



Learning Design Preferences of Midwifery Students Following Emergency Remote Learning: A Qualitative Content Analysis to Inform Blended Learning Development

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Abstract. Blended learning is increasingly integrated into health professions education, yet its effectiveness hinges on aligning learning modalities with target competencies. This study aimed to explore midwifery students' learning-design preferences following emergency remote learning and to identify their implications for competency-based blended learning development. A secondary qualitative content analysis was conducted using open-ended survey responses from midwifery students at Poltekkes Kemenkes Pangkalpinang. Out of 98 eligible respondents, 86 usable responses were included in the final analysis. Data were analyzed using conventional qualitative content analysis with research-team consensus. Four main themes emerged: (1) the continuing importance of face-to-face learning; (2) the purposeful integration of online theory and campus-based practical training; (3) the need for flexible organization of face-to-face learning; and (4) the demand for accessible, well-structured, and engaging digital learning. Students viewed online and face-to-face formats as complementary rather than competing modalities. These findings indicate that blended learning in midwifery education should be competency-driven, leveraging digital modalities for theoretical preparation and flexibility, while reserving face-to-face environments for hands-on skills, direct interaction, immediate feedback, and experiential learning.

Keywords: Blended Learning; Emergency Remote Learning; Learning Design; Midwifery Education; Qualitative Content Analysis.

1. INTRODUCTION

Digital and blended learning have become increasingly important in contemporary health professions education. The World Health Organization (WHO) Academy currently promotes competency-based learning through multiple delivery modes, including e-learning, blended learning, instructor-led learning, simulation, and workplace-based learning. This reflects a shift from asking whether digital learning should be used toward determining how different learning modalities can be combined to achieve specific competencies. (WHO, 2024).

This challenge is particularly important in midwifery education. The International Confederation of Midwives (ICM) defines essential competencies for entry to midwifery practice as an integration of knowledge, skills, and professional behaviours, which are expected outcomes of pre-service midwifery education (ICM, 2024). Recent evidence also indicates that blended learning can support academic performance, skill development, engagement, and self-directed learning in health professions education, although its effectiveness depends on appropriate instructional design (Li et al., 2025). In midwifery specifically, blended approaches combining online preparation with face-to-face clinical skills practice have been reported to improve students' confidence and preparedness for competency assessment (Brereton et al., 2022).

Evidence from developing and low- and middle-income settings suggests that blended learning is increasingly being implemented beyond emergency remote education and is moving toward more structured, competency-oriented models. In Kenya and Nigeria, a blended programme combining self-directed online modules with face-to-face practical training improved midwifery educators' knowledge, teaching skills, and confidence, although internet connectivity and technological limitations remained important implementation challenges (Shikuku et al., 2024). In Pakistan, blended approaches have also been associated with improved learning outcomes among medical and dental students, while technological competence, self-regulated learning, and institutional support were identified as important determinants of successful implementation (Ashraf et al., 2024; Iqbal et al., 2024). Together, these developments suggest a shift toward deliberately combining digital learning for preparation and theoretical content with face-to-face learning for practice, feedback, and competency development

In Indonesia, digital transformation in midwifery education is progressing, but curriculum readiness remains uneven. A review of midwifery curriculum adaptation identified limitations in infrastructure, educators' digital literacy, and institutional readiness as major barriers to technology integration, highlighting the need for systematic curriculum reform and stronger institutional support (Aruani & Susanti, 2025). More recent evidence from Indonesian midwifery students also demonstrates a gap between high student readiness to use digital technology and the availability of clinically relevant digital learning content, suggesting that technology adoption should be accompanied by intentional curriculum design that connects digital learning with professional competencies (Silmi et al., 2026).

The experience of emergency remote learning during the COVID-19 pandemic provides an important opportunity to examine this question from the learner perspective. Unlike intentionally designed blended learning, the rapid transition to online education during the pandemic was primarily implemented to maintain educational continuity. After experiencing this transition over an extended period, students were able to identify learning activities that could be supported digitally and those that still required direct interaction, practical experience, or physical presence. Post-pandemic evidence continues to support the relevance of these experiences. A multicountry study found that medical students valued the flexibility and accessibility of online education. However, they regarded direct patient contact and clinical experience as difficult to replace virtually. Consequently, blended learning emerged as their most preferred modality (Seed Ahmed et al., 2025). More recent research in Indonesian midwifery education has likewise continued to investigate how technology-

enhanced learning strategies can be designed around students' competency and learning needs, indicating that student-informed digital learning design remains relevant beyond the pandemic period (Susanti et al., 2026).

An earlier publication from the same parent dataset showed that midwifery students from Poltekkes Kemenkes Pangkalpinang and Poltekkes Kemenkes Aceh perceived conventional learning as more effective than e-learning for developing knowledge, clinical skills, and social competence, although e-learning was still considered a potentially useful educational approach. However, that publication focused on mental health, perceptions of e-learning, and comparisons between e-learning and conventional learning, while students' open-ended responses regarding their preferred learning design were not qualitatively analysed (Permata et al., 2022) . The present secondary analysis therefore focuses specifically on these previously unexamined responses to explore how students envisioned the appropriate use of online and face-to-face learning.

Understanding these preferences remains relevant beyond the pandemic because blended learning is increasingly integrated into health professions education. Rather than interpreting pandemic-era responses as current preferences, these experiences can provide lessons for designing more intentional and competency-oriented blended learning. Therefore, this study aimed to explore midwifery students' learning-design preferences following emergency remote learning and to identify how these preferences could inform the development of blended learning in midwifery education. The novelty of this study lies in moving beyond comparisons of online and conventional learning to examine how midwifery students envision the purposeful distribution of theoretical, practical, and interactive learning activities across modalities, thereby informing a competency-driven approach to blended learning design.

2. RESEARCH METHOD

Study Design

This study employed a secondary qualitative content analysis. Data were derived from open-ended survey responses collected during a previous cross-sectional study on midwifery students' e-learning experiences amid the COVID-19 pandemic. The parent study was conducted online among midwifery students from Poltekkes Kemenkes Pangkalpinang and Aceh between 8 and 22 October 2021. The present analysis focused specifically on the previously unexamined open-ended responses concerning students' preferred learning design following their experience of emergency remote learning.

Participants and Data Source

The parent dataset included 222 midwifery students, of whom 98 were from Pangkalpinang. For this secondary analysis, only the Pangkalpinang dataset was used. Of 100 records available in the Pangkalpinang dataset, **98 respondents had provided consent to participate** and were therefore eligible for analysis. Among these, **88 students provided usable responses to the open-ended question** and were included in the qualitative content analysis, leaving 86 responses for qualitative content analysis.

The qualitative data were derived from the question: “Menurut anda pembelajaran seperti apa yang sesuai dan anda inginkan selama pandemi Covid-19 ini?” For the English manuscript: “What type of learning do you consider appropriate and prefer during the COVID-19 pandemic?” Responses were originally written in Bahasa Indonesia.

Data Analysis

The open-ended responses were analysed using conventional qualitative content analysis. All responses were read repeatedly to obtain an overall understanding of the data. Meaningful words, phrases, and statements related to students’ preferred learning modalities and learning conditions were identified and assigned initial codes. Similar codes were grouped into categories and subthemes, which were subsequently organised into broader themes representing students’ preferred learning designs.

The initial coding was conducted by one researcher and subsequently reviewed by another member of the research team. Differences in coding, categorisation, and theme development were discussed among the research team until consensus was reached. The analysis was conducted using the original Bahasa Indonesia responses, and representative quotations selected for publication were translated into English while preserving their intended meaning.

Ethical Considerations

The parent study received ethical clearance from the Ethics Committee of Poltekkes Kemenkes Pangkalpinang on 5 October 2021. All participants received information regarding the study and provided informed consent prior to participation. The present study represents a secondary qualitative analysis of data collected under this approved protocol.

3. RESULTS AND DISCUSSION

Results

Among the 98 eligible respondents from Pangkalpinang, 88 provided responses to the open-ended question regarding their preferred learning design. Two responses contained no

interpretable information (“–” and “.”), resulting in 86 responses included in the qualitative content analysis. The respondents represented all three academic levels: 32 (37.2%) were first-year students, 38 (44.2%) were second-year students, and 16 (18.6%) were third-year students. Most respondents were aged 18–19 years.

The content analysis identified four main themes: (1) the continuing importance of face-to-face learning, (2) purposeful integration of online theory and face-to-face practice, (3) flexible and safe organisation of face-to-face learning, and (4) the need for accessible, engaging, and well-organised online learning.

Theme 1. Face-to-Face Learning Remained Important for Understanding and Interaction

Face-to-face learning was the most frequently expressed preference. **Sixty-one of the 86 responses (70.9%)** explicitly referred to face-to-face, offline, direct, or campus-based learning. Students associated direct learning with better understanding, opportunities to ask questions, interaction with lecturers and peers, and more effective learning.

One student stated: “Direct learning, so that we can understand and ask questions directly” (P97). Another student emphasized that face-to-face learning made interaction and discussion easier and allowed practical mistakes to be corrected immediately. These responses suggest that students particularly valued physical presence when learning required direct explanation, interaction, feedback, and practical experience.

Theme 2. Theory Online, Practice Face-to-Face

A recurring pattern was the deliberate separation of theoretical and practical learning. Thirteen students explicitly proposed combining online and face-to-face modalities, commonly suggesting that theoretical content could be delivered online while practical learning should be conducted directly on campus.

For example: “If it is theory, it can be delivered online, but practice should be delivered offline” (P21). Similarly: “Theory through e-learning and practical learning through face-to-face learning directly on campus” (P37). Another respondent proposed: “Learning theory through online methods and practical learning through face-to-face [offline] methods” (P68).

Practical or skills-related learning was explicitly mentioned in **16 responses (18.6%)**, indicating that students distinguished between content that could be learned digitally and competencies requiring hands-on experience.

Theme 3. Flexible and Safe Organisation of Face-to-Face Learning

Students who preferred face-to-face learning did not necessarily propose returning to conventional classroom arrangements without modification. **Twenty-two responses (25.6%)**

mentioned health protocols or adaptive arrangements such as masks, physical distancing, shift systems, rotating attendance, smaller groups, or scheduled sessions.

For example: “Face-to-face learning, but the number of students attending campus should remain limited” (P92). Another student suggested that classes could remain face-to-face while students were divided into smaller groups to avoid overcrowding. Thus, students' preferences reflected not only the learning modality itself but also the need for flexibility in how direct learning was organized.

Theme 4. Online Learning Required Better Accessibility, Organization, and Engagement

Although face-to-face learning was strongly valued, students did not completely reject online learning. **Twenty-nine responses (33.7%)** explicitly referred to online, e-learning, or synchronous digital learning. However, several students emphasized that online learning needed to be better organized and more accessible.

Students identified issues related to internet connectivity, consistency of schedules, access to learning materials, recording of online sessions, workload, and the need for more engaging learning activities. One respondent explained: “I hope lecturers and students are consistent with the schedule... and I hope Zoom sessions can be recorded to make it easier to understand the material” (P9).

Another student highlighted unequal internet access: “Not all of us come from the city; some come from villages where access to the signal is difficult” (P89). Students also proposed more active approaches, including group learning, individual quizzes, and project-based learning. One respondent specifically preferred **project-based learning** because it was considered more effective (P66).

Overall, students did not describe their preferred learning design as a simple choice between online and face-to-face education. Instead, their responses indicated a preference for a **purposeful combination of modalities**, in which digital learning could support theoretical and flexible learning activities, while practical skills, direct interaction, feedback, and clinical preparation remained closely associated with face-to-face learning.

The qualitative content analysis identified four main themes reflecting students' preferred learning designs. These themes, together with their key interpretations and representative participant quotations, are presented in table below.

Table 1. Themes and Representative Quotations on Midwifery Students'

Preferred Learning Design

Main theme	Key interpretation	Representative quotation
Face-to-face learning remained important	Students valued direct explanation, interaction, feedback, and easier understanding.	"Direct learning, so that we can understand and ask questions directly."
Theory online, practice face-to-face	Students distinguished between theoretical content that could be delivered online and practical/clinical learning that required direct attendance.	"If it is theory, it can be delivered online, but practice should be delivered offline."
Flexible and safe face-to-face learning	Students preferred direct learning with smaller groups, shifts, or other adaptive arrangements.	"Face-to-face learning, but the number of students attending campus should remain limited."
Online learning required better design	Online learning was considered useful when accessible, organized, interactive, and supported by clear materials and schedules.	"I hope lecturers and students are consistent with the schedule..."

Theme frequencies were not mutually exclusive, as individual responses could contribute to more than one theme.

Discussion

The findings indicate that midwifery students did not view online and face-to-face learning as mutually exclusive alternatives. Instead, their responses reflected a more differentiated learning design in which the choice of modality depended on the nature of the learning activity. Face-to-face learning was particularly valued for direct interaction, clarification, feedback, and practical learning, whereas online learning was considered suitable for selected theoretical and flexible learning activities. This suggests that the central issue is not simply whether learning should be online or face-to-face, but how each modality can be purposefully matched to the competencies being developed.

The strong preference for face-to-face learning appears particularly important in the context of midwifery education. Midwifery competence requires integration of theoretical knowledge with clinical skills, decision-making, communication, and professional behaviours. The International Confederation of Midwives (ICM) recommends that competencies be developed progressively across theoretical, practical, and clinical learning, with opportunities for practice and meaningful feedback. For example, knowledge may initially be introduced within theoretical modules and subsequently applied within practical and clinical learning environments (ICM, 2023).

The students' preference for direct learning therefore may reflect the importance they place on interaction and experiential learning rather than simply a resistance to digital education. This interpretation is also consistent with (Jones et al. 2024) who demonstrated that nursing and midwifery students' experiences of online learning were closely connected with perceptions of educational support and caring pedagogy.

A particularly meaningful finding was students' distinction between theoretical and practical learning. Several respondents proposed that theoretical content could be delivered online, whereas practical or skills-based learning should be conducted face-to-face. This distinction closely reflects the principles of intentionally designed blended learning, in which digital activities are used to prepare students for direct skills practice rather than replace experiential learning. Evidence from midwifery education supports this approach. In a study, Brereton et al. (2022) integrated online learning resources and independent preparation with laboratory practice and face-to-face assessment for teaching perineal suturing. Students reported improved confidence, knowledge, and preparedness for subsequent laboratory practice and competency assessment. Similarly, (Zhao et al. 2024) found that case-based learning combined with virtual reality simulation in midwifery laboratory courses improved students' individual and team performance, case-analysis ability, and self-directed learning compared with traditional laboratory teaching. Virtual simulation also enabled students to rehearse clinical scenarios and procedures before participating in direct skills practice. Taken together, these findings suggest that digital resources and simulation can function as a preparatory bridge between theoretical learning and hands-on practice, helping students enter laboratory or clinical learning with greater familiarity, readiness, and engagement while preserving the essential role of direct practical experience.

More recent evidence strengthens this interpretation, Gray et al. (2026) reviewed 36 empirical studies of digital teaching in midwifery education and found increasing use of virtual reality, mobile applications, animation, telesimulation, and digital learning resources. Digital approaches were associated with improvements in knowledge, confidence, self-efficacy, engagement, and in some studies clinical skill performance. However, the review concluded that digital technologies are best positioned as supplements rather than replacements for hands-on clinical learning and identified continuing concerns regarding pedagogical alignment, technological barriers, digital literacy, and long-term educational impact. This directly supports the pattern observed in the present study: students were open to technology, but expected practical competencies to retain a substantial experiential component.

At the same time, the students also emphasised flexibility in the organisation of face-to-face learning, including smaller groups, scheduled sessions, shifts, and rotating attendance. Although many of these suggestions originally arose from infection-control requirements during the pandemic, the underlying principle remains relevant beyond that context. Flexible organisation can allow face-to-face time to be concentrated on activities for which physical presence provides the greatest educational value, such as clinical skills practice, simulation,

demonstration, discussion, and direct feedback. Post-pandemic evidence similarly suggests that students do not necessarily expect a complete return to one traditional mode of education. A multicountry study involving medical students from 15 institutions in seven countries found continuing interest in blended approaches after the restoration of face-to-face education, particularly because students valued the flexibility of digital learning while recognising limitations in replacing clinical and patient-based experiences (Seed Ahmed et al., 2025)

Another important finding was that students did not completely reject online learning; rather, they expected it to be accessible, organised, engaging, and educationally meaningful. Concerns regarding internet access, consistency of schedules, availability of learning materials, workload, lecturer interaction, and opportunities for active participation indicate that students evaluated online learning not only according to the technology used but also according to the quality of its instructional design. This issue is particularly important for students living in rural or geographically dispersed areas. In an integrative review of nursing students studying online in regional, rural, and remote settings, Montgomery et al. (2025) found that poor and unreliable internet connectivity impeded participation in online activities and access to learning resources, while geographic isolation also contributed to reduced academic support and a weaker sense of belonging. These findings suggest that limited internet connectivity should not be viewed merely as a technical inconvenience, but as a potential digital-equity issue that may create unequal opportunities to participate in online and blended learning.

This distinction is important because blended learning should not be understood simply as placing part of a course online. Wang and Raman's systematic review of 54 studies found that blended learning in nursing education was associated with benefits across academic performance and skills, engagement and motivation, self-management, psychological well-being, and learning satisfaction. However, these benefits depend on appropriate integration of learning activities rather than the mere coexistence of digital and classroom components. (Wang & Raman, 2025)

An umbrella review by Li et al., (2025) found potential benefits for students' attitudes, critical thinking, collaborative knowledge, and self-directed learning. However, the review also identified substantial methodological limitations in existing systematic reviews, along with limited evidence regarding organisational outcomes, patient benefits, and longer-term effects. Therefore, the present findings are better interpreted as providing student-informed principles for learning design, rather than evidence that one particular blended-learning model will necessarily produce better educational outcomes.

The current qualitative analysis also extends what was reported from the same parent dataset. The earlier publication showed that students perceived conventional learning as more effective than e-learning for developing knowledge, clinical skills, and social competence, although e-learning was still considered potentially useful. The present analysis provides an additional explanation for that finding. Students did not merely indicate which modality they preferred; their open-ended responses reveal how they believed different learning activities should be distributed across modalities. The emerging pattern suggests that online learning may be particularly suitable for theoretical preparation, access to materials, revision, and selected self-directed activities, whereas face-to-face learning should be prioritised for practical skills, interaction, feedback, and experiential learning. (Permata et al., 2022)

Several limitations should be considered when interpreting these findings. First, the analysis was limited to midwifery students from a single institution and was based on brief open-ended survey responses rather than in-depth interviews, which limited opportunities for probing and clarification. Second, the data were collected during emergency remote learning in 2021 and should not be interpreted as representing current student preferences. Third, the findings reflect students' perceptions of learning design and do not demonstrate the effectiveness of any particular blended-learning model. Nevertheless, the analysis of previously unexplored responses provides student-informed insights that may guide the prospective development and evaluation of competency-oriented blended learning in midwifery education.

Taken together, these findings support a competency-driven rather than technology-driven approach to blended learning in midwifery education. Digital and face-to-face learning should not be combined simply because particular technologies or delivery modes are available. Instead, learning activities and modalities should be selected according to the competencies and learning outcomes they are intended to develop. This perspective is consistent with the purposeful curriculum design framework proposed by (Hays, 2024) which emphasises constructive alignment among graduate outcomes, curriculum content, instructional delivery, technology use, and assessment. The framework highlights that decisions regarding on-site or remote delivery and the use of educational technologies should be strategic and aligned with the competencies expected of graduates rather than driven primarily by technological availability. This approach is also consistent with current ICM guidance, which recommends that theoretical knowledge be progressively integrated with practical and clinical learning and that students receive repeated opportunities for practice and meaningful feedback. Students' experiences during emergency remote learning can therefore

provide useful lessons for developing more deliberate blended-learning models in which digital learning enhances flexibility and preparation, while face-to-face learning preserves the experiential elements necessary for professional competence. (ICM, 2023)

4. CONCLUSION

This study shows that midwifery students did not perceive online and face-to-face learning as competing alternatives, but as complementary modalities with different educational functions. Students tended to view online learning as more suitable for theoretical preparation, access to learning materials, and flexible learning, while face-to-face learning remained important for practical skills, direct interaction, feedback, and experiential learning.

These findings support a competency-driven rather than technology-driven approach to blended learning in midwifery education. Learning modalities should be selected and combined according to the competencies and learning outcomes to be achieved. In this model, digital learning can support preparation and flexibility, while face-to-face learning is prioritised for practical and clinical competency development.

Although the findings were derived from students' experiences during emergency remote learning, they provide useful principles for designing more intentional and competency-oriented blended learning. Future studies should prospectively evaluate such models and examine their effects on student engagement, clinical skills, competency achievement, and learning outcomes.

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