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Pedagogical Competence of PPG Graduate Teachers in Phase A Science Learning: A Phenomenological Study on the PAUD–Primary School Transition

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Abstract
The transition from early childhood education (PAUD) to the first years of primary school is a decisive period for developing children's early scientific literacy. In Indonesia, graduates of the Teacher Professional Education Program (Pendidikan Profesi Guru/PPG) with a PAUD background are increasingly required to teach Phase A students in Grades 1 and 2, where play-based pedagogy must be reconciled with more structured science learning under the Kurikulum Merdeka. This phenomenological study explored the lived experiences of six PPG graduate teachers with PAUD academic backgrounds who taught Phase A classes in rural mountainous public primary schools in Magetan, East Java. Data were collected through semi-structured in-depth interviews, non-participant classroom observations, and document analysis. The data were analyzed using the Stevick-Colaizzi-Keen procedure as modified by Moustakas, involving bracketing, horizontalization, meaning-unit construction, thematic clustering, textural-structural description, and synthesis of the essence of experience. Four themes emerged: theoretical pedagogical awareness that was not fully translated into practice, monotonous learning with limited exploratory science activities, structural constraints in facilities and school support, and weak post-PPG mentoring. The findings show that PPG enhanced teachers' conceptual awareness of child development, lesson planning, and active learning; however, the enactment of these competencies remained constrained by limited science resources, administrative teaching routines, conventional school culture, and the absence of sustained professional assistance. The study contributes to early science education by showing that pedagogical competence is not an individual attribute alone, but a situated professional practice shaped by institutional, geographical, and cultural conditions. Strengthening post-PPG mentoring, inquiry-based science resources, and contextual transition curricula is therefore essential for improving Phase A science learning in rural mountainous schools.

Keywords: Early Scientific Literacy; PAUD-to-Primary Transition; Pedagogical Competence; Phenomenology; PPG Graduate Teachers; Rural Mountainous Education

INTRODUCTION

The implementation of the Kurikulum Merdeka has repositioned early primary education as a developmental bridge rather than a sudden academic break from early childhood education. In this policy context, Phase A, which covers Grades 1 and 2 of primary school, is expected to provide learning experiences that are flexible, differentiated, joyful, and responsive to children's developmental readiness. This orientation is closely aligned with Indonesia's national movement for a joyful PAUD-to-primary school transition, which emphasizes that children should not be forced into premature academic formalization but should be supported through continuity in learning, well-being, social-emotional adjustment, and foundational competencies (Hamdi et al., 2022; Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022). Internationally, transition studies also stress that successful early childhood-to-primary transitions depend not only on preparing children for school but also on making schools ready for children through curriculum alignment, pedagogical continuity, professional collaboration, and child-centered learning environments (OECD, 2017).

The PAUD-to-primary transition is especially important because children in the early years of primary school continue to learn through concrete experience, social interaction, movement, language, imagination, and play. Developmental perspectives suggest that young learners gradually construct understanding through interaction with objects, people, and symbolic tools; therefore, instruction that moves too quickly toward abstract, desk-based, and worksheet-centered learning may limit children's opportunities to build conceptual meaning (Piaget & Inhelder, 1972; Vygotsky, 1978). Contemporary learning sciences further emphasize that children learn best when cognitive, emotional, social, and contextual dimensions of development are treated as interconnected rather than separate domains (Darling-Hammond et al., 2020). In this sense, the transition from PAUD to primary school should be interpreted as a pedagogical process requiring continuity in play-based exploration, inquiry, communication, and teacher scaffolding rather than a narrow shift toward formal academic routines.

Science learning in Phase A has a strategic role in this transition. Early science education is not merely the introduction of scientific facts; it is a process of cultivating curiosity, observation, questioning, classification, prediction, evidence-based explanation, and communication. The National Research Council (2012) frames science learning as the integration of practices, core ideas, and crosscutting concepts, while more recent guidance from the National Academies of Sciences, Engineering, and Medicine (2022) emphasizes that preschool and elementary children are capable of meaningful science and engineering thinking when they are provided with rich materials, guided inquiry, and opportunities to reason about phenomena. Early childhood science scholars have long argued that science should be taught from the early years because it supports conceptual development, language growth, reasoning, and positive dispositions toward inquiry (Eshach & Fried, 2005; Trundle & Sackes, 2015). Recent empirical studies strengthen this argument by showing that inquiry-based early science learning can enhance children's curiosity, critical thinking, science process skills, and scientific knowledge when learning is organized through concrete, hands-on, and developmentally appropriate activities (Agustini et al., 2024; Ouabich et al., 2024; Zudaire et al., 2022).

For teachers, however, designing such science learning requires strong pedagogical competence. Pedagogical competence involves more than the ability to prepare lesson plans or deliver content; it includes understanding learner characteristics, selecting suitable strategies, creating inclusive and meaningful learning environments, conducting formative assessment, and adapting instruction to learners' readiness and contexts. Shulman (1986) conceptualized effective teaching as the integration of subject matter knowledge and pedagogical knowledge, suggesting that teachers must know how to transform content into forms that learners can understand. In Phase A science learning, this means that teachers must be able to translate scientific ideas into concrete experiences such as observing plants, sorting natural objects, comparing weather conditions, exploring body parts, investigating soil or water, and communicating findings in simple language. Differentiated instruction is also relevant because children entering primary school may differ substantially in language, motor development, self-regulation, prior PAUD experience, family support, and familiarity with school routines (Hasanah et al., 2022; Tomlinson, 2014).

The Teacher Professional Education Program (Pendidikan Profesi Guru/PPG) has been developed as an institutional effort to strengthen Indonesian teachers' professional and pedagogical competence. Ideally, PPG equips teachers with the capacity to analyze learner needs, design active learning, implement assessment, and reflect on classroom practice. For teachers with a PAUD academic background who are placed in early primary classrooms, PPG becomes particularly significant because these teachers occupy a bridging position between early childhood pedagogy and primary school expectations. Their PAUD background may help them understand play, development, and children's socio-emotional needs, while their role as Grade 1 or Grade 2 teachers requires them to support more structured literacy, numeracy, and science learning. The challenge is that competence acquired in professional education does not automatically become classroom practice. Teacher learning studies have shown that professional development becomes meaningful only when theory is connected to situated practice, reflection, identity, emotion, and continuous mentoring (Darling-Hammond et al., 2020; Korthagen, 2017).

Indonesian studies on pedagogical competence and the Kurikulum Merdeka indicate that teachers generally understand the importance of learner-centered and differentiated learning, yet implementation often remains uneven. Apriyantika and Mustika (2023) found that elementary teachers' pedagogical competence in implementing the Kurikulum Merdeka varied according to school context and learner characteristics. Lestari et al. (2023) reported that teachers still faced constraints in planning and implementing learning aligned with students' needs. Baihaqi and Utama (2024) emphasized that curriculum change requires adaptive pedagogical readiness, especially in assessment and learner development, while Dewi et al. (2025) highlighted the need to strengthen differentiated strategies and educational technology use among elementary teachers. These studies are valuable, but most of them discuss pedagogical competence in general curriculum implementation rather than focusing specifically on Phase A science learning, PAUD-to-primary transition pedagogy, or the lived experiences of PPG graduate teachers in constrained rural settings.

The rural mountainous context adds another layer of complexity. Rural schools often operate with limited learning materials, damaged or insufficient educational play equipment, limited access to professional learning communities, and school cultures that value quiet classroom order over exploratory learning. Such constraints are not merely logistical; they shape how teachers interpret what is possible and acceptable in the classroom. A teacher may understand inquiry-based science theoretically but may return to worksheets because they are easier to manage, more familiar to colleagues, and less dependent on equipment. At the same time, rural mountainous environments also contain rich local resources for contextual science learning, including plants, soil, stones, water sources, weather changes, insects, farming activities, and local ecological phenomena. Therefore, the issue is not simply the absence of resources but the need for teachers to be supported in transforming local environments into meaningful science learning materials (National Academies of Sciences, Engineering, and Medicine, 2022; OECD, 2017).

A further research gap concerns the transfer of PPG competence into classroom enactment. Existing studies have begun to examine post-PPG teacher performance and professional learning, including how PPG alumni experience teaching after graduation (Sarmita et al., 2025). However, limited research has explored how PPG graduates with PAUD backgrounds experience the pedagogical demands of teaching Phase A science during the PAUD-to-primary transition. This gap is important because the success of the transition does not depend only on curriculum policy or teacher certification; it depends on how teachers make sense of their competence, negotiate school expectations, respond to limited facilities, and transform child-centered principles into daily science learning practices. Understanding these experiences requires an approach that captures teachers' meanings, tensions, and adaptive strategies from their own perspectives.

For this reason, the present study employed a phenomenological design. Phenomenology is appropriate because the purpose of the study is not to measure pedagogical competence statistically, but to understand the essence of teachers' lived experiences in applying PPG-based pedagogical competence within a specific educational context (Creswell & Poth, 2018; Moustakas, 1994; Van Manen, 2016). Through this approach, the study seeks to illuminate how teachers experience the transition from PAUD-oriented pedagogical knowledge to Phase A science teaching, how they interpret the relevance of PPG to classroom realities, what constraints they encounter, and what forms of support they need to implement inquiry-oriented and developmentally appropriate science learning.

Accordingly, this study aims to explore the lived experiences of PPG graduate teachers with PAUD academic backgrounds in implementing pedagogical competence in Phase A science learning in rural mountainous primary schools. Specifically, it addresses the following research question: How do PPG graduate teachers experience, interpret, and enact their pedagogical competence in Phase A science learning during the PAUD-to-primary school transition? By focusing on the intersection of PPG competence, early science learning, transition pedagogy, and rural school context, this study contributes to a more nuanced understanding of pedagogical competence as a lived, negotiated, and context-sensitive practice rather than as a static certification outcome.

METHODS

Research Design

This study used a qualitative approach with a transcendental phenomenological design. Phenomenology was selected because the purpose of the study was to understand the essence of teachers' lived experiences in implementing pedagogical competence acquired through PPG within the specific context of Phase A science learning. Following Moustakas (1994) and Creswell and Poth (2018), the study focused on both what teachers experienced and how those experiences occurred within their institutional and geographical context.

The phenomenon under investigation was the enactment of pedagogical competence by PPG graduate teachers with PAUD academic backgrounds who were teaching science-related learning activities in Grades 1 and 2. The focus was not to evaluate teacher performance in a normative manner, but to interpret the meanings, tensions, constraints, and adaptive strategies that shaped teachers' classroom practice during the PAUD-to-primary transition.

Research Site and Participants

The study was conducted in January 2026 in six public primary schools located in rural mountainous areas of Magetan Regency, East Java, Indonesia. This context was selected because it represents a school environment where the PAUD-to-primary transition takes place under conditions of limited learning resources, geographical constraints, and strong expectations for conventional classroom order.

Six teachers participated in the study. Participants were selected through criterion sampling and snowball sampling. The inclusion criteria were: (1) being a PPG graduate, (2) having an undergraduate academic background in early childhood teacher education (PG-PAUD), (3) teaching Grade 1 or Grade 2 students in Phase A, (4) having approximately two years of experience teaching in primary school after graduating from PPG, (5) working in public primary schools in rural mountainous areas, and (6) having direct experience implementing the Kurikulum Merdeka during the PAUD-to-primary transition. The number of participants was considered adequate for phenomenological inquiry because the selected participants were information-rich cases and shared direct experience of the phenomenon being studied (Creswell & Poth, 2018; Morse, 2015).

Table 1. Participant Characteristics

Participant	Age	Gender	Primary teaching experience	PPG graduation year	Class taught
G1	28	Female	2 years 3 months	2023	Grade 1
G2	28	Female	2 years 3 months	2023	Grade 2
G3	33	Female	2 years 3 months	2023	Grade 1
G4	26	Female	2 years 3 months	2023	Grade 1
G5	29	Male	2 years 3 months	2023	Grade 2
G6	27	Female	2 years 3 months	2023	Grade 2

Data Collection

Data were collected using three complementary techniques: in-depth interviews, non-participant classroom observations, and document analysis. Semi-structured interviews were conducted in two to three sessions for each participant, lasting approximately 45 to 90 minutes per session. The interviews explored teachers' understanding of children's transitional needs, the perceived relevance of PPG materials, classroom readiness, lesson planning, instructional adaptation, assessment practices, school support, post-PPG mentoring, major obstacles, student responses, and teachers' expectations for future professional development.

Non-participant observations were conducted three to four times for each teacher during science-related classroom activities. Each observation lasted at least two hours. The observation focused on instructional strategies, use of media and learning resources, exploratory and play-based activities, teacher-student interaction, developmental assessment, classroom management, and differentiation practices. Document analysis included teaching modules, lesson plans, student assessment records, photos of learning activities with permission, and teachers' reflection notes. The triangulation of these data sources was intended to strengthen the credibility of the findings.

Table 2. Main Areas of the Interview Protocol

Area	Focus of inquiry
Understanding of learners	Teachers' interpretation of the characteristics and needs of Phase A children during the PAUD-to-primary transition.
Relevance of PPG	Teachers' views on the extent to which PPG materials corresponded to real classroom needs.
Planning and implementation	Teachers' lesson planning processes, learning strategies, science activities, and classroom adaptations.
Assessment	Teachers' approaches to observing and documenting children's science learning and developmental progress.
Support and barriers	School facilities, leadership support, peer culture, post-PPG mentoring, and geographical constraints.
Future expectations	Teachers' recommendations for strengthening PPG and post-PPG professional assistance.

Data Analysis

The data were analyzed using the Stevick-Colaizzi-Keen method as modified by Moustakas (1994). The analysis began with epoche or bracketing, in which the researchers attempted to set aside prior assumptions about PPG graduates and rural school teaching. The interview transcripts, observation notes, and documents were then read repeatedly to identify significant statements through horizontalization. Similar statements were grouped into meaning units, which were subsequently clustered into themes. Textural descriptions were developed to explain what participants experienced, while structural descriptions were constructed to explain how those experiences occurred within specific school conditions. The final stage involved synthesizing the essence of the phenomenon across participants.

To ensure trustworthiness, the study applied source and technique triangulation, member checking, peer debriefing, audit trail documentation, and thick description. Participants were given opportunities to review transcript excerpts and preliminary interpretations. Peer debriefing was conducted with colleagues familiar with qualitative and phenomenological research to examine the coherence of emerging themes. Ethical considerations included written informed consent, voluntary participation, the right to withdraw, anonymization through participant codes, and the use of data only for academic purposes.

RESULT AND DISCUSSION

The phenomenological analysis generated four central themes that represent the essence of teachers' lived experiences in implementing pedagogical competence in Phase A science learning: (1) theoretical pedagogical awareness that was not fully translated into practice, (2) monotonous learning with limited exploratory science activities, (3) structural constraints in facilities and school support, and (4) weak post-PPG mentoring. These themes are summarized in Table 3 and elaborated in the following sections.

Table 3. Emergent Themes from the Phenomenological Analysis

Theme	Core meaning	Illustrative evidence
Knowing but not fully doing	Teachers understood child-centered and transition-oriented pedagogy, but struggled to enact it consistently.	"I know Grade 1 children are still like kindergarten children; they need to be happy, play, and move. PPG taught that. But in the classroom I become confused, so I use worksheets to keep them calm." (G3)
Monotonous and minimally exploratory learning	Science learning was still dominated by worksheets, coloring, and routine tasks, with limited observation, questioning, and experimentation.	"If I ask children to play or sing, the class becomes noisy and difficult to control. Some colleagues also think it is too much like kindergarten." (G2)
Limited facilities and school support	The lack of educational play equipment and simple science resources constrained active science learning.	"The available educational toys are few and some are damaged. I wanted children to learn body parts with simple observation, but there were no tools." (G5)
Weak post-PPG mentoring	After completing PPG, teachers felt professionally isolated and had limited guidance for translating theory into practice.	"After graduating from PPG, there was no further mentoring. I was left on my own. I prepare lesson plans mostly when there is supervision." (G1)

Theme 1: Theoretical Pedagogical Awareness That Was Not Fully Translated into Practice

Participants expressed a relatively strong theoretical understanding of the PAUD-to-primary transition. They recognized that Grade 1 and Grade 2 students still required joyful, concrete, movement-rich, and play-oriented learning. They also understood that science learning should not be limited to memorizing facts, but should involve observing objects, asking questions, exploring phenomena, and expressing simple explanations. This awareness was often attributed to the knowledge and learning experiences gained during PPG.

However, participants repeatedly described a gap between what they knew and what they could implement. G3 stated, "I know Grade 1 children are still like kindergarten children; they need to be happy, play, and move. PPG taught that. But in the classroom I become confused, so I use worksheets to keep them calm." This statement reflects a central tension in the teachers' experience: PPG strengthened theoretical pedagogical awareness, but classroom realities pushed teachers back to safer, more conventional routines. The essence of this theme is therefore not ignorance, but a difficulty in transforming pedagogical knowledge into situated classroom action.

Theme 2: Monotonous Learning and Limited Exploratory Science Activities

The second theme concerns the dominance of monotonous learning activities. Classroom observations and teacher narratives showed that early science learning was frequently reduced to worksheets, coloring tasks, short explanations, and teacher-led routines. Activities such as singing, movement, role play, outdoor observation, object sorting, simple experiments, and environmental exploration were present only occasionally. This reduced children's opportunities to engage in basic science process skills.

Teachers did not necessarily reject exploratory learning. Rather, they experienced it as difficult to manage within the prevailing classroom culture. G2 explained, "If I ask children to play or sing, the class becomes noisy and difficult to control. Some colleagues also think it is too much like kindergarten. In the end, it feels safer to ask children to work in their books or color so the class remains orderly." This quotation shows that conventional expectations of quietness and discipline shaped pedagogical choices. The result was a classroom pattern in which order was prioritized over inquiry, and product completion was valued more than scientific exploration.

Theme 3: Limited Facilities and School Support in Rural Mountainous Contexts

Participants also identified limited facilities as a major barrier to implementing active science learning. The schools had few educational play materials, simple science tools, visual aids, or contextual media. Some materials were damaged or not suitable for Phase A learning. In rural mountainous areas, geographical conditions also limited access to training, learning resources, and external support.

G5 described this constraint clearly: "The available educational toys are few and some are damaged. I wanted children to learn body parts with simple observation, but there were no tools. Finally, I just told them in front of the class and used one child as an example." This experience illustrates how pedagogical competence is mediated by the availability of resources. Although rural environments potentially provide rich natural objects for science learning, teachers often lacked practical models for transforming the surrounding environment into structured inquiry activities.

Theme 4: Weak Post-PPG Mentoring and Professional Continuity

The fourth theme reveals teachers' sense of professional isolation after completing PPG. Participants described PPG as an intensive program that improved their understanding of lesson planning, active learning, and learner characteristics. However, once they returned to school, they received limited mentoring, coaching, classroom feedback, or follow-up training. This created a discontinuity between teacher professional education and school-based practice.

G1 stated, "After graduating from PPG, there was no further mentoring. I was left on my own. I prepare lesson plans mostly when there is supervision or accreditation. In daily practice, I teach as usual." This statement indicates that lesson planning was often treated as an administrative requirement rather than a living pedagogical guide. Assessment practices also tended to focus on cognitive and numerical outcomes, such as writing, counting, and completing tasks, while children's scientific curiosity, socio-emotional readiness, collaboration, independence, and communication were less systematically documented.

DISCUSSION

The Transfer Gap between PPG Knowledge and Classroom Enactment

The findings demonstrate that PPG contributed to teachers' theoretical understanding of child development, active learning, and the PAUD-to-primary transition. Nevertheless, this knowledge was not fully enacted in Phase A science classrooms. This confirms that pedagogical competence should not be understood merely as knowledge possessed by individual teachers; rather, it is a situated practice that depends on classroom culture, institutional support, available resources, and teachers' confidence to take pedagogical risks. The transfer gap found in this study aligns with the broader literature on teacher professional education, which emphasizes that professional learning becomes meaningful only when supported by sustained mentoring and opportunities for reflective practice (Darling-Hammond et al., 2017; Sarmita et al., 2025).

In this study, teachers knew that young learners required joyful and concrete learning experiences. However, they reverted to worksheets because worksheets were administratively familiar, easier to control, and more acceptable within a conventional school culture. This suggests that teacher education programs need to address not only what teachers should do, but also how they can negotiate real constraints after placement in schools.

Early Science Learning during the PAUD-to-Primary Transition

The dominance of worksheet-based learning is problematic for early science education. Young children develop scientific thinking through direct engagement with objects, phenomena, and social interaction. Early science learning should create opportunities for children to observe, classify, compare, predict, ask questions, and communicate their findings in developmentally appropriate ways (Eshach & Fried, 2005; National Research Council, 2012; Trundle & Sackes, 2015). When Phase A science learning is reduced to coloring or completing worksheets, children may complete visible products, but they lose opportunities to develop early scientific literacy.

The PAUD-to-primary transition therefore requires pedagogical continuity. Children entering Grade 1 do not immediately become learners who are ready for abstract and desk-based instruction. The findings show that teachers were aware of this continuity but faced pressure to appear more "primary school-like" by making children sit, write, and complete tasks quietly. This pressure may undermine the spirit of the Kurikulum Merdeka, which encourages flexible, learner-centered, and developmentally responsive learning.

Pedagogical Competence as Context-Sensitive Practice

The rural mountainous context is not merely a background variable; it actively shaped the enactment of pedagogical competence. Limited science tools, damaged educational play equipment, geographical distance, and restricted access to professional development all influenced teachers' decisions. This finding supports the view that pedagogical competence cannot be separated from the ecology of schooling. Competence becomes visible when teachers are supported by resources, mentoring, and school leadership that enables experimentation and reflection.

At the same time, the rural mountainous environment offers underused potential for contextual science learning. Leaves, stones, soil, insects, weather patterns, water sources, and local farming practices could become rich learning objects for Phase A students. The problem is not merely the absence of commercial science kits, but the lack of practical guidance and mentoring that helps teachers transform local environments into inquiry-based learning resources. Therefore, strengthening teachers' competence requires both material support and pedagogical modeling.

The Need for Post-PPG Mentoring and School-Based Professional Learning

A major implication of the study is the need for sustained post-PPG mentoring. PPG should not end when teachers receive certification. For teachers entering challenging contexts, especially rural schools and transition grades, professional education must be followed by classroom-based coaching, peer lesson study, reflective supervision, and communities of practice. Such support can help teachers redesign worksheets into exploratory tasks, use local materials for science learning, conduct authentic assessment, and manage active classrooms without abandoning child-centered pedagogy.

School leaders also play an important role. If school culture values quietness more than inquiry, teachers may perceive active science learning as risky or professionally inappropriate. Therefore, principals and supervisors need to legitimize exploratory learning in Phase A, especially when teachers have PAUD backgrounds and are trying to preserve play-based approaches within primary school expectations.

Theoretical and Practical Contributions

Theoretically, this study contributes to the literature on pedagogical competence by showing that competence is not simply a set of abilities measured at the end of teacher education. It is a lived, negotiated, and contextually mediated experience. The study also extends early science education research by highlighting how the PAUD-to-primary transition affects teachers' ability to provide inquiry-based science learning in rural mountainous schools.

Practically, the findings suggest three priorities. First, PPG programs should include stronger modules on inquiry-based Phase A science learning and transition pedagogy. Second, rural schools need simple, low-cost, locally adaptable science learning resources. Third, post-PPG mentoring should be institutionalized so that beginning teachers are not left alone to translate professional knowledge into classroom practice. These priorities are particularly urgent for teachers with PAUD backgrounds who are assigned to lower primary grades.

Limitations and Future Research

This study has several limitations. It involved six teachers in rural mountainous public primary schools in one regency; therefore, the findings should be interpreted as contextually rich rather than statistically generalizable. The data relied on teachers' lived experiences supported by observations and documents, but did not directly measure students' science learning outcomes. Future research could compare PPG graduates from different academic backgrounds, examine mentoring models after PPG, or conduct classroom-based intervention studies that develop inquiry-based science modules for the PAUD-to-primary transition.

CONCLUSION

This phenomenological study shows that PPG graduate teachers with PAUD academic backgrounds possessed meaningful theoretical awareness of developmentally appropriate pedagogy, learner characteristics, and active learning during the PAUD-to-primary transition. However, the implementation of this competence in Phase A science learning remained incomplete. Teachers experienced a transfer gap between PPG knowledge and classroom practice, particularly because learning was still dominated by worksheets, exploratory science activities were limited, facilities were insufficient, school culture tended to favor classroom order over inquiry, and post-PPG mentoring was weak. The study concludes that the quality of Phase A science learning depends not only on individual teacher competence but also on the professional ecosystem that supports teachers after certification. Strengthening inquiry-based science resources, contextual transition curricula, school leadership, and sustained mentoring is essential to help PPG graduates transform pedagogical knowledge into meaningful early science learning practices in rural mountainous schools.

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