

Enhancing Teacher Competence through Knowledge Sharing: Overcoming Barriers in Indonesia's Educational Landscape

Kardoyo Kardoyo¹, Lola Kurnia Pitaloka², Muhammad Feriady³

^{1,2,3} Faculty of Economics and Business, Universitas Negeri Semarang

¹E-mail: kardoyo@mail.unnes.ac.id , ²E-mail: lolakp@mail.unnes.ac.id , ³E-mail: mferiady@mail.unnes.ac.id

Abstract

Teacher competence is a critical determinant of educational quality, yet many teachers in Indonesia face challenges in adapting to the demands of the Kurikulum Merdeka. While knowledge sharing has been recognized as a key mechanism for professional growth, its effectiveness remains constrained by structural and cultural barriers. This study examines how knowledge-sharing practices can enhance teacher competence and identifies factors that hinder or support such practices. Employing a mixed-methods approach, data were collected from 200 teachers through a survey and from 10 participants via in-depth interviews. Quantitative results show that teachers generally view knowledge sharing as a normative practice, particularly within schools, though proactive and responsive exchanges remain inconsistent. Qualitative findings reveal persistent barriers including limited access to resources, unsupportive organizational cultures, and dissatisfaction with current professional development programs, while highlighting the potential of structured digital platforms and leadership support in fostering sustainable collaboration. These insights not only extend the literature on teacher professional development in resource-constrained contexts but also provide practical recommendations for policymakers and school leaders to design more adaptive and collaborative frameworks for continuous teacher learning.

Keywords: knowledge sharing, teacher competence, curriculum, professional development, digital platforms

1. Introduction

Ensuring high-quality education has become a global imperative, particularly in the context of preparing students for the demands of the 21st century. Central to this mission is teacher competence, which directly shapes student performance and overall learning outcomes [1][2]. Worldwide, education systems are shifting toward student-centered learning models, which require teachers to take on expanded roles as facilitators, mentors, and leaders of inclusive and collaborative learning environments [3]. These changing expectations are particularly challenging for developing countries such as Indonesia, where systemic constraints often hinder teachers' ability to adapt effectively.

The implementation of the Independent Curriculum (*Kurikulum Merdeka*) in Indonesia exemplifies these new demands, as it emphasizes autonomy, personalized learning, and competency-based approaches. Achieving these goals requires teachers to possess a combination of professional, pedagogical, social, and leadership competencies [4]. However, many teachers remain underprepared due to gaps in teacher education and training programs [5][6]. Moreover, disparities in infrastructure, resources, and digital literacy between urban and rural schools exacerbate the challenges of curriculum implementation, further widening educational inequalities.

In response, initiatives such as the *Program Guru Penggerak* (PGP) have been launched to strengthen teacher leadership and support professional development. While promising, these efforts reach only a fraction of Indonesia's 3.36 million teachers [7], underscoring the need for more scalable and sustainable solutions. Beyond government-led programs, scholars emphasize that knowledge sharing among teachers—through the exchange of experiences, practices, and insights—offers a powerful mechanism for enhancing professional competence and fostering innovation in teaching [8][9]. Yet, the effectiveness of such practices in Indonesia remains constrained by limited infrastructure, insufficient leadership support, and resistance to change [10].

Against this backdrop, this study seeks to examine how knowledge-sharing practices can be leveraged to enhance teacher competence in Indonesia, particularly within the context of *Kurikulum Merdeka*. By adopting a mixed-methods approach, the research explores both structural and cultural barriers to collaboration, while identifying strategies that enable teachers to engage in sustainable professional growth. In doing so, the study contributes to the global discourse on teacher development in resource-constrained settings, offering practical and policy-relevant insights for fostering more adaptive and resilient education systems.

2. Literature Review

2.1. Teacher Competence in the 21st Century

Teacher competence is widely recognized as a cornerstone of educational quality, influencing both student learning outcomes and institutional performance [11]. Modern pedagogical paradigms emphasize student-centered learning, requiring teachers to act as facilitators, mentors, and leaders [12][13][14]. In Indonesia, these expectations are intensified with the implementation of *Kurikulum Merdeka*, which promotes autonomy and personalized learning. Teachers are expected to demonstrate professional, pedagogical, social, and leadership skills to effectively meet these demands [15]. However, teacher training and professional development often remain insufficient, leaving many educators underprepared [16].

2.2. Challenges in Teacher Professional Development

Despite policy reforms, Indonesian teachers continue to face structural and systemic barriers. Disparities between urban and rural schools highlight unequal access to infrastructure, digital tools, and skilled trainers. Rural schools often lag in implementing curriculum changes due to limited resources and insufficient readiness [17]. Moreover, many development programs are criticized for being overly theoretical, lacking contextualized strategies for classroom application [18]. Professional development activities are often one-time events with

minimal follow-up, resulting in limited long-term impact [19]. These shortcomings contribute to teachers reverting to traditional, teacher-centered practices that hinder innovation.

2.3. Knowledge Sharing as a Mechanism for Teacher Growth

Knowledge sharing, defined as the exchange of insights, experiences, and best practices, has been identified as a critical factor in enhancing teacher competence and fostering innovation [20]. Effective knowledge-sharing practices not only improve individual teacher performance but also strengthen collective professional learning communities. However, in Indonesia, efforts to foster collaborative practices face multiple barriers. Limited access to resources and poor digital infrastructure hinder participation, particularly for teachers in remote regions [21]. Social and cultural barriers further impede collaboration, as teachers often fear negative judgment from peers or encounter unsupportive school environments [22]. Leadership plays a critical role in addressing these issues, as principals and school managers shape the culture of collaboration [23][24].

2.4. Digital Platforms and Informal Learning Networks

Globally, digital platforms have been shown to facilitate teacher collaboration, enabling educators to overcome geographical barriers and engage in real-time professional exchanges [25][26]. In contexts like Indonesia, digital solutions have supported knowledge sharing and reduced teacher isolation, as seen in Thailand, the Philippines, and Malaysia [27][28][29]. Nonetheless, digital platforms alone are insufficient without accompanying cultural and organizational changes that foster trust and openness among teachers [30][31]. Thus, integrating formal training programs with informal learning networks and structured digital platforms may provide a more sustainable approach to professional development.

While prior studies highlight the importance of knowledge sharing and digital collaboration in teacher competence, there remains limited empirical evidence on how these practices function within the context of *Kurikulum Merdeka* in Indonesia. Most existing professional development programs prioritize government-led initiatives, leaving little room for teacher-driven, peer-supported growth. Furthermore, the role of organizational culture and school leadership in enabling or hindering knowledge sharing has not been fully addressed. This study fills this gap by investigating the barriers and opportunities for knowledge-sharing practices in Indonesia, offering insights into how informal networks and digital platforms can complement formal training programs to foster sustainable professional development.

3. Methods

3.1. Research Design

This study adopted a mixed-methods design, integrating both quantitative and qualitative approaches to comprehensively examine teachers' knowledge-sharing practices and their influence on professional competence. A quantitative survey was conducted to capture general patterns and tendencies, while qualitative interviews provided in-depth insights into teachers' experiences, challenges, and motivations. The use of mixed methods was deemed appropriate

to ensure both breadth and depth of understanding, as quantitative data offer measurable trends while qualitative narratives provide contextual richness.

3.2. Participants and Sampling

The study population consisted of teachers from various educational levels across Indonesia. A purposive sampling technique was employed to ensure representation of teachers with diverse backgrounds and experiences. Inclusion criteria required participants to (1) be actively teaching at any educational level, (2) have at least two years of teaching experience, and (3) include both teachers involved and not involved in the *Program Guru Penggerak*. A total of 200 teachers participated in the survey, representing different regions and school contexts. From this group, 10 teachers were selected for follow-up in-depth interviews, enabling the study to explore personal perspectives in greater detail.

3.3. Instrument and Data Collection

Two primary instruments were utilized:

Table 1. Study Main Instrument

Structured Questionnaire	In-Depth Interviews
The questionnaire contained 10 items measured on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree)	Semi-structured interviews were conducted with 10 teachers to gain deeper understanding of the challenges and opportunities related to knowledge sharing
It focused on the frequency and pattern of knowledge sharing, barriers to collaboration, and the perceived impact of these practices on competence development	The interview guide included open-ended questions on teachers' experiences with knowledge sharing, their needs for digital platforms, and the social or technical barriers they faced
The survey was designed to capture general trends across the population	These interviews provided rich qualitative data to complement the quantitative survey findings

3.4. Data Analysis

Quantitative data were analyzed using Confirmatory Factor Analysis (CFA) to assess the validity and reliability of constructs related to knowledge sharing. Descriptive statistics were also applied to identify central tendencies and distribution patterns across survey responses. For the qualitative component, thematic analysis was employed, following an iterative process of coding and categorizing transcripts to identify recurring themes. The integration of both data sets allowed triangulation, enhancing the robustness and credibility of findings.

3.5. Validity and Reliability

To ensure methodological rigor, several measures were taken. For the survey, CFA was used to confirm the construct validity and internal consistency of the instrument. Cronbach's alpha values indicated acceptable reliability levels for all items. For the qualitative data, credibility was maintained through member-checking, whereby selected participants reviewed interview

summaries for accuracy. Triangulation across quantitative and qualitative results further strengthened the study's validity, ensuring that findings reflected a holistic view of knowledge-sharing practices among teachers in Indonesia.

4. Results

4.1. Survey Results

A total of 200 teachers completed the survey on knowledge-sharing practices. Overall, the results indicate that teachers perceive knowledge sharing as an important and routine part of their professional activities. The highest-rated item was “*Sharing knowledge among teachers has become the norm*” ($\bar{x} = 3.42$), suggesting that collaborative exchanges are increasingly embedded in teachers' work culture. Similarly, teachers reported a high tendency to share skills with colleagues from the same school ($\bar{x} = 3.36$) and to engage in cross-school collaboration ($\bar{x} = 3.36$). These findings reflect both intra- and inter-school openness to knowledge exchange.

In contrast, the lowest mean score was recorded for “*When I ask my colleagues, they tell me what they know*” ($\bar{x} = 2.83$), indicating that responsiveness to direct requests for information is less consistent. Another relatively low score was observed in “*When I learn something new, I tell my fellow teachers about it*” ($\bar{x} = 2.96$), suggesting that proactive sharing is not yet universal.

Table 2. Descriptive Statistics of Teachers' Knowledge-Sharing Practices

No	Indicative Statement	Mean ($\bar{x}$)	Description
1	I share my knowledge with fellow teachers from other schools	2.76	Agree
2	Sharing knowledge among teachers has become the norm	3.42	Agree
3	I share my knowledge with fellow teachers at same school	3.22	Agree
4	When I learn something new, I tell my fellow teachers about it	2.96	Agree
5	When my fellow teachers have learned something new, they tell me about it	3.08	Agree
6	I share skills with fellow teachers from other schools	3.03	Agree
7	I share skills with fellow teachers from one school	3.36	Agree
8	I share knowledge with fellow teachers	3.21	Agree
9	Other fellow teachers want to share their knowledge with me	3.11	Agree
10	My co-teachers told me what they knew, when I asked	2.83	Agree

Source: research data processed in 2025

Confirmatory Factor Analysis (CFA) further validated the measurement model for knowledge-sharing constructs (Figure 1). The model demonstrated satisfactory fit indices, confirming that the questionnaire reliably captured the dimensions of knowledge sharing among teachers.

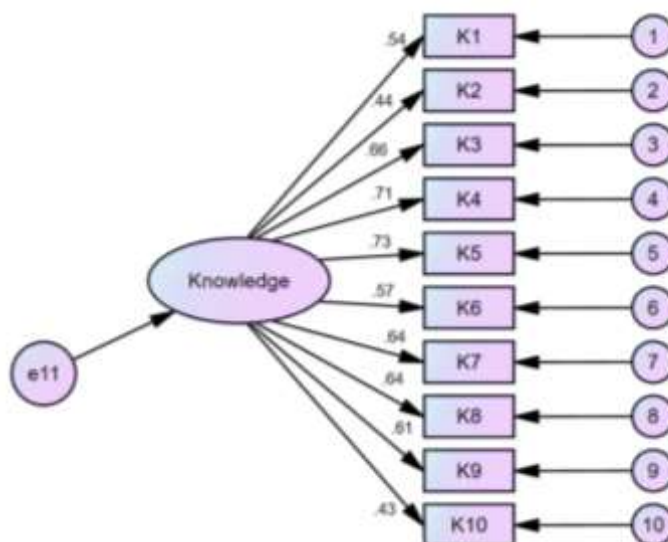


Figure 1. CFA Model of Teacher Knowledge Sharing

4.2. Interview Results

Interviews with 10 selected teachers enriched the survey findings by providing deeper insights into the barriers and enablers of knowledge sharing. Five key themes emerged from the thematic analysis:

1. Access Needs

Teachers in rural schools highlighted limited access to updated and contextually relevant teaching resources. One participant noted:

“As a teacher in a rural school, I struggle to find teaching materials that match my students’ needs. The resources available are often outdated or irrelevant.”

2. Social Barriers and Work Culture

Several respondents admitted hesitation to share innovative methods due to fear of criticism. A participant stated:

“Sometimes I’m reluctant to share new methods I’ve developed because I worry my peers might judge them as ineffective.”

3. Perceived Ineffectiveness of Current Programs

Teachers frequently described professional development programs as theoretical and disconnected from classroom practice. As one teacher explained:

“The training sessions I attended were filled with theory, but there were no concrete examples of how to apply those concepts in my classroom.”

4. Inadequate Platforms

Participants reported that existing tools such as WhatsApp groups or informal forums lacked structure and sustainability. These tools were seen as helpful for communication but insufficient for systematic professional learning.

5. Need for Digital Platforms

Respondents consistently emphasized the need for a dedicated platform to share ideas, lesson plans, and strategies. One participant highlighted:

“We need a platform that brings everything together—where we can exchange ideas, find lesson plans, and discuss challenges with other teachers.”

Table 3. Summary of Key Themes from Teacher Interviews

Theme	Description
Access Needs	Limited access to updated and relevant teaching resources, especially in rural areas
Social Barriers and Work Culture	Fear of criticism and lack of psychological safety inhibit sharing
Current Program Effectiveness	Training programs are too theoretical with limited classroom relevance
Inadequate Platforms	Informal tools (e.g., social media) lack structure and sustainability
Need for Digital Platforms	Teachers call for structured, interactive platforms for collaboration

Source: research data processed in 2025

5. Discussion

The findings of this study highlight the central role of knowledge-sharing practices in enhancing teacher competence within Indonesia’s rapidly evolving educational landscape. Survey results demonstrated that teachers generally perceive knowledge sharing as a normative activity, consistent with prior studies emphasizing the importance of collaborative learning in fostering professional growth [32][33][34]. However, both quantitative and qualitative findings also revealed persistent barriers that limit the effectiveness of such practices, particularly in contexts characterized by limited resources and unsupportive school cultures.

5.1. Resource Access and Digital Infrastructure

One of the strongest themes emerging from this research concerns access to updated teaching resources and digital infrastructure. Teachers in rural schools frequently reported professional isolation due to outdated or irrelevant materials, echoing findings from Zhang et al., who identified similar challenges among rural educators in Thailand [35]. These constraints underscore the structural inequities within Indonesia’s education system, where disparities between urban and rural schools hinder equitable implementation of *Kurikulum Merdeka*. The results suggest that improving access to digital resources is not merely a technical issue but a fundamental prerequisite for enabling meaningful professional collaboration.

5.2. Cultural and Organizational Barriers

The study also revealed that teachers often hesitate to share innovative practices due to fear of criticism, reflecting a lack of psychological safety within their professional

environments. This finding aligns with Anas et al., who noted that concerns about negative evaluation can suppress collaborative initiatives in schools [36]. Such dynamics indicate that knowledge-sharing practices are shaped not only by individual willingness but also by organizational culture. Strong school leadership is essential in addressing these challenges. As suggested by Frányó & Sándor, principals who promote authentic leadership and collaborative structures create conditions that encourage teachers to engage more openly in professional exchanges [37].

5.3. Limitations of Current Professional Development Programs

Another important finding relates to dissatisfaction with existing professional development programs, which teachers perceived as overly theoretical and detached from classroom realities. This observation is consistent with research by Xie et al. and Stumbrienė et al., who emphasize that effective teacher training must provide practical tools that are directly applicable to teaching practice [38][39]. The lack of follow-up mechanisms further weakens the sustainability of such programs. Zeinabadi & Abbasian argue that without ongoing mentoring and structured peer collaboration, training outcomes are unlikely to translate into lasting changes in teacher competence [40]. The present study corroborates this view, suggesting that integrating formal training with informal knowledge-sharing networks may offer a more effective model for teacher development.

5.4. Potential of Digital Platforms and Learning Communities

The call from participants for structured digital platforms highlights the urgent need to modernize professional development approaches in Indonesia. Teachers envisioned platforms that would integrate lesson plans, best practices, and real-time discussion forums—features that mirror successful implementations in countries such as the Philippines and Malaysia [3][33]. Research has shown that such platforms can mitigate feelings of professional isolation while promoting continuous engagement [1][2]. However, digital solutions alone are insufficient without supportive organizational cultures. As De et al. note, school leaders must actively foster environments where teachers feel empowered to contribute, experiment, and learn from one another without fear of judgment [41].

Overall, the study not only confirms the significance of knowledge-sharing practices for teacher competence but also underscores how these practices are shaped by the interplay between structural barriers, cultural factors, and leadership roles. In contexts such as Indonesia, strengthening digital infrastructure and designing more practice-oriented professional development are essential steps forward. At the same time, cultivating collaborative school cultures and equipping leaders to support knowledge sharing will be crucial in ensuring that such efforts are sustainable. These insights enrich the theoretical discourse on teacher competence in resource-constrained settings while also offering practical guidance for policymakers and educational leaders aiming to implement more adaptive and resilient professional development frameworks.

6. Conclusion

This study highlights the importance of knowledge-sharing practices in enhancing teacher competence within the context of *Kurikulum Merdeka* in Indonesia. While teachers generally view collaboration as a normative part of their professional role, structural barriers such as limited access to updated resources, cultural constraints including fear of criticism, and professional development programs that are overly theoretical continue to limit its effectiveness. At the same time, the findings underscore the potential of structured digital platforms and supportive school leadership in fostering sustainable professional growth.

The results contribute to the literature on teacher development by showing how knowledge sharing functions in resource-constrained settings and by emphasizing the role of organizational culture and leadership in shaping collaborative practices. Practically, the study suggests that policymakers should invest in digital infrastructure and redesign professional development programs to ensure relevance and continuity, while school leaders cultivate environments that encourage open collaboration. Although limited in scope to 200 survey participants and 10 interviews, this research provides valuable insights and points to the need for further studies involving larger and more diverse samples to evaluate long-term impacts of digital and collaborative initiatives.

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