

Educational Evaluation of Curriculum–Assessment Alignment of Ethical Competencies in Midwifery Education: A Mixed-Methods Study

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ABSTRACT:

Purpose

This study evaluated curriculum–assessment alignment of ethical competencies in a midwifery program and identified gaps among the intended, enacted, and assessed curriculum components.

Methods

A convergent parallel mixed-methods design was employed at an Indonesian health polytechnic. Quantitative data were collected from 72 diploma midwifery students using a 20-item Likert-scale questionnaire assessing integration of ethical competencies across learning materials, instructional processes, clinical case analysis, and professional competence domains. Descriptive statistics, including means and 95% confidence intervals (CIs), were calculated using IBM SPSS Statistics ver. 26.0 (IBM Corp., Armonk, NY, USA). Qualitative data were obtained through document review (syllabi, semester learning plans, modules), classroom observations (n=4), and semi-structured interviews with lecturers (n=6) and students (n=8). Thematic analysis was conducted, and findings were integrated using a joint alignment matrix. Institutional Review Board approval was obtained (No. 012/KEPK-Poltekkes/2024).

Results

Alignment was strongest at the instructional level (mean, 3.86; 95% CI, 3.72–4.00) and moderate in written curriculum documents (mean, 3.20; 95% CI, 3.05–3.35). The lowest alignment was observed in clinical case analysis and assessed competencies (mean, 3.08; 95% CI, 2.91–3.25), indicating limited structured integration of ethical reasoning within assessment practices. Document analysis revealed minimal explicit ethical indicators in learning outcomes and grading rubrics. Qualitative findings confirmed instructor-dependent implementation and inconsistent assessment alignment.

Conclusion

Ethical competencies were present in classroom instruction but insufficiently embedded within curriculum documents and assessment systems. Strengthening curriculum–assessment alignment through explicit competency indicators and structured evaluation models may enhance sustainable integration in midwifery education.

Keywords: Curriculum; Educational measurement; Ethics, professional; Midwifery education; Program evaluation; Indonesia.

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1. Introduction

Ethical competencies are essential in health professions education because clinical practice frequently requires moral judgment, patient-centered decision-making, and professional accountability. In midwifery education, ethical competence underpins respectful maternity care, informed consent, confidentiality, and culturally responsive practice. Contemporary competency-based education frameworks emphasize that professional values and ethical reasoning should be explicitly articulated as measurable learning outcomes rather than transmitted implicitly. Constructive alignment theory further posits that intended learning outcomes, instructional activities, and assessment methods must be coherently aligned to ensure that targeted competencies are both developed and evaluated. Without such alignment, ethical competencies may remain emphasized during instruction but insufficiently documented or assessed within formal curriculum structures.

Despite growing recognition of ethical competence as a core domain in health professions education, empirical evaluation of curriculum–assessment coherence remains limited, particularly in midwifery programs. Discrepancies may arise between stated learning outcomes, enacted classroom practices, and assessment tools such as grading rubrics or clinical case evaluations. When ethical reasoning is not explicitly embedded in assessment systems, sustainable competency development may be weakened. Systematic evaluation of alignment across intended, enacted, and assessed curriculum levels is therefore necessary to inform program improvement. This study evaluated curriculum–assessment alignment of ethical competencies in a midwifery program using a convergent mixed-methods design.

2. Methods

Ethics statement

This study was approved by the Institutional Review Board of the Health Polytechnic of the Ministry of Health, Indonesia (Approval No. 012/KEPK-Poltekkes/2024; January 15, 2024). Written informed consent was obtained from all participants

prior to data collection. Participation was voluntary, and anonymity and confidentiality were ensured. Students were informed that participation would not influence academic evaluation.

Study design

This study employed a convergent parallel mixed-methods educational evaluation design to examine curriculum–assessment alignment of ethical competencies. Quantitative and qualitative data were collected concurrently, analyzed independently, and integrated at the interpretation stage. The evaluation framework was grounded in constructive alignment theory, examining coherence across the intended curriculum (documented learning outcomes), enacted curriculum (instructional practices), and assessed curriculum (evaluation tools and grading criteria). Reporting followed the Good Reporting of A Mixed Methods Study (GRAMMS) guideline.

Setting

The study was conducted in a 3-year diploma midwifery program at a health polytechnic under the Ministry of Health, Indonesia, during February–April 2024.

3. Participants

Quantitative component

The accessible population consisted of all students enrolled in semesters 2–4 who had completed at least 2 semesters, including professional midwifery and ethics-related coursework. Inclusion criteria were enrollment in the program and provision of informed consent. No additional exclusion criteria were applied. All eligible students participated ($N=72$; response rate, 100%). The mean age was 20.8 years (standard deviation, 1.2; range, 19–23 years).

Qualitative component

Purposive sampling was used to recruit participants directly involved in curriculum delivery and assessment. Six lecturers (4 midwifery lecturers and 2 ethics lecturers) and eight students participated in semi-structured interviews. Four classroom sessions were observed. Twelve curriculum documents were

reviewed, including syllabi, semester learning plans, teaching modules, and available assessment rubrics.

Operational definition of evaluation constructs

For analytic clarity, ethical competencies were defined as measurable indicators of professional ethics, empathy, responsibility, and ethical reasoning in clinical decision-making. Curriculum–assessment alignment was defined as the degree of coherence between stated learning outcomes, instructional strategies, and assessment criteria. Alignment strength was examined across intended, enacted, and assessed curriculum levels.

Instruments and materials

A 20-item student questionnaire assessed perceived integration of ethical competencies across four domains: learning materials (5 items), instructional processes (6 items), clinical case analysis (5 items), and professional competence development (4 items). Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Content validity was reviewed by three experts in midwifery and health professions education. A pilot test ($n=15$) demonstrated acceptable internal consistency (Cronbach's $\alpha=0.87$).

A structured document review rubric was developed to systematically evaluate the presence of explicit ethical competencies in learning outcomes, measurable performance indicators, and inclusion of ethical criteria within grading rubrics and case evaluation tools. Each document was independently reviewed and coded.

A structured observation checklist documented explicit references to ethical reasoning, integration strategies, and alignment with stated learning outcomes during classroom sessions. Semi-structured interview guides explored perceptions of competency articulation, assessment practices, and institutional barriers to alignment.

Curriculum–assessment mapping procedure

A structured alignment matrix was developed to compare coherence across curriculum levels. The intended curriculum was examined through syllabi

and learning outcomes to identify explicit ethical indicators. The enacted curriculum was analyzed through classroom observations to assess instructional reinforcement of ethical competencies. The assessed curriculum was reviewed through grading rubrics and clinical case evaluation criteria to determine whether measurable ethical indicators were embedded in assessment practices. Each level was analyzed independently prior to cross-level comparison. Convergence, complementarity, and discrepancies were identified to determine areas of alignment strength and misalignment.

Data collection

Quantitative surveys were administered during scheduled class sessions. Interviews were conducted in private settings and audio-recorded with participant permission. Observations were carried out during routine instructional sessions without interfering with teaching activities. Document analysis was conducted following institutional approval. Data collection occurred over a 3-month period from February to April 2024.

4. Data analysis

Quantitative analysis

Descriptive statistical analyses were performed to summarize students' perceptions of curriculum–assessment alignment. Frequency, percentage, mean, standard deviation, and 95% confidence intervals (CIs) were calculated using IBM SPSS Statistics version 26.0 (IBM Corp., Armonk, NY, USA). Mean domain scores were categorized as low (<3.00), moderate (3.00 – 3.49), or high (≥ 3.50). These thresholds were established a priori to ensure consistent interpretation of alignment strength. Because the study was designed as a program evaluation rather than a hypothesis-testing study, inferential comparisons were not conducted.

Qualitative analysis

Qualitative data from interviews, classroom observations, and document review were analyzed using inductive thematic analysis. The analytic process involved repeated reading of transcripts and field notes for familiarization, followed by open coding to identify meaningful units. Codes were

grouped into categories based on conceptual similarity, and broader themes were generated through iterative comparison and refinement. Credibility was enhanced through methodological triangulation across multiple data sources and member checking with three participants.

Integration of quantitative and qualitative findings

Integration occurred at the interpretation stage using a joint display matrix. Quantitative domain scores were systematically compared with qualitative evidence from document analysis, classroom observations, and interviews to examine convergence, complementarity, and discrepancies across intended, enacted, and assessed curriculum levels. Alignment strength was classified as strong, partial, or weak based on consistency across data sources.

Data availability

De-identified quantitative data (csv format), codebook, and analysis output files have been prepared in accordance with the journal’s mandatory data-sharing policy and will be deposited in the designated repository upon acceptance.

5. Results

Participant characteristics

Seventy-two students participated in the quantitative survey (response rate, 100%). Participants were enrolled in semesters 2–4 of the diploma program. The mean age was 20.8 years (standard deviation [SD], 1.2; range, 19–23 years). Detailed participant characteristics are presented in Table 1.

Table 1. Participant characteristics (N=72)

Characteristic	n	(%)
Semester		
Semester	2	28 (38.9)
Semester	3	24 (33.3)
Semester	4	20 (27.8)

Quantitative findings

Students reported the highest perceived alignment within instructional processes (mean, 3.86; 95% confidence interval [CI], 3.72–4.00), followed by professional competence development (mean, 3.78; 95% CI, 3.64–3.92). Moderate alignment was observed in written

curriculum materials (mean, 3.20; 95% CI, 3.05–3.35). The lowest alignment was identified in clinical case analysis and assessed competencies (mean, 3.08; 95% CI, 2.91–3.25), suggesting limited structured incorporation of ethical reasoning within assessment practices. Domain-level results are summarized in Table 2.

Table 2. Student perceptions of curriculum–assessment alignment (Likert scale 1–5; N=72)

Domain	Mean (SD)	95% CI
Instructional processes	3.86 (0.62)	3.72–4.00
Written curriculum materials	3.20 (0.68)	3.05–3.35
Clinical case analysis (assessed curriculum)	3.08 (0.72)	2.91–3.25
Professional competence development	3.78 (0.59)	3.64–3.92

Footnote: Likert scale ranged from 1 (strongly disagree) to 5 (strongly agree). SD, standard deviation; CI, confidence interval.

Document analysis findings (intended and assessed curriculum)

Review of 12 curriculum documents revealed that ethical competencies were occasionally referenced in general course descriptions; however, explicit measurable indicators were rarely articulated within learning outcomes. Assessment rubrics for clinical case discussions emphasized procedural accuracy and technical management, with limited explicit criteria for ethical reasoning or value-based judgment. Only 2 of 12 reviewed documents included observable ethical performance indicators. These findings suggest partial alignment at the intended level and weak alignment at the assessed level.

Observation findings (enacted curriculum)

Classroom observations demonstrated frequent verbal reinforcement of ethical principles during

lectures and case discussions. Lecturers commonly referenced professional responsibility, patient dignity, and moral accountability. However, structured prompts requiring students to apply ethical reasoning within formal case analysis were limited. Ethical discussions were typically narrative and advisory rather than integrated into systematic evaluation criteria.

Interview themes

Five themes emerged from interviews with lecturers and students: (1) verbal integration of ethical reminders during instruction, (2) limited documentation of measurable ethical outcomes, (3) technical emphasis in case-based assessment, (4) instructor-dependent implementation, and (5) perceived need for institutional guidelines to standardize alignment. Representative themes and interpretations are summarized in Table 3

Table 3. Qualitative themes related to curriculum–assessment alignment

Theme	Evidence source	Interpretation
Verbal integration during instruction	Lecturer observations	Ethical content embedded informally
Limited measurable indicators	Document review	Weak intended–assessed alignment
Technical focus in case evaluation	Observations, student interviews	Ethical reasoning not systematically assessed
Instructor dependency	Student interviews	Variability across courses
Need for institutional guidelines	Lecturer interviews	Requirement for structured alignment model

Mixed-methods integration

Integration of quantitative and qualitative findings identified consistent patterns across curriculum levels. Strong alignment at the enacted level corresponded with high instructional domain scores (mean, 3.86). Moderate document-level scores aligned with

limited measurable ethical indicators in syllabi. The lowest quantitative score in clinical case analysis (mean, 3.08) converged with qualitative evidence demonstrating limited ethical criteria in assessment rubrics. Overall, alignment was strongest in instructional reinforcement but weakest in formal assessment systems. The cross-level alignment framework is illustrated in Fig. 1.

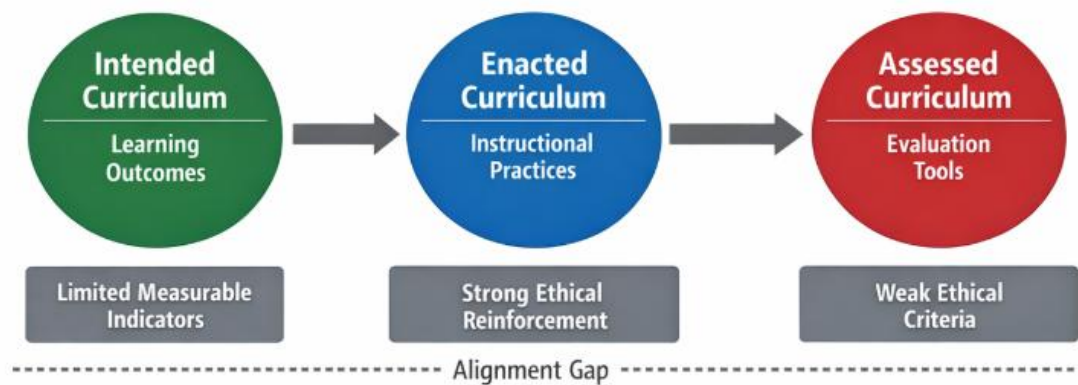


Figure 1. Curriculum–assessment alignment across intended, enacted, and assessed levels

Figure legend:

Conceptual model illustrating coherence among intended curriculum (documented learning outcomes), enacted curriculum (instructional practices), and assessed curriculum (evaluation tools). The largest alignment gap was identified at the assessed curriculum level.

6. Discussion

This study evaluated curriculum–assessment alignment of ethical competencies in a diploma midwifery program using a convergent mixed-methods design. Findings indicated that ethical competencies were most strongly represented in instructional practices, moderately reflected in written curriculum documents, and least embedded within assessment tools and clinical case evaluation criteria. Quantitative scores were consistent with qualitative evidence, demonstrating strongest alignment at the enacted curriculum level and weakest at the assessed level.

Although lecturers frequently reinforced ethical principles during instruction, explicit measurable indicators were rarely incorporated into formal learning outcomes or grading rubrics. Constructive alignment theory emphasizes coherence among intended outcomes, instructional strategies, and assessment methods. When assessment tools do not explicitly evaluate ethical reasoning, students may perceive ethical competencies as advisory rather

than performance-based expectations. The observed misalignment suggests that ethical competencies remain primarily attitudinal rather than systematically evaluated components of clinical reasoning.

These findings are consistent with previous research in health professions education reporting that professional values are often conveyed through informal or hidden curricula rather than formal assessment systems. Competency-based education requires measurable performance indicators to ensure valid evaluation of non-technical competencies. Similar discrepancies between instructional emphasis and assessment criteria have been identified in nursing and midwifery education. This study extends prior literature by providing empirical evaluation of alignment gaps within an existing curriculum framework rather than examining an intervention.

From an educational evaluation perspective, strengthening curriculum–assessment coherence is essential. Ethical competencies should be articulated as observable performance indicators within program-level outcomes. Assessment blueprints should map ethical competencies to specific evaluation tools, including case discussions and clinical assessments. Rubric development incorporating explicit ethical reasoning criteria may enhance consistency and transparency of evaluation.

This study has limitations. It was conducted at a single institution, limiting generalizability. Quantitative findings were based on self-reported perceptions. Although triangulation enhanced credibility, qualitative sampling was modest. Inferential analysis was not performed because the study was designed as a program evaluation.

In conclusion, ethical competencies were present in instruction but insufficiently embedded in curriculum documentation and assessment systems. Explicit competency indicators and structured

evaluation models are needed to strengthen sustainable integration in midwifery education.

Conclusion

Ethical competencies were present within instructional practices but insufficiently embedded within curriculum documentation and assessment systems. Strengthening curriculum–assessment alignment through explicit competency indicators, structured assessment blueprints, and rubric-based ethical evaluation may support sustainable competency development in midwifery education.

Authors' contributions

- Conceptualization: N.
- Data curation: N.
- Formal analysis: N.
- Investigation: N.
- Methodology: N.
- Project administration: N.
- Visualization: N.
- Writing – original draft: N.
- Writing – review & editing: N.