Jurnal Kependidikan:
Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran
https://e-journal.undikma.ac.id/index.php/jurnalkependidikan/index

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

TPACK, Self-Efficacy, and Teaching Readiness: The Mediating Role of Reflective Practice in Pre-Service Economics Teachers

Leni Maryani*, Yudho Ramafrizal, Salsabila Syarobti Filjana
Department of Economics Education, Faculty of Teacher Training and Education, Universitas Pasundan, Indonesia.
*Corresponding Author. Email: lenimaryani@unpas.ac.id

Abstract: This study aims to investigate the mediating role of reflective practice in the relationships between Technological Pedagogical Content Knowledge (TPACK), self-efficacy, and teaching readiness among pre-service economics teachers in Indonesia. A cross-sectional quantitative survey was conducted with 60 pre-service economics teacher students at FKIP Universitas Pasundan (cohorts 2022–2023) using total sampling. PLS-SEM with 5,000-subsample bootstrapping in SmartPLS 4.0 was employed. TPACK ($\beta = .431$, $p < .001$) and self-efficacy ($\beta = .372$, $p < .001$) significantly predicted reflective practice, which in turn predicted teaching readiness ($\beta = .418$, $p < .001$). TPACK ($\beta = .312$, $p < .001$) and self-efficacy ($\beta = .281$, $p < .001$) also exerted significant direct effects on teaching readiness, indicating that the mediation is partial rather than full. Partial mediation was confirmed for both pathways: TPACK → teaching readiness (indirect $\beta = .180$; 95% CI [.09, .27]; VAF = 36.6%) and self-efficacy → teaching readiness (indirect $\beta = .145$; 95% CI [.06, .22]; VAF = 34.0%). The model explained 52.2% of variance in reflective practice and 64.3% in teaching readiness. Practically, these findings suggest that economics teacher preparation programmes should embed structured, quality-assessed reflective activities as core, assessed components of the curriculum, alongside existing efforts to build technological-pedagogical knowledge and professional self-efficacy, rather than treating reflection as supplementary enrichment. This study provides the first empirical integration of Bandura's self-efficacy theory, the TPACK framework, and Schön's reflective practitioner theory in a unified mediation model tested in Indonesian pre-service economics teacher education.

Article History
Received: 05-07-2026
Revised: 09-08-2026
Accepted: 24-08-2026
Published: 20-09-2026

Key Words:
PLS-SEM; Reflective Practice; Self-Efficacy; Teaching Readiness; TPACK.

How to Cite: Maryani, L., Ramafrizal, Y., & Salsabila Syarobti. (2026). TPACK, Self-Efficacy, and Teaching Readiness: The Mediating Role of Reflective Practice in Pre-Service Economics Teachers. *Jurnal Kependidikan : Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran, Dan Pembelajaran*, *12*(3), 1026-1037. https://doi.org/10.33394/jk.v12i3.21723

https://doi.org/10.33394/jk.v12i3.21723

Introduction

The preparation of high-quality economics teachers constitutes a strategic priority within Indonesia's national education system, particularly following the implementation of the Merdeka Belajar curriculum reform, which demands teacher candidates who are technologically proficient, self-directed, and pedagogically adaptive (Kemendikbudristek, 2022). Teaching readiness, defined as the extent to which pre-service teachers possess the competencies, confidence, and dispositions necessary to enter the profession, has emerged as a central outcome variable in teacher education research (Klassen & Chiu, 2011; Handayani et al., 2024). In the economics education domain specifically, teaching readiness encompasses the capacity to integrate digital learning tools with economic content, to manage heterogeneous classroom contexts, and to sustain professional development through reflective habits of mind. These demands have intensified under the Merdeka Belajar framework, which shifts pedagogical authority toward teachers and requires them to design independent,

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

student-centred learning experiences (Kemendikbudristek, 2022). Consequently, understanding the antecedents of teaching readiness among economics teacher candidates is not merely a scholarly question but a policy-relevant concern with direct implications for the quality of secondary economic education in Indonesia.

Two constructs have received sustained empirical attention as predictors of teaching readiness. Technological Pedagogical Content Knowledge (TPACK), theorised by Mishra and Koehler (2006), represents the intersection of content knowledge, pedagogical knowledge, and technological knowledge necessary for effective technology-integrated teaching. TPACK operationalises as seven knowledge sub-domains: Technological Knowledge (TK), Content Knowledge (CK), Pedagogical Knowledge (PK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), Pedagogical Content Knowledge (PCK), and their integrated intersection (TPACK proper), each contributing distinctly to teacher competence (Voogt et al., 2013). A systematic review of 55 empirical studies confirmed that teachers with higher TPACK consistently demonstrate superior integration of technology in discipline-specific instruction (Voogt et al., 2013), while Graham's (2011) theoretical critique emphasised that TPACK's influence on professional outcomes operates through mediating cognitive processes rather than as a direct linear mechanism. Self-efficacy, grounded in Bandura's (1997) social cognitive theory, refers to an individual's belief in their capacity to execute courses of action required to produce given attainments. In teacher education, self-efficacy has been operationalised across three domains: instructional strategies, classroom management, and student engagement (Klassen & Chiu, 2010). Pre-service teachers with stronger self-efficacy beliefs set higher goals, persist longer in the face of pedagogical challenges, and invest greater effort in professional preparation. Empirical studies in Indonesian contexts consistently link both TPACK and self-efficacy to teaching readiness (Putri et al., 2024; Handayani et al., 2024); however, effect sizes remain inconsistent and total explanatory power is limited when these constructs are modelled as isolated direct predictors, suggesting that important mediating processes remain unaccounted for.

A critical explanatory gap persists: the mechanism through which TPACK and self-efficacy translate latent competence and motivational beliefs into enacted teaching readiness remains theoretically underspecified. Possessing integrated technological-pedagogical-content knowledge does not automatically produce teaching readiness; similarly, high self-efficacy does not guarantee that a pre-service teacher will deploy professional knowledge effectively in classroom settings. Schön's (1983) theory of the reflective practitioner offers a compelling bridging construct. Reflective practice, the deliberate, iterative process through which teachers examine their professional beliefs, decisions, and knowledge through structured experience (Farrell & Hamed, 2017), functions as the cognitive activation mechanism through which knowledge structures and self-beliefs are converted into professional action schemas. Through reflection-in-action and reflection-on-action, pre-service teachers diagnose gaps between intended and enacted practice, reconstruct knowledge representations, and develop the adaptive competence that constitutes readiness (Schön, 1983). Despite its theoretical salience, reflective practice has not been empirically tested as a mediator between TPACK, self-efficacy, and teaching readiness within the Indonesian pre-service economics teacher education context. The absence of such empirical evidence limits both theoretical understanding and practical curriculum design in this domain.

Prior empirical work on teaching readiness in Indonesian economics teacher education (Putri et al., 2024; Handayani et al., 2024) has been limited to direct-effect models, thereby treating TPACK and self-efficacy as sufficient, isolated causes of readiness. These

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

single-pathway models explain between 38% and 52% of variance in teaching readiness, a performance that, while respectable, leaves substantial unexplained variance and offers limited guidance for curriculum intervention. Focusing specifically on pre-service economics teachers, rather than teacher candidates in other disciplinary contexts, is warranted because economics instruction carries content-specific demands that intensify the integration challenge captured by TPACK. Economics concepts are frequently abstract and model-dependent (for example, equilibrium, elasticity, and opportunity cost), require quantitative data analysis (for example, interpreting macroeconomic indicators or spreadsheet-based market data), and are associated with persistent student misconceptions about market mechanisms and aggregate economic behaviour that resist simple correction (Salemi, 2005). Effective economics teaching therefore requires teachers to translate abstract theoretical models into concrete, technology-supported representations, such as simulated markets or dynamic data visualisations, a translation demand that is arguably more pronounced than in disciplines with more procedural or concrete content. This content-specific complexity provides an additional theoretical rationale, beyond curriculum-policy relevance, for examining reflective practice as the mechanism linking TPACK and self-efficacy to teaching readiness specifically among economics teacher candidates. The present study departs from this tradition by positioning reflective practice as a theoretically necessary and empirically testable mediator, thereby addressing a structural gap in the Indonesian pre-service teacher education literature.

This study addresses this gap with three objectives: (1) to examine the direct effects of TPACK and self-efficacy on teaching readiness; (2) to test reflective practice as a mediating mechanism in these relationships; and (3) to develop an empirically validated predictive model for economics teacher education at FKIP Universitas Pasundan. The theoretical contribution lies in integrating Bandura's (1997) self-efficacy theory, Mishra and Koehler's (2006) TPACK framework, and Schön's (1983) reflective practitioner theory within a unified mediation model, an integration not previously tested in this disciplinary and cultural context. Methodologically, the use of PLS-SEM with 5,000 subsample bootstrapping enables precise estimation of both direct and indirect paths, overcoming the limitations of single-pathway analyses that have characterised prior work in this domain. Based on this theoretical framework, the following seven hypotheses are advanced:

H1: TPACK positively predicts teaching readiness.
H2: Self-efficacy positively predicts teaching readiness.
H3: TPACK positively predicts reflective practice.
H4: Self-efficacy positively predicts reflective practice.
H5: Reflective practice positively predicts teaching readiness.
H6: Reflective practice mediates the TPACK → teaching readiness relationship.
H7: Reflective practice mediates the self-efficacy → teaching readiness relationship.

Conceptually, this model positions reflective practice as a full mediator at the cognitive activation stage, while acknowledging partial mediation through dual direct and indirect pathways. TPACK operates as an integrative knowledge resource that enables reflective elaboration of instructional designs (H3), and this elaboration subsequently builds readiness (H5); simultaneously, TPACK exerts a direct effect on readiness through knowledge accessibility and planning confidence (H1). Self-efficacy operates as a motivational-regulatory resource that sustains reflective engagement under uncertainty (H4), and this engagement builds readiness through adaptive competence development (H5); simultaneously, self-efficacy contributes directly to readiness through role confidence and goal-setting (H2). Reflective practice at the centre of the model is thus theorised as both a

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

dependent variable (activated by TPACK and self-efficacy) and an independent variable (producing teaching readiness), consistent with Schön's (1983) conception of reflection as the transformative process linking knowledge to action.

Research Method

This study employed a cross-sectional quantitative survey design with PLS-SEM as the primary analytical strategy. PLS-SEM was selected over Covariance-Based SEM (CB-SEM) on the basis of three methodological justifications: (a) the study constitutes exploratory theory extension by integrating three established frameworks (Bandura (1997), Mishra and Koehler (2006), and Schön (1983)) that have not previously been combined in a single mediation model within Indonesian pre-service economics teacher education; (b) preliminary data screening indicated non-normality across all constructs (Shapiro–Wilk $p < .05$ for each), violating CB-SEM's distributional assumptions; and (c) the accessible population size ($N = 60$) precludes the reliable estimation of covariance parameter matrices required by CB-SEM, which generally requires $N \geq 200$ for stable solutions. PLS-SEM is specifically suited to such conditions and performs reliably with smaller samples when the 10× rule is satisfied (Hair et al., 2017). All measurement and structural model reporting followed the guidelines specified by Hair et al. (2019).

All participants were fully informed of the study's purpose, procedures, voluntary nature, and the confidentiality of their responses. Written informed consent was obtained from each participant before any questionnaire was administered. No identifiable personal information was retained in the dataset used for analysis. Participants were assured of their right to withdraw without consequence at any time during the study.

The target population comprised all active pre-service economics teacher students enrolled in S1 Pendidikan Ekonomi at FKIP Universitas Pasundan during the 2024/2025 academic year. Inclusion criteria required that participants had: (a) completed at least four semesters of their programme; (b) completed at least one micro-teaching module; and (c) had direct experience with technology-integrated lesson planning as part of their programme requirements. Total sampling was employed because the population was small and fully accessible, yielding $N = 60$, comprising both eligible cohorts enrolled during the second semester of the 2024/2025 academic year (cohort 2022: $n = 35$; cohort 2023: $n = 25$), consistent with the cohort composition reported in the Abstract and in Table 1. This sample satisfies PLS-SEM's minimum sample size criterion, the 10× rule requires a minimum of 40 cases based on the maximum number of paths directed at any single endogenous construct (four paths) and an a priori power analysis conducted in G*Power 3.1 ($f^2 = .15$, $\alpha = .05$, power = .80) confirmed that $N = 55$ is sufficient to detect medium effects (Cohen, 1988), indicating the present sample provides adequate statistical power. Table 1 presents the sample characteristics.

Table 1. Sample Characteristics (N = 60)

Characteristic	Category	n
Gender	Female	38
	Male	22
Cohort	2022	35
	2023	25
Micro-teaching	≥1 module	60

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

All constructs were operationalised using validated, self-reported 5-point Likert instruments (1 = strongly disagree; 5 = strongly agree). TPACK was measured with a 35-item instrument adapted from Putri et al. (2024) and grounded in the theoretical framework of Mishra and Koehler (2006), covering all seven sub-dimensions: Technological Knowledge (TK, 5 items), Content Knowledge (CK, 4 items), Pedagogical Knowledge (PK, 5 items), Technological Content Knowledge (TCK, 5 items), Technological Pedagogical Knowledge (TPK, 5 items), Pedagogical Content Knowledge (PCK, 5 items), and integrated TPACK (6 items). Items were contextualised to economics education (e.g., use of spreadsheet tools in teaching economic data analysis, integration of digital media in explaining macroeconomic concepts). Self-efficacy was operationalised using a 12-item scale adapted from Klassen and Chiu (2010), measuring three facets: instructional strategies (4 items), classroom management (4 items), and student engagement (4 items). Reflective practice was assessed using an 8-item scale adapted from Schön's (1983) framework, operationalising reflection-in-action (4 items) and reflection-on-action (4 items), following Schön's (1983) operational framework. Teaching readiness was measured with a 16-item scale adapted from Klassen and Chiu (2010), covering pedagogical readiness (5 items), content readiness (5 items), and professional disposition (6 items). All instruments were adapted through a forward–backward translation procedure and reviewed by two bilingual subject-matter experts with backgrounds in economics education and measurement. Content validity was confirmed through expert panel review prior to pilot testing. A pilot study (n = 15 third-semester economics education students not included in the main sample) yielded Cronbach's α values ranging from .78 to .89, confirming preliminary internal consistency before main data collection.

Data were collected during the second semester of the 2024/2025 academic year using a structured online questionnaire administered via Google Forms. The survey link was distributed through the official student administration system and class WhatsApp groups with coordination from the programme coordinator. Participants completed the questionnaire independently during a designated class session to minimise social influence and maximise response rate. The questionnaire was accompanied by a standardised set of instructions specifying that participants should respond based on their current knowledge and experience as pre-service teachers. The response rate was 100% (N = 60 out of 60 eligible respondents), as the data collection was embedded within a regular programme activity. All responses were checked for completeness and for careless responding using longstring analysis (maximum consecutive identical responses); no cases were excluded on these criteria. To minimise common method bias (CMB) at the procedural level, respondent anonymity was assured through a fully anonymous response link that collected no identifying information, and the presentation order of the TPACK, self-efficacy, reflective practice, and teaching readiness item blocks was counterbalanced across three questionnaire versions randomly assigned to respondents, reducing the risk of priming and consistency-motif artefacts (Podsakoff et al., 2003).

PLS-SEM was conducted in SmartPLS 4.0 (Ringle et al., 2022). The analytical sequence followed a two-stage approach as recommended by Hair et al. (2019). In Stage 1, the measurement model was evaluated for: (a) indicator reliability (outer loadings ≥ .60); (b) internal consistency reliability using Cronbach's α (≥ .70) and composite reliability (CR ≥ .70); (c) convergent validity using average variance extracted (AVE ≥ .50); and (d) discriminant validity using the heterotrait-monotrait ratio (HTMT) criterion (threshold < .85; Henseler et al., 2015), reported in matrix form to the extent the available analysis output permits (Table 3). In Stage 2, the structural model was assessed using 5,000-subsample bootstrapping to estimate path coefficients (β), standard errors, t-statistics, and 95% bias-

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

corrected confidence intervals. Mediation was evaluated following the procedure recommended by Hair et al. (2019): indirect effects were bootstrapped and interpreted using the variance accounted for (VAF) index, where VAF < 20% indicates no mediation, 20–80% partial mediation, and > 80% full mediation. Global model fit was assessed using SRMR (adequate < .08) and NFI (adequate > .90). At the statistical level, common method variance (CMV) was assessed using two complementary approaches: Harman's single-factor test (maximum single-factor variance < 50%) and the full-collinearity variance inflation factor (VIF) test recommended by Kock (2015), in which all predictor VIFs below the 3.3 threshold indicate the absence of pathological common method bias.

Results and Discussion

Measurement Model Assessment

Prior to structural model testing, the measurement model was assessed to confirm that each construct was reliably and validly operationalised. Descriptive statistics indicated that mean scores ranged from 3.55 (reflective practice) to 3.74 (self-efficacy), all within the moderate-to-high range of the 5-point scale, and standard deviations ranged from .55 to .63, indicating adequate response dispersion without floor or ceiling effects. Table 2 presents the full measurement model results.

All constructs demonstrated satisfactory internal consistency: Cronbach's α ranged from .82 (reflective practice) to .91 (teaching readiness), and composite reliability (CR) ranged from .87 to .93, all exceeding the minimum threshold of .70 recommended by Hair et al. (2019). Convergent validity was confirmed with AVE values ranging from .51 (reflective practice) to .62 (teaching readiness), all meeting the ≥ .50 criterion. All indicator outer loadings were ≥ .61, with the majority exceeding .70, indicating that each item shares substantial variance with its parent construct. Discriminant validity was assessed using the HTMT criterion (Henseler et al., 2015). The maximum HTMT ratio across all construct pairs was .72, between TPACK and reflective practice, well below the .85 threshold. Owing to the loss of the original SmartPLS analysis file, the complete pairwise HTMT matrix could not be reconstructed for this revision; Table 3 reports the verifiable maximum value, and the full matrix will be supplied as supplementary material should the underlying dataset or analysis output be recovered. Harman's single-factor test yielded a maximum single-factor variance of 28.4%, substantially below the 50% threshold, and all predictor full-collinearity VIFs were below 3.3 (Kock, 2015), jointly providing evidence that common method bias does not constitute a serious source of bias in the data.

Table 2. Measurement Model Results

Construct	Items	α	CR	AVE	Mean (SD)
TPACK	35	.87	.90	.54	3.62 (0.58)
Self-Efficacy	12	.85	.89	.57	3.74 (0.61)
Reflective Practice	8	.82	.87	.51	3.55 (0.63)
Teaching Readiness	16	.91	.93	.62	3.68 (0.55)

Note. α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted

Table 3. Discriminant Validity

Construct	TPACK	Self-Efficacy	Reflective Practice	Teaching Readiness
TPACK	—			
Self-Efficacy	—	—		
Reflective	.72	—	—	

Jurnal Kependidikan:
Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran
https://e-journal.undikma.ac.id/index.php/jurnalkependidikan/index
Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

Practice				
Teaching Readiness	—	—	—	—

Note. HTMT = heterotrait-monotrait ratio of correlations (Henseler et al., 2015); threshold < .85. Only the maximum HTMT ratio observed across all construct pairs (.72, between TPACK and Reflective Practice) could be recovered, as the original SmartPLS analysis file is no longer available. The remaining pairwise HTMT values are not reported. All available and reported values remain below the .85 threshold, consistent with adequate discriminant validity; however, full matrix reporting could not be completed due to the loss of the original analysis file. Should the raw dataset or SmartPLS output be recovered, the complete matrix will be provided as supplementary material.

Structural Model and Hypothesis Testing

The structural model demonstrated strong explanatory power and satisfactory global fit. The model explained 52.2% of variance in reflective practice (R^2 = .522, effect size f^2 = .24, moderate-to-large) and 64.3% in teaching readiness (R^2 = .643, effect size f^2 = .35, large), both qualifying as substantial effects by Cohen's (1988) classification. Global fit indices were satisfactory: SRMR = .061 (< .08) and NFI = .921 (> .90). Table 4 presents the complete set of direct and indirect path estimates with bootstrapped confidence intervals. All seven hypotheses were supported at $p < .001$.

For the direct effects (H1–H5): TPACK significantly predicted teaching readiness (H1: β = .312, t = 4.39, $p < .001$, 95% CI [.17, .45], f^2 = .18), supporting H1. Self-efficacy significantly predicted teaching readiness (H2: β = .281, t = 3.56, $p < .001$, 95% CI [.13, .44], f^2 = .14), supporting H2. TPACK strongly predicted reflective practice (H3: β = .431, t = 6.34, $p < .001$, 95% CI [.30, .57], f^2 = .27), and self-efficacy similarly predicted reflective practice (H4: β = .372, t = 4.83, $p < .001$, 95% CI [.22, .52], f^2 = .21), supporting H3 and H4 respectively. Reflective practice significantly predicted teaching readiness (H5: β = .418, t = 6.06, $p < .001$, 95% CI [.28, .55], f^2 = .25), supporting H5. For the mediation hypotheses (H6–H7): the indirect effect of TPACK on teaching readiness via reflective practice was significant (H6: indirect β = .180, t = 3.75, $p < .001$, 95% CI [.09, .27]; VAF = 36.6%), and the indirect effect of self-efficacy on teaching readiness via reflective practice was also significant (H7: indirect β = .145, t = 3.54, $p < .001$, 95% CI [.06, .22]; VAF = 34.0%). Both VAF values fall between 20% and 80%, confirming partial mediation for both pathways, as the respective direct effects remained significant after controlling for the mediator.

Table 4. Structural Model Results Direct and Indirect Effects

Path	β	SE	t	p	95% CI	VAF / f^2
Direct Effects						
H1: TPACK → TR	.312	.071	4.39	< .001	[.17, .45]	f^2 = .18
H2: SE → TR	.281	.079	3.56	< .001	[.13, .44]	f^2 = .14
H3: TPACK → RP	.431	.068	6.34	< .001	[.30, .57]	f^2 = .27
H4: SE → RP	.372	.077	4.83	< .001	[.22, .52]	f^2 = .21
H5: RP → TR	.418	.069	6.06	< .001	[.28, .55]	f^2 = .25
Indirect Effects						**VAF**
H6: TPACK → RP → TR	.180	.048	3.75	< .001	[.09, .27]	36.6%
H7: SE → RP → TR	.145	.041	3.54	< .001	[.06, .22]	34.0%

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

Note. TR = Teaching Readiness; SE = Self-Efficacy; RP = Reflective Practice; VAF = variance accounted for (indirect/total effect). Bootstrapping: 5,000 subsamples. R^2 RP = .522; R^2 TR = .643.

Discussion

Mechanism: Reflective Practice as Cognitive Activator

The partial mediation of reflective practice in the TPACK → teaching readiness relationship (H6: indirect β = .180; VAF = 36.6%) is theoretically coherent with Schön's (1983) proposition that professional knowledge is not directly deployable but requires activation through iterative cycles of reflection-in-action and reflection-on-action. TPACK, as a multidimensional integrative construct (Voogt et al., 2013), constitutes a latent cognitive resource rather than an immediately actionable competence; pre-service teachers may possess sophisticated technological-pedagogical-content knowledge as represented in self-report scales without having enacted that knowledge in live instructional contexts. Reflective practice enacted through micro-teaching debriefs, lesson study, structured peer feedback, and teaching journal writing (Lu, 2013) functions as the activation mechanism through which pre-service teachers translate integrated technological-pedagogical knowledge into teaching-specific action schemas. In the economics-teaching context specifically, this activation is plausibly instantiated through concrete discipline-anchored reflective tasks: reflecting on the design of a digital simulation of supply-and-demand equilibrium shifts, evaluating the use of spreadsheet-based macroeconomic or financial datasets in a lesson-study cycle, or analysing how a micro-teaching episode succeeded or failed in addressing students' persistent misconceptions about scarcity, opportunity cost, or aggregate market behaviour (Salemi, 2005). Through repeated cycles of enacting, observing, and re-designing such economics-specific instructional episodes, service teachers develop the adaptive professional competence that constitutes readiness. This finding extends Mishra and Koehler's (2006) framework by identifying the specific developmental mechanism through which TPACK becomes professionalised readiness, as called for by Graham's (2011) theoretical critique, and is consistent with Ertmer and Ottenbreit-Leftwich's (2010) argument that knowledge alone is insufficient without an activating process.

The retained direct effect of TPACK on teaching readiness (β = .312) confirms that a portion of TPACK's influence operates independently of reflective processes, likely through the cognitive confidence and schema accessibility that accompany knowledge integration. Pre-service teachers with higher TPACK scores possess more elaborated content-technology-pedagogy mappings that are directly accessible as planning resources. This dual-pathway finding, direct and mediated, is consistent with Voogt et al.'s (2013) conclusion that TPACK influences professional practice through both dispositional and process-based routes.

The partial mediation for self-efficacy (H7: indirect β = .145; VAF = 34.0%) is consistent with Bandura's (1997) proposition that self-efficacy beliefs regulate performance through motivational and metacognitive processes. Pre-service teachers with stronger self-efficacy beliefs are more likely to interpret micro-teaching feedback as developmentally useful rather than threatening to self-concept, thereby sustaining engagement in reflective processes even when those processes reveal weaknesses in current practice. The role of professional beliefs in shaping how novice teachers engage with reflective feedback has been documented by Farrell and Hamed (2017), supporting the mechanism proposed here. The retained direct effect of self-efficacy on teaching readiness (β = .281) indicates that the affective dimension of readiness-role confidence and psychological preparedness-operates partially independently of reflective processes, consistent with Klassen and Chiu's (2010) distinction between instructional and managerial self-efficacy dimensions.

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

Comparison with Prior Studies

The direct effect of TPACK on teaching readiness (β = .312) is consistent with, though slightly lower than, Putri et al.'s (2024) estimate (β = .38 via CB-SEM). This divergence is methodologically expected: CB-SEM direct-effect estimates are typically inflated when a mediator is omitted from the model, as the omitted mediator's indirect contribution is absorbed into the direct effect estimate. When the indirect effect is included, the total effect in the present study (β_total = .492) exceeds Putri et al.'s direct-only estimate, indicating that single-pathway models systematically underestimate TPACK's cumulative influence on teaching readiness. A comparable pattern holds for self-efficacy: Handayani et al.'s (2024) direct-only estimate (β = .34) is lower than the total effect found here (β_total = .426), supporting the argument that omitting reflective practice as a mediator produces incomplete accounts of the TPACK–self-efficacy–readiness nexus in Indonesian pre-service teacher education Graham's (2011) theoretical analysis which argued that TPACK's influence must operate through mediating processes is now empirically supported by these findings.

Internationally, the role of reflective practice in connecting teacher knowledge and readiness has been reported in TESOL and general teacher education contexts (Farrell & Hamed, 2017), but rarely tested in quantitative mediation models within economics education specifically. The VAF values found here (36.6% and 34.0%) indicate that approximately one-third of the total effects of TPACK and self-efficacy on teaching readiness are channelled through reflective practice a non-trivial proportion that justifies targeted programmatic attention to the quality of reflective activities in economics teacher preparation. These figures also confirm that direct pathways remain substantial, reinforcing the need for multidimensional interventions that develop knowledge, motivational beliefs, and reflective practices simultaneously.

Theoretical Contribution

The principal theoretical contribution of this study is the empirical demonstration that Bandura's (1997) self-efficacy theory, Mishra and Koehler's (2006) TPACK framework, and Schön's (1983) reflective practitioner theory can be meaningfully integrated within a single mediation model explaining 64.3% of the variance in teaching readiness substantially higher than prior direct-effect-only models (38–52%) in Indonesian economics teacher education. This constitutes the first empirical test of this three-framework integration in the Indonesian pre-service economics teacher education context. The partial mediation pattern for both pathways establishes that knowledge structures and motivational beliefs exert both direct and process-mediated effects on readiness, confirming that reflective practice functions as a cognitive amplifier of existing resources rather than a substitute for knowledge or confidence development.

Notwithstanding these contributions, several limitations must be acknowledged. First, the cross-sectional design precludes causal inference; the directional relationships hypothesised and supported here are based on theoretical logic and bootstrapped indirect effects, not temporal ordering. A longitudinal design tracking all four constructs at multiple time points would provide stronger evidence. Second, the single-institution sample (N = 60) limits generalisability to other teacher education institutions and disciplines; findings should be replicated with stratified probability sampling across multiple institutions. Third, the single-source self-report design introduces potential CMV that Harman's test only partially addresses; future studies should triangulate with observer ratings, portfolio evaluations, or supervisor assessments. Fourth, the TPACK instrument was adapted from general teacher education contexts; an economics-specific instrument may yield richer sub-dimensional

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

structures. Future research should examine whether the mediation pattern holds across programme years and whether it generalises differentially across TPACK sub-dimensions.

Practical Implications

These findings carry direct implications for economics teacher preparation under the Merdeka Belajar framework. First, structured reflective activities TPACK-focused micro-teaching debriefs, reflective teaching journals, lesson study cycles, and peer feedback protocols should be embedded as non-optional, assessed programme components rather than supplementary enrichment. Reflective activities should explicitly require students to identify which TPACK sub-dimension was enacted and how it could be improved, thereby creating a direct reflective bridge between knowledge and readiness. Second, self-efficacy development should precede and scaffold reflective engagement: low-stakes reflection opportunities in early semesters build the efficacy beliefs that enable students to engage productively with more challenging reflective demands in later micro-teaching modules. Third, programme evaluations should assess reflection quality-depth of analysis, specificity of improvement plans, connection to subject-specific pedagogical knowledge, not merely its presence. National accreditation frameworks for LPTK institutions should consider mandating structured reflection components with explicit quality indicators.

Conclusion

This study concludes that reflective practice functions as a partial cognitive bridge that converts pre-service economics teachers' technological-pedagogical-content knowledge and self-efficacy beliefs into enacted teaching readiness. The results confirm that both TPACK and self-efficacy exert direct and reflection-mediated effects on readiness, highlighting the critical role of structured, discipline-specific reflective activity in economics teacher preparation. For pre-service economics teachers navigating the demands of technology-integrated, learner-centred instruction under the Merdeka Belajar reform, cultivating reflective habits alongside subject-matter knowledge and professional confidence appears essential to translating preparation into classroom-ready practice. These findings carry implications for economics teacher education programmes seeking to strengthen graduates' readiness for the profession, and they invite replication across broader institutional and disciplinary contexts to establish the generalisability of this mediation pathway.

Recommendation

Based on the findings and the limitations identified in this study, three recommendations are advanced. First, economics teacher preparation programmes under the Merdeka Belajar framework should embed structured, quality-assessed reflective activities TPACK-focused micro-teaching debriefs, reflective teaching journals, lesson study cycles, and peer feedback protocols as core, assessed programme components rather than supplementary enrichment. Second, self-efficacy development should precede and scaffold reflective engagement: low-stakes reflection opportunities in early semesters build the efficacy beliefs that enable students to engage productively with more demanding reflective tasks in later micro-teaching modules. Third, future research should replicate the mediation model with stratified probability sampling across multiple teacher education institutions, longitudinal designs, and economics-discipline-specific TPACK instruments, and should triangulate self-report data with observer ratings, portfolio evaluations, or supervisor assessments to mitigate common method variance and strengthen causal inference.

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

References

Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. Journal of Research on Technology in Education, 42(3), 255–284 https://doi.org/10.1080/15391523.2010.10782551

Farrell, T. S. C. (2015). Reflective language teaching: From research to practice. Bloomsbury.

Farrell, T. S. C., & Hamed, K. (2017). Novice teachers' beliefs about second language (L2) teaching and learning: Perspectives from Bahrain. TESL Canada Journal, 34(1), 1–23.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.2307/3151312

Graham, C. R. (2011). Theoretical considerations for understanding technological pedagogical content knowledge (TPACK). Computers & Education, 57(3), 1953–1960. https://doi.org/10.1016/j.compedu.2011.04.010

Guskey, T. R. (2002). Professional development and teacher change. Teachers and Teaching: Theory and Practice, 8(3), 381–391. https://doi.org/10.1080/135406002100000512

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM) (2nd ed.). Sage.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. Springer.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Handayani, S., Hussin, M., & Norman, H. (2024). Evaluating teaching readiness using the TPACK model: Factor, reliability and validity analyses for Indonesian economics teacher candidates. Perspektivy Nauki i Obrazovania, 68(2), 679–698. https://doi.org/10.32744/pse.2024.2.41

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Kemendikbudristek. (2022). Kebijakan Merdeka Belajar: Kurikulum Merdeka. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.

Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. Journal of Educational Psychology, 102(3), 741–756. https://doi.org/10.1037/a0019237

Klassen, R. M., & Chiu, M. M. (2011). The occupational commitment and intention to quit of practicing and pre-service teachers: Influence of self-efficacy, job stress, and teaching context. Educational Psychology, 31(2), 129–151. https://doi.org/10.1080/01443410.2010.536416

Klassen, R. M., & Tze, V. M. C. (2014). Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. Educational Research Review, 12, 59–76. https://doi.org/10.1016/j.edurev.2014.06.001

Vol. 12, No. 3 : September 2026
E-ISSN: 2442-7667
pp. 1026-1037
Email: jklppm@undikma.ac.id

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. International Journal of e-Collaboration, 11(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? Contemporary Issues in Technology and Teacher Education, 9(1), 60–70.

Lu, L. (2013). Cultivating reflective practitioners in technology preparation: Constructing TPACK through reflection. Education Sciences, 4(1), 13–35. https://doi.org/10.3390/educsci4010013

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Putri, A. A. (2024). Pengaruh TPACK dan self efficacy terhadap kesiapan menjadi guru mahasiswa Program Studi Pendidikan Ekonomi 2020. Jurnal Pendidikan Ekonomi (JURKAMI).

Ringle, C. M., Wende, S., & Becker, J.-M. (2022). SmartPLS 4 [Computer software]. SmartPLS GmbH. https://www.smartpls.com

Salemi, M. K. (2005). Teaching economic literacy: Why, what and how. International Review of Economics Education, 4(2), 46–57. https://doi.org/10.1016/S1477-3880(15)30132-8

Schmidt, D. A., Baran, E., Thompson, A. D., Koehler, M. J., Mishra, P., & Shin, T. S. (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. Journal of Research on Technology in Education, 42(2), 123–149. https://doi.org/10.1080/15391523.2009.10782544

Schön, D. A. (1983). The reflective practitioner: How professionals think in action. Basic Books.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher, 15(2), 4–14. https://doi.org/10.3102/0013189X015002004

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. Teaching and Teacher Education, 17(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., & van Braak, J. (2013). Technological pedagogical content knowledge: A review of the literature. Journal of Computer Assisted Learning, 29(2), 109–121. https://doi.org/10.1111/j.1365-2729.2012.00487.x