

Needs Assessment of Teacher Professional Development in an Indonesian High School Setting

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ABSTRACT

The present study aimed to conduct a comprehensive needs assessment of teacher professional development within the context of an Indonesian high school. With the aim of enhancing the quality of education and teacher effectiveness, this research focused on identifying the key areas for improvement and the specific needs of teachers in their professional development journey. A mixed-methods approach was utilized to gather data, combining both qualitative and quantitative techniques.

The qualitative phase involved in-depth interviews with teachers, school principle to gain insights into their perspectives on the current state of professional development programs. Additionally, focus group discussions were conducted to encourage dialogue and generate valuable input from multiple stakeholders. On the other hand, the quantitative phase employed surveys distributed to a representative sample of teachers to collect data on their perceived professional development needs and preferences.

The findings revealed several areas requiring attention and improvement. Teachers expressed a desire for professional development opportunities that focused on pedagogical strategies, subject-specific knowledge, technology integration, classroom management techniques, and assessment methods. Moreover, the results highlighted the importance of providing ongoing support and mentoring for teachers to enhance their professional growth and instructional practices. Based on the identified needs, this study recommends the implementation of a multifaceted approach to teacher professional development in Indonesian high schools. This approach should encompass a combination of workshops, seminars, conferences, peer collaboration, and online learning platforms tailored to the specific needs of teachers. Additionally, the establishment of a structured mentorship program and the provision of resources for continued professional learning were considered vital components for sustained growth and improvement.

The findings of this study have significant implications for educational policymakers, school administrators, and teacher training institutions in Indonesia. By addressing the identified needs and implementing evidence-based strategies, teacher professional development programs can be enhanced to support effective teaching practices, ultimately contributing to improved educational outcomes for high school students in the Indonesian context.

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1. Introduction

Professional development plays a crucial role in enhancing teacher effectiveness and improving the quality of education (Kilag & Sasan, 2023; Birman et al., 2000; Beteille, 2020; Purwanti & Octavia, 2023). In the dynamic and rapidly evolving field of education, ongoing professional development opportunities are essential for teachers to stay abreast of emerging pedagogical approaches, technological advancements, and subject-specific knowledge (Hudson, 2013; Guntor & Reeves, 2017). In the Indonesian high school setting, where educational reforms and changing societal demands pose unique challenges, the need for effective teacher professional development is particularly pronounced (Green & Allen, 2015; Beriswill, 2016).

Indonesia, with its diverse cultural and geographical landscape, encompasses a wide range of high schools, each facing its own set of challenges and opportunities. To ensure the provision of quality education and meet the needs of a rapidly evolving society, it is imperative to understand the specific professional development needs of teachers within this context. However, despite the recognized importance of professional development, there is a dearth of comprehensive needs assessment studies that focus specifically on the Indonesian high school setting.

This research seeks to fill this gap by conducting a needs assessment of teacher professional development in an Indonesian high school setting. By identifying the areas requiring attention and improvement, this study aims to provide valuable insights to educational policymakers, school administrators, and teacher training institutions, enabling them to design and implement effective professional development programs tailored to the needs of teachers.

The significance of this study lies in its potential to contribute to the improvement of teaching practices, student learning outcomes, and overall educational quality in Indonesian high schools. By addressing the specific needs of teachers and facilitating their professional growth, this research endeavors to foster a culture of continuous learning and improvement within the teaching profession.

To achieve the goals of this study, a mixed-methods approach will be employed, combining both qualitative and quantitative techniques. This approach will enable a comprehensive exploration of the perspectives, experiences, and needs of teachers, as well as the insights of school administrators and education experts. The findings will be instrumental in informing evidence-based recommendations for the development and implementation of effective teacher professional development programs.

This study also aims to contribute to the field of teacher professional development by conducting a needs assessment within the Indonesian high school setting. By identifying the specific needs of teachers and exploring effective strategies for professional growth, this study seeks to provide valuable insights that can inform the design and implementation of tailored professional development programs. The ultimate goal is to enhance teacher effectiveness and improve educational outcomes for high school students in Indonesia.

Popova et al. (2022) wrote an article entitled “Teacher Professional Development around the World: The Gap between Evidence and Practice”. In this article Popova and his team propose a set of indicators to standardize reporting on teacher PD programs and compares 33 rigorously evaluated PD programs with 139 at-scale PD programs across 14 countries. The authors find that most at-scale PD programs differ sharply from those that evidence suggests are effective, with fewer incentives, fewer opportunities to practice new skills, and less follow-up. The article contributes to the literature by providing a comprehensive framework for describing and comparing PD programs and highlighting the gap between evidence and practice in teacher PD. A potential gap is that the article does not explore the contextual factors that may influence the design and implementation of PD programs in different settings, such as teacher motivation, school culture, or policy environment.

In different study with similar topic, Patfield et al. (2021) use the lens of implementation science to examine how one regional secondary school in Australia implemented a robust PD program called Quality Teaching Rounds that has strong evidence of effectiveness. The authors find that despite the school’s attempts to remain true to the spirit of the PD, a combination of remoteness, lack of casual relief teachers, high teacher turnover, and negative perceptions of peer observation result in a form of QTR that is almost unrecognisable from its intended design. The article contributes to the literature by shifting attention to program implementation as a key factor in

conceptualising and evaluating effective PD. A potential gap is that the article is based on a single case study and may not be generalizable to other contexts or PD programs.

Liu et al. (2021) conducted a systematic review on technology professional development for teacher educators. In this article they study a systematic review of 41 studies on technology professional development (TPD) for teacher educators published between 2000 and 2019. The authors find that most studies focused on TPD models, strategies, and outcomes, while few studies examined TPD needs, challenges, and supports. The authors also identify four themes that emerged from the review: TPD as a collaborative learning process, TPD as a situated learning process, TPD as a transformative learning process, and TPD as an adaptive learning process. The article contributes to the literature by providing a comprehensive overview of the current state of research on TPD for teacher educators and suggesting a conceptual framework for future research. A potential gap is that the article does not address the issue of quality and rigor of the reviewed studies or the implications of TPD for student teachers' learning outcomes.

In Indonesia context, Kusanagi (2022) discusses the history and challenges of teacher professional development and education quality improvement initiatives in Indonesia, influenced by foreign educational theory, policy, and pedagogy. The author uses a sociological approach and provides a context-specific examination of teachers' practice embedded within the web of social relations. The article contributes to the literature by offering a critical perspective on the process of pedagogic transformation and the impact of global education reform and transfer on Indonesian teachers. A potential research gap is that the article focuses on one PD program, namely lesson study, and may not capture the diversity and complexity of other PD programs in Indonesia. Future research could explore how other types of PD programs are implemented and received by Indonesian teachers in different contexts and settings.

In a study on "Indonesian teachers' perceptions of continuing professional development" Widayati et al. (2021) examines Indonesian vocational high school teachers' perceptions of continuing professional development (CPD) in the context of changing policies regarding teacher CPD. The authors use Bronfenbrenner's bioecological model as the conceptual framework and conduct interviews with six accounting teachers. The authors find that teachers understood CPD as an activity for teachers' improvement, but in different ways. They perceived CPD as teacher performance assessment and government regulation, personal development activities, and some considered religious values when they described CPD. The article contributes to the literature by providing insights into vocational teachers' views of CPD and how they are influenced by individual, microsystem, ecosystem, and macrosystem factors. A potential research gap is that the article is based on a small sample of teachers from one subject area and may not reflect the perceptions of other vocational teachers. Future research could expand the sample size and scope to include teachers from different subject areas and regions, as well as examine the outcomes of CPD for vocational teachers and their students.

2. Method

In this study, we conducted a survey to find out the needs of teachers of SMK Muhammadiyah 3. We also conducted intensive discussions and consultations with the school principal related to needs of the school teachers as we have written in the proposal. The target group of this program is the English teachers of SMK Muhammadiyah 3 Yogyakarta. During the consultation with the principal, he suggested that this program be given to all teachers and not limited to English teachers only. We agreed with his proposal and we distributed a questionnaire via Google Form to all teachers of SMK Muhammadiyah 3 Yogyakarta. Consultation with school principals is also related to the questions that we would ask to the teachers to get the results which we could really follow up with programs for them.

In general, there are 3 types of questions we ask, questions related to the participants' identities which contains name, gender, age, field of study taught, background Education (S1, S2, S3), length of teaching experience outside SMKM3, length of experience teaching at SMKM3. The second type of questions related to the types of professional development the teachers have followed during their service at the school, which include self-development, scientific publications and innovative works. These questions also cover the program they found the most memorable and the reasons, the least memorable along with the reasons, and professional development programs that were most needed.

The last category of questions related to writing scientific papers as one professional development program. In detail the question was directed to ask how much their need to learn about scientific publications, their experiences about scientific publications, constraints and/or difficulties encountered and their expectations to learn this scientific publication. Some of the questions are open-ended in which the participants can write freely. This information is then used for qualitative data, other than the interview.

3. Findings and Discussion

3.1. Vocational High School (SMK) Muhammadiyah 3 Yogyakarta: an overview

SMK Muhammadiyah 3 is the largest private school in the Province of the Special Region of Yogyakarta which has a specialisation in Technology and Engineering as well as Communication and Informatics Technology. SMK Muhammadiyah 3 Yogyakarta was established on January 1, 1969 with the Establishment Decree No. C159/set/IIIa/Ippt/LA/1969. SMK Muhammadiyah 3 Yogyakarta was established under the Regional Leadership of Muhammadiyah City of Yogyakarta (PDM Kota Yogyakarta) and has been certified ISO 9001 since 2007 from ISO 9001:2000 until now it has been certified ISO 9001:2008.

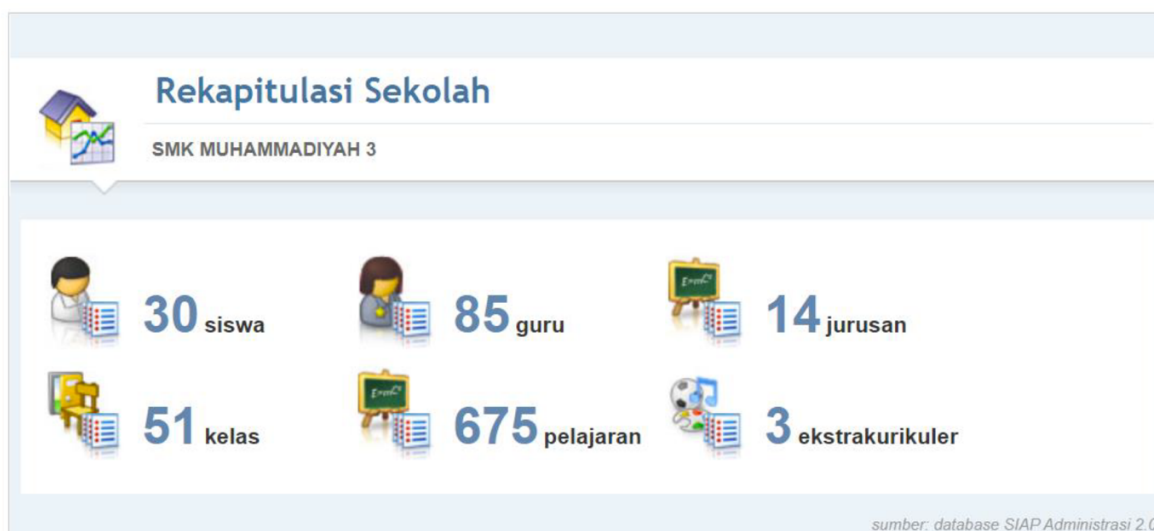


Fig. 1. SMK Muhammadiyah 3 Yogyakarta in Statistics

Figure 1 tells the current condition of the school. Based on the information provided, SMK Muhammadiyah 3 Yogyakarta belongs to one of the big vocational school in Yogyakarta with 51 classes in which in each class there are 30 students. The school has 85 teachers, 14 departments and 675 subjects. The school also offers 3 extracurricular activities that the students can choose to join to add their extra skill and soft skill.

Out of 85 teachers, 24 of them returned the questionnaires distributed through Google Form. This finding is based on the responses given by the 24 teachers through the questionnaires. From these 24 teachers, 28.2% were male teacher and the rests were female teachers. From 24 teachers returning the questionnaires, 6 of them completed their master degree from various universities. The rest, 18 teachers, completed their Bachelor degree mostly from education-based department in Yogyakarta and neighbouring cities.

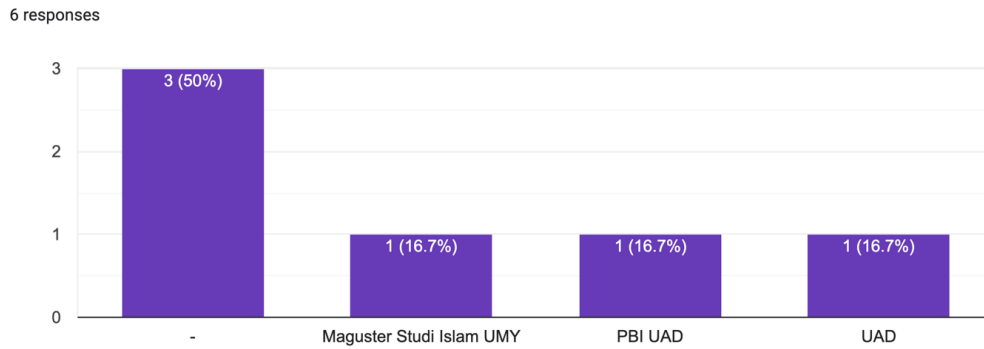


Fig. 2. Teachers with master degree

Figure 2 shows the chart of teachers of SMK Muhammadiyah 3 Yogyakarta with Master degree. Three out of six teachers did not provide the information from which universities they obtained their Master degree. As can be seen from the chart, 1 teacher graduated from Magister of Islamic Study UMY, 1 teacher graduated from English Language Education of Universitas Ahmad Dahlan and 1 other teacher graduated from Universitas Ahmad Dahlan but did not tell which department.

Table 1. Teaching Experience

No.	Teaching Experience	Teaching Experience in SMK M
1	9 years 6 months	3 years 9 months
2	20 years 11 months	20 years 11 months
3	10 years 11 months	5 years 11 months
4	11 years 6 months	15 years
5	21	21 years
6	7 years 6 months	7 years 6 months
7	14 years 11 months	13 years 11 months
8	20 years 11 months	5 years 11 months
9	21 years 11 months	21 years 11 months
10	15 Years 6 months	15 Years 6 months
11	13 years	13 years
12	16 years 0 months	16 years 0 months
13	15 years 0 months	15 years 0 months
14	20 years	20 years 10 months
15	15 years	14 years
16	22 years 11 months	21 years 11 months
17	14 years	14 years
18	11 years 1 months	9 years 1 months
19	7 years	7 years
20	24 years 6 months	24 years 6 months
21	9 years 11 months	7 years 11 months
22	20 years	20 years
23	8 years 6 months	1 years 6 months
24	12 years 5 months	12 years

Table 1. shows how long the teachers have teaching experience both during their service as teachers in SMK Muhammadiyah 3 Yogyakarta or outside the school. It is clear that most of the teachers have been teaching only in SMK Muhammadiyah 3 Yogyakarta and only few of them have taught in different school before they joined SMK Muhammadiyah 3 Yogyakarta. The longest experience was 24 years six months. It means that the teacher started the career as a teacher in SMK Muhammadiyah 3 Yogyakarta and remains teaching in the same school until now. Meanwhile, the shortest teaching experience was 7 years. Similarly, this teacher started the career in SMK Muhammadiyah 3 Yogyakarta and remain teaching in this school until now.

3.2. Teacher Professional Development Programs needed by the teachers

One of the questions listed in the open-ended questionnaires was the TPD programs the teachers need to improve professionalism in their career as a teacher. Table 2 lists the TPD programs they need as a teacher.

Table 2. The Teacher Professional Development Program needed

No.	Programs Needed
1	Increasing IT competence in the field of learning media
2	Online-based learning training
3	Curriculum training
4	Good way of teaching
5	Professional courses
6	Competency training
7	the Scientific Research
8	Innovation curriculum
9	Training on making learning media with IT
10	Training for making standard lesson plans
11	Training for making technology-based teaching materials
12	Museums training
13	Scientific work writing training
14	Updated Learning Training and Education in order to improve teacher professionalism
15	ICT training
16	Training on the use of IT
17	Making teaching materials in accordance with the curriculum and participants
18	IT training
19	Making teaching materials in accordance with the curriculum and students
20	Module making training
21	Education and training on curriculum development
22	innovation and learning technology
23	Class management
24	Writing scientific articles
25	New curriculum training, Subject teacher association meeting
26	Making teaching materials
27	Making learning media
28	Curriculum training,
29	teacher administration training,
30	information technology mastery training
31	writing books training
32	Teacher administration training
33	Training on Interesting teaching methods

Table 2 shows the Teacher Professional Development programs the teachers want. These programs are so random but all of them support their professionalism as teachers. Many of them want to learn information communication technology, curriculum, class management, innovative teaching methodology, developing teaching materials and writing scientific papers. One teacher writes museum training. This is “strange” because this teacher is teaching at vocational school which is actually far from museum-related issues.

3.3. Writing Scientific Publication as a TPD Program

In regard with the scientific article training, many of them show their eagerness and interest suggesting that they want to learn other skill such as research methodology. In one of the interviews the participant said:

Before we learn to write articles to be published in journal, I think we need to learn first about research methodology. This will give us basic skill to make sure that what we write is actually scientifically acceptable. (Interview with Andri)

What Andri said makes sense. We cannot write a research-based articles unless we know the methodology correctly and understand how to report it in the form of articles. Therefore, training on research methodology such as classroom action research is necessary to help teachers improve their professionalism in conducting research.

24 responses

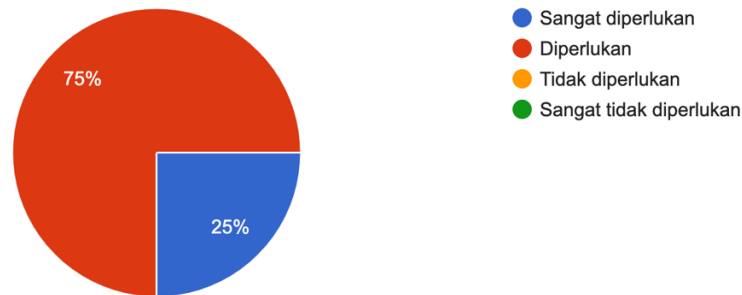


Fig. 3. Teachers' need on Writing Scientific Publication

The chart on Figure 3 suggests the number of teachers who feel the importance of writing publication in their professional development as a teacher. The chart reflects that 75 percent of the teachers believe that the skill to write scientific publication is very important and therefore strongly needed, while 25 percent of them consider it important. It suggests that training on this program is crucial for the teachers. In the interview with one of the participants, we note her confession about this issue.

As a teacher, we need to have a skill to be able to write a scientific article and publish in a peer-reviewed journal. I hope one day I can join this kind of program, either at the school or outside. I also hope that there is assistance program with the mentor so that he can guide me to write the article correctly. I believe if this program is conducted, many of my friends will join. (Interview with Mida)

Mida's statement confirm the reponses from the participants in general. What was interesting is that Mida felt the need of a mentor so that she can write correctly and her work can be published in a peer-reviewed journal.

3.4. Discussion

The finding in Table 1 shows that the teachers in SMK Muhammadiyah 3 Yogyakarta have varying levels of teaching experience, ranging from 7 to 24 years six months. This finding can be discussed with the existing theories and previous studies on the relationship between teaching experience and teacher effectiveness.

According to some theories, teaching experience is an important factor that influences teacher effectiveness, which can be measured by student outcomes such as achievement, motivation, engagement, and satisfaction. Teaching experience can help teachers develop their pedagogical knowledge, skills, and strategies, as well as their understanding of students' needs, interests, and backgrounds. Teaching experience can also help teachers cope with the challenges and demands of the profession, such as classroom management, curriculum design, assessment, and collaboration (Podolsky and Darling-Hammond, 2019; Irvine, 2019).

However, the relationship between teaching experience and teacher effectiveness is not simple or linear. Some studies have found that the impact of teaching experience on student outcomes is nonlinear, meaning that it varies depending on the stage of a teacher's career. For example, some studies have found that teachers make the greatest gains in their effectiveness in their initial years of teaching, when they are learning from trial and error, feedback, mentoring, and professional

development. After this period of rapid improvement, the gains in effectiveness tend to level off or decline slightly as teachers reach a plateau or experience burnout (Podolsky and Darling-Hammond, 2019; Kini, & Podolsky, 2023; Kini & Podolsky, 2016).

Other studies have found that the impact of teaching experience on student outcomes is nuanced, meaning that it depends on other factors such as the quality of teaching experience, the context of teaching experience, and the characteristics of teachers and students. For example, some studies have found that teachers who have more experience in a specific grade level, subject area, or school district tend to be more effective than those who switch frequently. Similarly, some studies have found that teachers who work in a supportive and collegial environment tend to improve more with experience than those who work in isolation or under pressure. Moreover, some studies have found that teachers who have certain attributes such as motivation, commitment, reflection, and adaptability tend to benefit more from experience than those who lack them. Finally, some studies have found that the effect of teaching experience varies depending on the student population, such as their prior achievement level, socioeconomic status, or special needs (Podolsky and Darling-Hammond, 2019; Irvine, 2019; Kini & Podolsky, 2016).

Therefore, the finding in Table 1 can be interpreted in different ways depending on how teaching experience is defined, measured, and compared with other variables. A possible implication for policy decisions is that hiring practices should not rely solely on the quantity of teaching experience as a criterion for selecting effective teachers. Instead, hiring practices should also consider the quality and context of teaching experience, as well as other indicators of teacher effectiveness such as performance evaluation, professional development participation, student feedback, and peer collaboration (Irvine, 2019).

The finding presented in Table 2 indicates that teachers desire a wide range of professional development programs to support their growth and enhance their professionalism. While these programs may appear random at first glance, they all contribute to improving their teaching skills and knowledge. The fact that many teachers express an interest in learning about information communication technology, curriculum development, class management, innovative teaching methodology, developing teaching materials, and writing scientific papers aligns with existing theories and previous studies on effective teacher professional development (Purwanti & Octavia, 2023).

Firstly, the desire to learn about information communication technology reflects the increasing role of technology in education. With the integration of digital tools and resources in the classroom, teachers recognize the importance of acquiring digital literacy skills to enhance their instructional practices and engage students effectively. The interest in curriculum development is consistent with the understanding that teachers need to continuously update their knowledge and adapt their teaching methods to align with evolving educational standards and student needs. Staying abreast of curriculum changes and instructional strategies ensures that teachers provide relevant and high-quality education (Kilag & Sasan, 2023; Birman et al., 2000; Beteille, 2020; Purwanti & Octavia, 2023).

The emphasis on class management suggests that teachers recognize the significance of creating a positive and well-managed learning environment. Effective classroom management strategies help maintain discipline, foster student engagement, and optimize learning outcomes. The desire to explore innovative teaching methodologies indicates an awareness of the importance of employing diverse instructional approaches to meet the varied needs and learning styles of students. Teachers are likely seeking strategies that promote active learning, critical thinking, collaboration, and problem-solving. The interest in developing teaching materials reflects the understanding that well-designed and engaging instructional materials can enhance student learning experiences. Creating or adapting teaching materials allows teachers to tailor their resources to meet specific learning objectives and ensure relevance to their students' contexts. Lastly, the mention of writing scientific papers may indicate a desire for teachers to engage in research and contribute to the field of education. Research and academic writing can foster critical thinking skills, promote evidence-based practices, and encourage professional growth (Birman et al., 2000; Beteille, 2020).

The finding presented highlights the eagerness and interest of teachers in acquiring skills related to scientific article writing and research methodology. This aligns with existing theories and studies

that emphasize the importance of research skills and publication in teacher professional development.

Andri's statement in the interview emphasizes the need for teachers to have a strong foundation in research methodology before attempting to write articles for publication. This aligns with established theories that stress the significance of understanding research design, data collection, analysis, and interpretation to ensure the scientific validity and rigor of the articles. By having a solid grasp of research methodology, teachers can effectively conduct research and produce scientifically acceptable articles (Birman et al., 2000; Beteille, 2020; Purwanti & Octavia, 2023).

The chart in Figure 3 further supports the notion that teachers consider the skill of writing scientific publications as highly important for their professional development. The fact that 75 percent of the teachers surveyed believe it is very important and an additional 25 percent consider it important underscores the perceived significance of this skill. These findings align with previous studies that have shown how publishing research articles contributes to the professional growth and recognition of teachers (Green & Allen, 2015; Beriswill, 2016).

Mida's interview response reinforces the participants' general sentiment regarding the need for training in scientific article writing. Mida expresses her desire to join a program that focuses on writing scientific articles and hopes for assistance from a mentor to guide her in the process. This highlights the importance of mentorship and support in helping teachers navigate the intricacies of writing for publication. Research has shown that mentorship programs can significantly enhance teachers' research skills, increase their confidence in writing, and improve their chances of successfully publishing their work (Kilag & Sasan, 2023).

Conclusion

The selection of professional development programs may seem random, it actually reflects the diverse needs and aspirations of teachers. The desire to improve skills in information communication technology, curriculum development, class management, innovative teaching methodology, developing teaching materials, and writing scientific papers aligns with established theories and previous studies on effective teacher professional development. The inclusion of seemingly unrelated topics, like museum training, highlights the potential for cross-disciplinary learning experiences and the teacher's recognition of the value it could bring to their vocational instruction. The finding presented in the study aligns with existing theories and studies that emphasize the importance of research methodology and scientific article writing in teacher professional development. Teachers recognize the need for a strong foundation in research skills to ensure the scientific rigor of their work. The chart depicting the teachers' perception of the importance of writing scientific publications further supports the notion that training in this area is crucial.

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