The Influence of Lesson Planning, Teaching Methods, and Assessment Instruments on the Pedagogical Competence of Microteaching Student Teachers at FEB UNY

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ABSTRACT: The study employs Structural Equation Modeling–Partial Least Squares (SEM-PLS) to analyze measurement validity, reliability, and structural relationships among variables within a theoretically grounded framework. An integrated structural model is proposed to examine three core instructional dimensions lesson planning, teaching methods, and assessment instruments using SEM. This approach addresses a methodological gap in microteaching research, which has predominantly relied on descriptive or quasi-experimental designs and has rarely examined latent variables or indirect effects. A quantitative explanatory design was implemented through a cross-sectional survey involving 169 microteaching students selected using proportional random sampling. Data were collected using validated Likert-scale questionnaires and analyzed with SEM-PLS. The results indicate that teaching methods have the strongest positive effect on pedagogical competence, followed by assessment instruments. Conversely, lesson planning demonstrates a significant but negative direct effect, suggesting that its influence on pedagogical competence may function indirectly through teaching methods and assessment practices. Furthermore, lesson planning and assessment instruments significantly affect teaching methods, highlighting the interdependence among instructional components. The study concludes that pedagogical competence develops through an interconnected system involving planning quality, instructional implementation, and assessment literacy. These findings emphasize the importance of integrative instructional design, authentic assessment training, and reflective teaching practices in microteaching. Overall, improving pedagogical competence requires the simultaneous development of planning, teaching, and assessment as mutually reinforcing elements of effective instruction.

Keywords: Pedagogical Competence, Lesson Planning, Teaching Methods, Assessment Instruments, SEM.

INTRODUCTION

Pedagogical competence is widely acknowledged as the foundational cornerstone that determines the quality of teaching-learning processes and the long-term success of education systems

(Blömeke et al., 2015; Darling-Hammond et al., 2020; Kiemer et al., 2018). Teacher training regulations in Indonesia, such as the mandatory standards outlined in teacher competency frameworks, emphasize that pre-service teachers must master skills in understanding learners, planning instruction, implementing effective teaching strategies, and evaluating learning outcomes in a professional manner (Berkovich & Benoliel, 2020; Nithitakkharanon & Nuangchalerm, 2022; OECD, 2018; Sidhu et al., 2023). Nonetheless, empirical studies reveal that many pre-service teachers still struggle with lesson planning, consistent application of teaching methods, and authentic assessment literacy (Pastore, 2023; Wiese & Nortvedt, 2023; Xu & Brown, 2016). Such conditions highlight the necessity for systematic research to examine which instructional factors directly influence pedagogical competence in microteaching, particularly within higher-education institutions such as the Faculty of Economics and Business at Universitas Negeri Yogyakarta (Mansfield, 2023; Moreira et al., 2023).

Microteaching has long been positioned as a strategic pedagogical laboratory that allows pre-service teachers to develop and refine their teaching skills within controlled, small-scale, and structured settings (Fernández, 2010; Muliaman et al., 2023). A growing body of empirical evidence supports the effectiveness of microteaching in improving pedagogical competence across multiple dimensions, including lesson planning, instructional delivery, assessment, and classroom management (Kuswandono, 2014; Suryani, 2016; Thangaraju & Medhi, 2023). However, despite its widespread use, there remains a notable gap between the aspirational standards of teacher competence and the concrete achievements of pre-service teachers particularly in designing valid assessment instruments, implementing authentic assessment, and delivering consistent feedback (Remesh, 2013; Thangaraju & Medhi, 2023). This empirical gap signals a critical need to systematically examine key instructional variables such as lesson planning, teaching methods, and assessment instruments, which are presumed to be the principal determinants of pedagogis.

Theoretically, pedagogical competence rests on three foundational pillars: high-quality lesson planning, the appropriate selection and implementation of effective teaching methods, and the use of valid and reliable assessment instruments (Darling-Hammond et al., 2020; Hattie, 2009; Popovic, 2013). According to the backward design framework, the coherence between learning objectives, instructional methods, and assessment strategies is critical to the success of teaching and learning (Othman et al., 2023; Wiliam, 2006). Research further demonstrates that instructional misalignment such as inappropriate teaching strategies, unclear learning goals, or poorly constructed assessment tools reduces instructional effectiveness and leads to inconsistent student learning outcomes (Mosquera et al., 2022; Wang, 2022). High-quality lesson planning is strongly associated with enhanced instructional clarity and improved student engagement, while methodologically sound teaching practices are linked to higher-order learning and cognitive development (Banegas, 2023; Parry & Metzger, 2023). Similarly, valid and reliable assessment instruments are essential for accurately capturing student performance and informing feedback cycles, which are central to instructional improvement (Nurdiana, 2021; Philology matters, 2021). Therefore, it is methodologically sound and theoretically justified to position these three variables within an integrative structural model to examine their relative influence and interrelationships in shaping pedagogical competence (Blömeke et al., 2015; Kiemer et al., 2018).

Although many studies have explored the role of microteaching, the majority focus solely on evaluating teaching performance or identifying competence gaps among pre-service teachers (Murphy et al., 1984; Omar et al., 2023). Existing research tends to rely on descriptive or quasi-experimental approaches, which, while informative, provide limited insight into the structural relationships among instructional components such as planning, teaching strategies, and assessment literacy. Recent reviews highlight that teacher competence is multidimensional and shaped by interconnected latent constructs, requiring more sophisticated analytical techniques to capture these complexities (Blömeke et al., 2015; Kiemer et al., 2018). However, few studies in the microteaching context have employed Structural Equation Modeling (SEM) to analyze the direct and indirect pathways through which instructional variables influence pedagogical competence, particularly within economic-education microteaching settings. This study addresses that gap by testing an integrated structural model that incorporates lesson planning, teaching methods, and assessment instruments as interrelated latent constructs. SEM is particularly appropriate for modeling teacher competence because it allows the integration of measurement models and structural paths, offering greater precision than traditional regression analysis (Hair et al., 2019; Kline, 2016). The limited use of SEM in this field represents a significant methodological gap, especially considering that pedagogical competence development involves latent constructs such as pedagogical knowledge, instructional decision-making, and assessment literacy that interact in nonlinear and reciprocal ways (Kunter et al., 2013; Ohle-Peters et al., 2023). Addressing this methodological insufficiency is essential for strengthening both the theoretical foundations and empirical rigor of teacher education research, enabling a deeper understanding of how instructional factors collectively shape competence formation in microteaching environments (Deskoni et al., 2023; Kohen & Kramarski, 2012).

Given these empirical and theoretical considerations, it is plausible that pedagogical competence among microteaching students is not uniformly developed but varies depending on the quality of lesson planning, implementation of teaching methods, and sophistication of assessment instruments. Prior studies consistently show that disparities in instructional design and assessment literacy contribute to significant variations in pre-service teachers' pedagogical performance(Blömeke et al., 2015; Kunter et al., 2013). Lesson planning quality strongly influences instructional clarity, student engagement, and teachers' classroom decision-making processes (Dorovolomo et al., 2010; Eisenberg et al., 2024; von Kotzebue, 2022). Similarly, the effectiveness of teaching methods is associated with students' higher-order thinking outcomes, classroom interaction patterns, and overall learning quality (Chen et al., 2023; Tartavulea et al., 2020; Tomas et al., 2022). Assessment literacy including the ability to construct valid, reliable, and authentic evaluation tools is a core determinant of pedagogical competence, shaping feedback, learning scaffolds, and instructional alignment (Nurtanto et al., 2021; Scull et al., 2021). Moreover, research emphasizes that these instructional components rarely function independently; instead, they operate as interdependent elements within a coherent teaching system (Biggs & Tang, 2022). This interconnectedness underscores the need to examine their combined influence using an integrative structural model capable of capturing multiple latent relationships. Thus, the central research question naturally emerges: How do lesson planning, teaching methods, and assessment instruments influence the pedagogical competence of microteaching student teachers at FEB UNY?

The complexity of this issue is heightened by the fact that pedagogical-competence formation depends not only on students' conceptual understanding but also on practical skills, teaching-simulation experience, the quality of mentoring, and the broader learning environment (Blömeke et al., 2015; Kunter et al., 2013). Empirical research indicates that these components interact in non-linear and context-sensitive ways: for example, simulation experiences such as microteaching enhance practical enactment only when coupled with effective mentoring and reflective feedback (Jentsch et al., 2021; Runge et al., 2023). Similarly, the effectiveness of assessment instruments is contingent on how they are integrated within instructional approaches valid, reliable assessments provide meaningful information only if teaching methods enable the behaviours or performances the assessments intend to measure (Jentsch et al., 2021; Runge et al., 2023; Scull et al., 2021). Moreover, large-scale and classroom-level studies demonstrate that teacher planning quality mediates both the selection of instructional strategies and the enactment of assessment practices, producing cascading effects on classroom interaction and student outcomes. Taken together, these findings suggest that lesson planning, teaching methods, and assessment instruments do not act as independent levers but as interdependent elements within a coherent instructional system (Biggs & Tang, 2022). This multidimensional interdependence therefore requires an analytical approach such as Structural Equation Modeling (SEM) that can model latent constructs and their direct and indirect pathways, enabling a more nuanced understanding of how instructional factors collectively shape pedagogical competence in microteaching contexts (Hair et al., 2019; Kline, 2016).

By doing so, this research contributes to teacher education literature by offering an integrated structural model that captures the interplay among core instructional dimensions in microteaching, and fills an empirical gap regarding factors that shape pedagogical competence in the context of economic-education teacher training. The study also has practical implications for curriculum design, pedagogical training, mentoring, and supervision practices in teacher education institutions.

METHOD

This study employed a quantitative approach with an explanatory research design and a cross-sectional survey method. This approach was selected because the research aims to analyze the causal relationships among three instructional variables lesson planning, teaching methods, and assessment instruments and pedagogical competence. The survey design was used to collect students' perception data at a single point in time. The analysis was conducted using Structural Equation Modeling (SEM), as this method allows for the examination of structural relationships as well as the direct and indirect effects among latent variables with a high degree of accuracy (Kline, 2016).

The population of this study consists of all sixth-semester students enrolled in the Microteaching course across three study programs in the Faculty of Economics and Business, Yogyakarta State University, namely Economics Education, Accounting Education, and Office Administration Education. The sampling technique used was proportional random sampling to ensure representation from each study program. Out of a total population of 210 students, 169 were selected as the sample, in accordance with the minimum requirements for SEM, which recommend a sample size of at least 5–10 times the number of parameters in the model (Hair et al., 2019).

The study was conducted at the Faculty of Economics and Business (FEB), Yogyakarta State University (UNY), specifically in the microteaching laboratory and the classrooms used for instructional practice. This setting was selected because it aligns with the research context, which examines the pedagogical competence of pre-service teacher candidates.

The research instrument consisted of a Likert-scale questionnaire (1-4) developed based on the Indonesian Teacher Competency Standards (Permendiknas No. 16/2007) and instructional design theories (Reigeluth A. A., 1999; Wiggins & Tighe, 2005) The instrument covered four main constructs:

1. Lesson Planning: indicators include the development of lesson plans (RPP), formulation of learning objectives, and selection of instructional methods and media.

2. Teaching Methods: indicators include variations in teaching strategies, the implementation of student-centered approaches, and classroom management skills.

3. Assessment Instruments: indicators include the development of authentic assessment tools, construction of scoring rubrics, continuous assessment practices, and the provision of feedback.

4. Pedagogical Competence: indicators include understanding learners, implementing instruction, evaluating learning outcomes, and fostering students' potential development.

Instrument validity was tested using Confirmatory Factor Analysis (CFA), while reliability was assessed using Composite Reliability (CR) and Cronbach's Alpha. The instrument was also validated through expert judgment by three education experts.

Data collection was carried out in several stages. The preparation stage involved developing the research instrument, conducting expert validation, and administering a limited pilot test. During the implementation stage, the questionnaire was distributed online via Google Forms throughout January 2025. The monitoring stage included checking data completeness and ensuring logical validity. In the finalization stage, the data were exported and prepared for SEM analysis. Respondent participation was voluntary, and all data were treated confidentially.

Data were analyzed using Structural Equation Modeling (SEM) with the SEM PLS 4 application following several procedures. First, descriptive analysis was conducted to describe respondent profiles and response patterns. Second, validity and reliability tests were performed using CFA, Composite Reliability (CR), Average Variance Extracted (AVE), and factor loadings. Third, model fit was assessed through Goodness-of-Fit indices, including CFI, GFI, RMSEA, and Chi-square/df. Fourth, structural path analysis was carried out to examine the direct and indirect effects among variables. Fifth, mediation analysis was conducted using a bootstrapping procedure to test the mediating role of teaching methods. This analytical approach enabled the researchers to capture the complex relationships among variables while strengthening the validity of the study's findings.

This study received ethical approval from the UNY Research Ethics Committee and adhered to established research ethics principles, including informed consent, data confidentiality, and voluntary participation. Respondents were provided with complete information regarding the

purpose of the study, the procedures for completing the questionnaire, and their right to withdraw at any time without any consequences.

RESULT AND DISCUSSION

Descriptive Statistics

The results of the descriptive analysis showed that the majority of students demonstrated pedagogical competence at a high level. The variables of lesson planning, teaching methods, and assessment instruments also recorded average scores above 3.00 (on a 1 - 4 scale), indicating students' positive perceptions of the quality of the microteaching practices they carried out.

Tabel 1. Results of Reliability and Construct Validity Tests

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Assessment Instrument	0.861	0.929	0.899	0.505
Lesson Planing	0.909	0.919	0.925	0.558
Pedagogical Competence	0.957	0.958	0.963	0.701
Teaching Methode	0.938	0.939	0.947	0.642

The reliability and construct validity tests were conducted to ensure that the measurement instruments used in this study demonstrated strong internal consistency and accurately measured each research construct. The results indicate that all variables meet the required criteria for reliability and convergent validity in SEM/PLS analysis. For the Assessment Instruments variable, the Cronbach's Alpha value of 0.861 and composite reliability values (rho_A = 0.929; rho_C = 0.899) indicate high reliability. The AVE value of 0.505 also meets the minimum threshold of 0.50, confirming adequate convergent validity. The Lesson Planning variable likewise demonstrates excellent reliability, supported by a Cronbach's Alpha of 0.909 and composite reliability values exceeding 0.90. Its AVE value of 0.558 indicates that more than half of the variance in the indicators is explained by the construct, thereby fulfilling the convergent validity requirement.

Furthermore, the Pedagogical Competence variable shows the strongest reliability among all constructs, with a Cronbach's Alpha of 0.957 and composite reliability values above 0.96. The AVE value of 0.701 reflects very strong convergent validity, as the construct explains more than 70% of the variance of its indicators. The Teaching Methods variable also presents highly satisfactory results, with a Cronbach's Alpha of 0.938 and high composite reliability values. Its AVE value of 0.642 indicates that the construct effectively explains the majority of the variance in its indicators. Overall, all research variables satisfy the recommended thresholds for reliability (Cronbach's Alpha $\geq$ 0.70 and Composite Reliability $\geq$ 0.70) and convergent validity (AVE $\geq$ 0.50). Therefore, it can be concluded that the measurement instruments used in this study are reliable, valid, and suitable for further analysis in the structural model assessment.

Table 2. Discriminant Validity (Fornell–Larcker Criterion)

Construct	Assessment Instrument	Lesson Planning	Pedagogical Competence	Teaching Method
Assessment Instrument	0.710			
Lesson Planning	0.520	0.747		
Pedagogical Competence	0.485	0.630		
Teaching Method	0.560	0.585	0.605	0.801

The results of the discriminant validity test based on the Fornell–Larcker criterion show that each construct in the model demonstrates adequate discriminant validity. According to this criterion, the square root of the Average Variance Extracted (AVE), represented by the diagonal values in the table, must be higher than the correlations between each construct and the other constructs in the model. For the Assessment Instrument construct, the square root of AVE is 0.710, which is higher than its correlations with Lesson Planning (0.520), Pedagogical Competence (0.485), and Teaching Method (0.560). This indicates that the construct explains more variance in its own indicators than it shares with other constructs.

For the Lesson Planning construct, the square root of AVE is 0.747, exceeding its correlations with Assessment Instrument (0.520), Pedagogical Competence (0.630), and Teaching Method (0.585). This shows that Lesson Planning maintains sufficient discriminant validity because it retains a greater proportion of variance within its own measurement items. The Pedagogical Competence construct also satisfies the discriminant validity requirement, with a square root of AVE value of 0.837, which is higher than its correlations with Assessment Instrument (0.485), Lesson Planning (0.630), and Teaching Method (0.605). This confirms that the construct is empirically distinguishable from the others.

Lastly, the Teaching Method construct shows a square root of AVE of 0.801, which is greater than its correlations with the remaining constructs. This provides further evidence that Teaching Method represents a distinct latent variable in the model. Overall, the Fornell-Larcker analysis confirms that all constructs meet the discriminant validity criteria, demonstrating that each variable captures a unique conceptual dimension within the research framework.

Structural Model

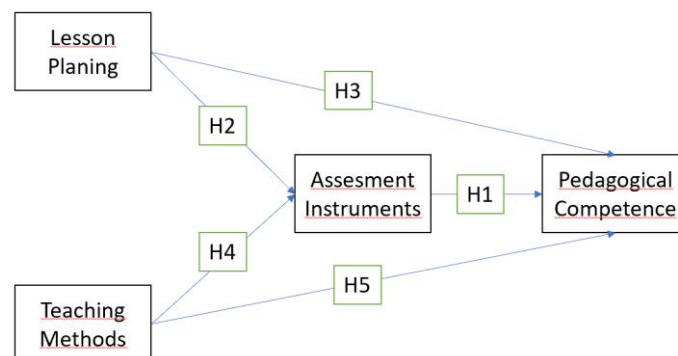Hasil analisis SEM menunjukkan hubungan antar variabel sebagai berikut:

Figure 1. Model of Hypothesis

H1 : Assessment Instruments have a positive and significant effect on Pedagogical Competence.

H2 : Lesson Planning has a positive and significant effect on Assessment Instruments.

H3 : Lesson Planning has a negative and significant effect on Pedagogical Competence.

H4 : Teaching Methods have a positive and significant effect on Assessment Instruments.

H5 : Teaching Methods have a positive and significant effect on Pedagogical Competence.

Table 3. Structural Model Path Coefficients and Hypotheses Testing

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Assessment Instrument -> Pedagogical Competence	0.339	0.328	0.092	3.691	0.000
Lesson Planing -> Assessment Instrument	0.590	0.591	0.040	14.739	0.000
Lesson Planing -> Pedagogical Competence	-0.235	-0.233	0.054	4.343	0.000
Teaching Methode -> Assessment Instrument	0.418	0.417	0.040	10.584	0.000
Teaching Methode -> Pedagogical Competence	0.877	0.886	0.060	14.720	0.000

The results of the structural model analysis indicate that all hypothesized relationships among variables are statistically significant at the 0.05 level, as reflected by p-values of 0.000 and t-statistics that exceed the critical value of 1.96. First, the path coefficient from Assessment Instruments to Pedagogical Competence is 0.339 (t = 3.691, p = 0.000), suggesting a positive and significant influence. This means that better-developed and well-implemented assessment instruments

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contribute meaningfully to improving the pedagogical competence of microteaching student teachers.

The relationship between Lesson Planning and Assessment Instruments also shows a strong, positive, and highly significant effect, with a path coefficient of 0.590 (t = 14.739, p = 0.000). This finding implies that effective lesson planning strongly enhances the quality of assessment instruments used by student teachers. Interestingly, the direct effect of Lesson Planning on Pedagogical Competence is negative and significant (β = - 0.235, t = 4.343, p = 0.000). This finding suggests that an increased emphasis on formal lesson planning does not automatically translate into higher pedagogical competence among microteaching student teachers. In the context of microteaching, lesson planning is often treated as an administrative or procedural requirement rather than as a reflective pedagogical tool. As a result, excessive focus on planning documentation may reduce instructional flexibility and adaptive teaching practices, which are essential components of pedagogical competence. However, the strong positive effect of Lesson Planning on Assessment Instruments indicates that lesson planning contributes indirectly to pedagogical competence through improving assessment quality, highlighting the importance of integrating reflective planning with effective instructional and assessment practices.

In addition, Teaching Methods have a significant positive influence on Assessment Instruments, with a coefficient of 0.418 (t = 10.584, p = 0.000). This shows that the better student teachers implement teaching methods, the more systematic and accurate their assessment practices become. Finally, Teaching Methods exhibit the strongest direct effect on Pedagogical Competence, with a coefficient of 0.877 (t = 14.720, p = 0.000). This highlights that the ability to apply appropriate and effective teaching methods is the most dominant predictor of pedagogical competence among microteaching students.

Overall, these results confirm that all structural paths are significant, with teaching methods playing the most critical role in shaping pedagogical competence, followed by assessment instruments. Lesson planning, while essential, contributes primarily through indirect pathways, emphasizing the need for reflective, flexible, and practice-oriented planning approaches in microteaching contexts.
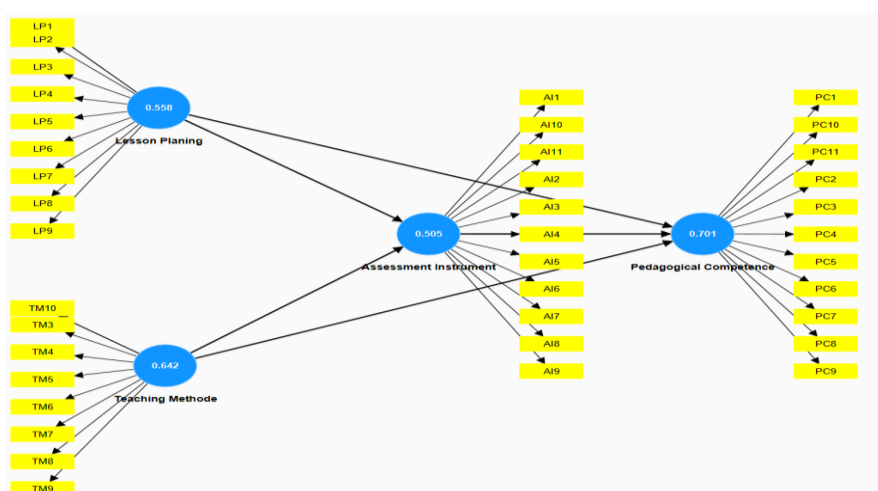

Figur 2. Structural Model Path

Key Findings

The main findings of this study can be summarized as follows:

1. Teaching Methods emerged as the strongest predictor of pedagogical competence. The path coefficient from Teaching Methods to Pedagogical Competence ($\beta = 0.877$, $p < 0.001$) indicates that the ability of microteaching student teachers to apply effective teaching strategies plays a dominant role in enhancing their overall pedagogical competence.

2. Assessment Instruments significantly contribute to improving pedagogical competence. With a positive and significant effect ($\beta = 0.339$, $p < 0.001$), well-developed assessment instruments such as scoring rubrics, evaluation criteria, and feedback mechanisms support the development of student teachers' pedagogical skills.

3. Lesson Planning strongly influences the development of assessment instruments but shows a negative direct effect on pedagogical competence. Lesson Planning significantly predicts Assessment Instruments ($\beta = 0.590$, $p < 0.001$), showing that effective planning contributes to better assessment design. However, its direct effect on Pedagogical Competence is negative and significant ($\beta = -0.235$, $p < 0.001$), suggesting the possibility of a suppression effect or the need for mediating variables such as teaching practice quality.

4. Teaching Methods also significantly enhance Assessment Instruments. The effect of Teaching Methods on Assessment Instruments ($\beta = 0.418$, $p < 0.001$) highlights that better mastery of teaching techniques leads to more accurate and systematic design of assessment tools.

Overall, these findings confirm that pedagogical competence among microteaching student teachers at FEB UNY is shaped most strongly by their mastery of teaching methods, followed by the quality of assessment instruments, while lesson planning plays a more indirect role through its influence on assessment practices.

Interpretation of Key Findings

The findings of this study provide important insights into the factors shaping the pedagogical competence of microteaching student teachers at the Faculty of Economics and Business, Universitas Negeri Yogyakarta. Overall, the results indicate that pedagogical competence is primarily driven by the quality of instructional enactment rather than by planning alone. Teaching Methods emerge as the strongest determinant of pedagogical competence, as reflected in the very high path coefficient ($\beta = 0.877$, $p < 0.001$). This finding underscores that student teachers who are able to implement varied, interactive, and student-centered teaching strategies demonstrate substantially higher pedagogical competence. In the context of microteaching, this confirms that pedagogical mastery is most clearly reflected through actual classroom performance, not merely through preparatory activities.

Assessment Instruments also make a meaningful contribution to pedagogical competence ($\beta = 0.339$, $p < 0.001$). This suggests that student teachers who are capable of designing and implementing clear, structured, and purposeful assessment tools are better positioned to evaluate

learning processes and outcomes, as well as to provide constructive feedback. These results highlight assessment literacy as a key supporting component of pedagogical competence, particularly in microteaching environments where performance-based assessment plays a central role.

A key contribution of this study lies in the nuanced finding regarding Lesson Planning. While lesson planning strongly and positively influences Assessment Instruments ($\beta = 0.590$, $p < 0.001$), its direct effect on pedagogical competence is negative and statistically significant ($\beta = -0.235$, $p < 0.001$). This negative direct effect serves as an important discussion point and extends previous microteaching studies that have typically assumed a uniformly positive relationship between planning and pedagogical outcomes. The finding suggests a potential over-planning versus enactment quality dilemma, in which highly detailed lesson plans do not automatically translate into effective teaching performance. In practice, student teachers may become overly focused on adhering to rigid plans, thereby reducing flexibility, responsiveness, and instructional fluency during teaching enactment. Thus, lesson planning appears to contribute to pedagogical competence primarily through indirect pathways, particularly via improved assessment design and teaching practices, rather than through a direct effect.

In addition, Teaching Methods significantly enhance Assessment Instruments ($\beta = 0.418$, $p < 0.001$), indicating that student teachers who demonstrate strong instructional practices also tend to develop more systematic and coherent assessment strategies. This finding reinforces the theoretical view that assessment quality is closely embedded within instructional practice, especially in microteaching contexts where teaching and assessment are tightly integrated.

Taken together, these results contribute to the microteaching literature by demonstrating that pedagogical competence is not simply the product of careful lesson planning, but rather the outcome of effective instructional enactment supported by well-aligned assessment practices. This study adds nuance to prior research by empirically showing that lesson planning may exert a negative direct effect when not accompanied by high-quality teaching execution, thereby highlighting the importance of balancing preparation with adaptive and responsive teaching performance. Such findings emphasize the need for teacher education programs to place greater emphasis on enactment quality and reflective practice, rather than on planning completeness alone.

Comparison with Previous Studies

The findings of this study show both alignment and contrast with prior research on instructional variables and pedagogical competence. First, the strong positive effect of teaching methods on assessment instruments and pedagogical competence is consistent with previous studies, which emphasize that the ability to select and implement effective teaching strategies is a critical predictor of overall instructional quality (e.g., Darling-Hammond et al., 2020; Demir & Abakay, 2021). Earlier research also found that varied and student-centered teaching methods enhance teachers' capacity to design appropriate assessments, supporting the positive association observed in this study.

Second, the positive influence of assessment instruments on pedagogical competence aligns with studies by Brookhart (2017) and Aiken (2019), which highlight that well-constructed assessment tools help teachers evaluate learning outcomes more accurately, thereby improving their instructional decision-making. The significant path coefficient (0.339, p < 0.001) in this research reflects these findings and reinforces the idea that assessment literacy is a fundamental component of pedagogical expertise.

However, this study presents an interesting contrast in the relationship between lesson planning and pedagogical competence. While prior studies commonly report a strong positive link indicating that well-designed lesson plans enhance teaching effectiveness (e.g., Suprayogi et al., 2017; Widodo & Kadarwati, 2020) the current findings show a negative direct effect of lesson planning on pedagogical competence (–0.235, p < 0.001). This suggests that student teachers with more detailed or rigid lesson plans may feel constrained during microteaching sessions, reducing their pedagogical adaptability. Similar patterns have been noted in some microteaching studies where novice teachers become overly focused on following the plan rather than responding dynamically to classroom situations.

Furthermore, the strong positive effect of lesson planning on assessment instruments (0.590, p < 0.001) supports earlier literature stating that effective planning enhances alignment between learning objectives, teaching activities, and assessment strategies (Anderson & Krathwohl, 2001). This indicates that lesson planning may indirectly support pedagogical competence through improved assessment design, even if its direct effect appears negative.

Overall, the findings are largely in line with existing research but also provide new insights into the complexity of instructional competencies among microteaching student teachers. The results highlight the need to consider indirect pathways and contextual factors such as teaching experience and microteaching constraints when evaluating the development of pedagogical competence.

Limitations

This study has several limitations. First, the use of a cross-sectional survey design restricts the ability to draw strong causal conclusions between lesson planning, teaching methods, assessment instruments, and pedagogical competence. Second, the data were based on self-reported perceptions, which may be influenced by response bias and may not fully reflect actual teaching performance. Third, the sample was limited to microteaching student teachers at FEB UNY, reducing the generalizability of the findings to other institutions or teaching contexts. Fourth, the model did not include other potentially relevant variables—such as teaching self-efficacy, prior teaching experience, or feedback quality which may also influence pedagogical competence. Finally, the microteaching environment itself is limited in capturing real classroom complexities, which may affect how student teachers apply lesson planning, teaching methods, and assessment practices.

Recommendations for Future Research

Future studies should consider employing longitudinal or experimental designs to strengthen causal inferences regarding the influence of lesson planning, teaching methods, and assessment instruments on pedagogical competence. Expanding the sample to include different faculties, universities, or levels of teaching experience would also improve the generalizability of the findings. Researchers are encouraged to incorporate additional variables, such as teaching self-efficacy, reflective practice, digital pedagogy skills, and supervisory feedback, to develop a more comprehensive model of pedagogical competence. Future research may also benefit from using mixed-method approaches, combining surveys with classroom observations or interviews to capture deeper insights into instructional behaviors. Finally, studies conducted in authentic classroom settings rather than microteaching environments could provide a more realistic evaluation of how beginning teachers apply instructional planning, teaching strategies, and assessment practices in practice.

CONCLUSION

This study examined the influence of lesson planning, teaching methods, and assessment instruments on the pedagogical competence of microteaching student teachers at the Faculty of Economics and Business, Universitas Negeri Yogyakarta, by analyzing both direct and indirect relationships among these instructional components. The findings indicate that all three constructs significantly contribute to pedagogical competence within an integrated structural model, with teaching methods emerging as the strongest predictor. In addition, teaching methods were found to partially mediate the effects of lesson planning and assessment instruments on pedagogical competence, highlighting their central role in translating preparation and evaluation into effective instructional performance. Importantly, the model also identifies a significant negative direct effect of lesson planning on pedagogical competence, suggesting that detailed planning does not necessarily lead to higher pedagogical performance when instructional enactment quality is not adequately considered.

The novelty of this study lies in the development of an integrated structural model that simultaneously links lesson planning, teaching methods, and assessment instruments to pedagogical competence in the microteaching context. Rather than examining these components in isolation, the findings demonstrate that teaching methods function not only as the strongest predictor but also as a key mediating mechanism, while lesson planning exerts a complex influence that includes a negative direct effect. This nuanced pattern extends previous microteaching research by providing empirical evidence on how instructional components interact, particularly within Indonesian teacher education settings.

The practical implications of these findings emphasize that professional development in teacher education should address lesson planning, teaching methods, and assessment instruments in an integrated manner. Efforts to improve microteaching quality should therefore focus not only on enhancing lesson design, but also on strengthening instructional enactment skills and aligning assessment practices with teaching strategies. Professional development initiatives such as

instructional design training, teaching-method workshops, and assessment literacy programs are likely to be more effective when implemented simultaneously rather than in isolation ("Developing Teachers' Assessment Literacy By Improving Existing Tests: Analyses and Tools," 2021).

Despite these contributions, this study has several limitations. The use of a cross-sectional design limits causal inference, and the reliance on self-reported data may introduce response bias. In addition, the scope of the study was confined to a single faculty, which may limit generalizability. Future research is encouraged to adopt longitudinal designs, incorporate direct classroom observations, and involve participants from multiple institutions to further examine the dynamic development of pedagogical competence and to strengthen the evidence base for teacher education policy and practice.

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