



ANALYZING TEACHING AND LEARNING INTERACTIONS IN ONLINE AND OFFLINE MODES AT TOMAKAKA UNIVERSITY

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ABSTRACT

This study investigates the differences in teaching and learning interactions among university students in online and offline learning environments, focusing on students from the Faculty of Teacher Training and Education at Universitas Tomakaka, Indonesia. The study was motivated by the emerging need to evaluate how communication patterns and engagement are affected by instructional modalities in the post-pandemic context. Using a mixed-method approach, including questionnaires and semi-structured interviews with 50 randomly selected students, this research explores interactional dynamics and identifies existing gaps in current literature regarding rural-based blended learning practices. The results indicate that offline learning fosters stronger student–lecturer and peer–peer interaction due to richer nonverbal cues and immediacy of feedback, while online learning shows limited engagement, especially in rural settings. However, some students reported higher comfort and participation in digital settings due to reduced social pressure. The study concludes that a blended learning approach, supported by interactive tools and digital training, may optimize communication and inclusiveness. These findings have practical implications for improving instructional design, especially in under-resourced educational institutions, and highlight the importance of digital infrastructure and pedagogical capacity building in enhancing learning interaction.

Keywords: Blended Learning, Higher Education, Online Interaction, Student Engagement, Teaching Communication

INTRODUCTION

The abrupt shift to online learning during the COVID-19 pandemic illuminated stark contrasts in teaching–learning interactions compared to traditional in-person settings (Alhamuddin & Zebua, 2021; Setyaningsih, 2022). Indonesian students overwhelmingly prefer face-to-face learning due to richer peer and instructor engagement and fewer technical constraints (Ali et al., 2023). Similarly, medical students at Universitas Gadjah Mada expressed frustration over diminished hands-on practice and interaction during online sessions (Widyandana et al., 2024). These observations reflect persistent issues of isolation, reduced

spontaneity, and interaction quality, despite the flexibility offered by online platforms (Agustina et al., 2024).

Although blended learning offers improved convenience, its impact on interaction dynamics remains underexplored, particularly among pre-service teachers in Indonesia (Lucas & Vicente, 2023; Widyandana et al., 2024). In national contexts, online modes often limit synchronous discussion depth, posing challenges to social presence and reflective engagement (Hasanah, Ali, et al., 2024; Setyaningsih, 2022). Meanwhile, literature highlights that structured moderation and digital literacy significantly influence interaction outcomes in both synchronous and asynchronous settings (Agustina et al., 2024; Bender, 2023; Vlachopoulos, 2022).

However, critical gaps persist: First, most research assesses blended versus traditional modes through performance metrics or student preference, rather than dissecting interaction types and quality (Agustina et al., 2024; Arifani et al., 2020). Second, few studies focus on pre-service or teacher-training contexts—where communicative competence is vital—and even fewer in rural or regional Indonesian universities. Finally, internet access, digital literacy, and adaptive pedagogical strategies remain under-analyzed in relation to interaction effectiveness (Kristianto & Gandajaya, 2023; Setyaningsih, 2022).

This study addresses these gaps by examining the interactive experiences of 50 randomly selected students from the Faculty of Teacher Training and Education at Universitas Tomakaka, across both online and offline modes. It analyzes formal vs. informal, synchronous vs. asynchronous interactions, explores contextual challenges such as connectivity and digital competence, and identifies adaptive strategies—e.g., interactive tools, peer mentoring, structured discussion—to enhance engagement. The study's novelty lies in its qualitative and quantitative hybrid approach, the specific focus on Indonesian pre-service teachers, and the rural institutional context.

This research is crucial as Indonesia increasingly adopts blended learning in higher education policy. Insights into interaction quality and strategy effectiveness can inform curriculum design, faculty development, and institutional infrastructure—ensuring pre-service teachers gain critical communicative and pedagogical proficiency across modalities. As blended education continues to evolve, this study offers timely, evidence-based recommendations to bolster student engagement, satisfaction, and teaching efficacy in both online and offline environments.

RESEARCH METHOD

This study employed a mixed-methods approach to explore differences in student–lecturer and peer–peer interactions across online and offline learning environments at Universitas Tomakaka (Creswell & Clark, 2017). The study involved a total population of 367 active students from the Faculty of Teacher Training and Education, from which 50 students were randomly selected to ensure representation across academic years, learning experiences, and levels of digital literacy (Etikan et al., 2016). The objective was to identify interaction patterns, challenges, preferences, and engagement strategies across different learning modes.

Quantitative data were gathered through a structured questionnaire distributed via Google Forms. The survey consisted of closed-ended items that measured students' perceptions of interaction frequency, comfort, and effectiveness in both online and offline contexts. Key indicators included student–lecturer interaction quality, peer–peer collaboration, and preferred learning modes. The results were analyzed using descriptive statistics (frequencies and percentages), which provided insights into general trends and contrasts in interaction across modalities (Dixson, 2015; Fredricks et al., 2004).

To deepen the understanding of the patterns found in the quantitative data, qualitative data were collected through semi-structured interviews with 10 students and 3 lecturers. The interviews aimed to explore participants' perceptions, emotional responses, technological experiences, and adaptive strategies in both learning environments. The transcripts were thematically analyzed using an inductive process (Clarke & Braun, 2017), allowing for the identification of emerging themes such as social presence, communication anxiety, digital tool preferences, and inclusion.

This study used a convergent parallel mixed-methods design, in which quantitative and qualitative data were collected and analyzed independently, but then interpreted together to generate more comprehensive insights (Creswell & Clark, 2017). For example, percentage-based patterns from the survey were explained through interview narratives that revealed deeper psychological and contextual dimensions of student interaction. This triangulation strengthened the study's internal validity and provided a nuanced view of interactional dynamics across learning modes (Fetters et al., 2013). Ethical considerations included informed consent, confidentiality, and the voluntary nature of participation throughout the research process.

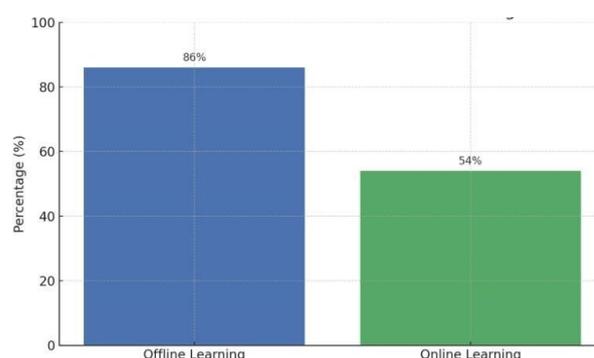
FINDINGS AND DISCUSSION

Findings

1. Student–Lecturer Interaction

The data showed that 86% of students experienced high-quality interaction with lecturers during offline learning sessions, compared to only 54% during online sessions. The key differences included immediacy of feedback, nonverbal communication, and comfort in asking questions. The figure below illustrates these differences:

Figure 1. Student–Lecturer Interaction in Online and Offline Modes



This finding suggests that offline environments facilitate more effective and comfortable communication between students and lecturers than online platforms.

2. Peer–Peer Interaction

Student responses also highlighted a disparity in peer–peer interaction. During offline classes, 78% of students reported frequent and effective collaboration with peers, while only 46% found online peer discussions helpful. The lack of spontaneous communication and passive behavior in online group chats contributed to this difference.

Table 1. Comparison of Peer–Peer Interaction Between Modes

Interaction Mode	Effective Peer Interaction (%)
Offline Learning	78%
Online Learning	46%

The data indicates that in-person environments naturally support peer engagement, whereas online interactions require more intentional structure to be effective.

3. Tools and Learning Preferences

Students were also asked about strategies or tools that helped improve interaction:

- a. Common online tools used: Zoom breakout rooms, Kahoot, Quizizz, Google Docs.

b. Preferred mode of learning:

- 1) 52% preferred offline
- 2) 32% preferred blended
- 3) 16% preferred fully online

These figures reinforce that although students value the flexibility of online learning, they still lean toward offline or hybrid systems due to stronger interpersonal engagement.

Discussion

1. Comparative Quality of Student–Lecturer Interaction

The significantly higher perception of student–lecturer interaction quality in offline learning (86%) compared to online (54%) can be attributed to the presence of nonverbal cues and immediacy behaviors that are naturally embedded in face-to-face communication. According to social presence theory, the physical presence of instructors enables clearer emotional and instructional messages to be transmitted, fostering greater engagement and responsiveness (Gunawardena, 1991). Offline settings support elements such as eye contact, vocal tone, posture, and gestures, which collectively enhance the affective dimension of learning (Vlachopoulos, 2022). This phenomenon aligns with previous findings where Indonesian students expressed a stronger connection and greater clarity when instructors were physically present during lessons (Alhamuddin & Zebua, 2021). The physical environment, in such cases, allows for spontaneous clarification and reduces ambiguity in communication, which is especially critical in instructional contexts where meaning can easily be lost without contextual reinforcement (Tu & McIsaac, 2002).

On the other hand, online learning—while lacking these nonverbal elements—offers compensatory advantages such as flexibility, accessibility, and psychological comfort. For some students, online settings reduce performance anxiety and allow them to participate more freely, especially when tools like breakout rooms or chat functions are well utilized (Agustina et al., 2024). Moreover, students in remote or rural areas may view online learning as a safer and more convenient alternative, especially during uncertain times such as the COVID-19 pandemic (Enni et al., 2024). However, this convenience often comes at the cost of diminished emotional engagement, as online platforms may struggle to replicate the sense of immediacy and personal rapport that develops naturally in face-to-face contexts (Widyandana et al., 2024). Hence, while both modalities have distinct interactional affordances, the offline setting appears to better

fulfill the relational and communicative expectations of most learners.

2. Peer–Peer Interaction: Mode and Effectiveness

Peer engagement showed a significantly higher percentage in offline settings (78%) compared to online (46%), confirming that face-to-face environments provide a more supportive context for natural collaboration and spontaneous feedback exchange. Offline peer feedback enables richer, multi-dimensional communication through verbal and non-verbal cues, allowing students to co-construct knowledge more effectively (Jongsma et al., 2023). This advantage is particularly pronounced in EFL contexts, where affective elements—such as empathy, encouragement, and tone—play a vital role in motivating learners. In Thai higher education settings, for example, while online platforms support structured feedback that boosts behavioral participation, emotional and cognitive engagement flourished more in offline environments where learners felt safer and more connected (Peungcharoenkun & Waluyo, 2024). Similarly, Indonesian studies highlight that offline learning fosters a greater sense of belonging and excitement among students, enhancing group dynamics and interpersonal trust (Agustina et al., 2024). Without appropriate scaffolding, online feedback risks becoming mechanical and impersonal, weakening its developmental impact (Nasution et al., 2022).

These interactional patterns align with the theoretical underpinnings of Computer-Supported Collaborative Learning (CSCL), which emphasize that learning is a social activity, best achieved when students are given space to dialogue, co-reflect, and problem-solve together (Stahl, 2016). Nevertheless, technological tools can bridge some of the gaps in online environments when implemented thoughtfully. For example, using breakout rooms and collaborative tools like shared documents or real-time whiteboards can replicate aspects of offline synergy and promote social presence (Gudoniene et al., 2025). Furthermore, flipped classroom models have shown promise in teacher education for increasing motivation and accountability among peers, leading to deeper interaction when synchronous sessions are held (Yough et al., 2019). While online interaction remains less effective without active moderation, when structured around peer facilitation and meaningful tasks, it can still yield substantial gains in engagement and learning quality (Dixson, 2015).

3. Digital Strategies and Equitable Engagement

Although offline learning remains the preferred mode for most students, a notable portion—32% of respondents—favor blended learning due to its flexibility and balance of interaction (Kassam-Remtulla, 2020). This preference reflects a growing demand for

hybrid instructional approaches that cater to diverse learning needs and personal schedules.

Digital tools such as Kahoot and Quizizz have shown to significantly increase participation, especially among reserved or less vocal students who often feel marginalized in traditional settings (Noviasmy et al., 2023). These tools provide gamified assessment and immediate feedback, reducing anxiety and promoting engagement. Moreover, digital discussion forums and asynchronous platforms help facilitate interaction for students who require more time to process information and respond (Wu & Hiltz, 2004). In higher education, the flipped classroom model—where students access core materials before synchronous sessions—has been shown to enhance learning motivation and depth of classroom discussion (Yough et al., 2019). Likewise, systematic reviews on hybrid learning confirm that these models can improve satisfaction and foster deeper engagement when properly implemented (Gudoniene et al., 2025).

However, the success of these digital strategies depends heavily on infrastructure and digital readiness, especially in rural and under-resourced regions. In the context of Indonesian education, a lack of stable internet access, inadequate device ownership, and limited digital literacy are recurring barriers to equitable participation (Agustina et al., 2024). Even when online platforms are available, without sufficient training and pedagogical adaptation, students and lecturers may struggle to utilize them meaningfully (Setyaningsih, 2022). Engagement disparities widen when technological access is unequal, a phenomenon also observed in digital learning evaluations at Universitas Negeri Padang (Balula & Moreira, 2014). Furthermore, poorly integrated digital monitoring systems in blended learning environments have hindered real-time feedback and evaluation, further compromising interaction quality (Nasution et al., 2022). These findings suggest that while digital tools hold transformative potential, their impact is contingent on systemic support that addresses technological, pedagogical, and equity-based challenges holistically.

4. Unexpected Patterns: Online Comfort and Inclusive Engagement

Qualitative findings revealed that certain students—especially those who are introverted—felt more comfortable expressing themselves in online settings, particularly through text-based or anonymous platforms. This comfort stemmed from reduced social pressure and the absence of face-to-face confrontation, which often contributes to anxiety in traditional classrooms (Arisman & Hasanah, 2023). The constructivist e-learning model supports this by suggesting that learner-centered digital environments enable

students to engage at their own pace and in their preferred format, fostering a sense of psychological safety (Bognar et al., 2015). Additionally, the implementation of learning technologies in blended systems has been shown to facilitate more inclusive participation by allowing multiple communication modes, including asynchronous engagement and private feedback (Nasution et al., 2022). These findings challenge the assumption that offline learning is inherently superior in fostering interaction, and instead highlight that online tools can be uniquely empowering when designed with empathy and flexibility (Peungcharoenkun & Waluyo, 2024). Consequently, this suggests that hybrid or blended models, if optimized, could combine the strengths of both settings to support broader learner diversity and engagement (Trang, 2022).

CONCLUSION

This study concludes that offline learning provides more effective student–lecturer and peer–peer interactions compared to online learning among students at Universitas Tomakaka, Mamuju, Indonesia. Factors such as immediacy of feedback, richer nonverbal cues, and greater social presence contribute to deeper engagement and collaboration in face-to-face settings. Nevertheless, the study also highlights that online platforms—when supported with interactive features and anonymity options—can create more inclusive spaces for students with higher levels of communication anxiety. Theoretically, these findings support and extend social presence theory by demonstrating how perceived immediacy and emotional safety influence interaction quality differently in physical and virtual contexts. The study also contributes to constructivist learning theory by showing how students adaptively engage in environments that allow flexible participation styles.

In practical terms, the findings recommend that universities, particularly in rural areas, implement blended learning frameworks that integrate both synchronous face-to-face meetings and asynchronous digital interaction tools. Institutions should provide structured training for lecturers on how to facilitate peer collaboration in both online and offline formats, incorporate feedback systems, and use digital platforms that support multimodal communication. The study is limited by its small sample size and single-institution scope, which may restrict generalizability. Future research should explore how different personality types and learning preferences moderate interaction outcomes, and examine whether the emotional and cognitive dimensions of engagement evolve differently over time in online, offline, and hybrid settings—contributing to a more nuanced understanding of interactional dynamics in post-pandemic education.

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