within the LMS usage and learning independence instruments are deemed reliable and suitable for use in further research analysis.

Table 4. Descriptive Statistics of Research Variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL_X	100	12.00	47.00	27.9100	8.24265
TOTAL_Y	100	15.00	71.00	43.8600	15.06754
Valid N (listwise)	100				

Based on Table 4, the LMS usage variable has a minimum score of 12.00 and a maximum of 47.00, with a mean of 27.91 and a standard deviation of 8.24265. Meanwhile, the independent learning variable has a minimum score of 15.00 and a maximum of 71.00, with a mean of 43.86 and a standard deviation of 15.06754. These results indicate score variation among respondents for both research variables.

Table 5. Normality Test Results

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TOTAL_X	0.108	100	0.006	0.973	100	0.041
TOTAL_Y	0.064	100	0.200*	0.971	100	0.025

Based on Table 5, the Shapiro-Wilk normality test results indicate that the LMS usage variable yielded a significance value of 0.041, while the learning independence variable yielded a significance value of 0.025. Since both significance values are less than 0.05, the data for both variables are considered not normally distributed. These normality test results serve as the basis for considering the use of nonparametric correlation analysis to examine the relationship between LMS usage and learning independence.

Table 6. Linearity Test

Source of Variation	F	Sig.
Linearity	0.018	0.894
Deviation from Linearity	1.070	0.406

Based on Table 6, the linearity test results show a significance value of 0.406 for "Deviation from Linearity," which is greater than 0.05. These results indicate that there is no significant deviation from a linear relationship between LMS usage and students' learning independence. Thus, the relationship between the two variables satisfies the linearity assumption, allowing the analysis to proceed to correlation analysis.

Table 7. Results of The Correlaction Analysis Between LMS usage and Learning Indepence

Correlation Test	Coefficient	Sig. (2-Tailed)	N	Information
Pearson Product-Moment	0.013	0.895	100	Not Significant
Spearman’s rho	0.031	0.761	100	Not Significant

Based on Table 7, the Pearson Product-Moment correlation analysis yielded a correlation coefficient of 0.013 with a significance value of 0.895. Meanwhile, the Spearman’s rho correlation analysis showed a correlation coefficient of 0.031 with a significance value of 0.761. The Spearman’s rho test was used as the basis for interpretation because the normality test results indicated that the data for both variables were not normally distributed. The significance value of 0.761 exceeds 0.05, indicating no significant relationship between LMS and students' learning independence within the study sample. The correlation coefficient of 0.031 indicates a positive relationship, but one of very weak strength. Consequently, the hypothesis stating that there is a significant relationship between LMS usage and students' learning independence is not supported by the statistical test results.

DISCUSSION

The research results indicate that the use of an LMS does not have a significant relationship with the learning independence of distance education students. Based on the Spearman’s rho test, a correlation coefficient of 0.031 was obtained, with a significance value of 0.761. Since this significance value exceeds 0.05, there is no significant relationship between LMS usage and student learning independence in this study. A correlation coefficient close to zero further indicates that the relationship between the two variables is extremely weak. These findings suggest that a higher level of LMS usage is not automatically associated with a higher level of student learning independence. Conceptually, an LMS is a technological environment that provides various facilities to support the learning process, such as material provision, information dissemination, assignment submission, communication, and the monitoring of learning activities.

The presence of an LMS can provide more structured access to learning resources and academic activities. However, the use of a learning platform must be distinguished from a student's ability to manage their own learning process. Students may use an LMS to access materials or submit assignments without actively planning, monitoring, managing time, or evaluating their own learning processes. Thus, LMS usage represents the technological aspect of learning, whereas learning independence relates to the learning management process undertaken by the student. Learning

independence in an online learning environment is closely linked to the concept of self-regulated learning.

Students capable of managing their learning independently must engage in planning, goal setting, managing learning strategies, monitoring progress, and evaluating their learning outcomes. A review by Xu et al., (2023), of research on self-regulated learning in online and blended learning environments demonstrates that self-regulated learning is a crucial aspect in supporting students' learning processes and outcomes. The study also indicates that research on self-regulated learning in digital environments frequently employs multiple strategies or forms of support; consequently, self-regulation capabilities cannot be fully understood through a single aspect of learning technology. These results can be understood by distinguishing between the availability of LMS facilities and the actual utilization of those facilities to support self-regulation. An LMS offers various features enabling students to access materials, participate in learning activities, and interact within a digital learning environment. However, these features do not automatically equip students with the ability to manage their learning processes independently. Students must still possess the awareness to set goals, manage time, determine strategies, monitor their understanding, and evaluate their learning achievements. In other words, while an LMS can provide an environment that fosters learning autonomy, such autonomy remains a process driven by the student. These findings align with the understanding that student interactions with an LMS vary in nature. Çakiroğlu et al., (2024), demonstrated that the self-regulated learning skills of online learners can be observed through their LMS interaction patterns. This implies that while LMS interaction data offers insights into student learning behaviors, the mere presence of activity within the system does not inherently indicate an identical level of self-regulation across all students.

For instance, students who log into the LMS frequently do not necessarily possess superior learning management skills compared to those with lower access frequencies; such differences arise because students vary in their goals, strategies, and methods of utilizing the LMS. The focus of this study also differs from that of Manafe et al., (2021), who analyzed the implementation of online learning and LMS-based independent learning among Electrical Engineering Education students at Nusa Cendana University. That study positioned the LMS as a component of online learning delivery and examined aspects of independent learning within that specific context. Meanwhile, this study specifically examines the statistical relationship between LMS usage (as variable X) and learning independence (as variable Y).

Differences in objectives, respondent characteristics, instruments, and research contexts must be taken into account when comparing the research findings. Therefore, previous research findings highlighting the importance of LMS in online learning do not automatically imply that LMS usage will always have a significant relationship with learner autonomy across all student groups. The absence of a significant relationship in this study may also be attributed to the multidimensional nature of learner autonomy. Learner autonomy is not solely linked to technology usage; it also encompasses students' abilities to manage time, organize their learning environment, determine strategies, seek assistance when facing difficulties, and evaluate their own learning processes. Data regarding student self-regulation in the context of online and blended learning in Indonesia further indicate that learning regulation can be observed through various aspects, such as goal setting, time management, environment structuring, help-seeking, task strategies, and self-evaluation (Irwanto, 2024). This demonstrates that learner autonomy is a broader construct than merely the frequency or level of learning platform usage.

These research findings can also be explained by the results of a systematic review conducted by Dong et al. (2024). That study identified various factors associated with students' self-regulated

learning in online environments. Thus, learner autonomy in online learning is not influenced solely by the technological environment but can be linked to a range of factors stemming from both student characteristics and the learning environment. In the context of this study, the lack of a significant relationship between LMS usage and learner autonomy suggests that LMS usage alone is insufficient to explain the variations in students' learner autonomy. Beyond technological factors, learning support is another aspect that warrants consideration. A digital learning environment that merely provides materials and assignments does not necessarily offer adequate support for students to develop self-regulation skills.

Support for self-regulated learning can be facilitated through activities that assist students in setting goals, planning learning activities, monitoring progress, and evaluating their learning outcomes. Radović et al., (2024), indicate that supporting learning regulation within a learning environment requires consideration of both the level and the form of support provided to students. Thus, the effectiveness of a digital environment depends not only on the presence of technology but also on how that environment is designed to assist students in managing their learning processes. In the context of distance education, these research findings are particularly relevant because students bear a significant level of responsibility for managing their own learning. While students can access materials via an LMS, they must still decide when to study, how to engage with the material, how to complete assignments, and how to evaluate their own understanding.

Consequently, the use of an LMS can be viewed as a component of the learning environment, whereas learner autonomy represents the student's ability to manage the learning process itself. The relationship between the two is not necessarily direct, as other factors may mediate the link between technology usage and student learning behavior. The study results also highlight the importance of distinguishing between the quantitative usage of an LMS and the quality of its utilization. A quantitative measure of LMS usage yielding a specific score does not necessarily indicate whether students are employing LMS features strategically to support their learning. For instance, two students might exhibit identical levels of LMS usage; however, the first student might use the system to read materials, organize schedules, track assignments, and evaluate their learning progress, while the second student uses it solely to submit assignments.

Quantitatively, their usage levels appear similar, yet the underlying learning processes differ significantly. Such distinctions may explain why the statistical relationship between LMS usage and learner autonomy observed in this study is remarkably weak. The Spearman correlation coefficient of 0.031 indicates a positive relationship between the two variables, yet the strength of this association is very weak. In other words, based on the study's data, an increase in LMS usage is accompanied by only a negligible change in learner autonomy, and the relationship is not statistically significant. Therefore, the research findings cannot be used to claim that LMS usage causes an increase or decrease in learning autonomy. This study employed a correlational design; thus, the findings are limited to the relationship between the two variables within the study sample. Sample characteristics must also be considered when interpreting the results. This study involved 100 students from the Economic Education and Accounting program at Universitas Negeri Semarang (Class of 2021). Consequently, the findings primarily reflect the relationship between LMS usage and learning autonomy within the context of these specific students. The results cannot be directly generalized to all distance education students, as differences in study programs, student characteristics, online learning experiences, LMS design, lecturer support, and learning environments could yield different patterns of relationships. From a theoretical perspective, this study demonstrates that learning technology cannot be viewed as the sole determinant of student learning autonomy.

While an LMS provides an environment and facilities that support learning, the development of learning autonomy is also linked to students' self-regulation capabilities and the characteristics of the learning environment. Research on self-regulated learning in technology-enhanced environments highlights a growing focus on how technology can support the learning regulation process, rather than merely providing access to learning materials (Alhazbi et al., 2024). Thus, future research could expand the analysis by specifically examining how LMS features are utilized to support the learning regulation process. In practical terms, the findings suggest that the development of LMS-based learning should not focus solely on providing a platform and learning materials. An LMS can be designed to include activities that encourage students to set learning goals, manage their time, monitor their progress, reflect, and evaluate their learning outcomes. Such an approach allows the LMS to function not merely as a repository for materials and a submission point for assignments, but as an environment that fosters the development of independent learning skills. Developing support for self-regulated learning within digital platforms is also an emerging area of research in educational technology. Thus, the research findings indicate that while LMS usage and learner autonomy are two important aspects of distance education, they do not exhibit a significant relationship within this study's sample. The absence of a significant relationship does not imply that the LMS lacks educational value; rather, it suggests that LMS usage alone is insufficient to explain students' levels of learner autonomy.

Learner autonomy is a complex construct influenced by various factors stemming from both the students themselves and the learning environment. Future research could consider variables such as learning motivation, self-efficacy, self-regulated learning skills, time management, instructor support, the quality of learning interactions, and the design quality of LMS activities to gain a more comprehensive understanding of the factors associated with learner autonomy among distance education students.

CONCLUSION

Based on the research findings regarding the relationship between LMS usage and the learning independence of distance education students, it can be concluded that the hypothesis positing a significant relationship between LMS usage and learning independence was not supported by the statistical analysis. The Spearman’s rho correlation test yielded a coefficient of 0.031 with a significance value of 0.761; thus, no significant relationship exists between LMS usage and learning independence among the 2021 cohort of Economic Education (Accounting) students at Universitas Negeri Semarang who served as the study sample. Although the positive correlation coefficient indicates a positive direction of the relationship, the strength of the association is very weak. These findings demonstrate that LMS usage, within the scope of this study, does not show a statistically significant link to student learning independence. Consequently, LMS usage cannot be viewed as the sole factor explaining student learning independence in the context of distance education. Based on these findings, future research should consider other factors potentially related to learning independence such as learning motivation, self-efficacy, self-regulation skills, time management, lecturer support, and the quality of learning interactions and incorporate more diverse samples and distance education contexts.

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