ISSN 2759-775X

HEF
Higher Education Forum

Journal of Education and Psychology

Volume 1-Issue 1-2025

Journal of Education and Psychology
Volume 1 Issue 1-2025

HEF Publication

Higher Education Forum

Journal of Education and Psychology

Volume 1 – Issue 1 – 2025

Editor

Michelle Kawamura

Ritsumeikan University, Japan

Published by Higher Education Forum (HEF)

3-5-13, Awajimachi, Chuo-ku, Osaka-shi, Osaka, 541-0047

Published July 31, 2025

 ISSN: 2759-775X

Content

From the Editor

Dear Readers, Authors, and Colleagues,

It is with great excitement and deep appreciation that I welcome you to the inaugural issue of our new academic journal, Higher Education & Studies, dedicated to the fields of Psychology and Education. This marks the beginning of a journey to create a vibrant and inclusive platform for scholarly exchange, innovation, and collaboration.

This journal was born from a shared vision: to provide a space where rigorous, peer-reviewed research can illuminate the complexities of human development, learning, and behavior. We aim to bridge the gap between theory and practice and foster interdisciplinary dialogue that enriches both academic inquiry and educational application. We value authentic scientific research that includes robust data, sound methodological approaches, and thoughtful, scholarly interpretations of findings. This platform aspires to bring together scholars with inquisitive minds—those eager to design experiments, test hypotheses, explore causal relationships, and contribute research that addresses gaps in existing literature while offering fresh perspectives.

As the founding editor, I am honored to be part of this endeavor. Our editorial team is committed to maintaining the highest standards of academic integrity and excellence. Every submission will undergo a thorough peer-review process to ensure that the work we publish is not only methodologically sound but also meaningful and relevant to the broader community.

We warmly invite researchers, educators, and practitioners from around the world to contribute to this journal. Whether your work explores cognitive development, educational interventions, mental health in learning environments, or emerging trends in psychological research, we welcome diverse perspectives and methodologies.

I would like to extend my heartfelt thanks to our editorial board, reviewers, and contributors, whose dedication and expertise have made this launch possible. Your support is the foundation upon which we build the journal's future.

As we embark on this new chapter, I encourage you to engage with us—submit your work, share your insights, and help us shape a journal that reflects the richness and diversity of our disciplines.

With warm regards,
Michelle Kawamura
Editor-in-Chief
Journal of Psychology and Education

Reviewers: Volume 1-Issue 1

Dr. Catherine Pei Wern Chou*, National Taiwan University, Taiwan*

Dr. Atsunori Fujii*, Fukuoka Institute of Technology, Japan*

Dr. Chih Ying Lee*, Nanhua University, Taiwan*

Professor. Peng Virginia Mary*, Ritsumeikan University, Japan*

Dr. Johan Van Rooyen*, Webster University, USA*

Dr. Li-Zu Yang*, National Pingtung University of Science and Technology, Taiwan*

Supporting Emotional Development in Japanese English Classrooms with Microsoft Reflect

Lynsey Mori[a], Amelia Ijiri[b], Peter J Galante[c], Peter M Galante[d]

[a] Language Education Center, Ritsumeikan University, Japan
E-mail address: lynseymo@fc.ritsumei.ac.jp

[b] Department of Learning, Design, and Adult Education, Indiana University, USA
E-mail address: aijiri@iu.edu

[c] Department of Criminal Justice, Farmingdale State College, Farmingdale, USA
E-mail address: galantpj@farmingdale.edu

[d] Independent Researcher, Japan
E-mail address: pitachi2727@gmail.com

Abstract

This study explores how technology can support emotional development in Japanese university English classrooms, utilizing Microsoft Reflect as a data-driven emotional check-in tool. Social Emotional Learning (SEL) is an educational framework that helps students develop emotional awareness, self-management, interpersonal skills, and ethical decision-making. While widely applied in primary and secondary settings, SEL is underutilized in higher education and often lacks cultural adaptation in East Asian classrooms. This study investigates whether digital SEL tools can assist students in articulating emotional states and teachers in responding to classroom climates. Conducted across two private universities over a three-week period, the mixed-methods design included an emotional regulation questionnaire, Reflect-generated student data, and teacher reflection journals. Findings suggest that while Reflect promoted some gains in emotional vocabulary and helped initiate classroom dialogue, its impact was limited by cultural norms discouraging emotional discourse and by a lack of training in interpreting emotional data. Teachers highlighted the importance of human facilitation, contextual knowledge and relational engagement to make meaningful use of such tools. The study concludes that Microsoft Reflect has the potential to support emotional development when integrated into a culturally responsive and relational pedagogy. It also calls for professional development in SEL and critical reflection on the role of digital tools in emotional education. This research contributes to the growing conversations on how technology can be ethically and effectively integrated to support SEL in higher education.

Keywords: Social emotional learning, educational technology, relational pedagogy, japan, teacher agency, microsoft reflect

1. Introduction: Background/ Objectives and Goals

Social-Emotional Learning (SEL) has gained prominence in educational research as a framework for developing emotional intelligence, self-regulation, and social awareness among students (Elmi, 2020). While SEL has been widely integrated into K-12 curricula, particularly in Western educational systems, its application in higher education (HE) remains limited and underexplored (Lin & Wang-Hiles, 2024). This implementation gap is particularly evident in Japanese university contexts, where instructors—especially part-time and non-Japanese faculty—often operate with minimal institutional support or guidance for emotional development integration (Gurney, 2023). The decentralized nature of higher education compounds these challenges. Unlike K-12 environments where structured and licensed SEL products can be implemented across entire schools under centralized administration, university instructors typically operate with greater autonomy but less coordinated support. This professional isolation contributes to fragmented SEL implementation despite growing evidence that emotions play a crucial role in shaping cognitive processes essential for second language acquisition, including perception, attention, memory, and long-term retention (Immordino-Yang & Damasio, 2007; Muller & Pentón Herrera, 2023).

In Japan, EFL instruction remains largely exam-driven and teacher-centered, emphasizing grammatical accuracy over communicative competence (Mori, 2024). This rigid structure leaves little room for student-centered approaches that account for emotional and social factors in language learning (Wang et al., 2024). Given these insights, integrating SEL into university-level EFL classrooms could enhance student engagement, self-regulation, and motivation by treating emotions as assets rather than obstacles in learning.

Recent reviews emphasize that most digital SEL interventions have focused on school-aged children, often over-looking the nuances required for older learners in more autonomous settings (Schonert-Reichl, 2017; Elmi, 2020). This lack of digital and SEL-focused studies in HE suggests that university instructors often receive limited guidance on how to integrate emotional development into their pedagogical practices (Stillman et al., 2018), leading to inconsistent implementation across disciplines.

This study adopts Microsoft Reflect as a digital emotional check-in tool embedded within Microsoft Teams. Reflect enables students to self-report emotions via a visual interface, providing teachers with aggregate, anonymized data on classroom emotional climate. Unlike predictive AI tools that algorithmically analyze emotional states, Reflect preserves relational pedagogy by placing emotional interpretation in the hands of the teacher. It was selected for this study based on three primary criteria: ethical alignment with non-algorithmic approach that maintains human judgment in emotional assessment; institutional accessibility built into Microsoft 365 platforms already used within the university context; and integration ease with seamless incorporation into existing HE institutional systems.

Microsoft has increasingly recognized the value of emotional intelligence in leadership and education, setting it apart from other technology companies that often treat SEL as an external add-on rather than a core feature of learning design. However, as Keefer et al. (2018) note, digital SEL tools must be paired with relational scaffolding to avoid superficial engagement or performative emotional responses.

This study draws upon two main complementary frameworks to guide its inquiry: the Collaborative for Academic, Social, and Emotional Learning (CASEL) model and the Six

Seconds Emotional Intelligence model. CASEL delineates five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, widely used in institutional SEL design (CASEL, 2020). These competencies represent what Immordino-Yang et al. (2019) describe as the neural and psychological integration of emotion with cognition, essential for effective learning. While well-established, the CASEL model was primarily developed for younger students and formal school systems, often requiring adaptation for more autonomous, adult learners in more complex social situations in higher education (Dvořáková et al., 2017).

The Six Seconds model offers a more personally driven approach. Originally developed and widely applied in corporate, organizational, and leadership training contexts. Used by global organizations such as FedEx and the U.S. Navy and increasingly in HE institutions, it cultivates emotional literacy, enhance decision-making, and support team collaboration (Six Seconds, 2014; Six Seconds, 2011, Freedman & Jensen, 2017). Central to the Six Seconds model are three guiding pursuits: Know Yourself, Choose Yourself, and Give Yourself which integrate eight emotional intelligence competencies that support metacognitive awareness, pattern recognition, and purpose-driven action (Six Seconds, 2020). The model encourages learners and educators to frame emotions as strategic resources rather than obstacles, that can inform decision-making, deepen reflection, and promote ethical action, which are key components of developing a relational, emotionally intelligent society prepared for a collaborative future. Mayer & Salovey's (2016) longitudinal research reinforces this perspective, demonstrating that emotional intelligence competencies serve as reliable predictors of both academic achievement and psychological adjustment.

Research on integrating SEL into HE is expanding. Jennings and Greenberg (2020) demonstrate instructor emotional intelligence significantly mediates the effectiveness of SEL interventions, with technology potentially serving as a scaffolding mechanism for both students and faculty. D'Amico et al. (2018) emphasize that successful SEL integration requires coherence across micro (classroom), meso (program), and macro (institutional) levels, a complexity that digital platforms are uniquely positioned to address through integrated data systems. University transitions present emotional challenges (Conley et al., 2020), and technological interventions can provide continuous support, as demonstrated in Pekrun and Linnenbrink-Garcia's (2021) work on emotion regulation technologies. Particularly relevant to this study's Japanese context, Torrente et al. (2019) highlight the importance of culturally responsive SEL implementation, with technology-mediated approaches offering customization possibilities that respect cultural variations in emotional expression and interpretation (Matsumoto & Hwang, 2019).

In Japan, the successful integration of SEL into HE is complicated by cultural norms surrounding emotion and authority. Japanese emotional culture is discussed as emotional interdependence by Kitayama and Markus (2017), suggesting emotions are deeply rooted in social relationships rather than being solely individual experiences. This perspective significantly influences how students engage with SEL activities, especially those involving emotional self-disclosure. Practices like 甘え *amae* (dependence) and 遠慮 *enryo* (restraint) can inhibit open expression, as students are socialized to prioritize group harmony over individual disclosure (Uchida & Kitayama, 2019; Yamasaki & Hasegawa, 2021). Interestingly, digital platforms may help bridge this gap. Studies show that Japanese students are more comfortable sharing emotions through technology than in person (Kamibeppu & Sugiura, 2018; Moriya & Ueda, 2021). This suggests that tools like Microsoft Reflect may support SEL by aligning with students' communication preferences.

Western pedagogies increasingly coexist with traditional Japanese values which can further complicate tensions (Yonezawa et al., 2020). Developmentally, this life stage carries heightened vulnerability, especially in Japan, where social expectations and identity pressures are tightly linked. Conditions such as 引き籠り *hikikomori* (social withdrawal) reflect the emotional toll of navigating autonomy and belonging without adequate institutional or emotional scaffolding (Tajan, 2018; Elmi, 2020; Spooner-Johnston, 2020). Reflective practices aligned with Japanese cultural values offer a promising approach to support emotional growth while respecting collective norms (Ito et al., 2019).

The research questions:
1. How do university EFL instructors in Japan perceive the role of Microsoft Reflect in supporting social-emotional learning?
2. What emotional patterns emerge from students' use of Reflect, and how do these shape instructional choices?
3. How does the integration of Reflect impact teacher awareness, relational pedagogy, and emotional climate in the classroom?

This research contributes to the growing body of literature on SEL in tertiary education by examining the affordances and limitations of digital tools within culturally specific, under-explored educational contexts.

2. Methods

This study employed a convergent parallel mixed-methods design (Creswell, 2014) to explore the integration of SEL and educational technology within Japanese EFL classrooms. A mixed-methods approach enables a comprehensive analysis of both quantitative (survey data) and qualitative (teacher reflections and student responses) perspectives, allowing for triangulation to enhance validity and reliability (Clark & Creswell, 2007; Dawadi, Shrestha, & Giri, 2021).

The research was conducted by practicing educators with full teaching responsibilities across two private Japanese universities.

2.1 Participants

The study involved 181 first- and second-year undergraduate students enrolled in compulsory English language courses at two private universities in Japan. The sample size was determined primarily by practical consideration, specifically the availability of intact classes where the researchers had sufficient curricular flexibility to implement the intervention. Students exhibited English proficiency levels from TOEIC 350 to 700, aligning with the Common European Framework of Reference for Languages (CEFR) A1 to B2 levels, typical for Japanese university streams. Participants were predominantly 18-20 years old Japanese nationals with diverse language learning motivations including business, international trade, studying abroad, and overseas relocation. Japanese EFL classrooms traditionally emphasize teacher-centered instruction and exam-driven curricula (Smith, 2025). Students in Japan's monocultural educational expectations may struggle with explicit emotional expression due to sociocultural norms discouraging direct displays of emotion (Mori, 2022). These cultural factors significantly influenced both study design and data interpretation throughout the research.

2.2 Data Collection

To ensure a comprehensive analysis, the study utilized four primary data collection methods: (1) Microsoft Reflect emotional check-ins (quantitative self-reported emotional states), (2) Pre- and post-surveys using the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA), (3) Teacher observations and student reflections (qualitative insights into SEL engagement), and (4) Instructor self-reflection (assessing the influence of SEL tools on teachers' own emotional awareness and pedagogical adaptation). Each data source was strategically selected to balance quantitative precision with qualitative depth, allowing for triangulation and enhanced validity (Creswell, 2014; Clark & Creswell, 2007). To ensure the ethical handling of emotionally sensitive data, multiple protocols were established to safeguard participant confidentiality. All student responses were anonymized before analysis, and data obtained from the Microsoft Reflect platform were collected solely in aggregate form, without any identifiable personal information. Survey responses and reflective journal entries were securely stored on password-protected digital platforms, with access restricted exclusively to the research team. To mitigate potential response bias and promote honest participation, participants were explicitly informed—both in writing and verbally—that their emotional disclosures would remain confidential in the classroom. Furthermore, they were assured that their responses would not influence their academic evaluation or standing in the course.

Microsoft Reflect, integrated within Microsoft Teams, allowed students to select from over 50 predefined emotional states during each class. Emotional descriptors were visually represented through emojis and descriptive terms in both Japanese and English were displayed, ensuring accessibility even for lower-proficiency EFL learners. Students could switch language settings independently, though this was not enforced. The tool's character-based visual elements aligned with Japanese cultural preferences for yurakura mascot designs, potentially reducing participation barriers while raising questions about response authenticity.

Students completed a modified version of the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) (Gullone & Taffe, 2012) at the beginning and end of the study. The ERQ-CA is a validated psychometric instrument designed to measure two primary emotional regulation strategies:

1. Cognitive reappraisal – the ability to reinterpret emotions in a positive or neutral way.
2. Expressive suppression – the tendency to inhibit outward emotional expression.

A 7-point Likert scale was used for all survey items, ranging from 1 = strongly disagree to 7 = strongly agree. This format allowed for responses and quantitative comparison of pre- and post-study shifts in emotional regulation. The use of a pre-existing, well-established framework allowed for a degree of objectivity, balancing the otherwise subjective nature of emotional self-reporting.

Students provided voluntary written reflections on their Microsoft Reflect experiences, though self-selection bias may overrepresent highly engaged participants. This limitation is acknowledged in the interpretation of findings, consistent with Creswell's (2014) caution regarding the influence of participant motivation on voluntary qualitative input. Instructors also documented observations through multiple methods including post-lesson digital journaling, voice to text recordings for immediate reactions, weekly collaborative discussions, and casual in-person check-ins. Shared reflection templates ensured consistency across observation, while teachers participated in the same Reflect check-ins as students, creating experiential foundations for interpreting emotional data

Descriptive statistics and independent samples t-tests (assuming unequal variances) analyzed pre- and post- survey responses using Microsoft Excel. Microsoft Reflect frequency data were categorized to examine emotional reporting trends and cultural influences on self-expression (Thomson et al., 2021).

Thematic analysis following Braun and Clarke's (2006) six-phase methodology (familiarization, initial coding, theme generation, review, definition/naming, and reporting) was conducted on teacher reflections, classroom observations, and student open-ended responses. Qualitative data were imported into Microsoft Word and analyzed manually using color-coded schemes developed inductively. Researchers independently coded the data and refined themes through peer discussion to ensure inter-rater consistency.

Three primary themes emerged: (1) emotional ambivalence and surface participation, (2) cultural restraint in emotional disclosure, and (3) teacher emotional mirroring. To enhance credibility, data triangulation was applied across Reflect logs, teacher notes, and student surveys (Creswell, 2014).

Despite the potential benefits of Microsoft Reflect, several challenges emerged during implementation, particularly in student engagement, emotional authenticity, cultural influences, and teacher adaptation. These challenges demonstrate the complexities of integrating SEL tools within higher education contexts, particularly within culturally specific educational environments such as Japanese EFL classrooms.

One of the primary concerns was superficial engagement, as some students clicked through check-ins without meaningful reflection, treating Reflect as a procedural task rather than an opportunity for self-assessment. Teachers noted that students often selected the same emotion repeatedly, often choosing positive or neutral options regardless of the activity. To minimize this issue, instructors introduced vocabulary building activities to strengthen emotional granularity, explicitly modeled deeper reflection during their own check-ins, and made time for class discussions linking students' chosen emotions with classroom events. These adaptations aimed to reframe the check-in process as an intentional practice rather than a compliance task. This aligns with McKeown's (2024) finding that structured reflection alone does not necessarily equate to deep introspection, especially when students are not intrinsically motivated. Similarly, Tevdovska (2017) found that students in structured SEL settings often engage in procedural compliance rather than meaningful emotional processing, raising concerns regarding the efficiency of digital self-reporting tools in developing authentic emotional awareness. To address this, instructors integrated vocabulary practice, modeled their own reflections publicly, and created low-stakes opportunities for students to link emotions with classroom experiences. These actions helped reposition Reflect as a leaning tool rather than a compliance mechanism.

A second challenge involved discrepancies between self-reported emotions and observed behaviors. While students selected calm or neutral emotional states in Reflect, their in-class demeanor often suggested higher anxiety or disengagement. Teachers observed moments where students marked themselves as "relaxed" despite appearing visibly tense before presentations. This raises methodological concerns regarding the reliability of self-reported emotional data, particularly within cultural contexts where emotional restraint is valued. These findings also corroborate prior research on social desirability bias in self-reporting emotional assessments, wherein students may select socially acceptable emotions rather than their true internal states (McKeown, 2024; Pérez-Fuentes et al., 2018). The gap between stated emotions

and behavior was particularly noticeable in classes where students feared judgment from peers, reinforcing previous findings that SEL implementation in higher education requires culturally contextualized approaches (Thomson et al., 2021). To minimize misinterpretation, instructors used these discrepancies as discussion points during their weekly reflections and refined their teaching strategies by combining Reflect data with observational insights. This helped interpret emotional patterns more contextually and responsively. Though not eliminated, the collaborative review of incongruities across data sources enabled teachers to treat emotional check-ins as one layer of emotional insight rather than an absolute indicator.

Cultural norms significantly influence emotional disclosure in Japanese educational settings. Traditional practices often discourage open emotional expression, creating barriers in both digital and face-to-face interactions (Thomson et al., 2021). Teacher reflections revealed that students frequently defaulted to reporting neutral or positive emotions, avoiding words such as "stressed" or "overwhelmed". This tendency likely stems from multiple factors: concerns about appearing vulnerable, adherence to collectivist values that emphasize group harmony over individual expression (Hosokawa et al., 2024), and cultural preferences for indirect emotional communication, which may lead to understated reporting of negative emotional experiences in self-reporting assessments (Savina & Wan, 2017). These patterns reinforce the necessity of culturally responsive SEL frameworks, particularly in educational environments where emotional expressivity is constrained by social norms. Failure to account for such cultural norms constrains emotional expression. Without proper cultural adaptation, digital emotional tracking tools may yield unreliable results in cross-cultural educational contexts (Shen, 2016; Frei-Landau et al., 2024). The group dynamic further compounds these challenges, as students demonstrate an increased reluctance to share feelings such as anxiety, frustration, or sadness, potentially due to fears of peer judgment (Campo et al., 2018). In response, teachers emphasized the anonymity of the Reflect tool, reassured students that their responses would not affect grades, and used emoji-supported vocabulary scaffolds to lower the emotional entry barrier. Some students expressed those visual tools felt safer than verbal sharing.

The integration of Microsoft Reflect as a pedagogical tool also presented challenges for instructors, particularly in the interpretation and application of real-time emotional data. Many educators lack formal SEL training, making it challenging to translate aggregated emotional trends into actionable teaching strategies (Allbright et al., 2019). One teacher's reflection emphasized difficulty with unclear emotional trends, as students consistently marked themselves as "calm" or "focused" yet appeared disengaged during activities. This aligns with previous research indicating that without professional development in SEL integration, instructors may struggle to make meaningful pedagogical adjustments based on emotional data (Zins & Elias, 2007; Keefer, Parker, & Saklofske, 2018). Without training, these tools may go underutilized, diminishing their effectiveness in building emotionally responsive learning environments.

Interestingly, while Microsoft Reflect was not designed for teachers to track their own emotions, instructors noted that their own emotional states influenced classroom dynamics. Teachers journaled and checked in with one another to discuss their experiences, frustrations, and successes with SEL integration. This aligns with the With-ness Pedagogy (Mori, 2024), which emphasizes that teachers' emotional engagement is as critical as students' in harboring a relational learning environment. The findings suggest that future iterations of digital SEL tools could benefit from dual tracking systems, allowing both students and teachers to monitor their emotional regulation over time.

While Microsoft Reflect provided a structured and scalable approach to SEL implementation, these challenges highlight the complex interplay between digital SEL, cultural norms, and pedagogical adaptation. The study is a reminder of the need for culturally responsive SEL practices, professional development for educators, and further research into how students and teachers engage with digital emotional tracking in higher education.

3. Results

3.1 Qualitative Findings

Thematic analysis of student open-ended reflections and teacher observations revealed three engagement patterns: emotional insight and vocabulary development, resistance or uncertainty toward emotional reflection, and affective neutrality or disengagement. Approximately 80.9% of students reported recognizing changes in their emotional awareness. Conversely, some students expressed skepticism about the relevance of SEL in academic English contexts; 25.2% were ambivalent about continuing Reflect, citing discomfort with personal reflection in class.

Teacher observations offered important context for interpreting student responses, particularly when discrepancies arose between self-reported emotions and observed behaviors. Instructors emphasized the need for contextualized interpretation, using Reflect data trends to adjust lesson pacing, group configurations, and classroom tone. Access to real-time emotional feedback also deepened teachers' own pedagogical and emotional awareness, promoting more intentional delivery and opening space for discussions on well-being.

To validate findings, researchers triangulated emergent themes with classroom observations and aggregated Reflect data. Notably, spikes in reported fatigue or anxiety aligned temporarily with midterm assessments or presentations, supporting the credibility of student self-reports.

These findings indicate that Microsoft Reflect was most effective when linked to tangible outcomes like vocabulary growth, but less persuasive for students who perceived emotional reflection as peripheral to language learning.

In summary, while Microsoft Reflect was positively received by many, engagement depended on classroom culture, student readiness, and teacher facilitation. Teacher reflection journals both validated student self-reports and informed adaptive pedagogy, demonstrating the need for relational and context-sensitive SEL integration in HE EFL.

3.2 Quantitative Findings

Quantitative analysis examined pre- and post-test scores on emotional regulation and classroom engagement using Microsoft Reflect and the modified ERQ-CA. Paired samples *t*-tests were conducted to compare student responses at three points across the study period. While repeated measures ANOVA would typically be suitable for studies with three or more time points, limitations in data completeness and missing values led the researchers to analyze change using paired comparisons between the first and final sessions. Statistical analyses were conducted using Microsoft Excel and SPSS version 28.

Results indicated statistically significant enhancement in stress coping strategies ($t(118) = 4.35$, $p < .001$, Cohen's $d = 0.51$) and negative emotion regulation ($t(118) = 2.23$, $p = .028$, $d = 0.28$). These outcomes suggest that students became more effective at managing stress and regulating negative emotional responses during the intervention. However, no statistically significant

changes were observed for positive emotion regulation ($t(118) = 0.55$, $p = .586$) or emotional awareness ($t(118) = 0.33$, $p = .746$). These null findings reflect cultural restraint in expressing positive affect or limitations in the students' ability to self-assess growth in these areas

4. Discussion

The implementation of Microsoft Reflect in Japanese EFL HE classrooms revealed complex dynamics at the intersection of technology, emotion, and culture. While initial student interest was sparked by the novelty of the tool, engagement remained surface-level for many. Teachers observed that students often completed check-ins quickly, with minimal reflection. These findings highlight the need to embed Microsoft Reflect within broader pedagogical frameworks rather than using it in isolation. Structured follow-up activities-such as body mapping, role play, or storytelling-proved effective for deepening emotional insight and grounding digital check-ins in relational interaction (Mori, 2024).

To enhance curricular integration, educators should adopt multimodal strategies that leverage Reflect data in project work, feedback cycles, and culturally relevant scenarios. Participatory design and co-creation of SEL activities with students, as recommended by Kohn et al. (2021), can increase ownership and engagement. Researchers agree with Simmons (2019) that emotional intelligence must be framed through culturally responsive lenses, particularly in collectivist contexts where individual disclosure may be limited.

4.1 Navigating Cultural Nuances through Adaptive SEL Design

Cultural norms significantly influenced the implementation of Reflect. Students frequently selected neutral emotions such as "calm" or "focused," even when visibly stressed, consistent with collectivist emotional norms (Savina & Wan, 2017). Teacher modelling of emotional vocabulary, using terms such as tense in context, was found to mitigate these patterns, gradually expanding students' expressiveness. To facilitate culturally relevant SEL, tools like Reflect should adapt emotional categories to include context-specific terms. Consulting local educators and students in co-developing culturally resonant vocabulary banks can bridge gaps between standardized tools and lived experience. SEL effectiveness increases when cultural assets are centered rather than marginalized.

4.2 Ethical Considerations in Emotional Data Use

Although Microsoft Reflect anonymizes responses, the normalization of emotion tracking raises ethical concerns. Teachers noted risks of institutional misuse, student discomfort, and the reduction of emotion to quantifiable data. Zuboff (2019) cautions against datafication that prioritizes system compliance over individual empowerment, while Postman (1993) warns of technology's potential to disempower educators.

Ethical guidelines should include:

- Transparent communication about data use;
- Policies prohibiting SEL data in academic assessment;
- Shared teacher-student discussions on emotional trends to empower rather than surveil.

Equity-oriented SEL must also address how data systems may reinforce bias or stigma, requiring teacher training in ethical data use and culturally aware interpretation.

4.3 Technology as a Catalyst, not a Substitute

The most meaningful SEL outcomes occurred in interpersonal moments enabled by Reflect, not within the tool itself. Teachers consistently reported that discussions, informal check-ins,

and collaborative work provided deeper emotional insight than digital check-ins alone. This supports the With-ness Pedagogy framework (Mori, 2024), which prioritizes relational engagement. Reflect's value lies in prompting reflection and dialogue, not replacing them. Future SEL technologies should emphasize teacher adaptability, student co-authorship, and integration with non-digital practices. Novice educators, in particular, benefit when SEL tools are paired with human-centered coaching and peer learning communities.

4.4 Directions for Future Research and Pedagogical Innovation

Further research is needed to assess long-term impacts of Reflect, including longitudinal studies on emotional competency and comparative studies across cultural contexts (Shen, 2016). Participatory methodologies, where students co-interpret their data, can foster ownership and disrupt hierarchical learning models. Design-based research could iteratively refine SEL tools in partnership with users. Teacher professional development should focus on culturally responsive, trauma-informed strategies, moving beyond generic SEL frameworks. Johnson's (2021) Know, Choose, Give model exemplifies choice-driven, relational SEL practices.

4.5 Final Reflections: Toward Human-Centered Emotional Learning

The adoption of Microsoft Reflect in Japanese EFL classrooms revealed both potential and limitations. While students engaged with the tool, genuine emotional learning emerged through human interaction, reflective dialogue, and culturally sensitive guidance.

"We need to be careful that we're not just teaching students to 'log emotions' but to actually reflect on them." (Teacher 2 reflection, 2024)

In an era increasingly shaped by algorithms, SEL must remain a human-centered endeavor. It should cultivate emotional literacy, critical thinking, and collective well-being, using technology as a relational bridge rather than a replacement.

5. Conclusion and Future Research

This study examined the integration of Microsoft Reflect in Japanese EFL university classrooms to support SEL. While Reflect provided structured opportunities for emotional check-ins, the most meaningful growth occurred when digital prompts were embedded within relational pedagogical practices. This finding reinforces Keefer et al.'s (2018) argument for contextually grounded, educator-led SEL, and aligns with Mori's (2024) With-ness Pedagogy, which emphasizes the relational dimension of emotional learning.

Educators should view SEL technology as a supplement-not a substitute-for human interaction. Effective implementation requires integrating emotional data into class discussions, providing reflective language support, and adapting strategies to learners' cultural and developmental contexts. Recommended strategies include:

- Pairing Reflect check-ins with guided reflection prompts
- Incorporating culturally relevant emotional vocabulary
- Allocating time for peer and teacher-student emotional dialogue
- Engaging in professional learning focused on trauma-informed and culturally responsive SEL

Teacher reflections highlighted challenges with surface-level engagement, echoing McKeown (2024) and Tevdovska (2017), who caution against equating procedural interaction with authentic emotional reflection. Tools perceived as performative can mask disengagement.

The study also raised structural and ethical considerations. Although Reflect anonymizes responses, concerns persist regarding data interpretation, emotional authenticity, and potential institutional misuse. Clear ethical guidelines, as outlined by El Mallah (2022), are needed to ensure responsible and equitable use of emotional data.

Future research should:

- Conduct longitudinal studies to assess sustained emotional growth
- Examine cross-cultural applications of digital SEL in collectivist versus individualist contexts (Shen, 2016)
- Investigate co-design of SEL tools with students and faculty (Mahfouz & Anthony-Stevens, 2020)
- Explore emotional labor and reciprocal SEL growth within relational pedagogy (Gkonou & Miller, 2023)

In sum, effective SEL in HE must transcend compliance-oriented checklists, becoming a collaborative, reflective, and culturally attuned process. The value of digital SEL tools like Reflect lies not in their algorithms, but in their integration into classroom relationships that prioritize human dignity, emotional honesty, and shared learning.

Acknowledgements
We would like to thank the participating students and institutions for their support. This study was conducted without any external funding.

References

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Burić, I., & Frenzel, A. C. (2023). Teacher emotions and student outcomes: Examining the impact of emotional regulation strategies. *Educational Psychology Review, 35*(1), 45-67. https://doi.org/10.1080/00461520.2021.1985501

Campo, M., Martinent, G., Pellet, J., Boulanger, J., Louvet, B., & Nicolas, M. (2018). The role of emotional regulation in team sports: Evidence from competitive settings. *Psychology of Sport and Exercise, 35*(3), 43–50. https://doi.org/10.1177/1747954118785256

Clark, V. L. P., & Creswell, J. W. (2007). *Designing and conducting mixed methods research*. Sage.

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2020). *CASEL framework: Core competencies of social and emotional learning*. CASEL. https://casel.org/core-competencies

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2019). Implications for educational practice of the science of learning and development. *Applied Developmental Science, 24*(2), 97-140. https://doi.org/10.1080/10888691.2018.1537791

Dewaele, J. M. (2019). *Emotions in second language acquisition*. Cambridge University Press.

Elmi, M. (2020). Social-Emotional Learning: A critical review of research and practice. *Educational Psychology Review, 32*(3), 845-872.

Gkonou, C., & Miller, E. (2023). Relationality in language teacher emotion regulation: Regulating emotions through, with, and for others. *System*. https://doi.org/10.1016/j.system.2023.102983

Gullone, E., & Taffe, J. (2012). The Emotion Regulation Questionnaire for Children and Adolescents (ERQ–CA): A psychometric evaluation. *Personality and Individual Differences, 24*(2), 409–417.

Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education, 1*(1), 3-10. https://doi.org/10.1111/j.1751-228X.2007.00004.x

Johnson, L. (2021). *Know, choose, give curriculum: A practical guide for personal & professional success using the Six Seconds emotional intelligence framework* (2nd ed.). Six Seconds. https://www.6seconds.org/2010/01/27/the-six-seconds-eq-model/

Kohn, S., Foulds, K., Cole, C., Matthews, M., & Hussein, L. (2021). Using a participatory approach to create SEL programming: The case of Ahlan Simsim. *Journal on Education in Emergencies, 7*(2), 288. https://doi.org/10.33682/hxrv-2g8g

Lin, J., & Wang-Hiles, A. (2024). Digital divides in the use of technology for social-emotional learning: Perspectives from elementary school teachers during the COVID-19 pandemic. *TechTrends, 68*(1), 145-167.

Mahfouz, J., & Anthony-Stevens, V. (2020). Why trouble SEL? The need for cultural relevance in SEL. *Occasional Paper Series, 2020*(43). https://doi.org/10.58295/2375-3668.1354

McCallops, K., Barnes, T. N., Berte, I., Fenniman, J., Jones, I., Navon, R., & Nelson, M. (2019). Incorporating culturally responsive pedagogy within social-emotional learning interventions in urban schools: An international systematic review. *International Journal of Educational Research, 94*, 11–28. https://doi.org/10.1016/j.ijer.2019.02.007

McKeown, D. (2024). *What teachers say versus what they do: Bridging theory and practice in education*. Routledge.

Mercer, S., & Gkonou, C. (2020). Teaching emotional resilience in the language classroom. *ELT Journal, 74*(2), 123-132. https://doi.org/10.1093/elt/ccz054

Michalec, P., & Wilson, J. L. (2022). Truth hidden in plain sight: How social–emotional learning empowers novice teachers' culturally responsive pedagogy in schools. *Journal of Education, 202*(4), 496–506. https://doi.org/10.1177/0022057421991866

Mori, L. (2024). Enhancing planetary well-being through "With-ness" pedagogy in social-emotional learning: Critical theoretical engagements. *Antioch University Dissertations*. https://aura.antioch.edu/etds/1087

Mori, S. (2022). Silence in intercultural communication: East Asian perspectives. *Journal of Intercultural Communication Research, 51*(2), 1-18.

Nature. (2024). Ethical concerns in educational technology: The impact of AI-driven SEL tools. *Nature Reviews Psychology, 2*(3), 112–118.

Penton Herrera, R. (2020). *Emotional intelligence in language education: The role of SEL in student engagement and well-being*. Routledge.

Simmons, D. N. (2019). You can't be emotionally intelligent without being culturally responsive: Why FCS must employ both to meet the needs of our nation. *Journal of Family & Consumer Sciences, 111*(2), 7–16. https://doi.org/10.14307/JFCS111.2.7

Six Seconds. (2020). *The Six Seconds emotional intelligence framework*. Six Seconds Organization. Retrieved from https://www.6seconds.org/emotional-intelligence/

Srinivas, A. (2023). Ethical considerations in AI-driven education: Insights from Perplexity AI. *Journal of AI & Society, 35*(4), 389–407.

Stillman, P. E., Epelbaum, E. S., Orme, T. L., & Gallagher, T. H. (2018). Lost in translation: Faculty perspectives on teaching and assessing professionalism in health sciences education. *Academic Medicine, 93*(1), 99-106.

Thomson, R., Shin, J., & Yashiro, K. (2021). Emotional expression in Japanese EFL classrooms: Cultural influences on teacher-student interactions. *Language and Emotion Quarterly, 14*(1), 56-78.

Wang, Y., Zhao, Y., & Koh, P. W. (2024). Social-emotional learning in online language education: A systematic review. *Computer Assisted Language Learning, 27*(4), 1-23. https://doi.org/10.1080/09588221.2023.2171424

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. PublicAffairs.

Current Status and Implementation Challenges of Electronic Clinical Nursing Records for Students

Sakiko Sumai[a,*] ,Norio Ishii[b]
[a] Faculty of Nursing Shubun University Aichi, Japan
E-mail address: sumai.s@shubun.ac.jp

[b] School of Nursing Ichinomiya Kenshin College Aichi, Japan
E-mail address: n.ishii.t@ikc.ac.jp

Abstract

This study examined the current status and implementation challenges of electronic clinical nursing records among nursing students in Japan. A survey of 400 nurses at clinical training facilities established that only 42.3% (n=169) of the facilities permitted nursing students to use digital devices during clinical training. Significant variations were observed across healthcare settings, with general hospitals comprising the largest group (52.1%) that allowed digital device use. Most facilities permit only offline entry of clinical records and self-learning materials, thus indicating a cautious approach to digitalization. Wi-Fi usage policies varied considerably; 24.3% of facilities prohibited Wi-Fi entirely, while 43.2% permitted usage under specific conditions. The primary implementation challenges were related to information security concerns, although opportunities exist for phased implementation approaches beginning with offline applications. The gap between digitally prepared nursing students from the GIGA School Initiative era and current clinical environments highlights the urgent need for strategic planning to advance digitalization. To better prepare future nursing professionals for increasingly digitalized healthcare environments, this research provides foundational data for developing effective implementation strategies, including security guidelines, digital literacy enhancement for clinical nurses, and strengthened collaboration between educational institutions and clinical facilities.

Keywords: Nursing education, electronic documentation, clinical training, digital transformation, information security

1. Background

In recent years, digital transformation (DX) has progressed rapidly in healthcare settings and educational fields, and its influence has expanded, particularly in nursing education. The World Health Organization (WHO, 2020) published the state of the world's nursing 2020: investing in education, jobs and leadership," which emphasizes that the utilization of digital technology (DT) in nursing education is essential for the future development of nurses' competencies. In Japan, the Ministry of Health, Labour, and Welfare has been promoting initiatives for ICT utilization in nursing education (MHLW, 2022).

Nursing students must accurately understand patients' conditions during clinical training to provide appropriate nursing care, and clinical training records are necessary to visualize these processes. Such records serve as an important tool for students to reflect on their learning and conduct self-assessment, while simultaneously providing a foundation for faculty and instructors to evaluate student growth. However, traditional paper-based recording methods present challenges in terms of information management and sharing, consequently raising concerns regarding wasted time and potential information leakage.

The Japanese Nursing Association (2021) has highlighted the importance of utilizing digital technology in nursing practice in its revised nursing practice standards. Furthermore, the recent coronavirus disease (COVID-19) pandemic has emphasized the necessity of digitalization in nursing education. The MHLW's "Nursing Basic Education Review Committee" also recommends the introduction of teaching methods utilizing ICT (MHLW, 2019).

Therefore, the digitalization of nursing students' clinical training records has garnered attention as a solution to these challenges. Digitalization facilitates the storage and retrieval of records, thereby enabling swift data analysis and sharing. In addition, data obtained from clinical training records may contribute to improving educational curricula and enhancing the quality of nursing practice.

However, the implementation of electronic clinical training records requires the understanding and cooperation of hospitals that accept nursing students in clinical training. Understanding how these hospitals perceive and conceptualize the digitalization of nursing students' clinical training records is extremely important in determining the direction of future initiatives. In particular, healthcare-specific challenges such as the confidentiality of medical information, protection of patient privacy, and response to security risks need to be considered.

This study investigated how hospitals accepting nursing students for clinical training perceive the digitalization of the aforementioned training records and clarified their current status and perspectives. Specifically, we aimed to contribute to the promotion of DX in nursing education by elucidating the actual record management practices in hospital nursing departments, their awareness of digitalization, challenges for implementation, and expectations.

2. Methods

2.1 Research Objective

To propose effective implementation strategies for digitizing clinical training records in nursing education, this study investigated the perceptions of nurses in clinical training facilities regarding the digitalization of such training records, clarify the current status of digital device usage, identify differences in perceptions based on facility types, and elucidate the advantages and challenges from the perspective of clinical nurses.

2.2 Definition of Terms

1. Nursing Clinical Training Records: Documents recording knowledge, skills, and patient interactions acquired by nursing students during clinical training. These included patient assessment data, care plans, implemented nursing interventions, outcome evaluations, and reflective records of learning experiences. The records presented here can serve as educational tools.

2. Digitalization of Nursing Records: The conversion of traditional paper-based records to a digital format for electronic management. This includes not only the transition from paper to electronic format but also the implementation of systems that enable data input, storage, and sharing through digital platforms.

3. Nursing Education: Educational curricula and programs for professional nursing development. These include theoretical instruction in classrooms, skill training in simulation laboratories, and supervised clinical practices in healthcare settings. Nursing education aims to develop competent professionals with the knowledge, skills, and attitudes necessary to provide safe, effective, and compassionate care to patients in diverse healthcare environments.

4. GIGA School Initiative: This national educational policy initiative was launched by the Japanese Ministry of Education, Culture, Sports, Science, and Technology in 2019. It aimed to provide every student with one computing device and establish high-speed internet infrastructure in all elementary and secondary schools by 2023. GIGA stands for “Global and Innovation Gateway for All,” representing Japan’s commitment to integrating digital technology into education to foster 21st-century skills and prepare students for a digitalized society (Ministry of Education, Culture, Sports, Science and Technology, 2019).

5. Digital Transformation (DX): This refers to the comprehensive integration of digital technology into all areas of business, education, and healthcare which fundamentally changes how organizations operate and deliver value to their stakeholders. In the healthcare context, DX encompasses the adoption of electronic health records, telemedicine, digital communication systems, and data analytics to improve the quality of patient care, operational efficiency, and decision-making processes. DX represents not only the digitization of existing processes but also a fundamental rethinking of how technology can enhance and transform traditional practices (Ministry of Health, Labour and Welfare, 2020).

2.3 Methods

1. Survey period and subjects
Survey period: May 1–31, 2024
Survey subjects: 400 nurses at hospitals accepting training

2. Data gathering and analysis method
The questionnaires were distributed online. The questions covered topics such as nursing students' awareness, expectations, and concerns regarding the digitalization of training records. Responses were gathered in a multiple-choice format.

Only nurses who answered "our facility allows nursing students to use digital devices (computers and tablets) in the hospital" were extracted from the obtained data, which were tabulated and analyzed to understand the situation. Specifically, the frequency of responses to the choices was calculated, the proportion of each item was determined, and cross-tabulation was performed to clarify trends in nurses' awareness and attitudes.

2.4 Ethical Considerations
The objectives and content of the research, as well as the freedom to participate, were thoroughly explained to the nurses participating in the survey. To protect privacy, responses were provided anonymously so that individuals could not be identified, and personal information and response content were strictly managed. In the research results, measures were also taken to prevent individuals from being identified. Data handling was restricted to a limited number of members of the research team with access privileges.

This study was approved by the Shubun University Research Ethics Review Committee (2023SR003).

3. Results

3.1 Overview of Research Subjects
Among 400 nurses working in facilities that accept nursing students for clinical training, this study focused on 169 nurses currently working in hospitals that permit them to use digital devices (computers/tablets). The remaining 231 nurses worked at facilities that did not permit digital device use by nursing students at the time of this study. Responses from these nurses were excluded from the analysis to examine the current practices and perceptions of digitally enabled facilities.

The breakdown of the types of facilities where the participants worked was as follows: 88 (52.1%) in general hospitals, 17 (10.1%) in advanced treatment hospitals, 13 (7.7%) in psychiatric hospitals, and 13 (7.7%) in clinics. The other category includes facilities covered by long-term care insurance and health facilities.

3.2 Perceptions and Actual Conditions of Bringing in Digital Devices
When nurses working at facilities that allow digital devices to be brought in were asked about the "specifics of permitted use" when nursing students use such devices within the facility, the responses predominantly indicated that offline text reading and record-keeping were recommended (Table 1).

Table 1
Specifics of Permitted Use by Nursing Students of Digital Devices (Computers/Tablets) in Hospitals

Spesifics	Cases (N)	Percentage (%)
1. Students are allowed to use Wi-Fi independently at any time and location	34	20.1%
2. Students are allowed to use Wi-Fi independently at designated times and locations	39	23.1%
3. Students are allowed to use Wi-Fi at any time and location if a faculty member is present	15	8.9%
4. Students are allowed to use Wi-Fi at designated times and locations if a faculty member is present	21	12.4%
5. Students are allowed to use Wi-Fi independently only when contacting their supervising faculty members (instructors)	6	3.6%
6. Students are allowed to use Wi-Fi if a supervising faculty member is present, but only when contacting their supervising faculty members	19	11.2%
7. Wi-Fi use is not permitted at any location within the facility	41	24.3%
8. Other	14	8.3%

When asked about Wi-Fi usage, “Wi-Fi use is not permitted at any location within the facility” was the most common response, with 41 cases (24.3%), followed by “students are allowed to use Wi-Fi independently at designated times and locations,” with 39 cases (23.1%), and "students are allowed to use Wi-Fi independently at any time and location," with 34 cases (20.1%).

The perceptions of each facility type for each specific permission are listed in Table 2.
In the breakdown of permission for offline use, “keeping training records and self-study notes offline” was the most recommended use. By facility type, facilities covered by long-term care insurance were the highest at six cases (66.7%), followed by advanced treatment hospitals at 10 cases (58.8%), and general hospitals at 40 cases (45.5%). This variation may reflect differences in digital infrastructure and risk management approaches across facility types. Long-term care facilities often have less comprehensive IT infrastructure than acute care hospitals, making offline solutions more practical and secure for initial digital implementation (Ministry of Health, Labour and Welfare, 2020). Advanced treatment hospitals, despite having sophisticated medical technology, may prioritize cautious approaches to student digital device use owing to heightened security concerns. These concerns may relate to sensitive patient data and complex clinical environments. Clinics were the facilities that most recommended “reading digital textbooks (e-texts) offline” with nine cases (69.2%).

Table 2

Specific Permissions for Each Facility (Multiple Answers Allowed)

Facility type	Total	Reading digital textbooks (e-text) online	Reading digital textbooks (e-text) offline	Keeping training records and self-study notes online	Keeping training records and self-study notes offline	Other
General hospital	88	26	25	17	40	11
	100.0%	29.5%	28.4%	19.3%	45.5%	12.5%
Advanced treatment hospital	17	4	5	1	10	3
	100.0%	23.5%	29.4%	5.9%	58.8%	17.6%
Regional medical care support hospital	8	1	3	2	0	3
	100.0%	12.5%	37.5%	25.0%	0.0%	37.5%
Mental hospital	13	3	3	2	5	2
	100.0%	23.1%	23.1%	15.4%	38.5%	15.4%
Clinic	13	7	9	5	6	1
	100.0%	53.8%	69.2%	38.5%	46.2%	7.7%
Birthing center	2	0	1	0	1	0
	100.0%	0.0%	50.0%	0.0%	50.0%	0.0%
Home nursing station	7	4	2	4	3	0
	100.0%	57.1%	28.6%	57.1%	42.9%	0.0%
Facility for long-term care, etc	9	1	2	3	6	0
	100.0%	11.1%	22.2%	33.3%	66.7%	0.0%
Social welfare facility	1	1	0	0	0	0
	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%
Prefecture	1	0	0	0	0	1
	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Municipality	4	1	0	4	1	0
	100.0%	25.0%	0.0%	100.0%	25.0%	0.0%
Place of business	3	0	1	0	2	0
	100.0%	0.0%	33.3%	0.0%	66.7%	0.0%
Other	3	1	1	1	1	0
	100.0%	33.3%	33.3%	33.3%	33.3%	0.0%

The high percentage of clinics recommending reading digital textbooks offline may be attributed to their characteristics. These facilities operate on a smaller scale and have less comprehensive IT infrastructure, making offline access of digital resources more manageable and cost-effective than online systems, which require robust network security and maintenance (Japan Nursing School Council, 2024).

Conversely, at home nursing stations, both “reading digital textbooks (e-texts) online” and “keeping training records and self-study notes online” were permitted, with four cases (57.1%) each.

This higher acceptance of accessing digital resources online aligns with recent digitalization initiatives in home-visit nursing services. The Ministry of Health, Labour and Welfare's notice regarding the digitalization of home-visit nursing claims and online eligibility verification beginning in 2024 has likely accelerated digital adoption in these settings (Ministry of Health, Labour and Welfare, 2023). Home nursing stations, operating in community-based care environments, may also have more flexibility to implement digital technologies than hospital-based facilities with stricter institutional policies and security protocols.

4. Discussion

Since only 169 of the 400 nurses (approximately 42.3%) work at facilities that permit nursing students to use digital devices, we can conclude that facilities implementing digital device utilization for nursing students in Japan have not yet reached half. This result reflects the progress of digitalization in Japanese medical institutions. According to a survey by the MHLW, the adoption rate of electronic medical records varies significantly by hospital size, reaching 91.2% in hospitals with 400 or more beds and remaining at 48.8% in those with fewer than 200 beds, thus indicating disparities in healthcare digitalization (MHLW, 2020).

While healthcare digitalization is globally recognized as important for modernizing medical education, Japan's 42.3% implementation rate suggests that the country faces unique challenges that warrant further investigation in the healthcare education context.

However, students receiving nursing education benefitted from the GIGA School Initiative, implemented in 2022, which provides each student with one computing device. Therefore, "considering students who have studied in such learning environments are entering nursing programs, an urgent need exists to consider the development of learning environments suited to these students, specifically, the digitalization of nursing education institutions" (Japan Nursing School Council, 2024).

Additionally, while over half of the survey respondents worked in general hospitals, such hospitals without specific specializations and with 20 or more beds are the most common in Japan. Therefore, many of the facilities used by nursing students for clinical training are likely to be general hospitals. Consequently, we need to consider response strategies to understand that only approximately 40% of facilities support the introduction of digital devices.

There are significant economic barriers to implementation, particularly in smaller facilities. As noted in the Japan Nursing School Council (2024) survey on digital transformation in nursing education institutions, the economic burdens on both educational institutions and clinical facilities present major DX implementation challenges. Initial investments include hardware procurement, software licensing, system integration, and cybersecurity measures. Infrastructure challenges, particularly inadequate broadband connectivity in rural areas and cybersecurity requirements, further complicate DX implementation for smaller facilities with limited budgets and resources.

Regarding Wi-Fi usage, 24.3% responded that "Wi-Fi use is not permitted in any area within the facility," which indicates a limiting factor for digital device implementation in clinical training. This likely stems from concerns about security risks in medical institutions. The MHLW's (2024) "Guidelines for Safety Management of Medical Information Systems" include countermeasures against cyber-attacks on medical institutions and data protection, ultimately emphasizing the importance of information security.

Regarding information ethics in digitalizing nursing students' clinical records, Sumai and Ishii (2024) note that "digitalized clinical records may contain not only patients' but also students' personal and confidential information from clinical facilities." They also warn about digital-specific information leakage risks, stating that "if information leaks, it is easily duplicated and disseminated, potentially causing greater losses than with handwritten records." As countermeasures, they emphasize the importance of maintaining awareness as record

management supervisors and implementing “thorough security measures,” “appropriate file sharing settings,” and “regular deletion of unnecessary files.”

However, our findings indicate that relatively many facilities (43.2% = 23.1% + 20.1%) permit Wi-Fi use at designated times and places, which suggests the possibility of digital device implementation under certain conditions. Kitae (2024) reports on the digitalization of clinical records using Learning Management Systems, beginning with offline use in limited locations and times and gradually transitioning to online environments, and suggests the effectiveness of such a phased approach.

Furthermore, the results clarified that online usage was permitted at home-visit nursing stations. This background includes the notification from Japan’s MHLW (2023) that electronic claim processing for home-visit nursing (medical insurance claims) and online eligibility verification for home-visit nursing would begin in 2024. The timing of the expanding role of DT in nursing education and the digitalization of home-visit nursing are considered factors that contribute to greater acceptance.

This survey also revealed that many facilities recommend offline entry of clinical records as well as offline self-learning. This indicates that digitalization may be initiated for medical institutions that do not initially have an Internet connection.

As the online use of digital textbooks and clinical records progresses, students can learn more flexibly, potentially leading to improved practical skills.

Future research is needed to verify the impact of digital device utilization on nursing students’ learning outcomes and performance in clinical training. Meanwhile, improving the Wi-Fi environment at each facility and providing digital literacy education for nurses have been identified as important for promoting digital device use. Currently, we are continuing research on balancing digitalization in nursing education with approaches to hedge the risks inherent in digitalization. We hope that these foundational efforts will lead to future development of DX in nursing education.

5. Limitations of Research

This study has several important limitations that should be considered when interpreting the findings. Notably, the analysis was restricted to facilities that accept nursing students rather than including all hospitals nationwide; therefore, careful consideration is required when interpreting the research results.

Including the perspectives and circumstances of hospitals that do not accept nursing students would facilitate a more comprehensive and balanced analysis. Such hospitals may have different management policies, organizational structures, or operational challenges, potentially strengthening our research conclusions through comparative examination. A comparative examination of these facilities could provide a clearer understanding of how their characteristics differ from that of student-accepting facilities.

Additionally, excluding hospitals that do not accept nursing students may have introduced selection bias. By overlooking the unique operational patterns and practices of these hospitals, we may not have adequately captured the important factors influencing hospital operations and digital transformation outcomes.

Consequently, future research should include both types of hospitals—those that accept nursing students and those that do not. This approach would establish a more reliable analytical framework and improve the generalizability of the research findings.

6. Conclusion

From the results, the following conclusions were drawn regarding the current status and challenges of digitalizing nursing students' clinical training records.

1. Facilities permitting nursing students to use digital devices comprised approximately 42% of the total, which indicates that the progress of digitalization in Japanese nursing education is still developing.

2. Differences exist in digital device usage permissions by facility type; home-visit nursing stations have relatively high online usage permission rates, whereas general hospitals tend to have more restrictions.

3. Regarding Wi-Fi usage, approximately 24% of facilities completely prohibit it, with security concerns serving as barriers to digitalization.

4. Offline entry of clinical records and self-learning are most commonly permitted, thus suggesting that phased digitalization that does not require an Internet connection is a realistic approach.

5. To promote the digitalization of clinical training records, guidelines addressing medical institutions' security concerns need to be developed, education provided to improve nurses' digital literacy, and the collaboration between educational institutions and medical facilities strengthened.

These results provide fundamental data for promoting DX in nursing education and will contribute to the development of strategies for digitalizing clinical training records.

Continuous research and practical accumulation are required to realize nursing education that responds to students from the GIGA School Initiative.

Acknowledgements: This research was supported by a Grant-in-Aid for Scientific Research (Grant Number 21K10590). We would like to thank Editage (www.editage.jp) for English language editing.

Conflicts of interest: The authors declare that they have no conflicts of interest.

7. References

Japanese Nursing Association. (2021). Nursing practice standards (2021 revised editio n). *Japanese Nursing Association Journal Nursing, 74*(1), 30.

Japan Nursing School Council (2024). *Survey Report on Promoting Digital Transform ation in Nursing Education Institutions*. March 2024. https://www.nihonkango.org/r eport/recruitment/pdf/r5_DXreport.pdf

Kitae, M. (2024). *Digitalization of clinical training records in nursing education*. Nurs ing Education Information Site NurSHARE. Retrieved from https://www.nurshare.j p/article/detail/10545

Ministry of Education, Culture, Sports, Science, and Technology. (2019). *Realization o f GIGA School Initiative*. Retrieved from https://www.mext.go.jp/a_menu/other/inde x_00001.htm

Ministry of Health, Labor, and Welfare. (2019). *Nursing basic education review comm ittee report*. Retrieved from https://www.mhlw.go.jp/stf/newpage_07297.html

Ministry of Health, Labor, and Welfare. (2020). *Promoting digitalization in the medic al field.* Retrieved from https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kenkou_iry ou/iryou/johoka/index.
html

Ministry of Health, Labor, and Welfare. (2022). Promoting of ICT Education in nursin g schools. Medical Policy Nursing Notice 0930, No. 1.

Ministry of Health, Labor, and Welfare. (2023). *Digitalization of home-visit nursing cl aims (medical insurance claims)*. Retrieved from https://www.mhlw.go.jp/stf/seisaku nitsuite/bunya/0000190624_00002.html

Ministry of Health, Labor, and Welfare. (2024). *Cybersecurity measures in the medica l field.* Retrieved from https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kenkou_iryo u/iryou/johoka/cybersecurity.html

Sumai, S., & Ishii, N. (2024). Actual digitalization of clinical records [4] - Informatio n ethics in digitizing clinical training records. Nursing Education Information Site NurSHARE. Retrieved from https://www.nurshare.jp/article/detail/10571

World Health Organization. (2020). *State of the world's nursing 2020: Investing in education, jobs, and leadership*. Retrieved from https://www.who.int/publications/i/item/9789240003279


HEF
Higher Education Forum