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ANALYSIS OF PRIMARY SCHOOL TEACHERS' PERCEPTIONS OF EVERYDAY DIGITAL LITERACY ON STUDENTS' SOCIAL INTERACTION PATTERNS

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Abstract

This study aims to analyse primary school teachers' perceptions of everyday digital literacy and its influence on students' social interaction patterns, extending previous research that predominantly focused on digital literacy among teachers or students as separate populations in primary education settings. The study employed a quantitative approach involving 177 primary school teachers and 160 public primary school students in Banten Province, selected using simple random sampling. Data were collected through questionnaire-based surveys and analysed using SPSS and SmartPLS. The findings indicate that there are no significant differences in everyday digital literacy levels between male and female teachers. Teachers' digital literacy, particularly in information and communication competencies, shows a significant influence on students' social interaction patterns, mainly in shaping the interaction environment, emotional atmosphere, and leadership dynamics in the classroom. Overall, the results confirm that teachers' everyday digital literacy plays a crucial role in supporting positive social interaction among primary school students, although its influence on empathetic aspects of interaction remains relatively limited.

Keywords Digital Literacy, Primary School Teachers, Social Interaction.

INTRODUCTION

The global development of digital technology has changed the dynamics of education, where children now grow up in a digitally connected environment and interact through increasingly diverse platforms (Mhlongo et al., 2023). At the international level, digital literacy skills are not only related to technical skills, but also social skills, such as understanding digital ethics, managing online identities, and interacting healthily in digital spaces that are full of complex dynamics (Cowling et al., 2025). As part of these changes in the global digital ecosystem, the demand for improved digital literacy in educational environments has become increasingly strong, as it is no longer sufficient to simply be able to operate technological devices (Alenezi et al., 2023).

Digital literacy, especially among teachers, has become an important foundation in the development of modern education (Nguyen & Habók, 2024), given that the changing characteristics of students who are increasingly familiar with technology require teachers to be able to design learning activities that are relevant, safe, and sensitive to developments in the digital world (Jansen & van der Merwe, 2015; Khademi-Vidra & Bakos, 2025). Mastery of digital literacy is also related to teachers' ability to evaluate information (Fernández-Otoya et al., 2024), understand the working mechanisms of digital platforms (Hasanah et al., 2022), and effectively managing technology-based learning activities (Karanjakwut & Sripicharn, 2024), all of which are core competencies in 21st-century education. There is a strong theoretical need to understand how teachers' digital literacy develops and how they position themselves in the face of a changing educational paradigm that is increasingly oriented towards global connectivity.

Transformation is in line with Siemens' (2004) theory of Connectivism, which explains that learning processes and social interactions in the digital age are largely determined by individuals' ability to build connections within networks of information, devices, and interconnected social actors Teachers' and students' digital literacy is an important determinant in shaping modern social interaction patterns, as digital connectivity can expand social relations (Xalxo et al., 2025). However, it also creates risks such as cyberbullying, isolation, and misinformation if not managed properly (Perdigão et al., 2025). In Indonesia, the urgency of digital literacy has become increasingly apparent since the implementation of technology-based learning in response to the era of disruption and the pandemic (Ssenyonga, 2021). Teachers' digital literacy readiness varies, especially in terms of digital security, information literacy, and the ability to guide students' online social interactions.

The unpreparedness of some teachers in using digital platforms also has an impact on the suboptimal supervision of students' digital interactions, so that patterns of communication between students have the potential to change without adequate ethical control, including an increase in imitative behaviour, digital dependence, and more individualistic interactions (Trotta et al., 2024). At the primary school level, a critical phase in the development of teachers' digital literacy, teachers play a strategic role in shaping students' social interaction patterns (Karnita et al., 2025). Teachers become the main mediators between the use of digital devices and the growth of collaboration, communication, and empathy skills in a technology-integrated learning environment.

Banten Province is still one of the provinces with challenges in digital literacy in schools, especially in areas with limited technological infrastructure and uneven internet access (Rifdillah, 2025). This condition shows that some school teachers are not yet fully prepared in terms of digital literacy in their daily activities, especially in understanding and directing students' use of technology outside the context of formal learning (Peng & Yu, 2022). Even though someone is very active in using digital media, the functions of such use tend not to be fully understood (Kross et al., 2021). This condition clarifies that teachers' digital literacy is not only related to understanding students' digital activities, but also to teachers' ability to respond to changes in students' social interaction patterns, which are increasingly influenced by digital culture (Luo et al., 2025).

Changes in interaction patterns during and after the pandemic show a decline in direct social interaction and an increase in the intensity of online interaction among primary school students and early childhood children (Fan et al., 2021; Ford et al., 2021). There are still teachers who do not have sufficient digital literacy to recognise the risks of social interaction among early childhood, such as the imitation of negative behaviour (Falloon, 2020), increased digital individualism (Lamond et al., 2025), and weak control in the use of digital media (Gómez-Puerta et al., 2024). Therefore, teachers' digital literacy in everyday life is an important aspect to ensure that students' use of technology is healthy, focused, and continues to support their social development amid the increasingly strong wave of digitalisation. International research recommends the need for a more in-depth study of how teachers' perceptions and digital readiness, especially at the primary education level, can influence students' social development in the digital learning ecosystem, as this issue remains a theoretical gap in global educational digital literacy (Tsai et al., 2021).

Developing countries need to conduct context-based regional studies to understand digital literacy disparities between regions and their impact on students' social development, making this research academically and practically relevant. Specific studies on primary school teachers' perceptions of digital literacy in their daily activities and how these perceptions relate to students' social interaction patterns are still very limited, so in-depth research is needed to fill this knowledge gap, especially in understanding how teachers' digital literacy capacity can influence how students build relationships, communicate, and socialise in an ever-evolving digital era (Firmansyah, 2022). This research has academic and practical urgency to provide an empirical description of the role of teachers' digital literacy in shaping students' social interaction patterns, as well as to serve as a basis for strengthening the digital literacy competencies of educators in Banten Province.

METHOD

The research method is based on a quantitative approach because it uses numerical values from observations to explain and describe phenomena that can be observed in real life (Taherdoost, 2022). Building on these studies, the present research focuses on public primary school teachers to ensure comparability and continuity with prior empirical findings. This approach was chosen because it can provide a measurable picture of primary school teachers' perceptions of everyday digital literacy on students' social interaction patterns (Creswell & Clark, 2017). Data processing was carried out using SPSS and SmartPLS. The use of these analytical tools was intended to support both descriptive-inferential analysis and structural model testing in accordance with the research objectives.

The population in this study was all public primary school teachers in Banten Province. Based on official data from the Banten Province Education Office, the number of public primary school teachers in the region is spread across four districts/cities, namely Serang District, Pandeglang District, Lebak District, and Tangerang District. This population was chosen because public schools should have a more uniform organisational structure, curriculum implementation, and access to digital facilities, making them relevant for measuring digital literacy in a representative manner (Sukmayadi & Yahya, 2020). A simple random sampling technique was applied to ensure that each teacher had an equal probability of being selected as a respondent. The list of public schools was obtained directly from the Education Office and supplemented with data (https://daftarsekolah.net/), then each school was given an identification number. The selection of

schools was done randomly using the Random.org application (https://www.random.org/integers/). Teachers and students at these schools were also given identification numbers and selected randomly using the same method. Through this process, a research sample consisting of 177 teachers and 160 students spread across four administrative regions in Banten Province was obtained. This sampling strategy strengthens the representativeness of the data and supports the generalizability of the findings.

The research instrument used for the dependent variable adopted the Everyday Digital Literacy Questionnaire (EDLQ) developed (Choi et al., 2023). This instrument was designed to measure the level of digital literacy in the context of daily activities through three main indicators, namely information and communication, content creation and management, and safety and security. These three indicators reflect an individual's ability to search for, evaluate, manage, and communicate using digital information, the ability to produce and manage digital content, and awareness of the safety and security aspects of technology use. This instrument is considered valid and reliable, with a total of 22 items to measure digital literacy in various contexts. Therefore, this instrument is used as the basis for compiling indicators and items in the following table to comprehensively describe the respondents' digital literacy abilities.

Table 1. Everyday Digital Literacy Questionnaire

No	Indicators	Items
1.	Information and Communication	Find the information I need on the Internet.
		Judge whether the information from the Internet is reliable or not.
		Transfer documents, photos, or video files from one device to another.
		Save Internet documents, photos, or video files you find.
		Exchange messages, photos, and video files through a social networking service.
		Exchange documents, photos, or video files via email.
		Participate in video calls or conferences using digital devices.
		Express my opinion of “like/dislike” on others’ posts.
		Comment on others’ posts.
2.	Contents Creation and Management	Create a document using digital devices.
		Convert document formats using digital devices.
		Edit and post documents, photos, or videos created by someone else.
		Independently troubleshoot issues related to device or app operation.
3.	Safety and Security	Be aware of behaviors that infringe copyright.
		Protect the copyright of the work from others.
		Set device passwords for logging in or out.
		Delete files stored on the device.

	Delete my history of Internet searches. Block spam or phishing attempts on the Internet. Be aware of the physical side effects that can result from excessive device use. Be aware of the mental side effects that can result from excessive device use. Know how to ask for help when encountering issues during device or app installation or operation.

Table 2. Scale and Criteria

Scale	Criteria
1.	Strongly disagree
2.	Disagree
3.	Neutral
4.	Agree
5.	Strongly agree

The research instrument used for the independent variable adopted the Social Interaction Questionnaire (SIQ) developed (Dewi et al., 2023). This instrument was developed because there was no specific social interaction measurement tool available for primary school students in Indonesia. Therefore, its development was based on social interaction theories and the characteristics of interactions that arise. The SIQ consists of six main indicators, each accompanied by statements that represent the forms of social interaction that occur among primary school students. The six indicators include: creating an interaction environment, creating an emotional atmosphere, existence of a specific purpose, existence of a leader, creating a cooperative environment, and empathy. This instrument has undergone instrument validity and reliability testing with a total of 23 items. This instrument is used to accurately measure the level of social interaction among students and forms the basis for the compilation of indicators and items shown in the following Table 3.

Table 3. Social Interaction Instrument

Indicators	Items
Creating an Interaction Environment	I often participate in group activities I love to communicate with friends at school I often chat with friends outside my class
Creating an Emotional Atmosphere	I have positive feelings about the group of friends I enjoy doing tasks by discussing them with friends I can accept opinions and criticisms from others I respect every other person's choice/decision
Existence of a Specific Purpose	I joined a group because of the same goal I understand that everyone has different thoughts Have a certain purpose in obtaining value I want to be a leader in the team

Existence of a Leader	Recognizing leadership within peer groups
	Want to follow the rules in the peer group
	I do not want to be ruled by anyone
	I want to be a leader in my environment
Creating a Cooperative Environment	I only think of myself when I am with friends
	I am happy if the teacher scolds a friend I do not like
	When a friend has difficulty learning, I help him to understand
Empathy	I can feel what friends, as well as others, feel/think/experience
	I give input to a friend for his good
	I accept the shortcomings and advantages of friends
	When a friend does not have pocket money, I try to share it with him
	When friends have difficulties, I try to give a solution

Table 4. Scale and Criteria

Scale	Criteria
1.	Strongly disagree
2.	Disagree
3.	Neutral
4.	Agree
5.	Strongly agree

Data analysis was conducted in two stages. First, descriptive and inferential statistical analyses were performed using SPSS to examine differences in teachers' digital literacy indicators based on gender. Second, Partial Least Squares–Structural Equation Modeling (PLS-SEM) using SmartPLS was employed to test the causal relationships between teachers' digital literacy indicators and students' social interaction variables. The structural model was evaluated using path coefficients, t-statistics, p-values, and R-square values, with significance determined at $p < 0.05$ through a bootstrapping procedure with 5,000 subsamples.

FINDINGS AND DISCUSSION

Findings

SPSS analysis shows that there are no significant differences in all digital literacy indicators between male and female teachers in Table 5. Although there are small variations in the mean values of each group, these differences do not reach statistical significance ($p > 0.05$). In the Information and Communication indicator, female teachers had a slightly higher average score ($M = 4.06$; $SD = 0.79$) than male teachers ($M = 3.97$; $SD = 0.76$). However, this difference was not significant ($p = 0.144$). On the Contents Creation and Management indicator, male teachers showed a slightly higher average

score (M = 3.81; SD = 0.77) than female teachers (M = 3.68; SD = 0.85). However, this difference was not statistically significant (p = 0.061). On the Safety and Security indicator, female teachers obtained a slightly higher average score (M = 3.88; SD = 1.01) than male teachers (M = 3.82; SD = 0.78). However, this difference was also not significant (p = 0.118). Overall, these results indicate that the digital literacy competencies of male and female teachers are at a relatively comparable level across all indicators, with no significant differences based on gender.

Table 5. Differences in the Indicators of Digital Literacy Based on the Gender of Teachers

Indicators	M (SD)	Male	Female	*P-value*
Information and Communication	4.02 (0.78)	3.97 (0.76)	4.06 (0.79)	0.144
Contents Creation and Management	3.75 (0.81)	3.81 (0.77)	3.68 (0.85	0.061
Safety and Security	3.85 (0.90)	3.82 (0.78)	3.88 (1.01)	0.118

Source: *Primary data processed by authors using SPSS; differences were tested using an independent samples t-test*

This study also identified patterns of social media use by primary school teachers as part of their daily digital literacy activities. Of all respondents, 63.2% of teachers used TikTok, making it the most widely used platform. A total of 47.5% of teachers used Instagram, while 41.8% used Facebook.

Table 6. Social Media Usage of Primary School Teachers

Platform	Number of Users (n)	Percentage (%)
TikTok	112	63.2
Instagram	84	47.5
Facebook	74	41.8

Source: *Primary data processed by authors using Microsoft Excel; respondents may use more than one social media platform.*

Structural model assessment was conducted to test the causal relationship between teachers' digital literacy indicators: Content Creation and Management, Information and Communication, and Safety and Security, with six indicators of student social interaction, namely Creating Interaction Environment, Creating Emotional Atmosphere, Existence of Leader, Existence of Specific Purpose, Creating Cooperative Environment, and Empathy. The testing was conducted using the bootstrapping method with 5,000 subsamples in SmartPLS software. The evaluation parameters included the path coefficient (O) value, which indicates the direction and strength of the influence, the t-statistic to assess the stability of the estimation, and the p-value as the basis for determining significance. The influence between variables was declared significant if the p-value was < 0.05.

Table 7. Effect Test (Path Coefficient)

Indicators Of Variables	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
IC -> CIE	0.272	0.271	0.071	3.817	0.000
IC -> CEA	0.713	0.701	0.075	9.458	0.000
IC -> ESP	0.847	0.838	0.071	11.852	0.000
IC -> EL	0.332	0.338	0.061	5.474	0.000
IC -> CCE	0.025	0.017	0.094	0.263	0.793
IC -> E	0.348	0.056	0.357	0.976	0.329
CCM -> CIE	0.413	0.411	0.082	5.035	0.000
CCM -> CEA	0.183	0.182	0.074	2.466	0.014
CCM -> ESP	0.027	0.023	0.065	0.417	0.677
CCM -> EL	0.123	0.129	0.062	1.964	0.050
CCM -> CCE	0.435	0.428	0.080	5.454	0.000
CCM -> E	0.199	0.021	0.227	0.878	0.380
SS -> CIE	0.339	0.339	0.092	3.675	0.000
SS -> CEA	-0.267	-0.242	0.093	2.878	0.004
SS -> ESP	-0.312	-0.293	0.107	2.931	0.003
SS -> EL	0.580	0.561	0.088	6.613	0.000
SS -> CCE	0.196	0.208	0.117	1.677	0.094
SS -> E	-0.371	-0.043	0.385	0.964	0.335

Note: *Dependent Variables: Content Creation and Management (CCM), Information and Communication (IC), Safety and Security (SS). Independent Variables: Creation of an Interactive Environment (CIE), Creation of an Emotional Atmosphere (CEA), Presence of a Leader (EL), Presence of a Specific Purpose (ESP), Creation of a Cooperative Environment (CCE), and Empathy (E).*

Results of the analysis using SmartPLS showed that the Information and Communication indicator had a strong and significant influence on most of the student social interaction indicators. IC was found to have a significant effect on Creating Interaction Environment with a coefficient of 0.272, t-statistic of 3.817, p-value of 0.000, and on Creating Emotional Atmosphere with a coefficient of 0.713, t-statistic of 9.458, p-value of 0.000. Other significant effects were seen on the Existence of Specific Purpose with a coefficient of 0.847, t-statistic 11.852, p-value 0.000, and on the Existence of Leader with a coefficient of 0.332, t-statistic 5.474, p-value 0.000, indicating that teachers' ability to utilise digital information influences students' goal orientation and leadership. However, IC on Creating Cooperative Environment (0.025; p = 0.793) and on Empathy (0.348; p = 0.329) had no effect.

The Content Creation and Management indicator also shows several significant effects on aspects of student social interaction. CCM has a significant effect on CIE with a coefficient of 0.413, t-statistic 5.035, p-value 0.000, and on CEA (0.183; t = 2.466; p = 0.014). CCM also has a significant effect on CCE with a coefficient of 0.435, t-statistic 5.454, p-value 0.000, while its effect on EL is at the significance threshold (0.123; p = 0.050). However, CCM had no effect on ESP (0.027; p = 0.677) and

E (0.199; p = 0.380). The safety and Security indicator produced a more diverse pattern of effects. SS had a significant effect on CIE (0.339; t = 3.675; p = 0.000) and EL (0.580; t = 6.613; p = 0.000). However, SS showed a negative but significant effect on CEA (–0.267; p = 0.004) and ESP (–0.312; p = 0.003). Meanwhile, SS had no effect on CCE (0.196; p = 0.094) and E (–0.371; p = 0.335).

Table 8. R-Square Student Social Interaction

	R-square	R-square adjusted
Creating an Interaction Environment	0.562	0.555
Creating an Emotional Atmosphere	0.396	0.385
Existence of a Specific Purpose	0.508	0.500
Existence of a Leader	0.731	0.727
Creating a Cooperative Environment	0.278	0.266
Empathy	0.127	0.112

Source: *Primary data processed by authors; R-square values were obtained from PLS-SEM analysis using SmartPLS.*

Results show that the indicators of student social interaction are in the moderate to strong category based on the R-square value. The existence of a leader variable has the highest R-square value (0.731), which means that 73.1% of the variation in student leadership skills is explained by the three indicators of teacher digital literacy, so the model has excellent predictive power in terms of leadership. The indicators creating an interaction environment (0.562) and the existence of a specific purpose (0.508) also showed strong R-square values, indicating that more than half of the variation in both interaction aspects was influenced by teachers' digital capabilities. Meanwhile, creating an emotional atmosphere (0.396) and creating a cooperative environment (0.278) are in the moderate category. The lowest value was shown by Empathy (0.127), which means that only 12.7% of the variation in student empathy can be explained by teachers' digital literacy, so the influence of digital literacy on empathy is relatively weak.

Discussion

The findings of this study indicate that there are no significant differences in digital literacy indicators between male and female teachers. This result supports the Gender Similarities Hypothesis, which suggests that men and women tend to be more similar than different in cognitive, behavioral, and technological abilities when they have equal access and experience (Hyde, 2005). In the educational context, teachers' digital literacy is more strongly influenced by factors such as the work environment (Nguyen & Habók, 2024), professional experience (Mardiana, 2024), and

pedagogical needs (Kasperski et al., 2022) than by gender factors. This suggests that the relatively uniform access to digital technology and similar instructional demands in public primary schools contribute to comparable levels of digital literacy among teachers regardless of gender.

The high use of TikTok among primary school teachers indicates a shift toward dynamic and visual digital platforms. TikTok's short-form video content, ease of use, and algorithm-based recommendations allow teachers to quickly access teaching ideas, learning inspiration, and current educational trends (Denojean-Mairet et al., 2024). In addition, teachers' engagement with TikTok helps them better understand students' digital behavior, as video-based platforms are highly familiar to young learners (Khomyshak, 2024). This finding aligns with previous studies showing that visual and interactive platforms support creativity, professional networking, and rapid access to educational information (Yang et al., 2025; Huot & Such, 2025). Therefore, TikTok can be considered part of teachers' everyday digital literacy development and a supporting tool for understanding students' social interaction patterns in the digital age (Hidayat et al., 2023).

The results further reveal that the information and communication indicator has the strongest influence on several aspects of student social interaction, including creating an interaction environment, emotional atmosphere, leadership, and goal orientation. This finding is consistent with Vygotsky's social constructivist theory, which emphasizes social interaction and communication as key mediators of learning (Amineh & Asl, 2015; Brown et al., 2013). Teachers' digital communication skills enable clearer, more engaging, and context-rich information exchange, thereby expanding students' zone of proximal development (Li, 2025; Rigopouli et al., 2025; Zhang, 2025). Effective digital communication also strengthens scaffolding processes, supporting the development of leadership and social roles among students (Ajani, 2024; Amemasor et al., 2025).

The ability to manage digital information allows teachers to present material in a more varied, interactive, and contextual manner, thereby stimulating student engagement in social interactions (Wang et al., 2022). Literature shows that technology-based communication skills improve the effectiveness of teacher-student relationships and strengthen the emotional atmosphere of the classroom (Kasperski et al., 2025). This supports the finding that information and communication make a significant contribution to creating an emotional atmosphere and the existence of a leader. Social interaction patterns that form part of a person's character, especially in early childhood (Marini et al., 2021). A communicative classroom environment allows students to develop confidence, the ability to take on roles, and goal orientation in interacting.

However, information and communication did not significantly influence cooperative behavior or empathy. These aspects are more strongly shaped by direct, face-to-face interactions and shared social experiences rather than digital communication alone (Ding, 2021; Erbil, 2020). Collaboration and empathy require deeper interpersonal engagement, which is difficult to fully replace through digital media (Clemente-Suárez et al., 2024; Zakiah & Marini, 2023). Physical (face-to-face) social interaction provides opportunities for students to build deeper emotional connections, engage in real cooperation, and develop empathy through daily social experiences, which are difficult to fully replicate through digital media alone.

The content creation and management indicator also showed a significant influence on interaction environment, emotional atmosphere, and cooperative behavior. This finding can be explained through cognitive load theory, which highlights the importance of clear and well-structured information in facilitating understanding and engagement (Schneider et al., 2022; Sweller & Chandler, 1991). When teachers design digital content that is clear and engaging, students can focus more on collaborative and interactive learning activities (Lachand-Pascal et al., 2023; Strauß & Rummel, 2020). Previous studies confirm that interactive digital content enhances motivation, cooperation, and emotional engagement in the classroom (Staneviciene & Žekienė, 2025; Vistorte et al., 2024). Thus, teachers' ability to manage and present digital content plays an important role in shaping a learning environment that supports social interaction, collaboration, and student emotional engagement.

Content creation and management did not have a significant effect on the existence of a specific purpose or empathy. These findings can be explained through Vygotsky's theory of social interaction and scaffolding, in which the purpose of interaction and the development of empathy are more influenced by direct interpersonal experiences (Grusec & Davidov, 2010; Zaki, 2020). Teachers' creativity in creating digital content every day does not directly lead students to deeper social interaction goals. Deep interaction goals and empathic abilities require cognitive and affective processes that develop through direct social experiences (Bertrand et al., 2018) and interpersonal relationships (Mar'in-López et al., 2019), not just through the quality of digital content alone. Thus, cognitive load theory provides a strong theoretical basis that digital content can facilitate interaction, but does not automatically shape students' social goals or empathy.

An interesting finding occurred in the safety and security indicator, which showed a significant but different effect. Safety and security had a positive effect on creating an interaction

environment and the existence of a leader, but showed a negative effect on creating an emotional atmosphere and the existence of a specific purpose. These findings can be explained through self-determination theory (SDT) by Deci and Ryan. SDT emphasizes that motivation and interaction quality are influenced by the fulfillment of three basic psychological needs, namely autonomy, competence, and relatedness (Grenier et al., 2024; Standage & Ryan, 2020). The overly strict application of safety and security can limit the autonomy of others, making the emotional atmosphere less comfortable and the purpose of interaction difficult to achieve (Martela et al., 2021), in line with the negative influence on emotional atmosphere and specific purpose. Conversely, understanding and education about digital security increase competence in using technology safely, thereby boosting confidence in interacting and taking on leadership roles (Latorre-Medina & Tnibar-Harrus, 2023), which supports the positive influence of safety and security on the interaction environment and the leader.

Overemphasizing digital security can create a more rigid, regulated environment and reduce the spontaneity of student interactions (Kelly, 2014). If teachers overemphasize device usage rules, students become less comfortable expressing themselves, making the emotional atmosphere less conducive. However, understanding digital security remains important for shaping student leadership in a technological environment. Studies show that students who are given digital security education tend to be more capable of taking on roles in guiding their peers regarding the ethics of technology use. This supports the positive findings of safety and security on the existence of a leader indicator.

The highest R-square value was found in the existence of the leader indicator, showing that teachers' digital literacy has a very strong predictive power over students' leadership abilities. These results are in line with the theory of digital pedagogy, which states that teachers' ability to use technology can shape students' social behavior, including leadership, decision-making, and academic independence (Oguntoye, 2024). Conversely, the empathy indicator had the lowest R-square value, indicating that digital literacy is not a major factor in shaping student empathy. Empathy is more influenced by direct emotional interactions, face-to-face relationships, and everyday social experiences that are not technology-based (Carrier et al., 2015).

CONCLUSION

This study shows that teachers' daily digital literacy plays an important role in shaping students' social interaction patterns in elementary schools. The information and communication indicator has the strongest influence on creating an interaction environment, creating an emotional atmosphere, the existence of a leader, and the existence of a specific purpose. Content creation and management also strengthen the creating of an emotional atmosphere, although it does not directly shape social goals or empathy. Meanwhile, safety and security have a positive effect on creating an interaction environment, but can reduce emotional comfort if applied too strictly. Overall, teachers' digital literacy skills contribute significantly to students' social interaction patterns, but aspects of empathy and cooperation still depend more on direct social experiences in the classroom. Further research is recommended to develop a model that includes mediator variables such as digital pedagogical strategies, student engagement, or social-emotional competencies, in order to gain a more comprehensive understanding of the relationship between teachers' digital literacy and students' social interactions. Researchers can also broaden the context by involving samples from various regions or education levels to improve the generalization of findings. In addition, the use of mixed methods or classroom observation can provide a more in-depth picture of how teachers' digital practices affect the dynamics of social interaction in real life. Finally, it is necessary to examine how digital literacy training interventions for teachers can improve aspects of social interaction that are still weak, such as empathy and cooperation among students.

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