

Factors contributing to insufficient scientific writing skills among junior high school teachers

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ABSTRACT

For teachers and educators, one self-competency that must be developed is enhancing research and scientific paper dissemination. This study aims to determine the abilities and obstacles experienced by teachers in writing scientific papers. Implementing a sequential research design, this research adopts both quantitative and qualitative analysis. Twenty-seven teachers contributed as participants and gathered data through questionnaires, which were analyzed quantitatively, and semi-structured interviews which were analyzed qualitatively using thematic analysis. The results showed that SMP Negeri 6 Kota Jayapura teachers still face challenges in writing scientific papers. The scores for each issue are as follows: lack of understanding of publication writing guidelines is the most crucial issue with 24.59%. The second highest issue is the minimal time available to teachers, scoring 19.67%. The third highest issue is low teacher motivation, scoring 11.03%. The fourth highest issues are the lack of information on article writing, the prevalence of scientific paper writing services, and teachers' inability to operate computers, scoring 9.83%. The fifth highest issues are the lack of teacher skills in finding references, non-compliance of teachers' journals with writing guidelines, and limited references needed for writing. In conclusion, the three most dominant factors contributing to insufficient writing ability are the lack of scientific writing knowledge, lack of writing time and administrative demand, and low writing motivation. The research findings offer valuable insight both practically and theoretically. In fostering the related issues, training and ongoing support are crucial for developing and maintaining high standards of scientific writing among educators.

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Introduction

The importance of addressing low scientific writing skills among junior high school teachers is crucial for the teaching and learning process. Husin and Nurbayani (2020) stated that effective scientific writing skills are vital for educators to communicate complex concepts, engage students, and contribute to the advancement of knowledge in

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the field of education. However, factors such as limited instructional time, inadequate teacher preparation, and varying institutional policies can hinder the development of proficient scientific writing abilities among teachers (Graham, 2019). Without addressing these barriers, junior high school teachers may struggle to effectively convey scientific information, design engaging lesson plans, and assess student learning outcomes, ultimately impacting the quality of education provided to students. Research in this area emphasizes the critical need for enhancing professional competence among high school teachers through scientific paper writing training (Rahim et al., 2023). Studies have demonstrated that exposure to scientific writing significantly improves teachers' professional competence and pedagogical effectiveness. By providing educators with the necessary skills to write scientifically, teachers can enhance their instructional practices, foster critical thinking among students, and promote a culture of inquiry-based learning in the classroom.

Law No. 14 of 2005 concerning teachers and lecturers emphasizes that a teacher requires expertise, skill, or proficiency that meets certain quality standards or norms and requires professional education. To support the achievement of this professionalism, according to Liberna, et al. (2021), teachers need complete and sustainable professional development and training, one of which is conducting scientific publications. Teachers as professional educators, based on Ministerial Regulation No. 16 of 2009 concerning Teacher Functional Positions and Credit Points, also assert that one of the professional development activities is scientific publication. According to Arikunto (2009), scientific publications through the credit point system are expected to provide fairer and more professional recognition for teachers' ranks, which is a professional recognition that will subsequently improve their welfare. There are several arguments why teachers should have writing skills (Graham, 2019). First, the world of teachers is the world of literacy: reading, writing, and teaching. A teacher who can write well is also a good reader and listener. Writing teachers have updated knowledge, making them more potential to perform as professional teachers. Second, the position and role of teachers as educators is essentially not only for their students at school but also for the broader society.

Furthermore, the utilization of innovative teaching materials, such as SETS-oriented science resources, has been proven to enhance the scientific literacy skills of junior high school students (Nainggolan et al., 2021). In addition, Husin and Nurbayani (2020) claimed that by incorporating specialized teaching materials that align with scientific principles and concepts, educators can create engaging learning experiences that promote active participation and knowledge retention among students. This approach not only benefits students but also highlights the importance of continuous professional development for teachers to stay updated on best practices in science education. Moreover, research has explored the impact of scaffolding prompting questions on scientific writing skills in the inquiry classroom (Supeno et al., 2023). By offering structured guidance and support through scaffolding techniques, teachers can systematically help students develop their scientific writing abilities. This approach underscores the significance of scaffolding as a pedagogical strategy to support students' learning process and enhance their writing proficiency in scientific contexts.

Teachers have a strategic role in improving education quality, therefore, qualified teachers are needed. Following this, the government continuously pays attention to improving the teacher's quality in the country, as shown by the presence of several policies (Sanjaya, 2015). Among them, Law No. 14 of 2005 asserts that teachers are professional educators with the main tasks of educating, teaching, guiding, directing, training, assessing, and evaluating (Matnuh, 2018). Additionally, the PAN RB Ministerial Regulation No. 16 of 2009 on the functional position of teachers and credit numbers states that, besides the main element of teaching activities, teachers must also fulfil the element of professional development through the publication of scientific activities. Additionally, training programs focusing on writing scientific papers for teachers have been implemented to address deficiencies in scientific writing skills among educators

(Susilawati et al., 2023). Through targeted training sessions, teachers can enhance their ability to communicate scientific concepts effectively, engage in scholarly discourse, and contribute to the dissemination of educational research. These initiatives underscore the value of ongoing professional development in improving scientific writing skills among junior high school teachers to enhance the quality of education delivery and student learning outcomes.

In producing scientific writing, teachers have to set educational research. Conducting this type of research is like connecting the dots since it becomes crucial in education. Referred to this issue, there are several factors of its importance. First, engaging in research allows teachers to stay current with the latest educational theories, methodologies, and technologies (Fadila et al., 2024). By investigating and understanding new approaches, teachers can refine their teaching strategies, making their instruction more effective and relevant to their students' needs. Research enables teachers to implement evidence-based practices, which have been shown to improve student learning outcomes. Second, writing research papers contributes to teachers' professional development by encouraging critical thinking and reflective practice. This process requires teachers to critically evaluate existing literature, design research methodologies, and analyze data (Leifler et al., 2020). These skills are essential for continuous professional growth and lifelong learning. Engaging in research and writing enhances teachers' pedagogical and professional competencies. The process of conducting research and writing papers helps teachers to develop a deeper understanding of their subject matter and to articulate complex ideas clearly. These skills are transferable to the classroom, where clear and precise communication is vital for effective teaching. Moreover, research activities demand meticulous attention to detail and rigor, which are essential attributes for high-quality teaching (Manasikana & Hartono, 2021). In addition, Research activities can also increase teacher motivation and job satisfaction. The process of discovering new knowledge and contributing to the field of education can be intellectually stimulating and rewarding. When teachers see the positive impact of their research on their teaching practice and student outcomes, it can lead to a greater sense of accomplishment and professional fulfilment (Wahid, 2021).

As underscored in the above background of the study, scientific writing skills for teachers needs is very essential for some reasons. Besides, Junior high school teachers encounter sustainable conditions dealing with their writing ability. This is due to the rapid growth of educational development in various aspects, technology, motivation, self-capacity, students need, global demand, etc (Rahyasih et al. 2020). Fulfilling the demand, SMPN 6 Jayapura teachers have low scientific writing ability. Teachers' competency in producing scientific writing is far from the novelty. To meet the end, enhancing the writing ability of teachers at SMP N 6 Jayapura is crucial for improving instructional effectiveness and student learning outcomes. Moreover, the ability to communicate clearly and effectively through scientific writing is essential for teachers to convey complex concepts, provide feedback, and engage students in meaningful learning experiences.

Systematic studies on teachers' writing competency have flourished around the globe. In recent years, there has been a growing body of literature focusing on the low scientific writing skills among junior high school teachers. Cargill and Haryono & Adam (2021) investigated the use of mini-research projects as a method to enhance the scientific writing and communication skills of undergraduate students. This approach involves students undertaking small-scale research projects that require them to practice writing in a scientific format. The study highlights that scientific writing is not an innate skill but one that must be developed through continuous practice. One key challenge identified in the study is the difficulty instructors face in teaching students to write critically and meet rigorous scientific standards. The findings from Liberna et al. (2021) are significant because they underscore the importance of practical experience in developing scientific writing skills. This aligns with the broader understanding that writing, particularly in

scientific contexts, requires iterative practice and feedback. The challenge for educators, therefore, is to create opportunities for students to engage in such practice consistently.

While [Haryono & Adam \(2021\)](#) focus on undergraduate students, their findings have broader implications. For instance, [Fadila \(2024\)](#) has explored how scientific paper writing training can enhance teachers' professional competence. However, there is a noted finding in research concerning the sustained development of teachers' scientific writing skills. This gap points to a need for ongoing training initiatives that continue to support teachers beyond initial training sessions. [Rahyasih et al. \(2020\)](#) emphasized the importance of continuous professional development for teachers, specifically through training in scientific publications. Their study suggests that regular and sustained training can help teachers maintain and improve their scientific writing abilities, which is crucial for their professional growth and effectiveness as educators. Continuous professional development ensures that teachers are not only keeping up with the latest scientific knowledge but are also proficient in communicating this knowledge effectively through writing.

Ultimately, the literature review provides valuable insights into the critical condition of teachers' writing abilities and the significant challenges in improving teacher competencies. Besides that, it also revealed how teachers' scientific writing ability contributes to the teaching process leading to student achievement. Furthermore, doing scientific writing also leads to teachers' self-motivation and job satisfaction, so that they can create the same atmosphere in the class. Otherwise, the factual condition related to the low teacher's scientific writing ability that happened in SMP N Jayapura had already been explained in the background. Connecting the dots, the research gap lies in the need for a deeper examination of the factors causing low scientific writing skills, particularly among teachers at SMP N 6 Jayapura. The result of this research will significantly contribute to high-school teachers not only in SMP N 6 Jayapura but also in other institutions dealing with the scientific writing strategy so that they can enrich their knowledge and improve their ability. Besides, it is also beneficial for the institution or stakeholder to maintain the policy in accordance to foster teachers writing ability.

A more targeted approach specifically addressing the challenges faced by junior high school teachers in enhancing their scientific writing skills is necessary. By examining the factors contributing to these limitations, the gap can be bridged. This research begins with the question of what factors influence the scientific writing ability of teachers at SMP N 6 Jayapura. Determining the factors is supposed not only to reveal the cause of the problem but also to enrich the knowledge of both stakeholders and teachers. The results of this systematic study shed light on some teacher strategies for maintaining their low scientific writing ability and strategies. Moreover, improving teachers' abilities will lead to the improvement of students' achievement in the future time. Thus, examining the factors contributing to the teacher's scientific ability is significantly important.

Method

The research focuses on the scientific writing abilities of teachers at SMP N 6 Kota Jayapura. This involves 27 teachers who serve as the primary data source. These teachers are responsible for developing and enhancing their scientific writing skills, which are crucial for their professional growth and the advancement of the educational process within the school. The sequential explanatory design is a methodological approach that involves initially quantitatively establishing the extent of difficulties and then delving into a qualitative exploration of these issues ([Othman et al., 2020](#)). This design allows for a comprehensive investigation that addresses both general and specific factors affecting teachers' scientific writing skills, facilitating a nuanced understanding of the challenges faced by educators. By implementing a sequential explanatory design, researchers can gather quantitative data to identify the scope of the difficulties teachers encounter in scientific writing skills. Subsequently, through qualitative exploration, researchers can

delve deeper into these challenges, uncovering nuanced insights into the specific factors influencing teachers' abilities in scientific writing (Leifler et al., 2020).

Sequential Explanatory Design is carried out by collecting and analyzing quantitative data based on the results obtained, then collecting and analyzing data and explaining the results obtained qualitatively (Creswell, 2008). This involves two distinct phases: the initial collection and analysis of quantitative data followed by qualitative data to provide deeper insights. This method is chosen to systematically identify and analyze the difficulties faced by teachers in writing scientific papers, ensuring a comprehensive understanding of the issue. Rahim et al. (2023) also stated that these mixed methods relate to the methods used for the collection, analysis, and presentation of quantitative and qualitative data.

Quantitative data is collected using questionnaires from 27 teachers to identify specific difficulties in scientific writing. Following the quantitative phase, qualitative data was gathered through in-depth interviews and documentation studies. The interviews provided detailed personal insights from the teachers, revealing deeper contextual factors affecting their writing abilities, such as personal motivation and institutional support. Documentation studies included reviewing literature and relevant articles, offering a comprehensive background and theoretical framework for understanding the quantitative findings. The combination of these data collection methods allowed for a thorough analysis of the teachers' challenges. The qualitative data enriched the quantitative results by providing explanations and nuances that numbers alone could not capture (Pardito, 2022). For instance, while questionnaires identified a general lack of confidence in scientific writing, interviews revealed that this was often due to a fear of criticism and a lack of peer support.

Data analysis involves descriptive techniques to summarize quantitative findings, followed by data reduction, display, and conclusion drawing/verification for qualitative data. In line with the description, qualitative data was analyzed using thematic analysis, which included data reduction, display, and conclusion drawing/verification. Braun and Clarke (2006) state that this analysis involves a systematic process of coding to identify themes that are significant to the research questions. Besides, it also helps provide detailed, nuanced insights that complement quantitative data, enriching the understanding of research findings and offering actionable recommendations for practice improvements. This comprehensive methodology not only identifies the difficulties but also provides actionable recommendations to enhance the teachers' writing abilities, contributing significantly to their professional development and the overall educational process.

Results

The research question deals with factors that contribute to the scientific writing ability of teachers at SMP N 6 Jayapura. The data obtained from the questionnaire resulted in findings in the form of various contributing factors. Taken from 27 respondents, it was found that nine factors contribute to the difficulties faced by teachers in writing scientific papers. The first data are presented in Table 1. Table 1 illustrates the factors contributing to the low scientific writing skills among the teachers. Point A presents factors that limited time for teachers who are more focused on household affairs after a full day of teaching and completing administrative tasks selected by 12 respondents (19.7%). Point B presents the lack of understanding among teachers about the guidelines for writing publications. It reached the peak that was selected by 16 participants and covers 24.6%. Point C shows the limited Journals written by teachers do not comply with standard guidelines (APIK) or the format of the targeted journal (3.3%), which was selected by 2 respondents. Point D represents limited references needed for writing (3.3%), which is also selected by 2 respondents. Bar E shows a lack of information about writing scientific articles or publications, selected by 6 respondents (9.8%). Point F, selected by 11

respondents, presents low motivation among teachers to write publications or scientific papers (18.0%). Point G, selected by 3 respondents, indicates the lack of skills among teachers to search for references on the internet (4.9%). Point H, selected by 5 respondents, shows the prevalence of publication writing services (8.2%). Point I, also selected by 5 respondents, presents teachers' inability to operate computers (8.2%).

Table. 1 Factors contributing to scientific writing ability

Point	Factors	Score	Percentage
A	Limited time and focus on household matters after a full day of teaching and completing administrative tasks.	12	17,9 %
B	Lack of teacher understanding of publication writing guidelines	15	24,6 %
C	Teacher-written journals not meeting standard guidelines (APIK) or the format of the targeted journal	2	3,3%
D	Limited references needed for writing	2	3,3 %
E	Lack of information on writing scientific articles (publications)	6	9,8%
F	Low teacher motivation to write publications or scientific papers	11	18,0%
G	Lack of teacher skills in finding references on the internet	3	4,9 %
H	Proliferation of publication services	5	8,2%
I	Teachers unable to operate computers	5	8,2%

In addition, the bar chart in [Figure 1](#) illustrates the number of respondents identifying various factors contributing to low scientific writing skills among teachers. The analysis reveals significant insights into the challenges faced by educators in enhancing their scientific writing abilities. The most significant challenge, identified by 15 respondents, is the lack of understanding of publication writing guidelines. This widespread issue indicates that many teachers are not fully aware of the specific standards required for writing and publishing scientific papers, leading to poorly structured and formatted manuscripts. Additionally, 12 respondents highlighted limited time and focus on household responsibilities as a major constraint. After a full day of teaching and administrative tasks, teachers often have minimal time to dedicate to writing scientific papers. Low motivation to write publications, indicated by 11 respondents, further exacerbates this issue, reflecting a lack of incentive or enthusiasm among teachers to engage in scholarly writing.

Furthermore, 6 respondents pointed out the lack of information on scientific article writing, highlighting the need for comprehensive educational programs and workshops to bridge this knowledge gap. The proliferation of publication services and the inability to operate computers, each identified by 5 respondents, reveal external and technical challenges. The availability of commercial publication services might discourage teachers from developing their writing skills, while technological skills gaps hinder their writing and research activities. Additionally, the lack of skills in finding references online, as noted by 3 respondents, suggests difficulties in utilizing online resources to find relevant references, which is crucial for scientific writing. Lastly, non-compliance with standard guidelines and limited access to necessary references, each identified by 2 respondents, point to specific technical and resource-related challenges. Addressing these issues

through targeted training, resource provision, and motivational strategies could significantly enhance teachers' scientific writing skills.

Figure 1 illustrates the percentage of respondents identifying various factors that contribute to low scientific writing skills among teachers. The most significant factor, cited by 25% of respondents, is the lack of understanding of publication writing guidelines. This indicates a widespread issue where many teachers are not fully aware of the specific standards required for writing and publishing scientific papers, which can lead to poorly structured and formatted manuscripts. Another major factor, highlighted by 20% of respondents, is the limited time available to teachers, who often focus on household responsibilities after a full day of teaching and administrative tasks. This time constraint significantly hampers their ability to engage in scientific writing.

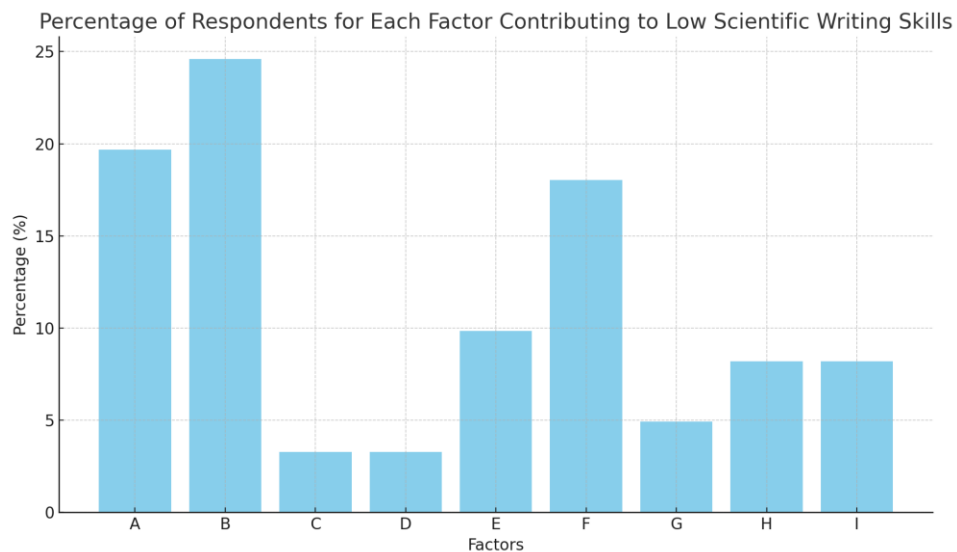


Figure 1. The number of teachers in each factor

Low motivation to write publications, identified by 18.3% of respondents, further exacerbates the problem, reflecting a lack of incentive or enthusiasm among teachers to engage in scholarly writing. Additionally, 10% of respondents pointed out the lack of information on how to write and publish scientific articles effectively, underscoring the need for comprehensive training and resources. The proliferation of publication services and the inability to operate computers, each identified by 8.3% of respondents, present external and technical challenges. The availability of commercial publication services might discourage teachers from developing their writing skills, while technological skills gaps hinder their writing and research activities.

The lack of skills in finding references online, noted by 5% of respondents, suggests difficulties in utilizing online resources to find relevant references, which is crucial for scientific writing. Lastly, non-compliance with standard guidelines and limited access to necessary references, each identified by 3.3% of respondents, point to specific technical and resource-related challenges. Addressing these issues through targeted training, resource provision, and motivational strategies could significantly enhance teachers' scientific writing skills, ultimately improving their academic contributions and professional development.

Qualitative analysis was conducted using thematic analysis techniques. The results from the data categorized the factors influencing writing ability into two types: internal factors and external factors. Internal factors refer to personal attributes, skills, and experiences that influence an individual's ability to perform a task. While, external factors are outside influences that affect an individual's performance. Both internal and external factors are presented in Figure 2.

The internal factors include the minimal teacher time and a greater focus on household matters after a full day of teaching and administrative tasks. This limitation on time and energy significantly hampers their ability to engage in writing. Furthermore, a significant internal challenge is the lack of understanding of publication writing guidelines among teachers, indicating a gap in knowledge about the specific standards required for scientific writing. Additionally, some teachers' journals do not meet standard guidelines (APIK) or the targeted journal formats, which points to issues in adhering to required writing conventions. Moreover, low teacher motivation to write publications or scientific papers further exacerbates this problem, as does the lack of skills in finding references on the internet. Finally, another internal factor is the teachers' inability to operate computers effectively, reflecting the technological skills gap that hinders their writing and research activities.

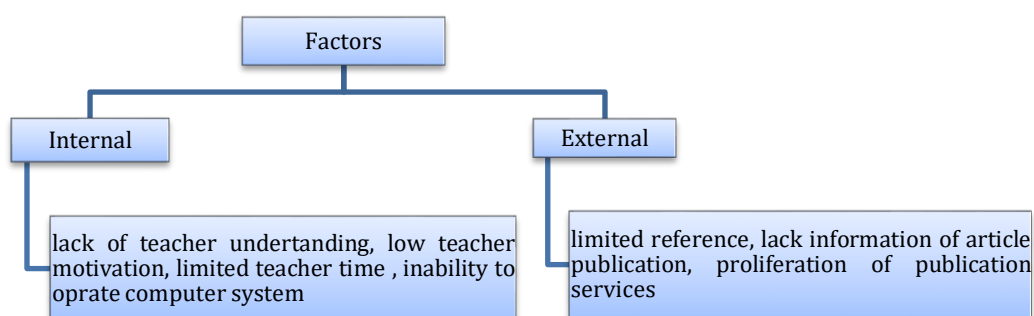


Figure 2. Internal and external factors

On the external side, teachers often face the challenge of limited references needed for writing, which restricts their access to relevant and sufficient sources. Additionally, there is a significant lack of information on how to write and publish scientific articles effectively, highlighting the need for more comprehensive training and resources in this area. Furthermore, the proliferation of publication services presents an external obstacle by providing an easy alternative that discourages teachers from developing their writing skills. Consequently, these factors collectively contribute to the weakened ability of teachers to write scientific papers, requiring both internal capacity-building and external support to address these challenges comprehensively.

Moreover, the results of the questionnaire and data from discussions with teachers at SMP N 6 Jayapura City indicate that publication competence is still very low, making this an issue that requires immediate solutions. Research conducted by [Graham \(2019\)](#), states that writing skills can be improved through training and the active role of the government. Based on this problem, the recommended solutions can be seen in [Table 2](#).

[Table 2](#) outlines several problems encountered by teachers in scientific writing and proposes comprehensive solutions to address these issues. One major problem is the lack of understanding of publication writing guidelines among teachers. To address this, schools are encouraged to collaborate with universities to provide training on scientific article writing. Time constraints and administrative demands also pose significant challenges, as teaching is a professional role that necessitates a professional attitude and independence in work, including the ability to write. Additionally, the low motivation among teachers to write publications or scientific papers can be mitigated by schools offering awards to teachers who produce scientific papers.

Another issue is the lack of information on scientific article writing. Trainers can motivate teachers to participate in scientific meetings such as seminars, conferences, and symposiums. Moreover, schools can partner with universities to offer specialized training in this area. The lack of teacher skills in finding references on the internet is another barrier, which can be overcome by schools collaborating with other parties to provide

relevant training. Similarly, teachers' journals often do not meet standard guidelines (APIK) or the targeted journal format. Schools are advised to seek external expertise to provide training to address this issue.

Limited access to necessary references for writing is a recurrent problem, and teachers are advised to seek online references to mitigate this. Furthermore, the limited time available for teachers to write scientific papers can be addressed by encouraging teachers to dedicate about 1-1.5 hours each day specifically for writing. These solutions collectively aim to enhance the scientific writing competencies of teachers, ensuring they are better equipped to contribute to academic literature.

Table 2. Proposed solution

Problem	Proposed Solution
Lack of teacher understanding of publication writing guidelines	Schools are encouraged to collaborate with universities to provide training on scientific article writing.
Time constraints and administrative demands	Teaching is a professional position that requires a professional attitude and independence in work, including the ability to write.
Low motivation among teachers to write publications or scientific papers	Schools are encouraged to provide awards to teachers who write scientific papers.
Lack of information on scientific article (publication) writing	Trainers motivate teachers to actively participate in scientific meetings such as seminars, conferences, and symposiums. Additionally, schools can collaborate with universities to provide training on scientific article writing.
Lack of teacher skills in finding references on the internet	Schools are encouraged to collaborate with other parties who can provide training related to understanding the internet.
Teacher's journal does not meet standard guidelines (APIK) or the targeted journal format	Schools are encouraged to collaborate with other parties who can provide training related to understanding the internet.
Limited references needed for writing	Teachers are advised to seek references online.
Limited references needed for writing	Teachers are advised to seek references online.
Limited time available for teachers to write scientific papers	Teachers are advised to set aside about 1-1.5 hours each day for writing.

Discussion

The present research revealed factors that contribute to the teachers' scientific writing ability in SMP N 6 Jayapura. The problem at hand is that teachers' proficiency in scientific publication remains low, even hindering their career advancement. Based on [Table 1](#) and the questionnaire responses collected by the team, it is evident that the competence of teachers at SMP Negeri 6 Kota Jayapura in writing scientific papers (KTI) is severely lacking, as most have never engaged in such writing. The predominant problems faced by teachers, as highlighted in the table and felt by the participants, include a lack of understanding of publication writing guidelines. Supported by [Wahid \(2021\)](#), who highlighted the weak scientific writing ability of teachers is partly due to limited access to information and a lack of mastery of scientific methods. Previous research indicates that many teachers are reluctant to write due to a lack of knowledge about writing techniques, what content to include, and how to express it effectively ([Rahyasih](#)

et al., 2020). Similarly, Amhar (2016) identified low writing motivation, time constraints, and insufficient understanding of writing techniques as major challenges faced by teachers in writing scientific papers. Furthermore, teachers' written communication, whether in assignments, feedback, or instructional materials, plays a crucial role in guiding students toward academic success (Blazar & Kraft, 2017). Teachers with high writing competency often inspire and motivate their students. When teachers demonstrate effective writing skills, they model good communication practices and critical thinking, which can be motivating for students. Well-written instructional materials and feedback can engage students more deeply with the subject matter, fostering a more enthusiastic and motivated learning environment. The quality of written communication from teachers can significantly influence students' attitudes toward learning and their willingness to invest effort in their studies (Blazar & Kraft, 2017).

The second most significant factor, accounting for 19.67%, is the minimal time available for teachers, who focus more on household matters after a full day of teaching and administrative tasks. Writing requires substantial free time and strong willingness, which many teachers lack. The multifaceted role of teachers, which includes teaching, educating students, and providing guidance outside the classroom, leaves little time for writing activities. This comprehensive understanding of the challenges highlights the need for targeted solutions to enhance teachers' scientific writing skills and support their professional development. Teachers who engage in research and write papers can better design curricula that meet their students' needs. Research-informed teaching practices help in creating more effective lesson plans, assessments, and instructional strategies. When teachers use data-driven insights to inform their teaching, it positively impacts student achievement. Well-crafted research papers often include comprehensive literature reviews and case studies that can serve as valuable resources for developing impactful educational interventions (Blazar & Kraft, 2017).

There is a vivid correlation between teachers' writing ability and student achievement. Teachers who can write clearly and effectively are better able to convey expectations, create structured and engaging assignments, and provide detailed and constructive feedback. This, in turn, helps students understand the material better and perform well academically (Mulyono, 2023). Research indicates that students benefit from the clarity and precision that skilled writing brings to the educational environment. Matnuh (2018) states that writing research papers and engaging in academic writing contributes significantly to teachers' self-development. This process allows teachers to stay updated with the latest research and advancements in education, which can enhance their teaching methods and practices. Engaging in research and writing also encourages critical thinking and reflective practice, which are essential for professional growth. By continuously improving their writing skills, teachers can contribute more effectively to their professional community and pursue advanced career opportunities, thus fostering their overall development as educators.

Highlighting the importance of a teacher's scientific writing ability, field observations indicate that the obstacles to professional development through scientific writing activities are quite diverse. This is relevant to several previous research findings, including those by Amhar (2016). He stated that the challenges faced by teachers in writing scientific papers include low writing motivation, time constraints, lack of understanding of writing techniques, difficulties in collecting and processing data, lack of technological mastery, unavailability of reference books, ineffective teacher group activities, and the existence of services offering to write papers. Research by Liberna, et al. (2021) that used 2015 data found that more than 800,000 teachers were at risk of not being promoted due to their inability to produce scientific papers based on research. These facts indicate that teachers' proficiency in scientific publications remains low.

This research provides significant theoretical contributions by offering a detailed understanding of the multifaceted barriers that impede teachers' ability to engage in scientific writing. By categorizing these barriers into internal and external factors, such as

lack of motivation, insufficient time, limited understanding of writing techniques, and inadequate access to resources, the study lays a foundational framework for future research. This categorization helps in developing targeted interventions and policies. Additionally, [Arikunto et al. \(2019\)](#) state that the research establishes a theoretical link between professional development and writing proficiency, demonstrating how elements like training, motivation, and resource availability are interconnected. This theoretical model is crucial for designing future studies that can further explore the impact of these elements on enhancing teachers' writing skills. Moreover, the findings emphasize the role of institutional support in teacher development, theoretically illustrating how collaborative efforts with universities and structured training programs can alleviate some of the challenges faced by teachers. This contributes to the broader body of knowledge on the importance of institutional involvement in fostering professional growth among educators.

The comprehensive description of the research offers actionable insights that can be implemented by educational institutions and policy-makers. It is supported by [Amhar \(2016\)](#), one of the key practical contributions is the provision of policy recommendations for educational institutions to address the identified barriers. Schools and educational authorities can leverage these insights to develop comprehensive policies and programs that offer teachers the necessary training, resources, and motivation to engage in scientific writing. For instance, establishing collaborations with universities and organizing regular workshops can directly address the lack of understanding of publication guidelines and enhance writing skills. The development of tailored training programs based on the research findings is another crucial practical contribution. These programs can be designed to focus on specific areas such as data collection and analysis, writing techniques, and the effective use of technology, thereby addressing the specific needs of teachers.

The research also underscores the importance of better resource allocation and support systems within schools. Recommendations include providing teachers with access to necessary references, improving technological infrastructure, and creating support groups for collaborative learning and knowledge sharing. These measures can significantly improve the environment for scientific writing. Additionally, the study suggests implementing incentive structures to increase teacher motivation. Practical measures such as financial incentives, recognition programs, and opportunities for career advancement can encourage teachers to engage in scientific writing and overcome the barriers identified. Lastly, the research highlights the need for ethical practices in professional development, stressing the importance of regulations to prevent unethical behaviors like the use of ghostwriting services. Implementing policies that promote authentic skill development is essential for ensuring the integrity of professional growth among teachers. These theoretical and practical contributions collectively offer a comprehensive approach to improving scientific writing abilities among teachers, ultimately enhancing their professional development and the overall quality of education.

Conclusion

As explored in the findings and discussion section, results revealed the factors contributing to low scientific writing ability experienced by teachers in SMP N 9 Jayapura. Driven by qualitative and quantitative data, the major factors experienced by teachers were; first, the lack of teachers' understanding of scientific writing; second, time constraints and over teachers' administrative demands; third, teachers' low motivation on writing; fourth, teachers' limited skills in surfing the internet for reference and sources; fifth, teachers' scientific articles were not meet the journal standards. In sum, adapting to the rapid growth of teachers' development, and increasing teachers' scientific writing ability is critically urgent. As a consequence, teachers need professional guidance through workshops, seminars, and more practice and guidance provided by the principal or

stakeholders. This attempt is highly supposed to be an effective way to maintain the problems. Other than that, it is demanded that teachers not only can create a meaningful classroom atmosphere and increase students' motivation, but also improve students' competency.

This systematic analysis has several limitations. First, on a participant that is not selected based on their subject teaching. Since different subject learning may perform different abilities and conditions. Second, a more complex methodology is needed to obtain a deeper analysis of the factors contributing to the low scientific writing abilities. As a result, this research requires additional findings that enrich and broaden the insights into the development of scientific writing skills for teachers. In the future, research findings on other aspects affecting teachers' scientific writing skills need to be conducted. Furthermore, this research is expected to present a more in-depth and comprehensive discussion on influential issues. These issues include teaching methods, curriculum, training, and professional development, the influence of the environment and non-academic burdens, technology, writing aids, teachers' motivation and attitudes, and case studies of scientific writing. Consequently, such comprehensive studies will offer a holistic understanding of the various factors that impact teachers' ability to write scientifically, thereby providing valuable guidance for future educational practices and policies. Continuous professional development, as highlighted by is essential for ensuring that teachers can sustain and enhance these skills over time. The findings from these studies collectively suggest that both initial training and ongoing support are crucial for developing and maintaining high standards of scientific writing among educators.

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