

Identifying Teacher Competency Priorities in Resource-Constrained Schools through a Training Needs Analysis

Linda Violetta Siwalette¹, Lany Pranita Alang²

¹*Curriculum Development Study Program, Faculty of Education,
Universitas Pendidikan Indonesia, Bandung, Indonesia*

²*Elementary Education Study Program, Faculty of Education,
Universitas Pendidikan Indonesia, Bandung, Indonesia*

ABSTRACT

Resource-constrained schools face a wide range of instructional challenges that require teacher competency development based on actual professional needs. This study aims to identify priority teacher competencies through a Training Needs Analysis (TNA) as a foundation for designing professional development programs. The study employed a descriptive mixed-methods approach involving 20 teachers from resource-constrained schools selected through purposive sampling. Data were collected using a TNA questionnaire consisting of rating-scale items and open-ended questions and were analyzed using descriptive statistics and thematic analysis. The findings reveal that the major challenges faced by teachers include limited access to electricity and the internet, low student literacy skills, insufficient learning resources, and the complexity of managing multigrade and heterogeneous classrooms. The integration of TNA findings identified six priority competency areas: contextual literacy instruction, heterogeneous classroom management, multigrade teaching, the development of low-cost instructional media, the use of technology appropriate to school conditions, and the design of adaptive instructional planning. These findings highlight that TNA provides a valuable evidence-based foundation for developing teacher professional development programs that are more contextualized, relevant, and responsive to the needs of resource-constrained schools.

ARTICLE HISTORY

Received 28 July 2026

Revised 19 August 2026

Accepted 31 August 2026

KEYWORDS

Training Needs Analysis;
teacher competencies;
professional development;
resource-constrained
schools; teacher training.

Introduction

Resource-constrained schools face multidimensional challenges in the teaching and learning process. [1]), explain that disparities in educational quality are influenced not only by student learning outcomes but also by limited access to qualified teachers, learning resources, technology, and supportive learning environments. These challenges become even more complex in rural schools, where financial constraints, inadequate facilities, and teacher shortages are prevalent [2]. In the Indonesian context, [3] found that limited classroom space, insufficient computers, and restricted internet access hinder the teaching and learning process, while [4]) demonstrated that inadequate facilities negatively affect students' motivation and engagement. Such conditions often require teachers to manage multigrade classrooms, utilize simple learning resources, and address the diverse abilities of students [5].

Therefore, the challenges faced by resource-constrained schools extend beyond limited infrastructure and involve the increasing complexity of teachers' professional responsibilities.

In this context, teacher competence plays a critical role in determining the quality of instruction. [6] define teacher competence as encompassing professional, pedagogical, classroom management, communication, assessment, and digital competencies that enable teachers to design effective learning experiences. Competent teachers are able to select appropriate instructional strategies, manage classroom interactions, and provide meaningful feedback [7]. These competencies also contribute to improved student learning outcomes [8] and enhance teachers' ability to adapt to curriculum reforms, technological developments, and diverse student characteristics [9]. Such adaptability is further strengthened through reflective practice and professional learning communities [10].

Accordingly, teacher professional development has become an essential necessity. [11] demonstrated that professional development programs improve teaching quality when they are relevant to teachers' needs, implemented continuously, and oriented toward classroom practice. However, many training programs continue to adopt standardized, top-down approaches that fail to consider differences in teachers' competencies, school characteristics, and the instructional challenges they encounter [12,13]. Consequently, training content is often difficult to implement in practice and does not adequately address the actual needs of teachers working in resource-constrained schools. Professional development should therefore begin with a systematic identification of teachers' needs to ensure that training content, instructional methods, and mentoring strategies are aligned with their professional context [14–17].

Despite the growing recognition of the importance of teacher professional development, studies examining priority teacher competencies in resource-constrained schools remain limited. Most existing research has focused on evaluating training effectiveness or developing specific competencies, whereas relatively few studies have identified competency gaps as the basis for designing professional development programs, particularly in schools with limited facilities. [18] emphasized that Training Needs Analysis (TNA) is a systematic process for identifying gaps between existing and required competencies, while [19] showed that TNA leads to more relevant training planning because it is grounded in teachers' actual needs rather than the assumptions of training providers. Furthermore, [20] highlighted the importance of involving multiple stakeholders in the needs assessment process, whereas [21] and [22] demonstrated that training programs informed by TNA are more likely to facilitate training transfer and improve professional performance.

Based on these considerations, this study aims to identify priority teacher competencies in resource-constrained schools through a Training Needs Analysis (TNA) approach. The findings are expected to provide empirical evidence for mapping teacher competency gaps as a basis for designing professional development programs that are more contextualized, needs-based, and responsive to the characteristics of resource-constrained schools. In addition to enriching the literature on TNA in education, this study is expected to serve as a reference for policymakers, training providers, and schools in designing more effective teacher professional development programs that contribute to improving the quality of teaching and learning.

Method

Research Design

This study employed a descriptive mixed-methods approach using Training Needs Analysis (TNA) to identify priority teacher competencies in resource-constrained schools. This approach integrates quantitative and qualitative data to provide a comprehensive understanding of teachers' professional competency development needs. Quantitative data

were used to determine the priority levels of teacher competencies, while qualitative data were used to gain deeper insights into the instructional challenges faced by teachers.

The overall research procedure, from problem identification to the formulation of professional development recommendations, is presented in Figure 1.

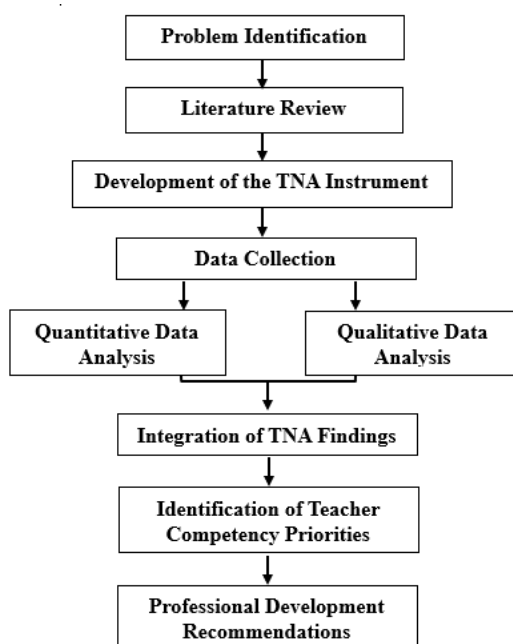


Figure 1. Research Framework and Procedure

Research Participants

The study involved 20 teachers from resource-constrained schools who were selected using purposive sampling. The participant selection criteria included teachers who were actively teaching in schools with limited educational facilities, had at least one year of teaching experience, and were willing to participate in the study.

Research Instrument

The research instrument consisted of a Training Needs Analysis (TNA) questionnaire developed based on a synthesis of the literature on teacher competencies, teacher professional development, and the concept of Training Needs Analysis. The questionnaire was designed to identify priority teacher competencies within the context of resource-constrained schools through three main dimensions: instructional challenges, teacher competencies, and training needs. In addition to rating-scale items, the questionnaire included open-ended questions to obtain more in-depth information regarding teachers' experiences, instructional constraints, and professional development needs.

Data Collection

Data were collected through the administration of the TNA questionnaire to all research participants. The responses included quantitative data obtained from the rating-scale items and qualitative data gathered from the open-ended questions concerning teachers' competency development needs.

Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, mean scores, and ranking, to determine the priority levels of teacher competencies. Qualitative data were analyzed using thematic analysis through coding, theme development, and data interpretation. The quantitative and qualitative findings were

subsequently integrated to identify priority teacher competencies as the basis for formulating professional development recommendations for resource-constrained schools

Results and Discussion

Results

Characteristics of the Research Participants

The characteristics of the research participants are presented in Table 1.

Table 1. Characteristics of the Research Participants

Characteristic	Frequency (n)	Percentage (%)
Teaching level		
Primary school	17	85.0
Junior secondary school	3	15.0
Teaching experience		
1-5 years	14	70.0
6-10 years	4	20.0
More than 10 years	2	10.0
Teaching multigrade classes		
Yes	18	90.0
No	2	10.0

Table 1 shows that the majority of the respondents were primary school teachers (85%), with 70% having between one and five years of teaching experience. The most notable characteristic was the high proportion of teachers responsible for multigrade classrooms, accounting for 90% of the total participants. This finding indicates that most teachers not only face limited educational facilities but are also required to manage instruction across more than one grade level simultaneously. Such conditions demand strong competencies in time management, heterogeneous classroom management, and the implementation of flexible and adaptive instructional strategies.

Survey data further revealed that class sizes ranged from 7 to 40 students. This variation reflects differences in the instructional contexts across resource-constrained schools, which may influence the complexity of teachers' responsibilities. Overall, the participant characteristics suggest that the respondents work in learning environments characterized by multiple constraints, including limited educational resources and challenging classroom conditions. Therefore, identifying teachers' competency needs through Training Needs Analysis (TNA) is essential for determining the competencies most needed to address the real challenges they encounter in their teaching practice.

Instructional Challenges Faced by Teachers in Resource-Constrained Schools

To obtain a comprehensive understanding of teachers' professional competency development needs, respondents were asked to rate the frequency of various instructional challenges they encountered using a five-point Likert scale. The mean score for each indicator was then calculated to determine the most prevalent challenges. The results of the analysis are presented in Table 2.

Table 2. Ranking of Instructional Challenges Faced by Teachers in Resource-Constrained Schools Based on Mean Scores

Rank	Instructional Challenge	Mean
1	Limited access to electricity or the internet	4.30
2	Students have difficulty understanding written instructions	4.05
3	Students in upper grades are still not fluent readers	4.00

4	Insufficient textbooks or learning materials for all students	4.00
5	Lack of instructional teaching aids	4.00
6	Wide differences in students' abilities within the same classroom	3.80
7	Difficulty managing time while teaching multigrade classes	3.45
8	Difficulty encouraging students to learn independently while focusing on another group	3.35
9	Limited access to training or professional mentoring	3.30
10	Inconsistent student attendance	3.20
11	Difficulty designing assessment questions appropriate to students' ability levels	3.20
12	Difficulty maintaining an orderly and conducive classroom environment	3.00
13	Difficulty assessing students' reading abilities	2.75
14	Difficulty developing instructional media from locally available materials	2.65
15	Administrative workload reduces focus on teaching	2.55

Based on Table 2, the highest-rated challenge was limited access to electricity or the internet (mean = 4.30). This finding indicates that inadequate infrastructure remains the primary obstacle to teaching and learning in resource-constrained schools. In addition to limiting access to digital learning resources, this condition also restricts teachers' ability to integrate instructional media and educational technology into classroom practice.

The next most prominent challenges were related to student characteristics. Students' difficulty in understanding written instructions received a mean score of 4.05, while the persistence of poor reading proficiency among students in upper grades received a mean score of 4.00. Furthermore, substantial differences in students' abilities within the same classroom were also reported (mean = 3.80). These findings suggest that teachers face not only infrastructural limitations but also the challenge of managing classrooms with highly diverse learning needs.

With regard to learning resources, the shortage of textbooks and instructional materials (mean = 4.00), as well as the lack of instructional teaching aids (mean = 4.00), emerged as major challenges. Such conditions require teachers to deliver instruction with limited resources, demanding greater creativity and adaptability in selecting and implementing appropriate teaching strategies.

Challenges related to instructional management were reported at moderate to high levels. Difficulty managing instructional time in multigrade classrooms obtained a mean score of 3.45, while difficulty encouraging students to learn independently while the teacher attended to another group received a mean score of 3.35. In addition, limited opportunities to participate in professional training or mentoring remained a concern (mean = 3.30), indicating that teachers' professional development needs have not yet been adequately addressed.

In contrast, several indicators received relatively lower mean scores, including difficulty assessing students' reading abilities (mean = 2.75), difficulty developing instructional media from simple or locally available materials (mean = 2.65), and administrative workload reducing teachers' focus on instruction (mean = 2.55). These findings suggest that the challenges experienced by teachers extend beyond infrastructural constraints to include the complexity of instructional processes, thereby requiring more adaptive pedagogical competencies.

Overall, the findings indicate that instructional challenges in resource-constrained schools are multidimensional. The priority issues are not limited to inadequate facilities but also include students' low foundational skills and the complexity of classroom management. These findings provide the basis for identifying the teacher competencies that should be prioritized in professional development programs, as discussed in the following section.

Priority Areas for Teacher Professional Development

To identify the most relevant forms of professional development, respondents were asked to select up to three types of training that they considered most relevant to the instructional challenges they encountered. The analysis revealed that teachers' training needs were

primarily concentrated on competencies related to managing teaching and learning in resource-constrained schools. A summary of the findings is presented in Table 3.

Table 3. Priority Areas for Teacher Training

Rank	Training Area	n	%
1	Strategies for multigrade teaching	13	65
2	Heterogeneous classroom management	9	45
2	Developing instructional media from locally available materials	9	45
4	Developing simplified lesson modules	8	40
4	Using appropriate low-tech solutions in teaching and learning	8	40
6	Strategies for teaching foundational literacy	7	35
7	Strategies for teaching foundational numeracy	5	25
7	Practical classroom assessment	5	25
7	Strengthening teacher motivation and resilience	5	25

Note: Respondents were allowed to select up to three training areas; therefore, the total percentage exceeds 100%.

Based on Table 3, strategies for multigrade teaching emerged as the highest-priority training need, selected by 13 teachers (65%). This finding indicates that most respondents require stronger competencies in managing instruction across classrooms that include more than one grade level or learning group. This result is consistent with the previous findings, which showed that teachers continue to experience difficulties in allocating instructional time and managing classrooms with diverse student characteristics.

The next highest priorities were heterogeneous classroom management and developing instructional media from locally available materials, each selected by 9 teachers (45%). The strong demand for these two training areas suggests that teachers need practical strategies to address differences in students' learning abilities while also developing instructional media that are appropriate for schools with limited facilities and resources.

Furthermore, developing simplified lesson modules and using appropriate low-tech solutions in teaching and learning were each selected by 8 teachers (40%). These findings indicate that teachers require instructional materials that are practical and easy to implement, while also expecting technology integration that is adapted to the realities of their school contexts, particularly in areas with limited access to electricity and internet connectivity.

Meanwhile, strategies for teaching foundational literacy were selected by 7 teachers (35%), whereas strategies for teaching foundational numeracy, practical classroom assessment, and strengthening teacher motivation and resilience were each selected by 5 teachers (25%). Although these areas received lower percentages, they nevertheless reflect important professional development needs that support more effective and sustainable teaching practices.

Overall, the findings demonstrate that teachers' professional development needs are primarily oriented toward strengthening contextualized pedagogical competencies, particularly in classroom management, instructional strategies, and the development of teaching materials and learning media suited to resource-constrained schools. These priorities indicate that teachers expect training programs that extend beyond theoretical knowledge by providing practical solutions that can be directly applied to address the instructional challenges encountered in their everyday teaching practice.

Qualitative Findings on Instructional Challenges and Teachers Professional Development Needs

To gain a deeper understanding of teachers' professional development needs, respondents were asked to answer three open-ended questions concerning the greatest challenges they faced in teaching, the types of training they expected, and their expectations for professional development programs. Thematic analysis of the responses identified four interrelated themes: (1) the complexity of student characteristics, (2) the management of multigrade and heterogeneous classrooms, (3) limited learning resources and educational facilities, and (4) the need for contextualized, practical, and applicable training.

The first theme relates to the complexity of student characteristics. Most respondents reported that students' low foundational skills, particularly in literacy and numeracy, constituted the greatest challenge in the teaching and learning process. In addition, teachers faced considerable variation in students' learning abilities within the same classroom, requiring instructional strategies to be adapted to individual learning needs. Several respondents also highlighted language barriers, as many students were more accustomed to using local languages than Indonesian.

One respondent stated:

"Students' literacy and numeracy skills are very low, and there is a lack of support from both the school and parents."

Another respondent explained:

"Students still have difficulty understanding the material that has been taught. The main reason is the language barrier. They use the local language more frequently, making it difficult for them to communicate in Indonesian."

These findings indicate that teachers face not only the challenge of delivering instructional content but also the need to adapt teaching to students' initial abilities and diverse learning characteristics.

The second theme concerns the management of multigrade and heterogeneous classrooms. Many respondents explained that they were required to teach more than one grade level simultaneously, with students exhibiting diverse characteristics and learning needs. Under these circumstances, teachers' attention must be divided across multiple groups, making it difficult to provide optimal instruction.

As one respondent noted:

"Managing multigrade classes at the same time is the greatest challenge."

Another respondent wrote:

"Teaching multigrade classes every day means that each class requires different preparation, resulting in insufficient lesson planning for one of the classes and instruction that is delivered with minimal preparation."

In addition to time management, teachers also reported difficulties in managing heterogeneous classrooms because students possessed varying levels of ability and different learning needs. These qualitative findings reinforce the quantitative results, which identified multigrade classroom management as one of the highest-priority training needs.

The third theme relates to limited learning resources and educational facilities. Respondents reported that shortages of textbooks, instructional media, teaching aids, and internet access continued to hinder the teaching and learning process. As a result, teachers were required to develop alternative instructional approaches despite having very limited resources.

One respondent stated:

"The shortage of teachers and instructional media means that children in remote areas continue to fall far behind the education they deserve."

Another respondent commented:

"There are no textbooks or supporting facilities available for teaching."

These findings are consistent with the quantitative results, which identified limited access to electricity and the internet, insufficient learning materials, and the lack of teaching aids as the most significant instructional challenges.

The final theme highlights teachers' expectations for contextualized, practical, and applicable training. Most respondents expressed a preference for professional development programs focusing on multigrade teaching strategies, foundational literacy and numeracy instruction, the development of simplified lesson modules, the creation of instructional media, and heterogeneous classroom management. Beyond the training content itself, respondents emphasized the importance of hands-on practice so that newly acquired strategies could be implemented immediately in their classrooms.

One respondent stated:

"Face-to-face training that includes direct practical activities."

Another respondent expressed:

"Training should not be monotonous and should include real practical activities."

A similar expectation was reflected in the following statement:

"The training should provide practical solutions and references for improving students' literacy and numeracy skills while making multigrade classroom management more effective."

Overall, the thematic analysis demonstrates that teachers' professional development needs are closely grounded in the real challenges they encounter in their daily teaching practice. Students' low foundational skills, the complexity of managing multigrade classrooms, and limited learning resources have led teachers to seek professional development programs that are more contextualized, practical, and responsive to the realities of resource-constrained schools. These qualitative findings complement the quantitative results presented in the previous section by explaining why teachers prioritized training in classroom management, instructional strategies, and the development of low-cost instructional media.

Integration of the Training Needs Analysis Findings

The integration of the quantitative and qualitative findings demonstrates that the priority teacher competencies represent a response to the relationship between instructional challenges and professional development needs identified through the Training Needs Analysis (TNA). At this stage, the findings from the analysis of instructional challenges, priority training needs, and qualitative responses from the open-ended questions were synthesized to identify the competencies most needed by teachers working in resource-constrained schools. The integrated findings are presented in Table 4.

Table 4. Integration of Training Needs Analysis Findings and Priority Teacher Competencies

Instructional Challenge	Training Need	Priority Teacher Competency
Students are not yet fluent readers and have difficulty understanding written instructions	Strategies for teaching foundational literacy	Competence in designing and implementing contextualized literacy instruction
Wide variation in students' abilities within the same classroom	Heterogeneous classroom management	Competence in implementing differentiated instruction and managing heterogeneous classrooms
Difficulty teaching multigrade classes	Strategies for multigrade teaching	Competence in effectively managing multigrade instruction

Limited textbooks, instructional media, and teaching aids	Developing instructional media from locally available materials	Competence in developing simple and contextualized instructional media
Limited access to electricity and the internet	Using appropriate low-tech solutions in teaching and learning	Competence in utilizing technology appropriate to school conditions
Need for practical instructional materials	Developing simplified lesson modules	Competence in designing adaptive and contextualized instructional materials

Based on the integrated findings, the priority teacher competencies were determined not only by the frequency of instructional challenges but also by the types of professional support expected by teachers. Students' low foundational skills highlighted the need to strengthen teachers' competence in designing literacy instruction that is responsive to students' learning needs. At the same time, the high degree of variation in students' learning abilities and the prevalence of multigrade teaching underscore the importance of adaptive pedagogical competencies for managing instruction effectively.

The integrated findings also indicate that limited educational facilities are not necessarily perceived as barriers that cannot be overcome. Instead, teachers expressed a stronger need for competencies that enable them to maximize the available resources by developing low-cost instructional media, designing practical lesson modules, and using technology that is appropriate for their school contexts. These findings suggest that teachers' primary need is not merely the provision of additional facilities but also the enhancement of their capacity to optimize existing resources.

Furthermore, the open-ended responses revealed that teachers expect professional development programs that are closely connected to classroom practice and provide practical solutions to the challenges they encounter in their daily teaching. Accordingly, the priority competencies extend beyond theoretical pedagogical knowledge to include the ability to implement instructional strategies that are contextualized, flexible, and responsive to the realities of resource-constrained schools.

Overall, the integration of the Training Needs Analysis (TNA) findings identified six priority teacher competencies: (1) competence in contextualized literacy instruction; (2) competence in heterogeneous classroom management and differentiated instruction; (3) competence in multigrade classroom management; (4) competence in developing simple instructional media; (5) competence in using technology appropriate to school conditions; and (6) competence in designing adaptive and contextualized instructional materials. These six competency areas provide an empirical foundation for designing teacher professional development programs that are more relevant and responsive to the needs of resource-constrained schools.

Discussion

Why Is Literacy a Priority?

The findings of this study indicate that students' low literacy skills constitute one of the most significant challenges faced by teachers in resource-constrained schools. This explains why literacy instruction emerged as a key priority for teacher professional development. These findings are consistent with those of [23] who argued that low literacy achievement in resource-limited schools is influenced by multiple factors, including poverty, limited access to reading materials, teacher shortages, curriculum misalignment, and inadequate school infrastructure. When students have not yet developed basic reading and text comprehension skills, they are likely to encounter difficulties in learning across a wide range of subject areas.

Beyond serving as a prerequisite for academic success, literacy represents a high-impact intervention for improving the overall quality of teaching and learning. [24] demonstrated that literacy outcomes can be improved through structured instruction, teacher

capacity building, simple formative assessment, and explicit reading strategies. Similarly, [25] found that the use of culturally relevant reading materials enhances students' engagement in literacy learning, even in schools with limited resources. Therefore, strengthening teachers' competence in designing and implementing contextualized literacy instruction is an urgent priority for resource-constrained schools.

Managing Multigrade Classrooms as a Priority Competency

This study identified multigrade teaching strategies as the highest-priority area for teacher professional development. This finding reflects the complexity of teachers' responsibilities in managing multiple grade levels, addressing diverse student characteristics, and coping with limited learning resources simultaneously. The result is consistent with the findings of [26] who argued that effective multigrade teaching largely depends on teachers' ability to manage student heterogeneity, design instruction across multiple grade levels, and make effective use of available resources.

Previous studies have shown that competence in multigrade teaching extends beyond classroom management to include differentiated instruction, effective time management, peer tutoring, and the development of multilevel assessment strategies [27,28]. Furthermore, developing these competencies requires contextualized and sustained professional development programs with training content tailored to the characteristics of rural schools and multigrade classrooms [29,30]. Therefore, professional development for teachers in resource-constrained schools should be specifically designed to address the unique demands of multigrade teaching rather than simply adapting general classroom management training.

Training Needs Analysis as a Foundation for Teacher Professional Development

The findings demonstrate that Training Needs Analysis (TNA) provides a systematic approach to identifying teachers' professional development needs by integrating instructional challenges, training priorities, and teachers' perspectives. These findings support the work of [19], who described TNA as a strategic process for identifying the gap between existing and required competencies before designing professional development programs. TNA not only helps determine appropriate training topics but also ensures that professional development programs are aligned with teachers' actual needs and organizational goals.

In addition, this study highlights the importance of using multiple sources of evidence during the needs assessment process. [18] emphasized that combining quantitative and qualitative methods provides a more comprehensive understanding of professional development needs, while [31] argued that TNA should adopt a proactive approach to anticipate emerging competency requirements and changing educational demands. Accordingly, the TNA findings of this study provide a stronger empirical basis for designing professional development programs that are contextualized, targeted, and responsive to the actual needs of teachers working in resource-constrained schools.

Implications for Teacher Professional Development Programs

The findings of this study suggest that professional development programs for teachers in resource-constrained schools should be designed based on the real challenges teachers encounter in their classrooms rather than relying on a one-size-fits-all approach. The integration of the Training Needs Analysis findings identified six priority competency areas: contextualized literacy instruction, multigrade and heterogeneous classroom management, the development of simple instructional media, the use of technology appropriate to school conditions, and the design of adaptive instructional materials. Consequently, training content should be organized around these priority competencies to ensure its relevance to teachers' professional contexts.

Beyond training content, the findings also indicate that teachers expect professional development programs to be practical and directly applicable to classroom practice. The qualitative results suggest that teachers value opportunities to practice instructional strategies, discuss authentic classroom challenges, and examine examples that reflect the realities of

resource-constrained schools. Therefore, teacher training should extend beyond theoretical presentations by incorporating activities such as instructional simulations, microteaching, coaching and mentoring, reflective teaching practice, and collaborative sharing of professional experiences to facilitate the transfer of learning into everyday classroom practice.

Another important implication is the need to establish Training Needs Analysis (TNA) as the initial stage in planning teacher professional development programs. The findings demonstrate that teachers' professional development needs are influenced not only by their individual competencies but also by student characteristics, school contexts, and the availability of educational resources. Conducting TNA on a regular basis can therefore assist governments, education authorities, and training providers in designing professional development programs that are more contextualized, targeted, and capable of producing greater improvements in teaching quality within resource-constrained schools.

Overall, this study confirms that the effectiveness of teacher professional development is determined not by the quantity of training provided but by the extent to which the training addresses teachers' actual competency needs. By using the findings of Training Needs Analysis as the foundation for designing professional development programs, training initiatives are more likely to improve teaching practices and, ultimately, enhance the quality of learning in resource-constrained schools.

Conclusion

This study identified the priority competencies required by teachers in resource-constrained schools through a Training Needs Analysis (TNA). The findings indicate that teachers' professional development needs are shaped by the daily instructional challenges they encounter, particularly limited learning resources, students' low literacy skills, and the complexity of managing multigrade and heterogeneous classrooms. The study identified six priority competency areas: contextual literacy instruction, heterogeneous classroom management, multigrade teaching, the development of low-cost instructional media, the use of technology appropriate to school conditions, and the development of adaptive instructional materials.

These findings demonstrate that Training Needs Analysis is an effective and systematic approach for identifying teachers' professional development needs, enabling the design of training programs that are more contextual, relevant, and responsive to the realities of resource-constrained schools. The study contributes to the field of teacher professional development by providing empirical evidence that competency-based training should be grounded in a systematic assessment of teachers' actual needs rather than a one-size-fits-all approach.

Based on these findings, governments, education authorities, and teacher training providers are encouraged to conduct Training Needs Analysis prior to designing professional development programs. Priority should be given to training in contextual literacy instruction, multigrade and heterogeneous classroom management, the development of simple instructional media, and adaptive lesson planning. Furthermore, professional development programs should emphasize practice-based learning through activities such as microteaching, classroom simulations, mentoring, and reflective practice to facilitate the effective transfer of newly acquired competencies into classroom teaching. Future research is recommended to evaluate the effectiveness of competency-based professional development programs developed from the priorities identified in this study.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Ethical Clearance

Ethical approval was not required for this study according to the applicable institutional policy. Participation in the study was voluntary, informed consent was obtained from all participants, and all responses were treated confidentially and used solely for research purposes.

AI Declaration

Artificial Intelligence (AI) tools, specifically ChatGPT, were used solely to assist with English language editing, grammar refinement, and improving the clarity of the manuscript. The research design, data collection, data analysis, interpretation of findings, and all scientific conclusions were developed and approved by the authors.

Declaration statement

(1) Originality: The authors declare that this manuscript is original, has not been published previously, and is not currently under consideration for publication elsewhere. (2) Conflict of Interest The authors declare no conflict of interest. (3) Data Availability The data supporting the findings of this study are available from the corresponding author upon reasonable request. (4) Author Contributions Linda Violetta Siwalette conceptualized the study, designed the research, collected and analyzed the data, and prepared the manuscript. Lany Pranita Alang contributed to the research design, data interpretation, manuscript review, and critical revision of the manuscript.

References

- [1] Matsieli M, Mutula S. From Home to Classroom: Socioeconomic Determinants of Learning Outcomes and Social Sustainability in Rural Schools—A Review. *Sustainability* (2071-1050). 2026;18(11):5325.
- [2] Du Plessis P, Mestry R. Teachers for rural schools—a challenge for South Africa. *South African Journal of Education*. 2019;39.
- [3] Suharningsih L, Fathoni A. Mengungkap Hambatan dan Solusi untuk Pendidikan Berkelanjutan di Sekolah dengan Fasilitas Minim. *Perspektif: Jurnal Pendidikan Dan Ilmu Bahasa*. 2025;3(1):80–7.
- [4] Nurzaima N, Hildayanti H, Arfin A, Nasir N, Juhadira J, Jaya A. Menjaga Motivasi Belajar dengan Re-konstruksi Metode Pembelajaran: Sebuah Kompensasi atas Minimnya Fasilitas Sekolah. *Jurnal Ilmu Manajemen Sosial Humaniora (JIMSH)*. 2023;5(1):91–102.
- [5] Thephavongsa S. Enhancing the teaching skills of the multi-grade teachers through lesson study. *International Journal of Learning, Teaching and Educational Research*. 2018;17(4):71–87.
- [6] Zhang H, Tian M. Unpacking the multi-dimensional nature of teacher competencies: a systematic review. *Scandinavian Journal of Educational Research*. 2025;69(5):1004–25.
- [7] O'Flaherty J, Beal EM. Core competencies and high leverage practices of the beginning teacher: A synthesis of the literature. *Journal of Education for teaching*. 2018;44(4):461–78.
- [8] Ahmed AM, Worku BN, Ayane ZN. The relationships between teachers' professional competence licensure test, teachers' competence, and students' academic performance in Ethiopia: mixed research. *Cogent Education*. 2024;11(1):2422644.
- [9] Tian J, Tian W. Modeling K12 Teachers' Online Teaching Competency and Its Predictive Relationship with Performance—A Mixed-Methods Study Based on Behavioral Event Interviews. *Behavioral Sciences*. 2025;15(5):628.
- [10] Zheng X, Yin H, Liu Y. Are professional learning communities beneficial for teachers? A multilevel analysis of teacher self-efficacy and commitment in China. *School effectiveness and school improvement*. 2021;32(2):197–217.
- [11] Ambon J, Alias BS, Komariah A, Mansor AN. The impact of continuous professional development on teaching quality: a systematic review. *Int J Eval & Res Educ ISSN*. 2024;2252(8822):3839.

- [12] Abbaspour F, Hosseingholizadeh R, Bellibaş MŞ. Uncovering the role of principals in enhancing teacher professional learning in a centralized education system. *International Journal of Educational Management*. 2024;38(3):873–89.
- [13] Porcenaluk S, O'Neachtain A, Connolly C. Reimagining a framework for teachers' continuous professional development during curriculum reform. *Irish Educational Studies*. 2023;42(4):931–48.
- [14] Richter E, Richter D. Measuring the quality of teacher professional development: A large-scale validation study of an 18-item instrument for daily use. *Studies in Educational Evaluation*. 2024;81:101357.
- [15] Dayagbil F, Alda R. Continuing professional development opportunities: Teachers' motivation and perceived effectiveness. *International Journal of Education and Practice*. 2024;12(3):584–95.
- [16] Hossain S, Boonmoh A. Perceptions and Needs of EFL Teachers in Thailand Regarding Continuous Professional Development in English Language Teaching. *Journal of Studies in the English Language*. 2025;20(1):123–46.
- [17] Ketsman O, Kennedy K, Reeves T. Interrogating an implementation filter: what constrains changes in teacher practice in response to professional development. *Professional development in education*. 2025;51(8):1875–89.
- [18] Markaki A, Malhotra S, Billings R, Theus L. Training needs assessment: tool utilization and global impact. *BMC medical education*. 2021;21(1):310.
- [19] Cotes J, Ugarte SM. A systemic and strategic approach for training needs analysis for the International Bank. *Journal of Business Research*. 2021;127:464–73.
- [20] Turner MW, Bogdewic S, Agha E, Blanchard C, Sturke R, Pettifor A, et al. Learning needs assessment for multi-stakeholder implementation science training in LMIC settings: findings and recommendations. *Implementation science communications*. 2021;2(1):134.
- [21] Czabanowska K, Rodriguez Feria P. Training needs assessment tools for the public health workforce at an institutional and individual level: a review. *European Journal of Public Health*. 2024;34(1):59–68.
- [22] Mahmud KT, Saira Wahid I, Arif I. Impact of training needs assessment on the performance of employees: Evidence from Bangladesh. *Cogent Social Sciences*. 2019;5(1):1705627.
- [23] Kundu A, Bej T. Poverty of foundational literacy: an ecological analysis of teacher insights from Indian schools. *SN Social Sciences*. 2026;6(3):114.
- [24] Scott A, Gillon G, McNeill B, Gath M. Impacting change in classroom literacy instruction: A further investigation of the Better Start Literacy Approach. *New Zealand Journal of Educational Studies*. 2022;57(1):191–211.
- [25] Smith HA, Simoncini KM, McDonald R, Haslett S. The impacts of a culturally relevant book flood on early literacy in Papua New Guinea. *International Journal of Educational Development*. 2023;98:102726.
- [26] Martina AF, María ÁMIJ, Bernárdez-Gómez A. Challenges and opportunities of multi-grade teaching: A systematic review of recent international studies. *Education Sciences*. 2025;15(8):1052.
- [27] Naparan GB, Alinsug VG. Classroom strategies of multigrade teachers. *Social Sciences & Humanities Open*. 2021;3(1):100109.
- [28] Msimanga MR. Managing the use of resources in multi-grade classrooms. *South African Journal of Education*. 2019;39(3).
- [29] Carrete-Marín N, Domingo-Penafiel L, Simó-Gil N. Teaching materials in multigrade classrooms: A descriptive study in Spanish rural schools. *Social Sciences & Humanities Open*. 2024;10:100969.
- [30] Qangule T, Letuma MC. One teacher, many grades: Foundation Phase teachers' experiences in multigrade classroom management. In: *Frontiers in Education*. Frontiers Media SA; 2025. p. 1685825.
- [31] Nunes DF, Ghedine T, Llopis J. Training Needs Analysis in Management: A Critical Look at the Field. *Management and Labour Studies*. 2025;50(3):428–46.

