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The Influence of Digital Communication Competence on Social Interaction Between Students and Lecturers

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Abstract

Digital transformation has brought significant changes to various aspects of life, particularly in the field of communication. In this modern era, many universities have begun to adopt digital learning systems through the use of Learning Management Systems (LMS), thus shifting communication patterns from conventional methods to digital-based communication. Along with these developments, digital communication competency has become an important skill for students to be able to interact effectively in various online learning media, including LMS. This study aims to examine the effect of digital communication competency on social interactions between students and lecturers in LMS-based learning using Computer Mediated Communication (CMC) theory. The research method used is a mixed method with a sequential explanatory research design. The study population consisted of students of Serang Raya University with a sample of 155 respondents. The selection of interview participants was carried out by purposive sampling. Data were obtained through observation, interviews, and questionnaires, then analyzed quantitatively using SmartPLS 3.0 and supplemented with qualitative analysis. Data credibility was tested through source triangulation techniques. The results showed that digital communication competency had a positive and significant effect on social interactions with a contribution value of 35.8% and a path coefficient value of 0.599. Despite students' strong digital skills, social interaction within the LMS remains limited because the platform focuses primarily on administrative functions. Qualitative findings also highlight the need for a more interactive LMS design that supports two-way communication. Therefore, this study concludes that strengthening digital communication competencies and optimizing LMS features designed from a CMC perspective can significantly improve the quality of social interaction and the effectiveness of digital communication in online learning contexts.

Keywords: Digital Communication Competence, CMC, Learning Management System, Social Interacti

INTRODUCTION

The pervasive digital transformation has impacted every aspect of life across all segments of society, regardless of social status, educational background, or age. (Wiratmo, 2020). This shift has brought about profound changes in communication practices, including in the academic realm. As a result, digital communication skills have emerged as a critical competency for students and faculty to facilitate effective and collaborative online learning. In a digital learning environment, where face-to-face interactions are absent, the ability to communicate clearly and efficiently through digital platforms is critical to maintaining seamless engagement.

Compared to face-to-face communication, digital communication exhibits fundamental differences. Face-to-face interactions facilitate more intense emotional engagement through facial expressions, voice intonation, and body language, all of which enrich the meaning of a message and strengthen interpersonal relationships (Martha & Sihotang, 2024). In contrast, digital communication refers to the use of digital devices to transmit information electronically via the Internet (Sadiku et al., 2022). This form of communication typically relies on text, audio, or visual content, which may limit emotional expression and increase the potential for misunderstandings if not managed effectively (Ningsih & Samudro, 2019). Nonetheless, digital communication transcends spatial and temporal boundaries, enabling individuals and groups to exchange information rapidly and efficiently. However, it cannot be denied that online learning through digital communication, when conducted too frequently, tends to lead to boredom and a decrease in learning motivation (Hernaningtyas, 2022).

Digital communication competencies are also a key component in the design and development of future educational transformations. These competencies include the ability to communicate, collaborate, interact, and participate effectively in virtual teams and networks using appropriate media, tone, and behavior (Henseruk et al., 2021). Furthermore, the European Commission's Digital Competence Framework for Citizens defines five key indicators of digital technology proficiency: (1) information and data literacy, (2) communication and collaboration, (3) digital content creation, (4) security, and (5) problem-solving (Carretero et al., 2017). These five indicators can be used as a reference to measure digital communication competency variables, especially in the context of the digital learning environment in this study.

The digital transformation within higher education began to accelerate rapidly following the official announcement of the COVID-19 outbreak in Indonesia, which directly impacted the implementation of online learning. At Universitas Serang Raya

(UNSERA), this shift was formalized through Rector's Decree No. 229/01.04/UNSERA/III/2020, which mandated a transition from face-to-face to online learning, effective from March 2020 to June 2021. In the post-pandemic period, UNSERA adopted a blended learning model, consisting of 70% face-to-face and 30% online instruction. It is undeniable that this shift in learning patterns also affected the communication dynamics between students and lecturers.

In online learning, communication typically occurs through digital platforms such as learning management systems (LMS), WhatsApp, email, or video conferencing tools like Zoom and Google Meet. This digital communication can be either synchronous, such as during live interactive classes, or asynchronous, involving text-based or video materials that students can access at any time. While this approach offers flexibility in terms of time and location, digital communication in online learning is not without its challenges.

Research by (Siahaan et al., 2021) indicates that computer-mediated communication (CMC) encounters more obstacles than face-to-face communication. These challenges include personal barriers, such as the readiness of both lecturers and students, as well as the often one-way nature of communication. Physical barriers also play a role, including the availability of digital devices, unstable internet connections, limited data access, and environmental factors, such as an unconducive home or study environment, which further compound these issues. Moreover, online learning is frequently hindered by technical problems such as poor audio quality, differences in perception, and miscommunication, all of which can distort the intended message. These barriers inevitably affect the overall effectiveness of communication between students and lecturers (Malik, 2021).

When digital communication is disrupted or fails to function effectively, it directly impacts the quality of social interactions, both among students and between students and lecturers. Communication barriers, whether technical or personal, can reduce the intensity of interaction that is essential during the learning process. In such situations, learning materials delivered solely through digital media without direct explanation or guidance from lecturers are often not optimally absorbed by students. (Anshori et al., 2025).

Observations results from online classes reveal several tangible obstacles that hinder effective communication. For instance, communication is frequently disrupted due to unstable internet signals, leading to fragmented or broken conversations. This is particularly evident during group presentations, where interaction among group members and with the audience is minimal. Such conditions result in passive engagement and increase

the likelihood of miscommunication between students and lecturers. These observations are supported by quantitative data from 100 student respondents, where 96% agreed that digital communication competence can enhance social interaction, both with lecturers and peers. This finding underscores the importance of students ability to effectively use digital media as a key factor in fostering meaningful communication in online learning environments. However, when technical barriers arise and such competencies cannot be fully applied, the overall quality of interaction tends to decline.

The definition of social interaction is generally broad, encompassing the various ways in which individuals interact, communicate, and respond to one another within complex and diverse contexts (King & Morris, 2022). According to research conducted by (Apriyani, 2023), social interaction in the digital era has significantly altered how people engage with one another in real life, particularly within educational settings. Today, many individuals spend more time interacting through social media, leading to a decline in face-to-face interactions within learning environments. As a result, this shift presents new challenges in maintaining the quality of social relationships in educational contexts. One of the most influential factors in addressing this issue is the individual's digital communication competence. This is supported by findings from (Bergum Johanson et al., 2023), who assert that students attitudes and experiences toward virtual communication play a crucial role in shaping their competence in social interaction.

Therefore, to maintain the quality of interaction and digital communication in online learning, Universitas Serang Raya (UNSERA), a higher education institution located in Serang City, Banten Province, implemented a digital learning system in 2020 through a Learning Management System (LMS) called SPADA (*Sistem Pembelajaran Daring*). The role of digital communication is highly emphasized in the use of this LMS, as its ability to provide effective communication space and accessibility directly contributes to enhancing students' digital communication competence. Through SPADA, students can access various features that support the online teaching and learning process, such as submitting assignments, taking quizzes, retrieving course information and student group details, as well as integrating with video conferencing platforms like Zoom and Google Meet.

However, the effectiveness of an LMS is determined not only by its ease of access but also by how well the technology is utilized as a medium for digital communication that supports interactive learning (Supratman & Wahyudin, 2024). According to Bergum Johanson et al. (2023), digital communication enhances peer learning between students and

educators, while the use of collaborative digital tools helps foster a new culture of knowledge sharing and interaction for the future. When digital interaction is well-established, it can significantly optimize student learning outcomes and motivation, while also enabling lecturers to better monitor and manage the learning process as a whole.

An LMS equipped with comprehensive online communication features, such as discussion forums, video conferencing, email, live chat, wikis, educational social networks, blogs, and online journals, can significantly enhance collaboration and enrich the teaching and learning process. (Ouariach et al., 2024). The availability of these features facilitates digital communication interactions, which in turn help strengthen digital social interaction within the higher education environment. Not only does this foster the development of students digital communication competence, but it also improves their digital literacy skills. These abilities contribute positively to learning motivation, streamline the learning process, and ultimately enhance academic outcomes.

Previous studies further reinforce that positive social interaction significantly increases student engagement, develops effective listening skills, and deepens content understanding, thereby creating a more conducive learning environment. The effectiveness of such learning environments can be optimized when two-way communication between lecturers and students is managed in a structured manner and with attention to quality (Porter & Bozkaya, 2020).

Nevertheless, social interaction that occurs through digital communication via LMS platforms can also be further analyzed using four key indicators that influence the quality of social interaction, particularly within digital contexts. According to (Sarwono, 2023), social interaction is defined as a reciprocal relationship between individuals or groups, characterized by communication and the exchange of meaning. This interaction can be measured through four main indicators: communication, attitude, group behavior, and social norms.

Table 1. Variable Indicators

Variabel X Digital Communication Competence	**Variabel Y Social Interaction**
1. Information and data literacy 2. Communication and collaboration 3. Digital content creator 4. Safety 5. Problem solving (Carretero et al., 2017)	1. Communication 2. Attitude 3. Group behavior 4. Social norms (Sarwono, 2023)

Student–lecturer social interaction in digital learning environments is strongly influenced by the communication processes that take place within digital spaces. This issue can be analyzed using the Computer-Mediated Communication (CMC) approach, which refers to interpersonal communication mediated by computers. CMC emphasizes how digital technology shapes the ways people interact, build relationships, and negotiate meaning within broader social contexts. It considers the dynamic, transactional, and multimodal nature of communication itself (Thurlow et al., 2004).

This means that communication is not limited to being one-way or purely textual; rather, it involves the negotiation of meaning through various digital channels, such as virtual body language (emoticons, avatars), tone of voice in videos, visual symbols, and the broader digital social context. In academic settings, understanding computer-mediated communication (CMC) is essential for evaluating the effectiveness of social interaction in online learning environments. The quality of this interaction can impact student engagement, comprehension of course material, and the relational closeness between lecturers and students, all of which are key factors in the success of educational processes.

Therefore, this study aims to contribute to a deeper understanding of how digital communication competence, as facilitated through LMS platforms, affects the quality and forms of social interaction in higher education. The findings are expected to serve as a foundation for developing strategies and implementing practices to improve online learning interactions and to promote more effective digital communication within LMS environments for educational institutions in the future.

METHOD

This study employs a mixed-methods approach, which involves the collection and evaluation of both quantitative and qualitative data within a single study or across multiple studies (Dawadi et al., 2021). The research design adopted is the sequential explanatory design, which is used to interpret the results of quantitative data analysis, followed by the collection and analysis of qualitative data (Creswell, 2014).

The chosen research paradigm is post-positivism, which views truth as complex and not fully explainable by a single theory (Sembiring et al., 2024). A paradigm serves as a fundamental element in methodology, guiding researchers in selecting an appropriate approach to address the research questions (Abuhamda et al., 2021). Accordingly, this paradigm focuses on identifying and evaluating causal factors that influence outcomes, a perspective commonly applied in experimental research (Creswell & Creswell, 2018).

The population refers to a broader group that shares common characteristics within a specific context. It includes all units

or individuals, whether people, organizations, or objects, whose attributes are the focus of a study (Willie, 2024). The population in this study comprises students of Universitas Serang Raya, with a total sample size of 155 respondents. The sample was selected using purposive sampling, a method in which respondents are chosen based on specific criteria to ensure their relevance and alignment with the research objectives (Campbell et al., 2020).

In addition, to support the qualitative data, informants were also selected purposively, based on specific considerations such as their experience in using the LMS SPADA platform, their level of engagement in online learning, and their digital communication skills. The informants consist of several lecturers and students who are considered capable of providing in-depth insights related to the research topic.

This study employed both primary and secondary data collection techniques. Primary data were gathered through a series of quantitative and qualitative data collection stages. Primary data refer to first-hand information collected directly by the researcher using specific data collection methods. In this study, primary data were obtained through observations and the distribution of questionnaires to students at Universitas Serang Raya. This stage was further supplemented by in-depth interviews with both students and lecturers. In contrast, secondary data refer to information previously collected by other parties (Ajayi, 2023). The secondary data for this research were obtained through literature reviews and findings from prior studies. The research was conducted during the period of October to December 2024, with all data collection activities taking place at Universitas Serang Raya, located in Serang City, Banten Province.

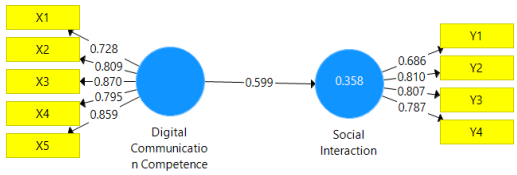
Data analysis in this study was conducted using SmartPLS 3.0 software for the quantitative data, while the qualitative data were analyzed as supporting evidence to gain a more comprehensive and in-depth understanding or interpretation. The data analysis method employed was triangulation. According to (Creswell & Creswell, 2018), data triangulation in mixed-methods research involves four stages: (1) data collection, (2) data analysis and integration, (3) interpretation, and (4) validation. By utilizing multiple data sources and analytical methods, triangulated data analysis aims to present the research findings in a coherent and integrated manner (Schlunegger et al., 2024).

RESULTS

The initial measurement evaluation was conducted by testing the outer model using Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis with SmartPLS 3.0 software. The objective of this measurement model analysis is to ensure that each indicator used to measure

the latent variables demonstrates adequate convergent and discriminant validity (Cheung et al., 2024). The outer model represents the research model within the SmartPLS 3.0 application, encompassing the indicators and the relationships between variables. A visual representation of the outer model is presented in the following figure.

Figure 1. Results of the Outer Model Analysis



Source: SmartPLS 3.0

The outer model in this study was utilized to assess validity and reliability, as well as to analyze the structural model (inner model), test hypotheses, and examine the R Square, Q Square values, and T-statistics. Based on the results of the data analysis, it was found that the digital communication competence variable has a 35.8% influence on the social interaction variable. This quantitative finding is supported by qualitative interviews with both students and lecturers. One student informant stated:

"In my opinion, digital communication competence is already very familiar to everyone. Many students use the internet for learning or communication, both with fellow students and lecturers. Learning platforms such as LMS certainly enable interaction and communication without being hindered by weather or time constraints."

In addition, a lecturer noted that although students are generally accustomed to using digital technology, challenges in fostering social interaction through the LMS platform still exist. The lecturer stated:

"There are certainly challenges in digital learning interaction, as lecturers often receive limited responses. While the LMS is used as the official learning system of the university, I feel that the platform is less than optimal in supporting interaction with students. I also use other platforms such as Quizizz, Mentimeter, and YouTube as supplementary tools to enhance student engagement and interaction."

1. Descriptive Statistical Test

Table 2. Results of descriptive statistical test

Indicators	Mean	Median	Standard Deviation
X1	4.458	4.000	0.548
X2	4.361	4.000	0.543
X3	4.161	4.000	0.596
X4	4.252	4.000	0.540
X5	4.232	4.000	0.577
Y1	3.826	4.000	0.859
Y2	3.903	4.000	0.809
Y3	3.748	4.000	0.877
Y4	4.329	4.000	0.673

Overall, respondents rated themselves highly on indicator X1, which pertains to information and data literacy, with an average score of 4.458. In contrast, indicator X3 (digital content creation), recorded the lowest average score of 4.161, suggesting a relatively lower level of agreement or

proficiency in this area. Despite these minor variations, all average scores for the X indicators remained above the midpoint of the scale, reflecting a generally positive self-perception of digital skills. These findings suggest that participants possess a solid foundational understanding of digital competence, although there remains room for further development, particularly in communication aspects.

Among the four indicators under the social interaction variable, indicator Y4, which represents social norms, achieved the highest average score of 4.329, indicating a relatively stronger positive response. On the other hand, indicator Y3 recorded the lowest average score of 3.748, though it still falls within a relatively high range. Overall, the average scores across the Y indicators reflect a consistent and generally positive evaluation of the measured construct.

The relatively lower score in the group behavior aspect may indicate that some respondents reported decreased levels of participation or expressed a preference for face-to-face group interaction over online interaction. This interpretation is supported by qualitative data from a student informant who explained:

"To be honest, I prefer working in groups in person rather than online because my friends often face various obstacles. The most common issues usually involve communication barriers such as ineffective messaging, lack of interaction among peers, and weak internet connectivity."

2. Validity and Reliability Test

Table 3. Results of validity and reliability test

Indicators	Outer Loading	Cronbach Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
X1	0.728	0.872	0.907	0.663
X2	0.809			
X3	0.870			
X4	0.795			
X5	0.859			
Y1	0.686	0.801	0.856	0.599
Y2	0.810			
Y3	0.807			
Y4	0.787			

Based on the table, validity testing consists of three main aspects that must be assessed to ensure that the findings can be considered valid. One of the key indicators of convergent validity is the outer loading value of each item or indicator. According to (J. Hair et al., 2022), an outer loading value of 0.70 or higher is considered acceptable, indicating that the indicator reliably measures the corresponding latent construct. However, loading values between 0.60 and 0.70 may still be retained if the overall construct validity is supported by other metrics, such as Composite Reliability (CR) and Average Variance Extracted (AVE).

Meanwhile, Composite Reliability (CR) provides a more comprehensive assessment of reliability compared to

Cronbach's Alpha, with CR values above 0.70 deemed adequate (Hair et al., 2022),. The results of this data analysis indicate CR values of 0.907 and 0.856, further reinforcing the reliability of the instrument. Additionally, the Average Variance Extracted (AVE) is used to evaluate convergent validity, where a value of 0.50 or higher suggests that the construct explains more than half of the variance of its indicators (Hair et al., 2021). The AVE values for the two constructs, namely 0.663 and 0.599, meet this criterion, thereby supporting the overall validity of the measurement model.

3. Uji multikolinearitas Inner VIF

Table 4. results of Uji multikolinearitas Inner VIF

	Digital Communication Competence	Social Interaction
Digital Communication Competence		1.000

Based on the inner VIF results presented in the table above, the inner VIF value for the social interaction variable is 1.000, indicating the absence of multicollinearity issues among the research variables. This finding is consistent with the criteria established by (M. Hair et al., 2021), which state that inner VIF values should be less than 5 to ensure the validity of the analysis. Therefore, the data used meet the requirements for further analysis.

4. Hypothesis Test

Table 5. Results of hypothesis test

Hyphothesis	Path Coefficient	P-Value	95% Convidence Intervals Path Coefficient		F Square
			Lower limit	Upper limit	
H1. Digital Communication Competence → Social Interaction	0.599	0.000	0.502	0.695	0.558

Based on the table above, the path coefficient from Digital Communication Competence to Social Interaction is 0.599, indicating a strong and positive relationship between the two constructs. The obtained p-value is 0.000, which is below the conventional significance threshold of 0.05. This result confirms that the relationship is statistically significant.

Moreover, the 95% confidence interval for the path coefficient ranges from 0.502 to 0.695 and does not include zero. This further reinforces the conclusion that the effect is not only statistically significant but also reliable, thereby strengthening the robustness of the proposed relationship (M. Hair et al., 2021).

Additionally, the f-square value of 0.558 indicates a large effect size, according to the criteria established by (Jacob Cohen,

1988), where values above 0.35 are considered large. This finding suggests that Digital Communication Competence makes a substantial contribution to the variance explained in Social Interaction. Overall, these results provide strong empirical support for H1, confirming that Digital Communication Competence has a significant and positive influence on Social Interaction among the respondents.

5. R-Square and Q-Square Test

Table 6. Results of R-square and Q-square test

	R Square (R^2)	Q Square (Q^2)
Digital Communication Competence Social Interaction	0.358	0.164

The table above presents the R^2 and Q^2 values for the endogenous construct of Social Interaction. An R^2 value of 0.358 indicates that 35.8% of the variance in Social Interaction is explained by the predictor variable, namely Digital Communication Competence. According to (Hair et al., 2021), R^2 values of 0.25, 0.50, and 0.75 are generally classified as weak, moderate, and substantial explanatory power, respectively. Therefore, the obtained R^2 value suggests that the model demonstrates a moderate level of explanatory power.

Furthermore, the Q^2 value of 0.164 provides additional support for the model's predictive relevance. As noted by (Hair et al., 2021), a Q^2 value greater than zero indicates that the model has predictive relevance for the targeted endogenous construct. Thus, these findings confirm that the proposed model is not only statistically valid but also possesses adequate predictive capability.

6. T-Statistics Test

Table 7. Results of T-Statistics Test

	Path Coefficient	Mean	STDEV	T-Statistics	P-Values
H1. Digital Communication Competence → Social Interaction	0.599	0.607	0.048	12.476	0.000

The T-statistic value of 12.476 far exceeds the common threshold of 1.96 for a two-tailed test at the 5% significance level. This result indicates that the effect of Digital Communication Competence on Social Interaction is statistically significant. Moreover, the p-value of 0.000, which is well below the conventional significance level of 0.05, further reinforces the validity of this finding.

The high T-statistic also suggests that the observed effect consistently appears across the sample and is not merely due to random chance. This is further supported by the low standard deviation of 0.048,

indicating minimal variation in the effect during the bootstrapping process. These findings confirm that the identified effect is stable and empirically reliable.

DISCUSSION

In response to the question of whether digital communication through campus platforms could replace or complement face-to-face social interactions, most respondents stated that such a transition was not yet fully feasible.

However, it should be noted that this study has limitations in its analytical scope. The focus of the study only covered digital communication competencies among students, without assessing the digital abilities or competencies of faculty. Therefore, the findings and interpretations more closely represent students' perspectives on the effectiveness of LMS interactions and functionality. One student stated,

"In my opinion, it's not possible at the moment because there are no features that support social interaction."
Student 2 added,

"The design needs improvement and should be made more interactive so that students are more inclined to access it and feel that the platform is genuinely beneficial."

These statements suggest that the lack of engaging design and interactive features constitutes a major barrier to students' utilization of digital platforms as a medium for social communication. Furthermore, Student 3 noted,

"The SPADA platform is mostly used for examinations and is not effective or collaborative."

Of particular concern, based on the results of the descriptive statistical test, is that indicator Y3 (Group Behavior) showed the lowest average score (3.748) compared to other social interaction indicators. This indicates that student participation and collaboration in group activities are still limited. This finding suggests that some students prefer face-to-face group work due to constraints such as delayed responses, lack of social cues, and low emotional engagement in digital environments, which can make them uncomfortable and reduce learning motivation.

From the perspective of Computer-Mediated Communication (CMC) theory, this lower level of group interaction can be attributed to the limited availability of nonverbal cues and the immediacy of online platforms, which reduces interaction (Paneth et al., 2024). Without synchronous and multimodal communication tools, group dynamics become less cohesive, which explains the relatively low group behavior scores observed in this study.

Furthermore, the current functional scope of the LMS digital platform does not effectively encourage collaboration or social engagement between students and lecturers. Supporting this view, a lecturer from UNSERA emphasized the need for

improved functionality, suggesting: *"UNSERA's LMS should incorporate chat features similar to those on Edmodo. When students submit assignments, lecturers should be able to provide immediate feedback and grades. Currently, this functionality is lacking. Such features would enhance student–lecturer interaction and make digital learning more effective."*

These findings offer valuable insights for higher education institutions, not only in designing strategies to strengthen digital communication competence but also in developing LMS that function not merely as content delivery tools but as effective platforms for social interaction. In the context of Computer Mediated Communication (CMC), LMS platforms should be designed to facilitate meaningful two-way communication and multimodal by incorporating features that enable students and lecturers to exchange messages effectively, understand communication contexts, and foster constructive interactions (Mohammadi Zenouzagh et al., 2023).

This includes the integration of discussion forums, interactive chat, and live feedback features to enable negotiation of meaning and emotional engagement similar to face-to-face communication. Consistent with this, recent findings reveal that academics are leveraging LMSs and third-party tools such as discussion forums, group features, Collaborate Ultra, Microsoft Teams, and WhatsApp to enhance interactivity in online learning environments and to support the development of authentic assessments within LMSs in the era of artificial intelligence (Simelane-Mnisi, 2023).

Beyond technical proficiency, digital communication competence, realized through optimal LMS utilization, becomes a crucial factor in preventing miscommunication, building trust between students and lecturers, and creating a healthy, collaborative dialogue space. Therefore, the success of digital learning is highly dependent on the synergy between communicative LMS design and individuals' ability to build quality communication in the digital era.

The implications of these findings highlight the need to improve the quality of digital communication and interaction within higher education, not only from an infrastructural standpoint but also through pedagogical approaches. Institutions must implement training programs and policies that empower both students and faculty to establish effective two-way communication in digital environments and create interactive online learning experiences.

Additionally, attention must be paid to how messages are conveyed in digital communication, including the use of language, social context, and communication ethics. Ignoring these aspects can result in misinterpretation, loss of meaning, or even conflict, all of which negatively impact interaction effectiveness

and the quality of user relationships. Hence, the success of digital education relies not only on technological tools but also on the ability to convey messages clearly, accurately, and in alignment with social values that support healthy communication.

The recommendations put forth by this study align with the findings of (Ouariach et al., 2024), who emphasize the importance of developing Learning Management Systems that integrate various digital communication features such as discussion forums, video conferencing, and interactive chats. These enhancements are aimed at improving the quality of social interaction among users. LMS platforms should serve not only as channels for content and assessments but also as collaborative spaces that foster idea exchange, strengthen social relationships, and cultivate a culture of digital literacy. In this way, the role of LMS in supporting digital communication competence becomes more robust and aligned with contemporary educational needs.

CONCLUSION

The quantitative analysis reveals a significant and positive relationship between digital communication competence and social interaction (path coefficient = 0.599). The coefficient of determination (R^2 = 0.358) indicates that digital communication competence explains 35.8% of the variability in social interaction. Additionally, the f^2 value of 0.558 suggests a large effect size. These results confirm that students with higher levels of digital communication competence tend to engage more effectively in digital learning environments.

Meanwhile, qualitative interview findings support the statistical results by highlighting key limitations in the current implementation of Learning Management Systems (LMS). Students reported that LMS platforms are often used primarily for administrative functions such as attendance tracking, grading, and examinations, with limited features that support meaningful interaction or real-time collaboration. They emphasized the need for more interactive and well-designed platforms that foster meaningful communication. In addition, lecturers pointed out the absence of immediate feedback features and recommended the integration of functionalities such as chat or comment sections to enhance interaction and communication between instructors and students.

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