

Reconstructing Professional Identity: A Phenomenological Study of Teacher Certification and 21st-Century Learning

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Abstract: This study evaluates the implementation of teacher certification policies from the perspectives of professionalism and 21st-century learning performance. Rather than evaluating policy effectiveness through measurable outcomes, this phenomenological study investigates how certified teachers perceive, interpret, and experience the certification policy in their daily professional lives, revealing its implications for teacher professionalism and 21st-century learning performance. Data were collected through in-depth interviews with seven certified teachers from diverse educational backgrounds. The data highlight three interconnected themes that reflect teachers' lived experiences with certification. First, the reconstruction of professional identity examines how certification alters teachers' self-perceptions, increasing their feelings of legitimacy, moral responsibility, and commitment to ongoing professional development. Second, the disparity between certification policy and pedagogical practice illustrates teachers' perspectives of a disconnect between the administrative and compliance-oriented nature of certification procedure and the limited support for meaningful classroom innovation. Third, adaptive challenges in 21st-century learning transformation highlight teachers' struggles to translate certification outcomes into student-centered, digitally integrated, and competency-based instruction, often stemming from insufficient post-certification mentoring and inconsistent digital preparation. Findings indicate that while certification enhances teachers' professional recognition and self-efficacy, it remains limited in fostering authentic pedagogical innovation. The study concludes that certification should be reconceptualized as a dynamic, continuous process that integrates mentoring, reflective practice, and digital pedagogy. This study specifically recommends integrating post-certification mentoring focused on reflective classroom practice, including formative assessments of 21st-century pedagogical competencies in certification frameworks, and establishing school-based professional learning communities to bridge the gap between policy expectations and teachers' lived classroom realities.

Keywords: teacher certification, teacher professionalism, 21st-century learning, phenomenology, professional development.

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■ INTRODUCTION

Teacher certification has been globally positioned as a strategic policy tool for professionalizing teaching, standardizing instructional quality, and increasing responsibility within educational systems. International policy frameworks are increasingly emphasizing certification not only as a credentialing mechanism but also as a catalyst for reflective practice, continuing professional learning, and pedagogical

innovation in response to the demands of 21st-century education (Reaching Higher, 2004). However, emerging global data reveal that the effectiveness of certification rules depends on how teachers interpret, absorb, and implement them in their daily professional practice, rather than on their formal design.

This insight is particularly relevant in Indonesia, where the national teacher certification program, which has been in place since 2005 and

is continually revised, has been widely evaluated for administrative compliance, financial incentives, and measurable performance indicators. While these evaluations offer valuable policy insights, they provide a limited picture of how teachers perceive certification as a lived professional process, particularly regarding identity construction, pedagogical meaning-making, and preparation for 21st-century learning (Kamal, 2024).

Although a large body of evidence supports the positive impacts of teacher certification on professional development and teaching quality (Darling-Hammond et al., 2020; OECD, 2022), these conclusions are not without controversy. While certification is frequently linked to increased teacher self-efficacy and professional recognition, some scholars argue that such gains do not consistently translate into substantive pedagogical change, particularly in student-centered and 21st-century learning practices (Haug, 2021). This tension highlights a critical gap between certification as a policy goal and certification as an actual professional experience.

Furthermore, Darling-Hammond et al. (2020) emphasize certification as a lever for continuous professional learning embedded within supportive institutional structures. In contrast, empirical studies in many developing contexts, including Indonesia, indicate that certification is frequently a compliance-driven and administratively oriented process, with limited post-certification support (Herlinawati, 2024; Kamal, 2024). This contradiction raises the question of whether certification serves as a developmental tool or simply as a symbolic credential.

Haug (2021) further complicates this discussion by demonstrating that teachers value opportunities for reflective practice and pedagogical autonomy more than formal credentials themselves when adjusting to 21st-century learning demands. However, current

certification systems frequently promote documentation and standardized assessments over reflective, classroom-based evaluation. As a result, the literature remains unresolved on the extent to which certification can truly stimulate educational innovation while also supporting performative professionalism.

However, contemporary educational contexts, dominated by rapid technological change, complex social realities, and global interconnectedness, demand more than just qualified teachers. Teachers are now expected to enact 21st century learning paradigms, emphasizing critical thinking, creativity, collaboration, communication, digital literacy, and adaptability (Haug, 2021)

Recent scholarship, therefore, calls for a transformation of teacher certification systems from merely validating competence to actively fostering reflective, innovative, and adaptive professional growth (Amemasor et al., 2025; Herlinawati, 2024). In this evolving educational landscape, teacher professionalism is no longer defined solely by credentials or compliance with standards, but by teachers' ability to integrate technological tools, learner-centered pedagogies, and collaborative problem-solving approaches into their daily practice (OECD, 2022).

A closer look at Indonesian literature reveals a consistent pattern in the way teacher certification has been researched and evaluated. The majority of empirical research has examined certification primarily as a policy tool, focusing on its effects on administrative compliance and formal metrics of teacher performance. For instance, Kamal (2024) and Fauzi and Yusuf (2022) examine the relationship between certification status, allowance distribution, and measurable performance indicators, defining effectiveness primarily in terms of policy execution and accountability. Similarly, Alim and Suharto (2023) evaluate certification outcomes using standardized performance indicators and institutional reporting

mechanisms, with limited attention to classroom-level pedagogical reform.

While these studies provide useful insights into the structural and administrative aspects of certification policy, they do not explain how instructors perceive certification as a professional and educational process. These approaches mainly ignore teachers' subjective meanings, emotional responses, and identity disputes, all of which are essential components of lived experience. As a result, certification is viewed as an external intervention rather than an internally perceived and carried out professional reality.

Despite these developments, the relationship between teacher certification and the implementation of 21st-century learning practices remains insufficiently explored and inconsistently theorized in both policy discourse and empirical research. According to international studies, certification programs frequently stress formal accountability mechanisms, such as credential completion, wage progression, and compliance with standardized requirements, over significant instructional change (Darling-Hammond et al., 2020; OECD, 2022). While such policies may improve teachers' professional standing and self-efficacy, evidence suggests that these benefits do not always translate into long-term pedagogical reform or creative classroom practice (Haug, 2021; Opfer & Pedder, 2011).

A comparative and cross-national study shows that certification is primarily used as a bureaucratic tool in many educational systems, particularly in developing and transitional contexts, rather than as a catalyst for reflective practice and instructional renewal (Avalos, 2011; Huang & Lee, 2020). As a result, policy evaluation and study design often overlook teacher's live experiences, pedagogical sense-making, and classroom implementation of 21st-century competences such as critical thinking, teamwork, and digital integration. This pattern is consistent with findings from Indonesia and other

similar contexts, where research has primarily focused on administrative outcomes such as certification status, financial incentives, and career advancement, with little attention paid to how certification reshapes everyday teaching practice (Kamal, 2024)

Another critical gap concerns the sustainability of professional development after certification. Studies reveal that many certification programs lack follow-up mechanisms, such as mentoring, peer learning, or coaching, that would help teachers translate the knowledge into meaningful classroom innovation (Haug, 2021; Amemasor et al., 2025). Consequently, while certification may succeed in formal credentialing, it often falls short of supporting continuous professional growth aligned with 21st-century competencies.

This indicates a significant disconnect between policy intent (professionalizing and modernizing the teaching profession) and practical impact (teachers' actual performance in facilitating 21st-century learning). Therefore, it is essential to conduct an evaluative study that examines not only the policy's structural and achievements but also its effectiveness in transforming teachers' instructional practices and mindsets.

In response to these gaps, this study aims to evaluate teacher certification policies from the perspectives of professionalism and 21st-century learning performance. Specifically, this study seeks to; 1) interpreting how certified teachers develop and manage professional identity through their lived experiences of certification, particularly in terms of motivation, professional legitimacy, and commitments to continued professional leaning, 2) explaining how certification is enacted, translated, or constrained in everyday classroom practice, with special attention to teachers' meaning-making processes in implementing 21st century learning competencies such as critical thinking, collaboration, communication, and digital integration, and 3) Contextualizing the structural

and contextual conditions that mediate the relationship between certification policy and pedagogical transformation, providing insight into why certification creates uneven and often restricted instructional change across settings. By addressing those objectives, this study contributes to bridging the theoretical and practical gaps in understanding how certification policies align or fail to align with the evolving demands of professional teaching in the 21st century. The findings are expected to inform policymakers, educational institutions, and professional development programs as they refine certification frameworks to move beyond compliance toward meaningful pedagogical transformation.

Beyond its methodological contribution, this study offers a theory by examining teacher certification through the lens of subjective meaning-making and the creation of professional identity. Drawing on theories of teacher professionalism that emphasize identity, agency, and reflective practice (Sachs, 2021; Day & Gu, 2014), the findings show that professionalism is constantly negotiated through teachers' lived experiences of recognition, responsibility, and pedagogical challenge rather than being produced through formal credentials or policy compliance. In this regard, the study contributes to existing theories of professionalism by empirically demonstrating how certification serves as a symbolic and emotional resource that reshapes teachers' self-concepts, yet remains insufficient as a sole mechanism for pedagogical transformation.

Furthermore, the findings contribute to policy implementation theory by questioning linear, rational models of policy enactment that presume a direct translation from policy design to classroom practice. This study, in line with sense-making and policy enactment views (Spillane et al., 2002; Ball et al., 2012), reveals how certification policies are perceived, mediated, and occasionally resisted by teachers within a specific institutional and cultural context. The identified

policy-practice disjunction demonstrates how teachers actively negotiate policy expectations in relation to contextual constraints, professional values, and digital readiness, thereby supplementing policy implementation theory with phenomenological evidence from the Global South.

This study strengthens, develops, and partially challenges current theoretical assumptions by combining phenomenological insights with theories, teacher professionalism, and policy enactment. It emphasizes the importance of identity and agency in teacher professionalism, broadens policy implementation theory by highlighting the emotional and experiential dimensions of enactment, and questions the efficacy of credential-based reform paradigms in fostering 21st-century pedagogical innovation. Guided by a phenomenological perspective, this study addresses the following research question: "How do certified perceive, interpret, and experience teacher certification policies in relation to their professional identity and enactment of 21st century learning practice?"

■ **METHOD**

Participants

A purposive convenience sample was used to ensure accessibility and conceptual relevance to the research aims. Three key considerations led to the selection of a private secondary school in Lampung Province. First, the school hires a diverse set of certified teachers across numerous subject areas, allowing for the exploration of certification experiences from many disciplinary perspectives. Second, as a private institution, the school operates under a semi-autonomous organizational structure, which affects how national certification policies are interpreted and implemented at the school level, particularly regarding resource allocation, professional development support, and performance standards. Third, the school served kids from a variety of socioeconomic backgrounds, resulting

in diverse instructional demands that affect how teachers use certification requirements in classroom practice.

The private school context is analytically interesting because teachers in non-state institutions frequently experience certification differently from their counterparts in public schools. Variations in institutional resources, organizational culture, and accountability systems may amplify or limit the educational effect of certifications. For instance, restricted access to government-funded professional development or uneven digital infrastructure may impair teachers' ability to integrate 21st-century learning techniques. However, a strong internal school culture may support reflective professionalism despite structural constraints.

Participants were selected not for convenience but because their professional experiences are shaped by intersecting policies, institutional settings, and classroom realities. This context-sensitive selection strengthens the phenomenological inquiry by situating teachers' lived experiences within a distinct yet analytically meaningful educational environment, supporting the claim that participants come from a variety of educational backgrounds in terms of subject specialization, professional trajectories, and institutional settings. Purposive convenience sampling was used to select seven certified teachers as participants who met the following inclusion criteria: 1) completion of the national teacher certification program, and 2) at least five years of teaching experience. This sampling technique was intended to ensure that participants had sufficient professional experience to thoughtfully consider the certification process and its implementation in relation to professionalism and 21st-century learning practices.

Seven certified teachers from a private secondary school represented diverse subject specializations, including Mathematics, Indonesian Language, English, Natural Sciences, Social Studies, and Religious Education. At the

time of the study, participants ranged in age from approximately 30 to 50 years, reflecting early-career to senior professional stages. Participants had 7 to 25 years of overall teaching experience. They had completed the national teacher certification program at least 2 years before data collection, which gave them enough time to reflect on their professional practice both before and after certification. Teachers had 5 to 18 years of experience, whereas post-certification experience ranged from 2 to 10 years.

The decision to end data collection at seven participants was based not only on sample size considerations but also on analytic sufficiency, as no new conceptual insights arose from additional interviews. This method is congruent with phenomenological research, which values depth of meaning and thematic saturation over numerical representation (Guest et al., 2006; van Manen, 2016). The convergence of themes among participants from various topic areas and career phases supports the claim that data saturation was attained within the scope and context of this study.

Research Design and Procedures

This study used a qualitative phenomenological research approach to investigate and understand teachers' lived experiences with certification policies in relation to professionalism and 21st-century learning performance. Phenomenology was chosen because it allows for a thorough analysis of how people generate meaning from their experiences rather than evaluating externally visible results (Creswell & Poth, 2018). This study was carried out during three months from March to May 2025. The study. Methodology consisted of the following successive steps; 1) identifying the research emphasis based on gaps in the literature surrounding teacher certification, professionalism, and pedagogical transformation., 2) participant recruitment was based on predetermined criteria and coordinated with school administrators, 3) data were collected through in depth semi-

structured interviews, 4) transcription and verification of interview data for accuracy, 5) phenomenological data analysis to identify themes and synthesize the essence of the phenomenon, 6) validation procedures, including member checking and triangulation, to enhance trustworthiness. This step-by-step process ensured methodological rigor and alignment with the principles of phenomenological inquiry.

Instrument

This study used a non-test qualitative instrument to analyze teachers' lived experiences rather than evaluate cognitive outcomes. The main instrument was a semi-structured interview guide. It was created by the researchers and informed by the worldwide literature on teacher professionalism, policy implementation, and 21st-century learning (Darling-Hammond et al., 2020; OECD, 2022; Haug, 2021). It had 15 open-ended questions arranged into three indicators: 1) experiences of the certification process (5 questions), examining teachers' motivations, perceptions of policy requirements, and emotional responses to certification, for instance: "Can you describe your experience during the certification process?" 2) Professional identity and pedagogical practice (5 questions) exploring changes in motivation, professional self-concept, and teaching practices following certification, for instance, "How was certification affected by your professional identity and teaching practices?" 3) Implementation of 21st century learning (5 questions), focusing on digital integration, critical thinking, creativity, collaboration, and communication, for instance: "How does certification support or constrain your implementation of 21st century learning practices?"

Two researchers in educational administration and qualitative research reviewed the content and made necessary adjustments to ensure its validity. Standardized interview techniques, audio recording with informed

consent, and verbatim transcription all helped to assure reliability (dependability). Triangulation and member checking added to the sense of trustworthiness.

Data were collected through semi-structured interviews conducted between March and May 2025. Each interview lasted 45-60 minutes and was conducted face-to-face, depending on the participants' availability. This format allowed the researchers to explore participants' experiences in depth while maintaining consistency across interviews. The interviews were structured around three major themes: teacher professionalism and certification experience, professional identity and pedagogical practice, and 21st-century learning practices.

All interviews were audio-recorded with informed consent and transcribed verbatim for accuracy. Preliminary interpretations were shaped with participants through member checking to ensure trustworthiness and to ensure that the findings accurately reflected their experiences.

Data Analysis

Moustakas's (1994) phenomenological reduction method, which is well-suited to analyzing lived experiences, was used in the data analysis. There were multiple iterative steps in the analysis; 1) horizontalization, in which significant statements relevant to teacher certification experiences were identified across transcripts, 2) thematic clustering, grouping meaning units into emergent themes, 3) textural description, outlining the individuals' experiences, 4) structural description, explaining how these experiences occurred within specific institutional and policy contexts, 5) essence synthesis, capturing the fundamental meaning of the phenomenon by combining textural and structural descriptions. As this study is qualitative, no statistical analysis was conducted. Rather, systematic coding, reflexive interpretation, and validation techniques were used to guarantee analytical rigor.

The study followed Lincoln and Guba's (1985) criteria for credibility and confirmability to enhance trustworthiness. To increase the validity of the results, member checking and data triangulation were employed.

To ensure the trustworthiness of this study, several strategies were applied based on the criteria of credibility and confirmability (Lincoln & Guba, 1985). First, participant triangulation was used to enhance credibility by comparing interview data across teachers with different subject areas, years of teaching experience, and certification stages. Similarities and Differences among participants' accounts were examined to identify consistent themes and context-specific variations, ensuring that the findings reflected multiple perspectives rather than a single viewpoint. Second, member checking was done by sharing tentative interpretations with the participants, who validated the findings' accuracy and provided clarifications that enriched the study, particularly regarding the gap between certification expectations and classroom practice. These insights were included in the final interpretation. Together, these strategies improved the study's credibility and trustworthiness.

Ethical considerations were carefully addressed. All participants provided informed consent, and their anonymity was preserved by using pseudonyms. Institutional permission was obtained from the school principals and the relevant education authorities before data collection. The study adhered to ethical guidelines for qualitative research, ensuring respects, confidentiality, and voluntary participation.

In summary, this qualitative phenomenological design provided a deep, contextualized understanding of how certified teachers interpret and internalize the policy's meaning in relation to their professional roles and teaching practices in the era of 21st century education. Through rich descriptions of participants' lived experiences, this study aimed to generate insights to inform future policy refinement and professional development strategies that strengthen the link between certification, professionalism, and innovative pedagogy.

■ RESULT AND DISCUSSION

This study aimed to examine how certified teachers perceive, interpret, and experience teacher certification policies in relation to their professional identity and the enactment of 21st-century learning practices. Data obtained through in-depth phenomenological interviews with seven participants were analyzed thematically to capture the essence of their lived experiences.

Demographic Profile of Participant

The demographic profile of the seven certified teachers who participated in this study is presented in Table 2 to provide clearer contextual grounding for the qualitative findings. The table includes their subject specialization, year of certification, amount of post-certification professional development completed, and highest level of education, which strengthens the interpretive depth of the results by illustrating the diversity of professional backgrounds represented in the study.

Table 1. Demographic characteristics of participants

Participant	Subject Taught	Year of certification	Hours of post-certification professional development (hours)	Highest educational qualification
<i>T1</i>	Mathematics	2016	120	Master of Education (M.Pd)

T2	English	2018	95	Bachelor of Education (S.Pd)
T3	Indonesian Language	2015	140	Bachelor of Education (S.Pd)
T4	Science	2017	110	Bachelor of Education (S.Pd)
T5	Social Studies	2014	160	Bachelor of Education (S.Pd)
T6	Religious Education	2019	80	Bachelor of Islamic Education (S.Pd. I)
T7	Natural Science	2016	100	Bachelor of Education (S.Pd)

The demographics of the seven certified teachers who participated in this study are presented in Table 1. Mathematics, English, Indonesian Language, Science, Social Studies, Religious Education, and Natural Sciences were among the subjects represented by the participants. Their certification years ranged from 2014 to 2019, reflecting varying levels of post-certification experience and professional maturity. Following certification, each participant had completed between 80 and 160 hours of professional development, indicating their continued efforts to improve their teaching abilities. Both bachelor's and master's degrees in various education-related subjects were among their greatest educational qualifications. This variety of backgrounds enhanced the depth of the phenomenological analysis. It offered a more comprehensive view of how certification affects professional identity and teaching methods in the twenty-first century.

Research Questions (RQ):

How do certified perceive, interpret, and experience teacher certification policies in relation to their professional identity and enactment of 21st-century learning practices?

Following the phenomenological reduction process as proposed by Moustakas (1994), data were transcribed, coded, and clustered into

meaningful units. Through iterative analysis, three interrelated major themes emerged:

1. Reconstruction of professional identity
2. Disjunction between certification policy and pedagogical practices
3. Adaptive challenges in 21st-century pedagogical transformation

Each of these themes reflects the complex and multifaceted implications of teacher certification, demonstrating how policy frameworks intersect with teachers' professional values, classroom realities, and readiness to navigate the demands of modern education. The following subsections elaborate on these themes and relate them to relevant scholarly literature.

To improve the presentation of qualitative findings, a thematic matrix table maps participants' voices (T1-T7) against the major themes and sub-themes. This matrix allows readers to identify patterns of consistency and variation across participants, showing which experiences were shared broadly and which were context-specific. Rather than relying on single quotations, the table shows how themes emerged across numerous participants, thereby improving analytical rigor and credibility.

To complement the thematic matrix presented in the table, the network analysis map provides a visual representation of the relational

Table 2. A thematic matrix

Participant	Professional Identity Reconstruction	Policy-Practice Disjunction	21 st Century Learning Challenges
T1	<i>Enhance legitimacy</i> Certification led T1 to feel more formally recognized as a professional and motivated them to align teaching practice with national expectations.	<i>Administrative focus</i> T1 highlighted that certification activities emphasized documentation rather than observing real teaching performance.	<i>Limited digital support</i> T1 reported difficulty applying digital teaching methods due to inconsistent school infrastructure and student readiness.
T2	<i>Increased motivation</i> T2 felt that certification increased their motivation to improve teaching quality, especially in digital pedagogy, prompting them to learn independently.	<i>Lack of mentoring</i> T2 noted the absence of feedback or mentoring after certification, leaving teachers without structured guidance for improvement.	<i>Self-directed innovation</i> T2 expressed that implementing 4Cs skills was challenging because certification training lacked practical demonstrations.
T3	<i>Reflective professionalism</i> T3 stated that certification increased reflective practice and encouraged experimentation with new teaching strategies.	<i>Compliance-oriented assessment</i> T3 felt the assessment process focused too much on completing forms and administrative checks rather than on authentic teaching improvement.	<i>Project-based learning</i> T3 attempted project-based learning but struggled to sustain it due to limited support and classroom resources.
T4	<i>Professional confidence</i> Certification boosted T4's confidence and sense of being appreciated as a qualified professional.	<i>Documentation burden</i> T4 described the certification process as burdensome due to heavy documentation not connected to classroom realities.	<i>Digital readiness gap</i> T4 wanted to implement digital learning but faced obstacles, including limited digital infrastructure and uneven student digital literacy.
T5	<i>Moral commitment</i> T5 reported that certification strengthened a sense of moral responsibility to continually improve and justify professional status.	<i>Weak institutional support</i> T5 felt that expectations increased post-certification, but institutional support remained minimal.	<i>Collaborative learning</i> T5 found collaborative learning difficult because students were unfamiliar with the approach, requiring adaptation.
T6	<i>Identity affirmation</i> T6 experienced affirmation of their professional identity and felt more respected, which motivated them to pursue ongoing improvement.	<i>Resource constraints</i> T6 emphasized that no follow-up mentoring existed, creating a gap between certification and practical guidance.	<i>Technology experimentation</i> T6 independently explored digital tools but struggled to balance curriculum demands with the integration of new technology.

T7	Career commitment Certification strengthened T7's long-term career commitment and sense of professional pride.	No post-certification follow-up T7 stated that certification itself did not dramatically change teaching practice because	Independent digital learning T7 had to learn digital tools independently due to limited technology training during certification.
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structure among the major themes and sub-themes identified in the qualitative analysis. The network map illustrates how these themes are connected and reinforce one another within the teachers' lived experiences, while the table shows the distribution of themes among participants. The key role of reflective practice, the grouping-related components, and the connection between educational difficulties and policy limitations are

all made clearer by Figure 1. By mapping these relationships, the figure supports a deeper understanding of how teacher certification, professional identity, and 21st-century learning demands interact within the broader analytical framework of the study.

The network analysis map illustrates the interconnected thematic structure derived from the study's qualitative findings on teacher

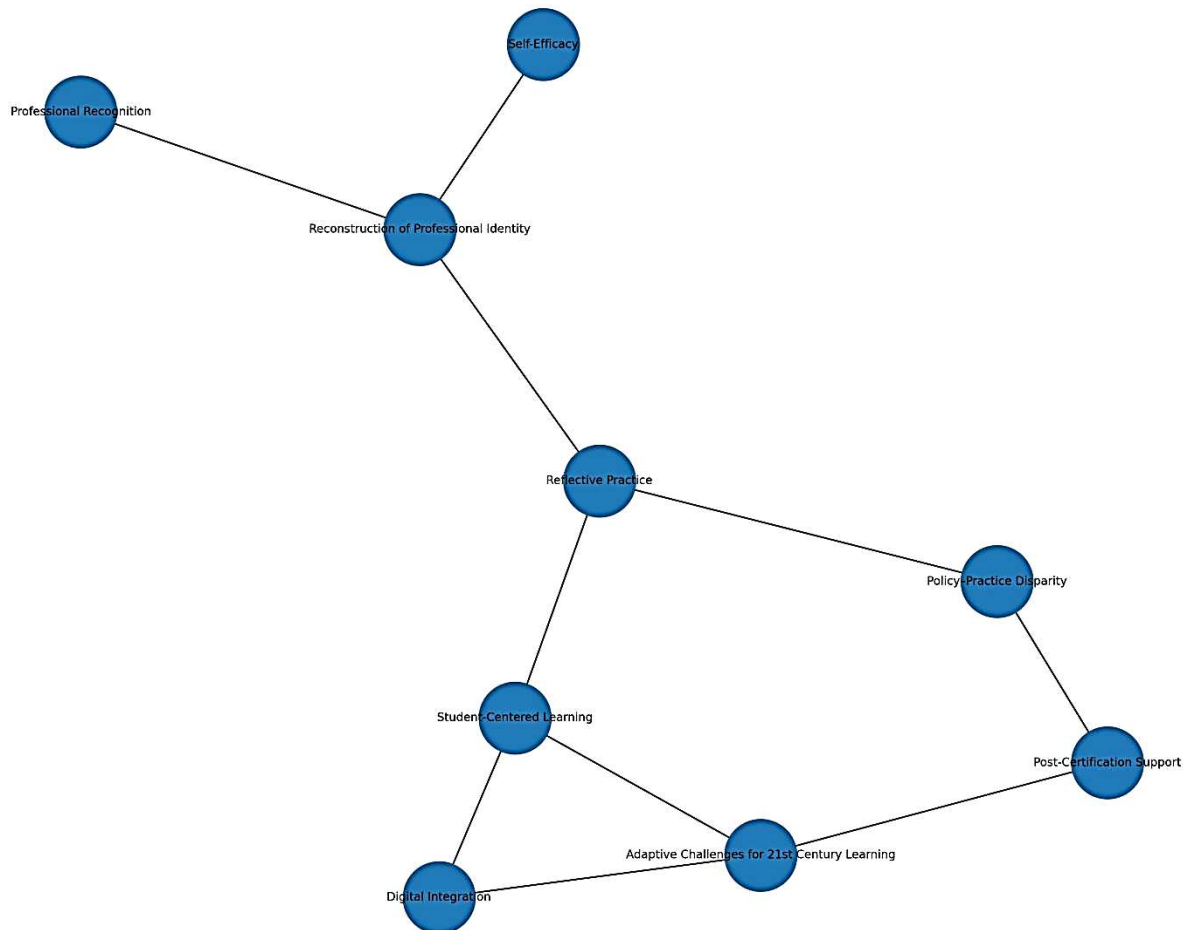


Figure 1. Network analysis map of themes in teacher certification study

certification, professionalism, and 21st-century learning practices. The network is centered on three main themes: the reconstruction of professional identity, policy practice identity, and adaptive challenges for 21st-century learning. These themes are linked to several sub-themes that reflect teachers' lived experiences and processes of meaning-making. The theme of professional identity reconstruction demonstrates how certification alters teachers' sense of legitimacy and moral responsibility while promoting continuous self-improvement. It has a strong connection to professional recognition, self-efficacy, and reflective practice. Teachers are aware of the discrepancy between the administrative requirements of certification and the scant practical advice provided after certification, as evidenced by the close relationship between policy-practice disparity and reflective practice and post-certification support.

The third main theme, adaptive challenges for 21st-century learning, relates to student-centered learning and digital integration. It emphasizes the challenges teachers face when implementing contemporary pedagogical approaches, particularly when they have inconsistent digital readiness and minimal institutional support. The connection to post-certification support underscores the need for

professional learning programs and ongoing mentoring to translate certification outcomes into innovative teaching practices. Reflective practice stands out as a key node in the network that connects pedagogical transformation, policy practice conflicts, and identity reconstruction. This suggests that, to overcome flaws in the certification process, teachers primarily rely on introspection and self-directed learning. Overall, the network map visually demonstrates how teacher professionalism, policy structures, and pedagogical intersect, revealing both the transformative potential and the systemic limitations of teacher certification.

Bubble Map Analysis

The bubble map visualizes the relative prominence of major themes within the qualitative dataset of this study. Larger bubbles represent themes with higher coding density, such as "Professional Identity" and "Reflective practice". In contrast, medium-sized bubbles such as "Student-centered learning", "Policy-practice gap", and "Certification impact" indicate moderate emphasis. Smaller bubbles represent supporting themes, including "Digital integration" and "Professional development." Below is a simplified text mockup showing the relative positions and sizes of the bubbles.

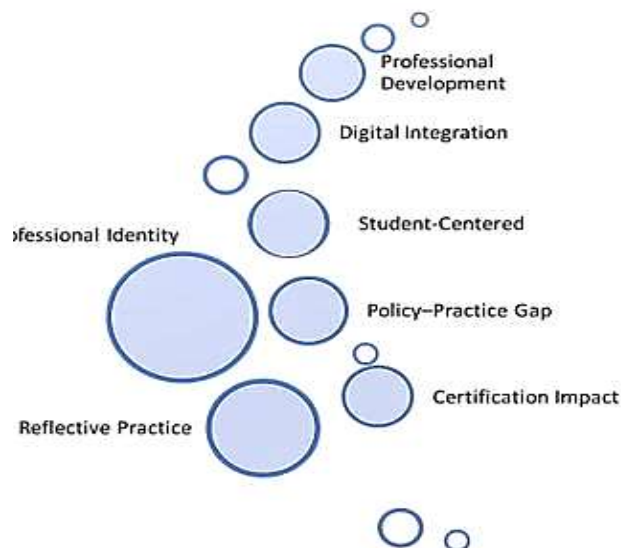


Figure 2. Bubble map analysis of thematic frequencies

Theme 1: Reconstruction and Personal Identity

The first theme captured how teacher certification has contributed to the reconstruction of teachers' professional identity, a process that involves renewed perceptions of legitimacy, moral responsibility, and self-efficacy. All participants reported that certification enhanced their sense of professional recognition and status, transforming teaching from a routine occupation into a respected profession grounded in ethical and pedagogical standards. As participant T1 and T4 stated:

"Before certification, I felt teaching was just part of daily work. After certification, I began to see myself as a professional with obligations and standards to uphold." (T1) (enhance legitimacy)

"Before certification, I often felt like my work as a teacher was not fully appreciated. After getting certified, I gained more confidence. I felt proud to be recognized as a professional teacher who meets the national standard." (T4) (professional confidence)

"Certification gave me a stronger sense of moral responsibility. I feel that I must continue learning so that I deserve the professional status." (T5) (moral commitment)

"After certification, I reflect more on my teaching. I feel that as a professional teacher, I should always evaluate and improve my practice." (T6) (Identity affirmation)

"Certification raised my professional status. It made me more serious about my role and more committed to teaching as a career." (T7) (career commitment)

These statements illustrate the symbolic capital of certification as a form of professional validation. It echoes Darling-Hammond et al. (2020), who emphasize that certification can enhance teachers' confidence, motivation, and sense of belonging within the profession.

Moreover, participants described certification as a stimulus for lifelong learning and reflective practice. T2 and T3 expressed:

"After certification, I felt more responsible to improve myself, especially in learning about digital pedagogy and classroom innovation." (T2) (increased motivation)

"Certification encouraged me to keep learning. I joined workshops, tried new digital tools, and became more open to innovation. I realized professionalism means never stopping learning." (T3) (reflective professionalism)

This aligns with Haug (2021), who identifies continuous self-improvement as a defining attribute of 21st-century teacher professionalism. Thus, certification not only recognizes competence but also reconfigures the teachers' professional self-concept toward sustained growth and reflective engagement.

The findings demonstrate an apparent tension. On the one hand, participants felt that certification encouraged lifelong learning and reflective practice; on the other hand, the school culture was assessed as lacking a long-term structure for professional discourse, reflection, and peer mentoring. This seeming paradox can be explained using the contrast between individual motivation and institutional support.

The data suggest that the need for professional development often originates within teachers, fueled by the respect and legitimacy conferred by certification. Teachers such as T2 and T3 engaged in self-directed experimentation with digital technologies, attended seminars, and reflected on their practice despite the fact that their school environment lacked an institutional mechanism for collaborative professional development. In other words, motivation for learning can originate at the individual level and persist independently of, or even in opposition to, the dominant institutional culture.

Based on the data, participants consistently stated that teacher certification transformed their professional identity by increasing their sense of legitimacy, confidence, and moral obligation. Certification was viewed as symbolic recognition, elevating teaching from regular work to a fully recognized profession. Teachers reported greater enthusiasm for self-improvement and lifelong learning after certification. These findings are consistent with Darling-Hammonds et al. (2020), who claim that certification can improve teachers' professional identity and commitment. In this study, professionalism emerged not only as compliance with standards but also as an internally negotiated identity shaped by acknowledgment, responsibility, and reflective practice, as Haug (2021) suggested. However, while identity reconstruction was evident, participants stressed that identity change did not always lead to educational transformation.

Integrated Sub-Theme: Certification as a source of Emotional and Professional Tension

While certification elevated teachers' sense of legitimacy, several participants expressed that the certification process also generated emotional tension. It stemmed from the responsibility to uphold performance standards while rapidly adapting to evolving instructional expectations. T6 describes that:

“After certification, the expectation increased, but the support system did not. Sometimes it feels like we have to meet standards that do not match the realities in the classroom.”

This emotional burden reflects what Abdullah and Rahman (2022) call “professional pressure post-certification,” in which elevated expectations are not matched by institutional capacity-building. The data suggest that certification may unintentionally reinforce stress

when teachers feel responsible for achieving standards without adequate structural support.

These findings provide nuance to earlier themes, indicating that certification reshapes identity and adds emotional workload that must be addressed in policy reforms.

Furthermore, the tensions identified in this study, such as the simultaneous elevation of professional identity and the resulting emotional stress, warrant further investigation to better represent the complexities of teachers' lived experiences. Participants described numerous techniques for managing, negotiating, or responding to these conflicts in their work lives, emphasizing the interplay among individual agency, reflective practice, and contextual constraints.

Self-Directed Professional Development: In response to the increased demands following certification, many teachers pursued independent learning options. This included visiting workshops, researching digital pedagogic, trying out new lesson designs, and engaging in reflective practice. For example, T2 and T3 underlined that certification drove them to always improve their skills, even when institutional assistance was minimal. This indicates how teachers actively transform external demands into personal development and adaptation techniques.

Reflective and adaptive practice: Many participants reported utilizing reflection as a coping method, critically examining their teaching skills against certification standards. Teachers developed adaptive strategies, such as adjusting lesson plans, gradually integrating student-centered approaches, or experimenting with new digital tools, to reconcile professional demands with practical limitations.

Selective Engagement with Institutional Mechanisms: Even though many schools lacked long-term professional learning cultures, some teachers used existing mechanisms to support their continued growth, such as informal peer talks,

mentoring, or online communities. This shows a realistic negotiation of conflicts, in which teachers actively seek resources to alleviate the emotional and professional burdens associated with certification.

Theme 2: Disjunction between certification policy and pedagogical practices

While participants acknowledged the positive impact of certification on their professional identity, they also expressed dissatisfaction with the procedural nature of the certification process and its limited effect on actual classroom improvement. T1 and T4 noted:

“Most of the certification process was about documents and portfolios. It didn’t evaluate how we teach or innovate in the classroom.” (T4) (documentation burden)

“During certification, we prepared many documents, but there was very little discussion about what actually happens in the classroom. Teaching practice was not the main focus.” (T1) (documentation burden). T3 expressed a similar concern:

Most of the certification process focused on fulfilling administrative requirements. It did not really guide us on how to improve our teaching methods.” (documentation burden). Meanwhile, T2 shared:

“We passed the assessment, but there was no real feedback or mentoring afterward. Once certified, there were lack of follow-up programs to support our growth.” (lack of mentoring). T6 emphasized the lack of follow-up support:

“After certification, there was no mentoring or feedback related to classroom practice. We were certified, but then left to manage everything on our own.” T7 highlighted the limited pedagogical impact:

“Certification did not significantly change how I teach. The policy looks good on paper, but in the classroom, the challenges remain the same.”

These reflections highlight a policy-practice gap, suggesting that certification often validates qualifications rather than fostering ongoing pedagogical development. This aligns with Herlinawati (2024), who found that in many contexts, teacher certification remains administrative and detached from classroom realities.

Participants also voiced concerns about the overemphasis on financial incentives associated with certification. T2 remarked:

“Many teachers see certification mainly as a financial reward. The focus shifts to the allowance, not to improving teaching quality.”

These findings echo Higher (2024), which cautioned that when certification is tied too closely to extrinsic rewards, it risks promoting compliance rather than authentic professional growth. Nonetheless, several participants viewed certification as a starting point for institutional discussion about teaching quality. T5 expressed:

“Even though the process is still formal, it made us think more about what it means to be a professional teacher. It’s a step forward, but we need stronger support to connect it with real teaching innovation.” (weak institutional support)

Consistent with Amemasor et al. (2025), these insights suggest that certification policies must evolve into a development model, one that includes mentoring, peer learning, and classroom-based evaluation to ensure that certification translates into meaningful professional transformation.

This theme highlights a strong policy-practice gap. While certification policies are intended to increase teaching quality, their

implementation frequently prioritizes accountability systems over pedagogical progress. This conclusion supports Herlinawati's (2024) and the OECD's (2022) findings that certification systems typically fail to sustain substantial instructional improvement. The findings challenge linear policy implementation theories by demonstrating that certification outcomes are affected by teachers' sense-making and contextual constraints rather than by policy design itself (Spillane et al., 2002).

Integrated Sub-Theme: Limited Institutional Culture for Professional Learning

A key factor shaping this gap is the limited institutional culture for professional learning in schools. Participants frequently noted that their schools lacked a sustainable culture of professional dialogue, reflection, or peer mentoring, which are essential components of 21st-century teacher professionalism. Teachers explained that peer observation was rare, that reflective dialogue was informal and inconsistent, that workshops lacked follow-up coaching, and that collaboration occurred individually rather than institutionally. As T3 noted:

Innovations are often individual. There is no well-structured space to share, discuss, or reflect together." Similarly, T2 noted:

"Sometimes I try new teaching strategies, but there is no one to discuss or get feedback from. It feels like I'm working in isolation." T4 emphasized the lack of formal structures:

"Workshops happen occasionally, but we don't have consistent follow-up or collaborative sessions. Reflection is mostly personal, not collective." T5 highlighted the impact on peer learning:

"We rarely observe each other's classes or engage in lesson study. Without that, innovations remain fragmented and difficult to sustain."

This aligns with Kusumawato and Nasution (2022), who reported that Indonesian schools generally lack organized professional learning communities (PLCs). The findings of this study reinforce the idea that teacher certification itself cannot drive pedagogical transformation unless it is embedded in a supportive school culture. Thus, professional development must shift from sporadic workshops to sustained collegial learning structures.

As a result, professional development must shift from infrequent workshops and isolated projects to ongoing, collaborative, and collegial learning systems. Institutional support is required to transfer the legitimacy and motivation provided by certification into systematic classroom innovation, reflective practice, and professional development.

This limited professional learning culture exacerbates the policy-practice gap, indicating that certification itself cannot produce pedagogical change without supportive institutional environments.

Theme 3: Adaptive Challenges in 21st-century pedagogical transformation

The third major theme reveals how teachers struggle to translate certification outcomes into 21st-century learning practices. Participants appreciated that certification broadened their understanding of modern pedagogical concepts but felt inadequately prepared to implement them, especially in technology-rich learning environments. T5 shared:

"We were told about the 4Cs: critical thinking, creativity, communication, and collaboration, but now really been shown how

to bring them into our lessons. Certification talks about innovation, but it does not train us to do it well.” (collaborative learning). T2 explained:

“We are expected to use digital tools and collaborative learning, but after certification, there was no specific training to help us do that. Most of the learning had to come from my own initiative.” (self-directed innovation). T4 highlighted resource and readiness constraints:

“Implementing 21st-century learning is challenging because not all students are ready, and the facilities are limited. Certification alone does not solve these practical problems.” T7 echoed this challenge, saying:

“Technology is essential today, but during certification, there was little about integrating digital tools in teaching; I had to learn that on my own.” (independent digital learning)

These experiences align with OECD (2022) and Haug (2021), who found that teacher qualification systems often lag behind contemporary pedagogical and digital demands.

Despite those shortcomings, some participants demonstrated agency by independently applying 21st-century learning principles in their classrooms. T3 describe:

“I started letting students work on projects, like making short videos about social issues. They become more creative and engaged. I realized that certification is just a door; we have to walk through it ourselves.” (project-based learning). T6 similarly reported positive experimentation:

“After certification, I began using Google Classroom Gaming Platforms. Students were more active, and I saw a new

kind of enthusiasm. It made me believe that innovation is possible even with limited resources.” (technology experimentation)

These reflections affirm Amemasor et al. (2025), who argue that teachers with reflective and growth-oriented mindsets are more likely to connect certification with transformative pedagogy. Nevertheless, participants stressed the need for systemic support, such as structured mentoring, training on digital pedagogy, and institutional encouragement to sustain these innovations. As T1 concluded:

“Certification opened the path, but without guidance, it is hard to keep moving forward. We need mentoring that connects what we learn in theory to what we do in class.” (limited digital support)

This insight underscores the arguments of Darling-Hammond et al. (2020) and the OECD (2022) that professional certification should be embedded within a continuous framework of professional learning and reflective practice to meet the dynamic needs of 21st-century education.

These findings are consistent with those of the OECD (2022) and Haug (2021), both of whom stress the gap between policy ambitions and teachers’ digital pedagogical preparation. The findings imply that certification does not guarantee 21st-century instructional competency; transformation requires ongoing professional growth and teacher agency. According to Amemasor et al. (2025), reflective teachers were more likely to drive innovation than certification structures themselves.

Beyond the three major themes previously discussed, further analysis of interview transcripts revealed complementary sub-themes that deepen understanding of how certification policies interact with teachers, as well as of teachers’ actual professional practices and their readiness for 21st-century pedagogical demands.

Integrated Sub-Theme:***The Gap between Digital Aspirations and Digital Readiness***

Although several teachers attempted to integrate digital tools, participants acknowledged that digital literacy among certified teachers was unevenly developed. T1 highlighted:

“We are encouraged to do digital learning, but the training is minimal. Mostly, we learn by ourselves or from younger teachers.”

This reveals a generational and experiential gap, which echoes findings by Rahim and Sari (2024) that certification frameworks insufficiently address digital-pedagogical competence. The study confirms that current certification standards lag behind technological demands, contributing to a performance gap in digital integration. These insights also highlight the need for certification frameworks to emphasize practical digital pedagogy rather than conceptual digital literacy.

Teacher Agency as a Compensating Mechanism

While certification prompted initial motivation, genuine innovation emerged from teacher agency, personal initiative, and reflective experimentation, not from the certification process itself. Some teachers demonstrated strong agency by experimenting independently with digital tools and project-based learning:

“I tried projects like student videos on social issues. Then, innovation has to come from us.” (T3)

Furthermore, participants such as T5 and T7 independently developed projects, engaged in collaborative discussions, and engaged in technology-supported activities. Their actions illustrate what Haug (2021) calls “bottom-up pedagogical innovation,” driven by teachers’ intrinsic motivation and reflective thinking rather than external incentives.

The interplay between teacher agency and certification policy is thus complicated and interrelated. Certification can catalyze agency by providing legitimacy and recognition, encouraging teachers to pursue professional development. However, the institutional constraints of policy and school culture determine whether agency can be used successfully. Even enthusiastic teachers may find it difficult to translate certification into ongoing classroom innovation in environments with insufficient support structures or top-down policy enforcement.

These findings contribute to the literature on teacher agency by demonstrating how it works not only as an individual capacity but also in dynamic interaction with structural and policy contexts. They propose that policy frameworks go beyond symbolic validation and incorporate mechanisms such as mentoring, collaborative learning structures, and reflective supervision to activate and sustain teacher agency, allowing for true innovation in 21st-century classrooms.

This confirms that authentic pedagogical innovation often emerges from teacher agency, not from certification itself. Certification may open the door, but transformation depends heavily on teachers’ initiative, reflective practice, and institutional support structures that are currently lacking.

Misalignment between Certification Standards and 21st Century Competencies

Participants commonly noted that the certification assessment focused on administrative criteria rather than the competencies needed to facilitate modern learning environments. As T2 stated:

“We submit documents and portfolios, but those do not show whether we can teach critical thinking or digital skills.”

This confirms Wijaya and Arifin (2022), who argue that certification criteria remain rooted

in traditional teaching and have not evolved to assess creative thinking, problem-solving, or digital integration abilities.

This study contributes new evidence by providing lived experiences that demonstrate how certification criteria fail to capture teachers' capabilities in applying the 4Cs or integrating technology meaningfully. Thus, realignment between competency standards and 21st-century teaching expectations is necessary.

Overall, the novelty of this study lies in its ability to connect teacher certification with professional identity formation and 21st-century learning transformation through a phenomenological, emotion-sensitive, and practice-oriented perspective. This study bridges theoretical gaps and reveals practical policy implications that have rarely been addressed in prior research.

Synthesis, Theoretical Contribution, and Implications

The findings of this study reveal that teacher certification has a dual function: it validates teachers' professionalism and identity, but does not automatically guarantee pedagogical innovation or 21st-century readiness. Teachers appreciate certification as a symbol of recognition and legitimacy, yet they also experience disconnection between policy design and classroom implementation.

From a theoretical approach, this study expands the concept of teacher certification beyond its traditional framing as a procedural or administrative validation. Traditional methods frequently presume that certification alone ensures professional development and innovative practice. However, the lived experiences of the instructors in this study suggest a more dynamic, relational, and evolving definition of professionalism. The findings imply that teacher certification should be viewed as a continuous, context-sensitive professional trajectory that incorporates identity

construction, reflective practice, mentoring, and digital pedagogy. This conception challenges the linear, outcome-focused certification paradigms by presenting teacher development as a lifetime, iterative process influenced by both policy frameworks and teacher agency. This study provides several important theoretical insights

Certification as a Symbolic-Developmental Hybrid: While previous research has often treated certification as either a symbolic acknowledgment or a developmental aid, this study demonstrates that it serves both functions concurrently. Symbolic recognition validates teachers' professional identities, but its growing potential depends on continual support, reflective practice, and institutionalized professional learning institutions.

The data indicate that teacher agency mediates the association between certification and classroom creativity. Certification alone does not improve pedagogical practice; rather, teachers' thoughtful involvement, adaptive strategies, and proactive experimentation drive significant educational transformation. This perspective contributes to professional learning theories by placing agency at the heart of certification's transformative potential.

Policy-Practice Disjunction as a Critical Lens: The study views the gap between certification policy design and classroom implementation as a structural and relational phenomenon. This study provides a lens to examine how top-down mandates intersect with individual professional identity and practice, bridging the gap between macro-level education policy studies and micro-level teacher cognition and behavior. Based on these theoretical contributions, various practical and scientific implications emerge:

Reconceptualizing Certification as Continuous Development: Certification should not be viewed as a fixed endpoint, but rather as a component of an evolving professional

continuum. Mentoring, reflective supervision, digital pedagogy, and collaborative professional learning must be integrated into both the pre-certification and post-certification phases. This strategy aligns with 21st-century competencies and helps teachers navigate the challenges of the classroom and society.

Institutionalizing Professional Learning at the School Level: Without school-based frameworks like professional learning communities, coaching cycles, and peer lesson studies, certification cannot result in long-term pedagogical transformation. Institutionalizing collaborative learning guarantees that certification's developmental potential is met.

Integrating 21st-Century Competencies into Assessment: Beyond lesson planning, certification frameworks should assess teachers' ability to provide digitally rich, student-centered, and inquiry-driven learning experiences. This aligns theoretical concepts of teacher professionalism with the practical needs of a globalized, technologically enhanced education.

Policy Priority: Strengthening Teacher Agency. Because innovation stems primarily from teachers' reflective practice and proactive participation, building agency should be a key focus of policy development. This builds on previous theoretical considerations about teacher professionalism by stressing the relationship between structural supports and individual agency.

In conclusion, this study offers a conceptually rich model of teacher certification, presenting it as a continuous, progressive, and context-responsive process in which symbolic legitimacy, professional identity, reflective practice, and teacher agency connect. By directly integrating lived experiences into broader conceptual discussions of professionalism, policy, and 21st-century pedagogy, this study provides a sophisticated framework for research on educational policy, teacher development, and professional learning.

■ CONCLUSION

This study examined teachers' lived experiences and perspectives on the implementation of teacher certification rules in a private secondary school, with an emphasis on the impact on teacher professionalism and 21st-century learning outcomes. The findings show that while certification boosts teachers' sense of professional legitimacy and encourages self-directed learning, it does not always lead to significant advances in pedagogical competence or classroom creativity. Three interconnected themes emerged: the restoration of professional identity, the gap between certification regulation and classroom practice, and the adaptive challenges of 21st-century teaching. Collectively, these data demonstrate that certification can serve as a stimulus for professional development, but its impact is mediated by teacher autonomy, reflective practice, and school institutional culture. The study emphasizes the necessity of viewing certification as a dynamic, continuous process that promotes lifetime learning and instructional innovation, rather than a one-time achievement.

The findings of this study imply that education policymakers and school leaders should create certification frameworks that go beyond symbolic validation, including mentoring, collaborative professional development structures, and digital pedagogy, to foster long-term classroom innovation. Recognizing teacher autonomy as a key driver of professional development helps certification regulations better align with the complex needs of 21st-century teaching. Nonetheless, the study has limitations. It is context-specific, focusing on teachers' experiences in an Indonesian school, and may not fully represent broader national or global contexts. Furthermore, the phenomenological approach prioritizes depth of understanding over generalizability. Future research could build on these findings by exploring teacher certification across a variety of school settings, using mixed-methods designs to triangulate data, and

examining the long-term impact of certification on classroom practice and student learning outcomes. Such research would shed light on how teacher agency, institutional culture, and policy frameworks influence long-term professional development and educational innovation.

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