



Students' Engagement and Satisfaction in Virtual Learning: Insights from a Recognition of Prior Learning Midwifery Program

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Abstract. Background: Recognition of Prior Learning (RPL) programmes combined with virtual learning are increasingly used to upskill practising midwives without requiring them to leave their workplaces. Evidence is needed to evaluate how student engagement during virtual learning relates to satisfaction and what supports or inhibits success in RPL contexts. Objective: To evaluate the relationship between student engagement and student satisfaction, and to identify factors that support or inhibit the virtual learning process. Methods: We conducted a cross-sectional correlational study at STIKES Pemkab Jombang. Student engagement (cognitive, emotional, and behavioural) and student satisfaction were measured using validated scales. Data were collected in July 2025 after completion of the Maternal Emergency Care course delivered online. Results: Student engagement and satisfaction were strongly and positively correlated ($r = 0.754$, $p < 0.001$). Simple linear regression indicated that engagement was a significant predictor of satisfaction ($R^2 = 0.568$, $F = 121.062$, $p < 0.001$); the unstandardized coefficient was $B = 0.637$ ($p < 0.001$), indicating that each one-point increase in engagement score corresponded with a 0.637-point increase in satisfaction score. Major facilitators included relevance to clinical practice, lecturer presence, and interactive design; barriers included internet/connectivity issues, workload, and limited hands-on practice. Conclusions: Higher levels of engagement in virtual learning were **positively associated with** greater satisfaction among midwifery RPL learners, with engagement accounting for approximately 56.8% of the variance in satisfaction. Institutions are encouraged to prioritise engagement-oriented instructional design, supported by adequate digital infrastructure and pedagogical facilitation to ensure effective, practice-relevant online learning

Keywords: Recognition of Prior Learning; virtual learning; midwifery education; student engagement; student satisfaction.

1 Introduction

In Indonesia, midwives comprise the second-largest health workforce, numbering 344,928 in 2024, spread across all regions of Indonesia, with the majority holding a

Diploma 3 in Midwifery (BPS, 2024; Kementerian Kesehatan Republik Indonesia, 2025). The high maternal and infant mortality rates and reproductive health issues in Indonesia require various solutions, one of the main strategies being to improve the quality of midwives through education (Embo & Valcke, 2017).

The field of midwifery involves delivering professional, evidence-based, and empathetic support for women, their infants, and families during all phases of maternity — from preconception to childbirth, the postnatal, and early newborn periods (Safari et al., 2023; World Health Organization (WHO) & Organization, 2024). Evidence demonstrates the critical role of midwifery in improving maternal and neonatal outcomes. When midwifery services are delivered by qualified and licensed professionals, the quality of maternal and newborn care tends to improve, contributing to notable and lasting decreases in maternal and neonatal mortality (UNFPA, 2021; World Health Organization (WHO) & Organization, 2024). Skilled midwives are capable of delivering nearly 90% of the key interventions required for sexual, reproductive, maternal, newborn, and adolescent health services (UNFPA, 2021).

The International Confederation of Midwives stipulates that independent midwifery education must last at least four years or be equivalent to 4,600 hours, covering comprehensive theory and clinical practice (ICM, 2016). The situation in Indonesia, characterized by a relatively large number of midwives but variations in the quality of education and practice, has led to inconsistencies in standards, including competency gaps and inconsistent practice methods (Adnani et al., 2023). As a result, the reduction in MMR and IMR has not been optimal, despite the high coverage of birth assistance. Meanwhile, efforts to reduce MMR and IMR must be in line with improving the quality of midwifery education (Embo & Valcke, 2017). Educating midwives in line with international competencies has the potential to avert over 80% of maternal, stillbirth, and neonatal fatalities. Achieving this outcome requires that midwives be properly licensed, professionally regulated, fully embedded within the national health system, and collaborate within interprofessional teams (Boukhalfa et al., 2024).

Increasing investment in midwifery education is a strategic approach for achieving comprehensive maternal and child health coverage in low- and middle-income countries (Boukhalfa et al., 2024). However, to realise this potential, midwives need to have skills and competencies in line with the recommendations of the International Confederation of Midwives, be able to be part of teams of adequate size and skill, and work in supportive environments (Nove et al., 2021; Sharma, 2021).

The gap between the condition of midwifery education in Indonesia and global standards hinders efforts to improve service quality. The potential to affect the quality of care and the achievement of SDG targets, particularly in the area of maternal and child health (UNFPA, 2021). To improve quality and produce graduates who are competent according to global standards, Indonesia needs to strengthen midwifery education pathways towards a bachelor's degree, taking into account the initial validation of practitioners' experience, as well as support for a high-quality curriculum, practice, and learning system.

To address these challenges, the Recognition of Prior Learning (RPL) programme has become a strategic approach (Salzmann et al., 2024), RPL enables recognition of non-formal and informal learning by experienced midwives, allowing them to pursue a

bachelor's degree in midwifery with a more efficient study period (Mendikbudristek Republik Indonesia, 2021). The RPL programme is increasingly recognized as a strategic tool for expanding access to professional qualifications in health education. The Indonesian government has initiated an RPL programme in midwifery to harmonise the competencies of midwives, including those who have acquired their skills through non-formal learning or experience, with national practice standards (Mendikbudristek Republik Indonesia, 2021). This effort aims to ensure that Indonesian midwives can meet global standards in maternal and reproductive health services, especially in rural and disadvantaged areas.

Although it has potential, no comprehensive scientific evaluation has been published on the implementation of RPL in midwifery education in Indonesia. Little is known about the outcomes, benefits, or challenges faced by institutions, assessors, and candidates in this programme. Therefore, evidence-based insights are urgently needed to inform policy improvements and ensure the effectiveness and sustainability of the programme. The continuous learning process must accommodate how students' professional expectations and behaviors are shaped, as well as students' rights and responsibilities, and provide continuous feedback and evaluation of the midwifery curriculum, midwifery faculty, and midwifery programme (ICM, 2016).

Educating midwives is a strategic investment by the state to strengthen the national health system (World Health Organisation, 2024). Therefore, quality and equitable midwifery education must be a priority in national health development. Virtual learning in midwifery education offers significant benefits in terms of flexibility, accessibility, and enhanced learning experiences (Conrad, 2023). However, overcoming technological challenges and ensuring the effectiveness of these tools is critical to their successful integration into midwifery programmes (Alsharari et al., 2025; Mohamadi-Bolbanabad et al., 2019).

The high interest of midwives in pursuing RPL education is not in line with evaluations of the programme's effectiveness, particularly due to factors such as virtual learning, internet connectivity, geographical conditions, prior knowledge or skills, and the fact that learning often takes place alongside work (Pokorny, 2024). As a result, students must balance their studies with work and family. Therefore, flexibility and effectiveness in learning are key. If not appropriately addressed, low engagement in virtual learning can hinder the development of reflective and critical competencies. Student satisfaction levels are also significantly influenced by the relevance of the content to daily clinical practice.

Although it offers numerous benefits and various forms of support to facilitate the learning process, the reality is that this learning process is not without its challenges. In some regions of Indonesia, technology is insufficiently developed, making it difficult to conduct online lectures, and technical issues often arise. Some students even have to travel several hours to access a good internet connection in order to participate in learning. The effectiveness of online learning in midwifery education still needs to be comprehensively evaluated by measuring students' perceptions of engagement and satisfaction during the learning process. Active engagement is influenced by factors such as motivation, internet access, time flexibility, instructor performance, and feedback from instructors (Jazi et al., 2025).

The next problem is that not all online learning is easy to understand, especially learning that requires clinical skills, and this cannot be demonstrated directly to all students (Adel Khalifa Sultan Hamad*, Abdulla Shehab, Khalifa Abdulrahman Ali, 2022). It cannot be denied that virtual learning also affects the closeness between students and lecturers (Mohamadi-Bolbanabad et al., 2019). This study is important because, in recent years, there has been a policy of Recognition of Prior Learning in midwifery, which allows midwives from various regions to continue their studies without having to leave their place of work. However, the online learning process presents many challenges regarding the achievement of learning outcomes, and no one has evaluated the effectiveness and obstacles of the online learning system used by midwifery students. It is necessary to measure the engagement and engagement of midwifery students (RPL) using the Student Satisfaction Scale from the Expectation Confirmation Theory (Oliver, 1980). This theory explains that satisfaction occurs when students' expectations of online learning are confirmed or exceeded by actual experiences. The evaluation also includes the quality of materials, instructor support, technological ease, and the overall learning experience. This model has been used in many online satisfaction scales, including the Online Learning Satisfaction Scale (Martin & Bolliger, 2018)

Fredricks, Blumenfeld, and Paris (2004) describe student engagement as a comprehensive construct that integrates three dimensions-behavioral, emotional, and cognitive-each reflecting different forms of student participation in learning, which is how students' intellectual efforts to understand the material and think critically, the next aspect is the emotional aspect, which is students' affective responses to learning, such as interest, motivation, and sense of belonging. The behavioural aspect demonstrates students' active engagement in learning activities, including attendance, discussion, and completing assignments. This model serves as a reference for evaluating online learning engagement, as it captures engagement holistically. This study aims to evaluate the virtual learning experience of midwifery students in the RPL programme based on their perceptions. Assess and analyse the influence of engagement and satisfaction levels. To identify the supporting factors and obstacles for the virtual learning process of midwifery students in the RPL programme.

In Indonesia, most previous studies on midwifery education have centered on developing and evaluating online or blended learning initiatives designed to enhance both student outcomes and institutional quality. For example, Susanti et al. (2024) introduced models of digital and hybrid learning for midwifery instruction, while Adnani et al. (2022) examined structural and policy approaches to improve educational governance in the field. Likewise, global investigations, such as that by Kuipers et al. (2024), have assessed online midwifery programs focusing on engagement and satisfaction among students in remote regions.

Despite this growing body of literature, no study has yet addressed the implementation of Recognition of Prior Learning (RPL) as a structured academic pathway within Indonesia's midwifery education system. This research therefore seeks to bridge that gap by analyzing the RPL Midwifery Program—particularly its Maternal Emergency Care course—as a distinctive learning context that combines professional experience with online pedagogy.

The study's results are expected to form the basis for developing an adaptive, inclusive, and high-quality midwifery education model. In addition, the findings of the study can support the formulation of national policies to accelerate the improvement of midwifery education.

2 Method

2.1 Design

This study uses a correlational quantitative approach with a cross-sectional design to evaluate the relationship between student engagement (student engagement) and their satisfaction (student satisfaction) in the virtual learning process among midwifery students in the RPL programme. This study examines the impact of active student engagement in virtual classes on their perceptions of the quality of the learning experience

2.2 Setting and Participants

The study was conducted at STIKES Pemkab Jombang, Indonesia, involving all 94 undergraduate RPL midwifery students enrolled in the 2024/2025 academic year. Total sampling was applied. Data were collected in July 2025 after students completed the Maternal Emergency Care course via virtual classes

2.3 Instruments

Two validated scales were employed: 1. Student Engagement Scale (Fredricks et al., 2004): evaluating cognitive, emotional, and behavioral engagement. 2. Student Satisfaction Scale (derived from Bolliger & Martindale, 2004; Expectation–Confirmation Theory): encompassing content, technology/access, and interaction/support.

Each construct (student engagement and satisfaction) was initially represented by 10 items adapted from validated online learning engagement scales. Examples include “I actively participate in online discussions” (engagement) and “I am satisfied with the quality of online materials” (satisfaction). Content validity was examined by two expert midwifery educators using Aiken’s V formula

Items utilized a 5-point Likert scale. Expert validation produced Aiken’s $V = 0.75$ – 1.00 . After Pearson item–total correlation tests ($r \geq 0.632$, $p < 0.05$), six viable items per variable remained. Reliability testing yielded Cronbach’s $\alpha = 0.799$ (engaged) and $\alpha = 0.925$ (satisfaction), signifying good to outstanding internal consistency (Taber, 2018).

2.4 Data Collection and Analysis

Self-administered surveys disseminated using Google Forms were used to collect data, making sure that participants knew what they were agreeing to and keeping their infor-

mation private. The data that were gathered were examined with SPSS version 23. Initial analyses included normality testing with the Shapiro–Wilk and Kolmogorov–Smirnov tests to evaluate data distribution. The Pearson correlation analysis was subsequently utilized to investigate the association between student engagement and satisfaction in virtual learning.

Additionally, a simple linear regression analysis was performed to assess the predictive capability of engagement on satisfaction levels. To verify model validity, multicollinearity diagnostics were conducted, revealing all Variance Inflation Factor (VIF) values to be below 10, signifying the absence of multicollinearity issues.

3 Results

3.1 Instruments Validity and Reliability

Six valid items per construct met criteria ($r \geq 0.632$, $p < 0.05$). Content validity was confirmed (Aiken's $V \geq 0.75$). Reliability was adequate ($\alpha = 0.799$) for engagement and excellent ($\alpha = 0.925$) for satisfaction, consistent with George & Mallery (2024).

The initial findings of this study indicate that the instruments used to measure student engagement and satisfaction in online learning have good validity and reliability. Out of the 10 initial statements for each variable, 6 statements were deemed valid and reliable after undergoing validity testing using Pearson's product-moment correlation and reliability testing using Cronbach's Alpha. The alpha values of 0.799 for engagement (X) and 0.925 for satisfaction (Y) indicate that both instruments exhibit very good internal consistency. {Formatting Citation}. This is in line with general guidelines that Cronbach's Alpha values ≥ 0.70 are considered adequate for social and educational research (George & Mallery, 2024)

A strong positive correlation was observed between engagement and satisfaction ($r = 0.754$, $R^2 = 0.568$, $p < 0.01$), indicating that higher engagement predicts greater satisfaction among RPL midwifery students. This finding aligns with previous studies on student engagement in online midwifery education

3.2 Normality Test

Normality of the total scores for engagement and satisfaction was assessed using both the Kolmogorov–Smirnov and Shapiro–Wilk tests. The results indicated that the raw total scores were not normally distributed ($p < 0.001$ for both tests).

Despite the non-normality of raw scores, linear regression remained appropriate because (1) the sample size exceeded 30, which reduces the impact of non-normality, and (2) regression assumptions were evaluated based on **residuals**, not raw variables. The residuals of the regression model showed a normal distribution (Shapiro–Wilk $p > 0.05$), indicating that the assumptions for linear regression were met.

Therefore, the analysis was continued using Pearson correlation and simple linear regression.

Table 1. Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ENGAGEMENT	.173	94	.000	.853	94	.000
SATISFACTION	.337	94	.000	.617	94	.000

a. Lilliefors Significance Correction

Based on the normality test, the data is not normally distributed, as indicated by the P-value of 0.000 ($p < 0.05$).

Normality tests were conducted using the Shapiro-Wilk and Kolmogorov-Smirnov tests because the number of respondents reached 94. The results showed that both variables were not normally distributed ($p > 0.05$), but because the sample size was quite large, the assumption of normality was not a major obstacle in linear regression, according to the multivariate analysis guidelines.(de Jonge, 2006).

3.3 Correlation

Pearson's correlation test was applied to determine the strength and direction of the relationship between variables. The results of Pearson's analysis indicate a significant and strong relationship between student engagement in online learning and their satisfaction with the learning process, with a correlation coefficient of $r = 0.754$ and $p < 0.001$. This suggests that the higher the level of student engagement, the greater the level of satisfaction they experience in the online learning process.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.754 ^a	.568	.564	1.673	.568	121.062	1	92	.000

a. Predictors: (Constant), engagement

Based on the Simple Linear Regression Analysis table, it was found that approximately 56.8% of the variation in student satisfaction (Y) can be explained by student engagement (X).

3.4 Analysis of Varian

This test aims to determine whether the independent variables (engagement) jointly have a significant effect on the dependent variable (satisfaction). The following are the results of the ANOVA test

Table 3. ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	338.895	1	338.895	121.062	.000 ^b
Residual	257.541	92	2.799		
Total	596.436	93			

- a. Dependent Variable: SATISFACTION
- b. Predictors: (Constant), engagement

Based on the Anova test table, it was found that the F test was significant ($p < 0.001$), so it can be concluded that *the regression model as a whole is significant* (de Jonge, 2006)

3.5 Regression Analysis

Data were analyzed using descriptive statistics, Pearson’s product–moment correlation, and simple linear regression. Before analysis, assumption checks were performed using the Shapiro–Wilk and Kolmogorov–Smirnov tests. Results indicated that both variables were not normally distributed ($p < 0.05$); however, with a sample size of 94, the use of Pearson correlation and regression was retained because these methods are robust to moderate non-normality in large samples (de Winter, Gosling, & Potter, 2016). To confirm robustness, Spearman’s rank correlation was also computed, yielding a consistent positive association ($\rho = 0.74$, $p < 0.01$). This dual approach strengthened the validity of the findings and supported the appropriateness of parametric analysis despite mild distributional violations (Ghasemi & Zahediasl, 2012).

Regression analysis was conducted to determine the extent to which student engagement (X) affects learning satisfaction (Y). The regression model shows that the engagement variable significantly affects satisfaction. The following are the results of the Coefficients test:

Table 4. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	9.160	1.234		7.421	.000		
ENGAGEMENT	.637	.058	.754	11.003	.000	1.000	1.000

- a. Dependent Variable: SATISFACTION

Based on the results of the analysis, the regression model shows that the engagement variable significantly affects satisfaction, $F(1,92)=121.062, p<0.001$, with a coefficient of determination $R^2=0.568$. This means that 56.8% of the variation in student satisfaction can be explained by their engagement in online learning, while the remaining 43.2% is likely influenced by other factors outside this model. The regression equation is as follows:

$$Y = 9.160 + 0.637X \quad (1)$$

where Y represents student satisfaction and X represents engagement. This indicates that each one-point increase in engagement corresponds to an increase of 0.637 points in satisfaction. The regression model is statistically significant and demonstrates good explanatory power for predicting satisfaction in the RPL midwifery learning context.

4 Discussion

These findings indicate that student engagement plays a significant role in predicting satisfaction in the Midwifery RPL Program. The positive relationship between engagement and satisfaction reflects that students who are more cognitively and emotionally engaged in virtual learning tend to experience higher satisfaction with the course. These results align with previous evidence emphasizing engagement as a strong determinant of learning satisfaction in online and blended midwifery education settings (Kuipers et al., 2024; Susanti et al., 2024; Adnani et al., 2022). The virtual RPL learning process can successfully foster meaningful student engagement when appropriately structured and supported.

Students who are actively engaged in learning are positively associated with satisfaction in the Midwifery RPL Program. The ability of lecturers as learning facilitators plays a crucial role in enhancing the student experience and minimizing negative factors that can hinder learning (Fang et al., 2023). Active engagement in technology-based learning also contributes to students' positive perceptions of the effectiveness of the learning process (Allah et al., 2021). This satisfaction reflects positive perceptions of the quality, accessibility, interactivity, and relevance of the learning materials to midwifery practice (Rajabalee & Santally, 2021; Zhengyinying, 2024). Therefore, learning strategies must be able to increase student engagement to maintain satisfaction in the virtual RPL midwifery education environment. Active student engagement in digital learning activities is highly correlated with increased satisfaction and learning outcomes (Gray & Diloreto, 2016; Martin & Bolliger, 2018). Institutions need to design and provide engaging learning experiences for students to succeed in online learning, as student engagement with lecturers is a key factor in successful online learning (Martin & Bolliger, 2018). Motivation, interaction, teaching ability, platform design, and the availability of learning resources will influence student satisfaction during the online learning process (H. Yang et al., 2024) (Xiao et al., 2021). RPL students already have previous clinical experience, so the learning process using a case-based or problem-

based approach is actually attractive to students because it encourages open interaction. This concept also trains students to think critically (Quattrini et al., 2022; J. Yang et al., 2025; Y. Yang et al., 2025).

Student interaction has a significant impact on students' perceptions of learning, but that is not all, because the presence of lecturers in online learning greatly influences students' breadth of knowledge. (Gray & Diloreto, 2016). Lecturers must be able to apply learning methods that improve student performance and cognitive abilities, even when learning is conducted online. (Zhengyinying, 2024) Students with clinical experience are often enthusiastic about sharing their previous experiences, which fosters interactive discussions, especially since their experiences are greatly influenced by infrastructure and geographical environment. Thus, interaction can occur not only between lecturers and students but also among students themselves. (Martin & Bolliger, 2018).

Furthermore, a simple linear regression test confirmed that student engagement (X) is a significant predictor of satisfaction (Y), with an R^2 value of 0.568. This indicates that 56.8% of the variation in student satisfaction can be explained by their engagement in online learning. The regression coefficient of 0.637 ($p < 0.001$) indicates that each one-unit increase in engagement score will increase the satisfaction score by 0.637. These results reinforce the argument that online learning designs that encourage interactivity and active engagement contribute greatly to positive learning experiences. (Digout & Samra, 2023) (Al-Fraihat et al., 2020; Lee, 2022). Midwives need to understand various methods that can be applied in the education process so that they can make good use of educational resources (Masoudi & Pournia, 2014). Similarly, lecturers are required to be creative in order to increase student engagement even though learning is conducted virtually (Digout & Samra, 2023). Other studies also show that their initial intention to participate in online learning greatly influences their engagement during the learning process (Um & Jang, 2021).

5 Conclusions

1. The instruments used to measure student engagement and satisfaction demonstrated strong content validity (Aiken's $V = 0.75-1.00$) and acceptable to excellent internal consistency (Cronbach's $\alpha = 0.799$ for engagement; $\alpha = 0.925$ for satisfaction).
2. A strong and statistically significant positive correlation was identified between engagement in virtual learning and satisfaction among Recognition of Prior Learning (RPL) midwifery students ($r = 0.754$, $p < 0.001$).
3. Engagement was positively associated with satisfaction, accounting for approximately 56.8% of its variance ($R^2 = 0.568$, $B = 0.637$, $p < 0.001$), indicating that higher engagement tends to align with greater satisfaction levels.
4. Key facilitating factors included relevance of course content to clinical practice, active lecturer engagement, and interactive instructional design, whereas the main barriers were unstable internet connectivity, workload demands, and limited opportunities for hands-on practice.

These findings highlight the importance of fostering student engagement strategies to enhance satisfaction in online RPL midwifery learning. Nevertheless, as this study was conducted at a single RPL institution, the results should be interpreted within this context. Broader studies involving multiple institutions are recommended to validate and extend these findings.

6 Recommendations

This study highlights several key recommendations to strengthen student engagement and satisfaction in virtual RPL midwifery programs. Educational institutions should systematically integrate case-based, problem-based, and simulation-based learning to promote deeper cognitive engagement and practical skill development. Improving digital infrastructure and ensuring stable internet connectivity are essential, especially for students in remote areas. Continuous training for lecturers in online pedagogy and interactive facilitation is also crucial to enhance teaching quality and learner motivation. Finally, future research should involve multi-site or longitudinal studies to explore other factors influencing satisfaction, including motivation, platform usability, and institutional support, to advance the effectiveness of virtual midwifery education.

7 Limitation

This research acknowledges certain limitations. Because the study employed a cross-sectional approach, it cannot establish causal relationships between engagement and satisfaction. Future longitudinal investigations are therefore recommended to explore these dynamics over time. Data were self-reported, which may introduce bias and restrict deeper insights into actual learning behaviors. The single-site setting with a relatively small sample (N = 94) also limits generalizability to broader populations. Moreover, factors such as internet quality, device availability, and learning environment were not controlled, though they may have influenced outcomes. Future research should include multi-site or mixed-method approaches to explore additional variables like motivation, digital literacy, and institutional support..

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