

Transformation of Student Interpersonal Communication Through Digital Media in Higher Education

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Abstract

This research aims to explore the challenges and strategies for successful student interpersonal communication in the digital era, particularly focusing on digital platform usage for academic and social purposes. Information technology development has fundamentally transformed student interaction patterns, where text-based communication and social media have replaced many face-to-face interactions. Using a quantitative survey method with 200 active students, this study found that social media usage intensity positively correlates with digital misunderstanding levels. In contrast, face-to-face communication significantly contributes to interpersonal relationship satisfaction. Thematic analysis of qualitative data revealed student strategies including message clarification, emoji utilization, and switching to video platforms to overcome digital communication barriers. Furthermore, excessive social media use can trigger social anxiety and isolation feelings. These findings indicate that while digital platforms enhance efficiency and collaboration, they also risk communication quality and mental well-being, necessitating balanced approaches and improved digital communication literacy among students in higher education.

Keywords: interpersonal communication, digital platforms, social media, social life

Abstrak

Penelitian ini bertujuan untuk mengeksplorasi tantangan dan strategi keberhasilan komunikasi interpersonal mahasiswa di era digital, khususnya dalam konteks penggunaan platform digital untuk keperluan akademik dan sosial. Perkembangan teknologi informasi telah mengubah cara interaksi mahasiswa secara fundamental, di mana komunikasi berbasis teks dan media sosial menggantikan banyak bentuk interaksi tatap muka. Menggunakan metode survei kuantitatif terhadap 200 mahasiswa aktif, penelitian ini menemukan bahwa intensitas penggunaan media sosial berkorelasi positif dengan tingkat kesalahpahaman digital. Sebaliknya, komunikasi tatap muka berkontribusi signifikan terhadap kepuasan hubungan interpersonal. Analisis tematik data kualitatif menunjukkan bahwa mahasiswa menggunakan strategi seperti klarifikasi pesan, penggunaan emoji, dan beralih ke platform video untuk mengatasi hambatan komunikasi digital. Selain itu, penggunaan media sosial yang berlebihan dapat memicu kecemasan sosial dan perasaan terisolasi. Temuan ini mengindikasikan bahwa meskipun platform digital meningkatkan efisiensi dan kolaborasi, mereka juga berisiko terhadap kualitas komunikasi dan kesejahteraan mental, sehingga diperlukan pendekatan seimbang dan peningkatan literasi komunikasi digital di kalangan mahasiswa pendidikan tinggi.

Kata kunci: komunikasi interpersonal, platform digital, media sosial, kehidupan sosial

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INTRODUCTION

Interpersonal communication skills constitute one of the most critical competencies for individuals, particularly college students, in navigating both academic and social landscapes. These skills involve the dynamic process of exchanging verbal and nonverbal messages between two or more interdependent individuals, forming the bedrock of all human relationships from transient encounters to profound, lasting connections (Devito, 2016). In today's digital era, the characteristics of these interactions are undergoing significant transformation, demanding an updated understanding of communication dynamics (Chen & Wang, 2022; Garcia & Lee, 2022). The significance of these skills extends to professional readiness, as effective teamwork, collaboration, and cultural adaptation are paramount in the globalized labor market (Pratama & Sari, 2020; Afandi & Wijayanti, 2024).

Effective interpersonal communication skills are essential for negotiating the intricacies of personal and professional life, especially for students preparing for the challenges of the modern world. The demand for these skills in the professional world remains high. Recent surveys, such as those by the National Association of Colleges and Employers (NACE, 2023), consistently rank communication skills among the top attributes employers seek. This underscores the long-standing recognition that effective interpersonal communication is essential for career success (Morreale & Pearson, 2008; Yu et al., 2021; Kaufman & Richardson, 2022). In order to prepare students for the demands of the workplace and to create a rewarding social network, they must develop their interpersonal communication skills.

While effective interpersonal communication is essential for professional and personal success, the advent of digital technology presents opportunities and obstacles to its development. Once simple communication is now often mediated by device screens and algorithms. This shift has led to more impersonal interactions. Turkle (2017) emphasizes that digital technology is changing the way we communicate and engage with each other. We lose the deep and emotional aspects of communication as we move away from face-to-face interactions and toward more online contacts. Various issues are also raised by the digitalization of communication, including the potential for misunderstandings, decreased emotional intimacy in interpersonal relationships, and its effects on mental health. However, digital technologies provide advantages, such as accelerating the dissemination of knowledge, encouraging more learning collaboration, and enabling more flexible student interactions free of time and location constraints (Yu et al., 2021; Anderson & Jiang, 2023). Digital communication is convenient, but it's crucial to consider how it affects social interaction, especially for college students who are at a critical point in their academic and social development (Burgoon et al, 2020). Thus, a thorough investigation is needed into how the digital age affects students' interpersonal communication.

However, previous research has highlighted more of the impact of digital communication on students' mental health, such as increased social anxiety, feelings of isolation, and reduced emotional intimacy (Suler, 2022; Bouffard et al., 2022). The research gap arises because there are still limited studies that specifically discuss how digital communication affects the effectiveness of academic collaboration in higher education, even though collaboration is at the core of the learning process.



Furthermore, the novelty of this study lies in its integrated examination of both the challenges and adaptive strategies students employ in digital communication, within the specific context of Indonesian higher education. In the Indonesian context, especially at IKIP Siliwangi, this phenomenon is important to study considering that students are required not only to be proficient in using technology, but also to be able to maintain the quality of interpersonal communication that supports group work, academic discussions, and the development of social networks (Fitriani & Budiarto, 2021).

Based on these considerations, this study aims to fill the gap by exploring the transformation of student interpersonal communication in the digital era, focusing on the challenges faced, the strategies students use to maintain effective communication, and the implications for mental health and academic collaboration. Thus, the research objectives are not only theoretically relevant but also have practical urgency in supporting the development of students' communication skills in college.

METHODS

This study uses a cross-sectional survey design with a quantitative approach to test the relationship between the use of digital platforms and interpersonal communication of IKIP Siliwangi students. The cross-sectional design was chosen because it allows data to be collected at a single point in time efficiently, making it suitable for research objectives focused on capturing the current state of student communication patterns (Sedgwick, 2014; Wang & Cheng, 2020). Furthermore, this design is deemed appropriate as it enables the recruitment of a large number of respondents within a relatively short period, thus enhancing the generalizability of findings (Setia, 2016). While longitudinal research can effectively track communication changes over time, it demands substantially greater resources and is susceptible to attrition (loss of participants during the study), which can introduce bias (Caruana et al., 2015; Smith, 2021). Therefore, considering the scope and constraints of this study, the cross-sectional design was identified as the most feasible and appropriate approach (Kelley et al., 2003; Wang & Cheng, 2020).

The research sample consisted of 200 active students who were randomly selected using random sampling techniques, thereby increasing the representativeness of the research results as stated by Arikunto (2010). Respondents came from Guidance and Counseling study programs with diverse academic and semester backgrounds, ranging from semester 2 to semester 8. The composition of respondents consisted of 60% women and 40% men, reflecting the general gender distribution of students on campus. This semester variation and academic background provide a more comprehensive picture of students' digital communication patterns, because interpersonal communication styles can be influenced by the level of academic maturity and learning experience. Data collection was carried out using an online questionnaire for four weeks through Google Forms, which was considered efficient and reached a wide range of respondents. The research instrument consists of two parts, namely closed-ended questions using a Likert scale of 1–5 to measure the frequency of use of digital platforms, misunderstandings of communication, and the quality of interpersonal relationships, and open-ended questions to explore students' strategies in facing digital communication challenges. To measure the effectiveness of communication and its impact, the instrument included validated scales assessing digital misunderstanding frequency, interpersonal relationship satisfaction



adapted from Devito (2016), and social anxiety levels (using items aligned with common mental health screening tools). These were supplemented with open-ended questions for qualitative depth on coping strategies.

Before being used in the main data collection, the research instrument is tested for validity and reliability. The results of the validity test showed that all question items correlated 0.30 to the total score (range 0.32–0.78), which indicates good construct validity and the ability of each item to accurately measure the dimensions of the variable. Meanwhile, a reliability test using Cronbach's Alpha coefficient yielded a value of 0.82 for the digital communication impact scale and 0.79 for the interpersonal relationship quality scale. Both of these values exceed the minimum limit of 0.70, indicating that the instrument has good internal consistency and is suitable for use in data collection. To ensure the ethics of the research, each participant is given informed consent and the confidentiality of their identity is guaranteed, according to the principles put forward by Fraenkel, Wallen, & Hyun (2019).

Quantitative data were analyzed using descriptive statistics such as mean, standard deviation, and percentage with the help of SPSS version 25, as recommended by Field (2018) to provide an overview of respondent characteristics. Furthermore, a Spearman correlation test was carried out to determine the relationship between variables and a linear regression test to identify the influence of free variables on bound variables. Meanwhile, qualitative data from open-ended questions were analyzed using thematic analysis methods according to Braun and Clarke (2021), which included the process of coding, theme identification, and pattern formation. This method, as suggested by Miles and Huberman (1994), allows researchers to compile qualitative data systematically and in-depth, thereby enriching the understanding of the dynamics of digital communication experienced by students.

RESULTS AND DISCUSSION

This study involved 200 active students from IKIP Siliwangi from the Guidance and Counseling study program at different levels and semesters. The data collection technique was carried out online using Google Forms for a period of four weeks. This method was chosen to reach respondents widely and quickly, as well as provide flexibility for students to fill out questionnaires according to their free time. The majority of respondents are active users of digital platforms, which makes them relevant in the study of interpersonal communication in the digital age.

The distribution of respondents includes students from various academic backgrounds, which provides a variety of perceptions and experiences in the use of digital platforms. This quantitative approach through surveys allows for more accurate and generalizable statistical analysis. The availability of diverse respondents helps to strengthen the external validity of the research and provides a more comprehensive picture of the phenomenon of digital communication that is developing among students.

Statistical analysis in this study was carried out by paying attention to the basic assumptions that must be met. The normality test using the Kolmogorov-Smirnov method showed that all data were at a normal distribution ($p > 0.05$). These results are reinforced by visual inspection through the Q-Q plot, showing the distribution of the data following a diagonal line, which is an indication of a normal distribution. It is important to ensure



that the statistical procedures used, such as regression and correlation, can produce valid and reliable estimates. In addition, all tests in this study were conducted at a significance level of $\alpha = 0.05$, which is a common standard in social research. This level of significance is used to control for the possibility of Type I errors in concluding. With the fulfillment of these statistical assumptions, the results of the analysis presented can be considered valid and can be used as a basis for further interpretation in the discussion and conclusion of the research.

Descriptive Statistics

The descriptive analysis showed that the use of digital platforms was at an average score of 4.2 on a Likert scale of 1–5, indicating a high frequency of use among respondents. The quality of face-to-face communication scored an average of 3.8, higher than the level of digital misunderstanding, which sat at an average of 3.5. Satisfaction with interpersonal relationships in general obtained a moderate score of 3.6. The duration of use of digital platforms per day reaches an average of 4.2 hours, showing the high dependence of students on communication technology.

The considerable variation in standard deviation values on several variables, such as digital misconceptions (SD=1.1) and platform use (SD=1.3), reflects differences in behavior and perception between respondents. Although most students are active in using digital platforms, the perceived quality of communication and side effects such as miscommunication still appear as problems. This strengthens the urgency to delve deeper into the dynamics of the use of digital media for interpersonal communication in academic circles.

Table 1.
Mean and Standard Deviation of Key Variables

Variable	Average (Average)	Standard Deviation (SD)
Use of digital platforms	4.2	0.8
Quality of face-to-face communication	3.8	0.9
The level of digital misunderstanding	3.5	1.1
Interpersonal relationship satisfaction	3.6	0.7
Duration of use of the platform (hours/day)	4.2	1.3

Platform Usage Statistics

The three most dominant platforms used by students are WhatsApp (92%), Instagram (85%), and Zoom (67%). WhatsApp is the main choice because it is practical, fast, and used for daily communication in both academic and social contexts. Instagram is used as a means of sharing information and maintaining social relationships, while Zoom is used in formal contexts such as online lectures and group work.

The high use of text-based applications such as WhatsApp reflects students' tendency towards fast and efficient communication, but also opens up opportunities for miscommunication due to the absence of nonverbal cues. In contrast, lower but significant use of Zoom indicates a need for more expressive and interactive communication in



certain situations. This difference in preferences shows the variety of digital communication strategies applied by students in answering the needs of academic and social interaction.

Table 2.

Digital Application Usage Percentage	
Verandah	Daily Users (%)
WhatsApp	92%
Instagram	85%
Zoom	67%

Spearman Correlation Results

The Spearman correlation test revealed a significant positive relationship between the intensity of social media use and the frequency of digital misconceptions ($r = 0.45$, $p < 0.01$). This suggests that the more often students use social media, the more likely they are to experience miscommunication. In contrast, face-to-face communication had a strong positive correlation with interpersonal relationship satisfaction ($r = 0.52$, $p < 0.01$), indicating the importance of direct interaction in building quality relationships.

In addition, a correlation was found between the use of educational platforms such as Zoom or Google Meet and an increase in academic collaboration ($r = 0.38$, $p < 0.05$). Although the correlation value is moderate, this relationship remains statistically significant. These results show that digital platforms are not only a means of social communication, but also play an important role in supporting academic activities collaboratively.

Table 3.

Correlation Test Results between Variables

Variable 1	Variable 2	Correlation Value (r)	Significance (p)
Social media use	Digital misconceptions	0.45	< 0.01
Face-to-face communication	Interpersonal relationship satisfaction	0.52	< 0.01
Use of educational platforms	Academic collaboration	0.38	$p < 0.05$

Linear Regression Results

Linear regression analysis showed that face-to-face communication was a significant predictor of the quality of interpersonal relationships ($\beta = 0.40$, $p < 0.001$), while digital misconceptions were also significant negative predictors ($\beta = -0.28$, $p < 0.01$). In contrast, social media use did not contribute significantly to relationship quality ($\beta = 0.09$, $p > 0.05$). The model was overall significant ($F = 12.67$, $p < 0.001$) with an R^2 value of 0.31. This means that about 31% of the variation in the quality of interpersonal relationships can be explained by a combination of these variables. These results show that even though social media is used intensively, it does not necessarily improve the quality of relationships. In fact, direct communication and the ability to avoid misunderstandings play a more important role in building more meaningful relationships.



Difference Test (T-Test)

The difference test showed that there was a significant difference in the frequency of digital misunderstandings between first-semester and end-semester students ($t = 2.34$, $p < 0.05$). Students in the first semester are more likely to experience miscommunication in the digital context than those in the final semester. This may be related to the experience and adaptation to higher communication technologies in senior students. In addition, there was a significant difference in social anxiety levels between active and passive social media users ($t = 3.12$, $p < 0.01$). Active users of social media show higher levels of social anxiety. This indicates that intensive exposure to social media can have an impact on the psychological state of students, especially in terms of social comparisons or existential pressures.

Table 4.
T-Test Results

Groups Compared	Variable	t-value	Significance (p)
Early vs final semester students	Frequency of misunderstandings	2.34	< 0.05
Active vs passive users of social media	Social anxiety levels	3.12	< 0.01

Chi-Square Test

The Chi-Square test revealed a significant relationship between the dominant type of digital platform used and the preference of the way of communication ($\chi^2 = 15.23$, $p < 0.01$). For example, primary WhatsApp users tend to prefer text-based communication, while Zoom users tend to prefer video-based communication. These findings show that technology choices also shape students' interaction styles in daily life. In addition, a relationship was also found between students' low and high semesters and social media usage patterns ($\chi^2 = 12.45$, $p < 0.05$). Certain students are more active in using platforms such as Instagram to share academic and personal content. These results show that academic characteristics also affect students' digital habits, including in choosing the communication media that is considered most suitable for their needs and identity.

Table 5.
Chi-Square Test Results

Variable A	Variable B	Chi-Square value (χ^2)	Significance (p)
Dominant platform types	Communication preferences	15.23	< 0.01
Semester respondents	Social media usage patterns	12.45	< 0.05

Based on the results of the thematic analysis of the open-ended questions in the questionnaire, various strategies were found used by students in dealing with digital communication challenges. One of the main strategies revealed is the use of emojis to express emotions or clarify the meaning of the message. In addition, students also rely on



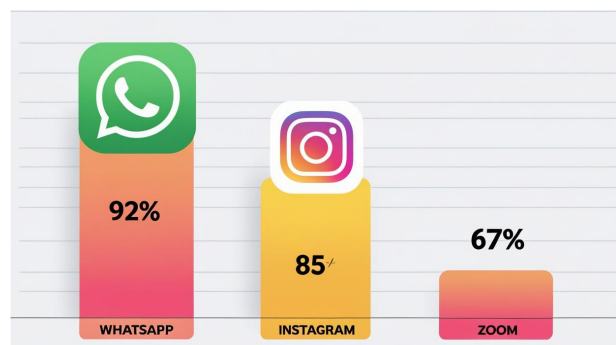
direct clarification, either through advanced chat or by switching to other, more interactive platforms such as video calls. This strategy reflects their efforts to reduce miscommunication that often occurs due to the limitations of text-based communication.

Students also revealed that platforms like Zoom are more effective in group work or academic assignments because they allow simultaneous two-way communication, including facial expressions, tone of voice, and body language. Meanwhile, WhatsApp, although most often used, is often a source of miscommunication because it does not provide nonverbal context. This information provides an in-depth overview of students' preferences in choosing communication media and how they adapt their way of communicating according to specific needs and situations.

Data visualization strengthens the understanding of the research findings. The bar graph shows that WhatsApp is the most used platform by students with a daily usage rate of 92%, followed by Instagram at 85%, and Zoom at 67%. This visual information confirms the dominance of text- and image-based applications in students' digital lives. The high use of WhatsApp and Instagram indicates that fast and visual communication is a top priority in social and academic interactions.

Graph 1.

Frequency of use of the digital platform



The average graph of the main variable score shows that the use of digital platforms scored the highest (4.2), while the level of digital misunderstanding and satisfaction of interpersonal relationships is in a moderate position. Face-to-face communication recorded a fairly high score (3.8), indicating the importance of direct interaction in maintaining the quality of social relationships. This visual representation helps to clarify the patterns of relationships between variables and shows how the intensity of digital media use affects the interpersonal dimension in a real way.

This research aims to understand how digital technology transformation affects students' interpersonal communication patterns. The results show that digital platforms such as social media and instant messaging apps have revolutionized the way students interact, both in social and academic contexts. This transformation is not only technical but also affects the depth of communication and emotional relationships between individuals. This change requires a new understanding in the realm of interpersonal communication, especially in the digital-native generation, such as college students, as



emphasized by Burgoon, Guerrero, and Floyd (2020), that changes in communication channels have a direct effect on the quality of social interaction.

One of the important findings is the erosion of the role of face-to-face communication in student life, replaced by text-based and digital communication. Although practical and efficient, this form of communication turns out to reduce the emotional depth of the interaction. This reinforces the view of Burgoon et al. (2020) that the absence of nonverbal cues such as facial expressions, tone of voice, and body gestures can reduce the authenticity of communication. Lestari & Purwanto (2023) also added that the lack of nonverbal cues can trigger misunderstandings in digital communication, a phenomenon that was also confirmed in this study, with the majority of students admitting to having experienced miscommunication due to digital media.

Dependence on digital communication, according to Suler (2022), has structural weaknesses in conveying emotional meaning in its entirety. Students who rely on text-based communication tend to experience obstacles in conveying empathy, intentions, or emotional nuances that are important in building social closeness. This results in the emergence of superficial communication and the risk of misunderstanding. In contrast, face-to-face communication allows for synergy between verbal and nonverbal messages, thus allowing for the formation of deeper and more authentic interpersonal relationships.

The study also found that while digital communication can disrupt the quality of emotional relationships, it offers advantages in terms of efficiency and collaboration. Platforms such as Zoom or Google Meet allow students to conduct cross-location group discussions more flexibly. Tian et al. (2022) emphasized that the digitization of communication actually accelerates the growth of social and professional networks. This is in line with the researcher's finding that video call platforms are considered more capable of maintaining the integrity of communication than text-based applications alone.

In the context of collaborative learning, digital platforms have been proven to expand the range of student interaction without time and place restrictions. Hussain and Abedin (2020) explain that digital-based communication allows the creation of dynamic and open collaborative learning spaces. Students can work together on academic tasks more flexibly, share information with each other, and exchange ideas more quickly. This means that digital platforms are not only a communication tool, but also a catalyst for increasing the effectiveness of collaborative learning.

However, it needs to be acknowledged that digital communication has its own risks. The lack of nonverbal expression in digital interactions can increase misunderstandings and weaken emotional bonds between individuals. Lestari and Purwanto (2023) underline the importance of the presence of nonverbal cues in building understanding and trust. If not handled wisely, miscommunication in the digital world can cause conflict, decreased empathy, and social boredom that affect interpersonal relationships among students.

In addition to miscommunication, another risk of intensive use of digital media is social media addiction and social isolation. Turkle (2017) describes this phenomenon as a paradox of connection where the more digitally connected, the more a person can feel emotionally isolated. Students who are exposed to social media for long periods of time tend to get caught up in unhealthy social comparisons and experience pressure to maintain an ideal self-image. As stated by Wijaya and Santoso (2022), this can increase



anxiety and reduce the quality of students' mental health. To overcome this challenge, strengthening digital communication literacy is one of the important recommendations. Burgoon et al. (2020) emphasized the importance of training nonverbal communication skills so that individuals are able to adjust how to convey messages appropriately in digital and face-to-face contexts. In addition, students need to be equipped with metacognitive skills in choosing communication channels that are in accordance with the purpose of interaction. These capabilities include media risk awareness, message clarification strategies, and the use of additional communication symbols such as emojis and video call features.

The balance between digital and face-to-face communication is also an important highlight. Turkle (2017) emphasizes the need for conscious efforts from students to reprioritize interpersonal interactions. Direct contact allows for the formation of trust, empathy, and the strengthening of deep emotional connections elements that online communication cannot completely replace. Therefore, integrating face-to-face communication practices in students' lives is important to maintain their social and emotional well-being.

The findings of this study have important implications for the development of higher education curriculum and policy. Institutions need to develop communication training programs that not only equip students with digital skills, but also strengthen their face-to-face communication capacity. As Yu et al. (2021) suggest, the curriculum should be multidimensional and include training on the wise, ethical, and effective use of technology. Thus, students are not only users of technology, but also intelligent and reflective communication managers.

In closing, the results of this study enrich the understanding of the transformation of interpersonal communication in the digital era, as well as strengthen the scientific position of Guidance and Counseling in answering the challenges of the times. The study contributes empirical and narrative evidence that can be used to design interventions, counseling services, and curriculum development that are relevant to today's digital dynamics. Thus, the contribution of this research is not only theoretical, but also applicable and transformative for the world of higher education and the science of Guidance and Counseling.

CONCLUSION

This study confirms that digital transformation significantly impacts students' interpersonal communication, presenting both efficiencies and challenges. The findings reveal that while platforms like WhatsApp and Zoom facilitate accessibility and academic collaboration, their intensive use correlates with increased digital misunderstandings and potential social anxiety. Face-to-face communication remains superior for building authentic, emotionally rich relationships. These results imply a need for higher education curricula to integrate digital communication literacy and nonverbal skills training. Future research should explore longitudinal effects and develop targeted interventions to help students balance digital and face-to-face interactions for optimal personal and academic well-being.



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