

A Survey of Elementary School Teachers' Self-Reflection Skills: Uncovering the Role of Reflection in Improving Learning Quality

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Abstract. Teachers' reflective ability is a critical factor in improving the quality of learning in elementary schools. Reflection enables teachers to critically evaluate their teaching practices, identify strengths and weaknesses, and develop more effective strategies to address students' needs. This study aims to assess the level of self-reflective ability among elementary school teachers using a survey method and to explore how reflection contributes to enhancing teaching quality. The survey included 316 elementary school teachers from various regions in Indonesia and was conducted online using a teacher self-reflection questionnaire. The results revealed that teachers' reflective abilities were generally categorized as good. While most teachers acknowledge the importance of reflection, challenges remain in implementing deep and structured reflective practices. Key barriers include high workloads, limited time, and insufficient professional support. Furthermore, a lack of understanding of the reflective process and the absence of supportive tools to guide teachers through this process hinder the effective application of reflection.

Keywords: Self-reflection; Survey; Learning Quality; Elementary Schools; Teacher.

1. Introduction

Teachers' self-reflection skills are a key element in professional development and improving the quality of learning in primary schools. Reflection allows teachers to evaluate their teaching practices in depth, understand the impact of the methods applied on students, and design more effective and adaptive learning strategies (Stoelting, 2023). In the context of 21st century education, where students' needs are increasingly diverse, reflection skills become increasingly important to ensure responsive and relevant learning.

Recent research shows that teachers who are skilled in reflection not only improve their teaching effectiveness, but also strengthen their ability to deal with challenges that arise in daily practice (Larrivee, 2020). Through reflection, teachers can analyze learning situations, identify areas that need improvement, and make data-driven decisions to improve teaching quality. However, studies on the level of teacher reflection skills in Indonesia, especially in primary schools, are limited. This study aims to fill this gap by conducting a survey to measure elementary school teachers' reflection skills. The survey also seeks to reveal the role of reflection in improving the quality of teaching, as well as how teachers can further optimize reflection as a tool for self-development.

1.1. Problem Statement

This study will explore the importance of reflection in the context of teaching, review survey results related to primary school teachers' reflection skills and analyze the implications for improving the quality of education. The findings are expected to serve as a reference for the development of more systematic training to improve teachers' reflection skills, so that it can have a direct impact on improving the quality of learning. In addition, it can also be used as a consideration for the development of applications for self-reflection for primary school teachers.

1.2. Previous Research

The results of previous research in the form of a review of various reflection research articles have only examined the forms of reflection carried out by teachers in Indonesia, namely: reflection journals, reflection interviews, peer observation conferences, group discussions, videos, blocks, and electronic portfolios (Yuliyanto et al., 2018). While another study examined the quality of reflective journals made by student teachers, the results revealed that the journals already contained in-depth reflective aspects. However, another study found that most journals contained only descriptive accounts of events, with little or no critical reflection (Dyment & O'Connell, 2010; Abou Baker El-Dib, 2007). Her research also identified a range of factors that may influence the reflective journaling process. These factors are clarity of expectations, training, feedback, assessment, relationships with educators, and development of practice. Another study revealed that the quality of reflection can be described through sequential stages of argumentation: describing, justifying, evaluating, and discussing (Leijen et al., 2012). Research on reflection and how to design it is lacking, let alone integrating it with technology. However, there is research that presents a conceptual and theoretical model of reflection, organized based on disciplinary and epistemological perspectives contained therein that can be utilized to design reflection utilizing technology (Baumer, 2015).

This study will focus on the quality of teacher reflective journaling. In addition to emphasizing the quality of making the journal itself, it also has an impact on the ability of teacher reflection and teaching teachers facilitated by technology. In addition to improving quality, it also facilitates the process of documenting teachers and providing useful feedback for teachers. The development of technology to facilitate teachers' reflective skills is expected to be a fresh idea that will have a positive impact on improving the quality of learning in schools. This research focuses on elementary school teachers' reflection skills and how they can improve the quality of learning.

1.3. Research Objectives

The purpose of this study is to analyze the self-reflection ability of elementary school teachers as a preliminary study of the development of teacher reflection training and application media. As well as identifying factors that influence the ability of Teacher reflection. Based on this, the problem formulation raised in this article is as follows. How is the self-reflection ability of elementary school teachers? Are there differences in teachers' abilities based on age, teaching experience and gender?

2. Theoretical Framework

2.1. Teacher Self-Reflection Ability

Reflection in the context of education was first introduced by Dewey (Kalk et al., 2014) who stated that reflection is a critical thinking process that involves reviewing experiences to gain a deeper understanding and carry out better actions in the future. In a further study, Schön (Bauer, 1991) developed this concept by introducing the idea of the reflective practitioner which states that professionals, including teachers, should continuously reflect on their actions to improve their skills and decision-making in complex situations.

According to Dewey (Kalk et al., 2014) reflection is the active, persistent, and careful consideration of any belief or form of knowledge in light of the grounds that support it and the further conclusions to which it is based. Based on this Dewey states that reflection requires communication to formulate his experience. Other experts define reflection as a process that involves drawing cognitive and emotional information from multiple visual, auditory, kinesthetic and tactile sources. To reflect, we must process the information, synthesize and evaluate it. Reflecting also means applying what we have learned to a context outside the original situation in which we learned something (Bauer, 1991). The process of reflecting on experiences promotes insight and complex learning. Reflection is best done alone but it is also more meaningful when done with others. The process of reflection is one proof that learning is lifelong, because we will continue to update our actions. Both Dewey and Schon agree that reflective thinking is the key to improving professional practice and education (Bauer, 1991).

There are many ways to conduct the reflection process including discussions, interviews, debriefings, and diaries and journals (Bashan & Holsblat, 2017). The purpose of reflection through discussion is to make meaning. For example, having a discussion about the problem-solving process. Participants are invited to share their metacognition, reveal their intentions, detail their strategies for solving the problem, describe their mental maps to monitor the problem-solving process, and reflect on the strategies to determine their feasibility. During the discussion, participants learn how to listen and explore the implications of each other's metacognitive strategies. The kind of listening required during such discussions also builds habits of mind associated with empathy, flexibility and perseverance. Interviews are another way to lead participants to share reflections on their learning and their growth in habits of mind. Interviews also give participants the opportunity to model and practice various habits: listening with understanding and empathy, thinking and communicating clearly and precisely, and questioning and problem-solving. Journals and diaries are one way to process reflection (Bashan & Holsblat, 2017).

Reflective practice is done not only to review the past but to guide future actions (Bauer, 1991). Reflective practitioners use 4 important modes of reflection namely: 1) Reflection "on" (in action) is to record thoughts and actions as they occur and make immediate adjustments as events unfold; 2) Reflection-on-action is looking back and learning from experiences or actions to influence future actions. Reflecting after an event has occurred is perhaps the most frequently used form of reflection; 3) Reflection-for-action involves analyzing practice with the aim of taking action to change. It includes reflection-in-action and reflection-in-action. This type of reflection is proactive. Often called 'closing the gap' reflection, it focuses on closing the gap between what is and what is possible; 4) Reflection-inside asks about personal goals, intentions and feelings. Those concerned might question what worked well, what prevented them from taking action, what limited their perspective, or why they reacted in a certain way.

2.2. The Role of Reflection in Improving Learning Quality

Improving the quality of learning must start with improving the quality of teachers (Yuliyanto et al., 2018). One of the ways that can be done is through the reflection process. Reflection is the main element of teacher professionalism. Reflection is also the key to a teacher's continuous learning process (Korthagen & Vasalos, 2005). Reflection activities are very useful and if carried out will find new concepts in the learning process. Reflection activities also provide meaningful experiences for teachers and students. A teacher will be able to improve his professionalism in learning, while students will find it easier to get the objectives of learning (Ritonga et al., 2022).

Reflection is a process of developing one's self-awareness of valuable experiences to explore various potentials. The results of reflection are used as the basis for taking an action. The reflection process is based on the experiences that have been passed by taking lessons from each action of the experience. This will provide enormous benefits for an educator in order to plan a better learning process whose impact will be felt on students. If a teacher has and shows positive traits in himself when in front of students, this can provide a positive energy transfer to his students (Korthagen & Vasalos, 2005).

The results of previous research prove that self-reflection carried out by teachers significantly contributes positively to professional behavior and efforts to develop teacher professionalism by 35%. This means that the higher the awareness of teachers to self-reflect on their professional development, the better the teacher's professional development efforts. In other words, the process of teacher reflection has an impact on the development of teacher professionalism. Increased teacher professionalism will have an impact on the quality of learning (Rahman, 2014).

Other research suggests that teacher development programs are run with the idea that reflection is a very important characteristic of an effective teacher. Therefore, using a reflection approach in the teacher competency development training process is quite relevant. As research has been conducted in improving pedagogical content knowledge or technological pedagogical content knowledge of teachers, the reflection process plays an important role (Wang et al., 2018).

Reflecting on teachers' professional practices, especially learning and teaching, is an important factor in shaping innovation and revolutionizing learning in the classroom. The minimum reflection that must be done is on the components of content knowledge, pedagogical knowledge and technological knowledge as well as content packaging knowledge in meaningful learning (Abdurahman, 2013).

Teacher reflection can be used as a learning evaluation instrument to measure the quality of the learning process. Teachers who are used to reflecting tend to be more sensitive to students' needs. They can evaluate whether their teaching methods are appropriate for the classroom context or whether there is a need to change strategies to optimize learning outcomes. Critical reflection helps teachers to not only focus on the technicalities of learning, but also understand the social and emotional dynamics in the classroom that might affect students' learning process.

3. Methods

3.1. Research Design

The research method uses surveys as part of quantitative research. A survey is a research technique used to collect data from a group of individuals or a population regarding opinions, attitudes, experiences, or certain characteristics (Creswell, 2018). The data collected is quantitative, resulting from distributing questionnaires to respondents with the aim of obtaining information that will later be processed into conclusions relevant to the research objectives (Creswell, 2018).

3.2. Participants

The participants consisted of 316 primary school teachers who took the online survey. However, after going through a reduction process due to incomplete participant data, 286 people were analyzed further. Participant characteristics are presented in Table 1.

Table 1. Characteristics of participants

Category		Percentage (%)
Gender	Male	22
	Female	78
Teaching Experience	Less than 20 years	67
	More than 20 years	33
Age	Less than 40 years old	54
	Over 40 years old	46
Status	PNS (Government Employer)	70
	Non-civil servants	30
Certification	Already	52
	yet	48

3.3. Data Collection

The data collection technique is a survey using a questionnaire of teachers' self-reflection skills. The instrument used is a teacher reflection ability questionnaire which is distributed online using google form. The instrument consists of 6 components, namely practical, cognitive, metacognitive, affective, critical and moral.

3.4. Data Analysis

The survey questionnaire data ensured that there was no blank data. Based on this, out of 316 people analyzed, there were 286 people whose data were confirmed to be complete. The data was analyzed to determine the percentage. The analysis process was assisted by the JASP application. The survey results were then categorized according to Table 2.

Table 2. Categorization of Teacher Reflection Ability

Value	Category
0 - 19,9	Very less
20 - 39,9	less
40 - 59,9	Simply
60 - 79,9	both
80 - 100	Very good

3.5. Validation and Reliability

The instrument of self-reflection ability in the form of a questionnaire with a total of 31 item statements was developed from the results of previous research (Akbari et al., 2010). The instrument statements were validated using Pearson correlation. The result is that all statements are valid with a significance value of less than 0.05. Previously, the instrument was validated by experts. Reliability test and item differentiation were analyzed using Cronbach alpha. The resulting Cronbach alpha coefficient value is 0.960. This means that the instrument has a high level of reliability.

4. Findings

Analysis of the survey results of teachers' self-reflection skills showed good average results. There are six components of teacher reflection skills, namely practice, cognitive, learner attitude (affective), metacognitive, critical and moral. Based on these components, the data are presented in Figure 1.

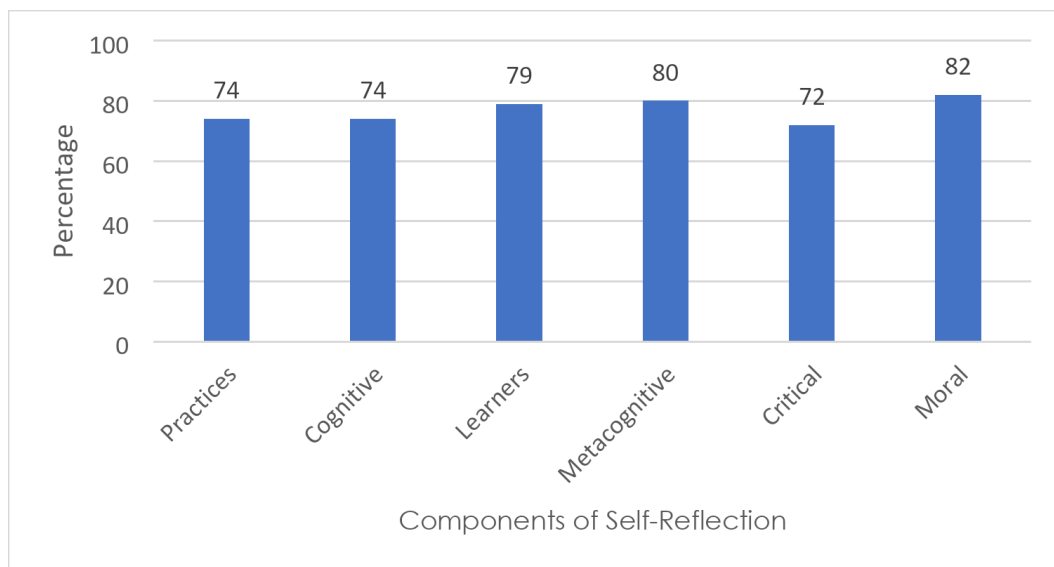


Figure 1. Percentage Chart of Elementary School Teachers' Self-Reflection Ability Survey Results

Based on Figure 1. It is obtained that the teacher's reflection ability based on his self-assessment is good on average. The components that have the lowest average score are critical, practical and cognitive. While the moral and metacognitive components are very good. To find out further whether there are significant differences in teachers' reflection skills based on gender, teaching experience status and age. The following descriptive data is presented in Table 3.

Table 3. Descriptive Data of Teacher Reflection Ability Based on Participant Characteristics

Category	Group	Total Data (people)	Average	Standard Deviation
Gender	Male	64	83	11,6
	Female	222	86	9,13
Teaching Experience	Less than 20 years	193	84	10,16
	More than 20 years	93	87	8,57
Age	Less than 40 years old	154	84	10,41
	Over 40 years old	132	87	8,84
Status	PNS (Government Employer)	199	86	8,77
	Non-civil servants	87	83	11,46
Certification	Already	148	86	8,24
	yet	132	84	11,1

Based on Table 3, information on the diversity of participants in terms of gender, age, teaching experience (grouped into less than 20 years of experience and more than 20 years of experience). Likewise, the age component is divided into two groups of less than 40 years and more than 40 years. Other considerations were civil servant and non-civil servant status and whether or not they had been certified. The participants were dominated by female teachers, with less than 20 years of teaching experience and civil servant status.

The mean score of female teachers' reflection skills is higher than that of male teachers. Teachers with more teaching experience have a higher mean score for reflection skills than those with less experience. Age also has an impact on teachers' reflection skills, where older teachers have higher mean scores than younger ones. Meanwhile, when viewed from the employment status of civil servants and already having certification, the average value of reflection skills is higher.

Descriptive data was used to analyze differences in teachers' reflection skills. For this purpose, a statistical test was carried out, namely the T test. Before the data T test is fulfilled, first the assumption is that the data is normally distributed. The test data is presented in Table 4.

Table 4. T-test results based on participant characteristics

	t	df	p	Description
Gender	-2.080	284	0,038	Significantly different
Age	-2.299	284	0,022	Significantly different
Teaching Experience	-2.824	284	0,005	Significantly different
Status	-2,923	284	0,004	Significantly different
Certification	2,134	284	0,034	Significantly different

Table 4. Contains information on the results of the T-test analysis to see the average difference in teachers' reflection skills based on the characteristics of the participants, namely gender, age, teaching experience, employment status and certification. The conclusion obtained from all these components shows the same result, namely that there is a significant difference seen from the significance value of less than 0.05. This means that all components of participant characteristics are factors that differentiate teachers' reflection skills.

5. Discussion

The reflection ability instrument used is a development of the results of the study by Akbari et al., (2010), which contains six components of teacher reflection, namely practical, cognitive, metacognitive, affective (learner attitude), critical and moral. The practical component relates to effective teaching strategies and techniques in the classroom context. Practical reflection involves evaluating actions and decisions taken during the teaching process. The cognitive component focuses on the teacher's thinking and understanding of the teaching and learning process. It includes analyzing how the knowledge and skills taught are understood

and applied by students. The metacognitive reflection component involves awareness and control over one's own thought processes. Reflective teachers will consider how they learn and teach, and evaluate the effectiveness of the strategies used. The affective or learner attitude component relates to the teacher's emotions and attitudes towards teaching and students. It involves understanding how feelings and attitudes can affect classroom interactions and student learning outcomes. The critical reflection component involves an in-depth analysis of teaching practices in the socio-cultural context of the community. This component includes an evaluation of the values and beliefs that underlie teaching decisions. Finally, the moral component focuses on the ethical responsibility of a teacher in teaching practice. This reflection includes the teacher's decisions in teaching can affect students' comfort (Akbari et al., 2010).

The components of the reflection instrument used are in line with the notion proposed by Schon ((Bauer, 1991). The practical, cognitive and critical components are relevant to *on reflection* (reflection about action) while the metacognitive component is highly relevant to *in reflection*. The practical, cognitive and critical components refer to the process of teachers reflecting on their teaching experiences after the action is taken. This component includes *on reflection* because teachers are invited to evaluate and analyze their teaching practices including the strategies used and the results achieved. The metacognitive component used in this research instrument is very relevant to *in reflection*, as it involves teachers' awareness of their thought processes while teaching. Teachers who are able to do "in" reflection can quickly adjust their approach based on student responses or ongoing classroom dynamics.

The survey analysis shows that teachers' reflection skills are good. Among the six components, practical, cognitive and critical have lower scores than other components. This means that teachers on reflection skills must be improved. Lack of *on reflection* skills will have a negative impact on the learning process. Teachers are usually unable to identify strengths and weaknesses in the learning methods used. As a result, teachers will be hampered in making improvements and innovations to their learning process. Another thing that can be analyzed from the survey results is that teachers still have difficulty in analyzing when facing problems that arise during the learning process.

Practical skills in teacher reflection include using tools and procedures for reflection such as writing journals, making observations, or discussing with peers. In this case, teachers' practice in writing journals must be improved. Several factors influencing the lack of reflection include insufficient understanding of the purpose and expectations of journal writing, the lack of structure and guidance in journal assignments, and challenges in developing reflective writing habits (Dyment & O'Connell, 2010).

The practice of journal writing is one of the most researched methods of reflection and its use in higher education (Koh & Chai, 2014; Dyment & O'Connell, 2010). The focus of the research was on the quality of reflections produced by students. The results concluded that reflective journals have the potential to improve critical thinking and learning, but many students tend to write descriptively and lack depth. Some of the factors affecting the quality of these reflections are a lack of understanding of the purpose of journal writing, a lack of structure and guidance in the journal assignment, and challenges in developing reflective writing habits (Dyment & O'Connell, 2010).

The journal also emphasizes the importance of providing time and space for participants to write, as well as the need to model behaviors from facilitators that demonstrate good reflection practices. By providing structure through questions or guidelines so that students have a guide that they will write about. This result is a fresh idea for researchers to develop digital media that can facilitate and make it easier for teachers to write down their reflection process. In addition to well-documented journal notes, the results of the reflection will be easy to guide in the future. Factors that need to be considered in improving the quality of reflection are structural and pedagogical support in order to achieve a meaningful process of reflection for the expected changes (Dyment & O'Connell, 2010).

Another study successfully utilized reflective journals as a tool to understand the development of cooperation among pre-service teachers during teaching practice. Using qualitative and

phenomenological methods, the researcher focused on students' experiences and perceptions recorded in their reflective journals. The results found that the development of cooperation among student teachers occurred in seven stages that corresponded to the team performance model proposed by Drexler. The journals reflected the challenges faced by the students and how they interacted with their peers and teaching staff (Bashan & Holsblat, 2017). The results of the study indicate the importance of using reflective journals in teacher education to enhance understanding of the dynamics of cooperation and the challenges faced during teaching practice.

Reflection skills in the cognitive component indicate the critical and analytical thinking needed to evaluate the learning process. Good criteria in this component means that teachers are able to connect theory to practice in the field. If this ability is low, in addition to difficulties in applying theory to practice, teachers will also have difficulties in innovating and being creative in carrying out their learning process. Teachers may not be able to think outside the box or try new approaches that can improve students' learning experience. Good cognitive skills in reflection will impact on teachers' ability to analyze data or feedback from students effectively. Cognitive ability also relates to teachers' self-awareness of the effect of their actions on students. If this ability is lacking, teachers may not realize how their approach can affect student motivation and engagement. Low cognitive ability can result in inappropriate decision-making in the teaching context. Teachers may not be able to evaluate different options and consequences of their actions, which can negatively impact the learning environment (Akbari et al., 2010).

The critical component that needs to be improved implies teachers' ability to evaluate and analyze their learning practices in depth. If this ability is lacking, teachers may not be able to identify weaknesses in their teaching methods or understand the impact of the approaches they use on students. Critical skills also include an understanding of the social context of society that affects education. Without this ability, teachers may not be aware of important issues such as social injustice, discrimination, or bias in education, which can affect the way they teach and interact with students (Klug et al., 2014).

Teachers who lack critical thinking skills may struggle to teach critical thinking to students. This can result in students who lack the ability to analyze information, question assumptions, and make informed decisions. Critical thinking skills are also essential for good decision-making. If teachers are unable to think critically, they may make decisions that are not based on in-depth analysis, which can negatively impact classroom management and teaching strategies. Critical skills encourage teachers to question existing practices and look for new ways to improve teaching. Without these skills, teachers may get stuck in a routine and not seek to innovate or improve their teaching methods (Akbari et al., 2010).

The inability to think critically can affect the way teachers interact with students. Teachers may not be able to understand students' perspectives or respond to their needs in a sensitive and effective way. In complex or challenging situations, critical thinking skills are essential for finding effective solutions. If teachers lack these abilities, they may struggle to address issues that arise in the classroom (Akbari et al., 2010).

The findings also show that gender, age and teaching experience affect teachers' reflection skills. The results of the study concluded that gender has an effect on teacher reflection skills. The results of the statistical test, namely the T test, concluded that there was a significant difference between the reflection skills of male teachers and female teachers. The average value of female teachers' reflection skills is higher than that of male teachers. This is in line with the results of previous research which states that although reflective thinking practices are often emphasized in teacher education programs, there are significant differences in the way men and women interpret and apply reflection practices. Findings showed that lifelong learning skills, self-assessment ability and teaching awareness had a greater influence on male participants compared to female participants. This resulted in male participants having lower perceptions of the usefulness of reflective thinking practices (Olawale & Hendricks, 2023).

Other research suggests that female teachers tend to be more reflective than male teachers. This may be related to women's tendency to be more open to emotional experiences and

interpersonal understanding, which are important aspects of reflection. Female teachers more often engage in deep reflection related to their teaching practices compared to male teachers (Klug et al., 2014).

Table 5 shows that besides gender, teaching experience is also a factor that differentiates teachers' reflection skills. The results of the study mentioned that teaching experience can affect teachers' reflection ability (Korthagen & Vasalos, 2005). More experienced teachers tend to have a better understanding of the importance of reflection in their teaching practice, and they may be more open to receiving feedback from students and colleagues.

Experienced teachers also tend to be more reflective as they are able to connect theory and practice based on their field experiences (Korthagen & Vasalos, 2005). Teachers with more experience have stronger reflective capacity because they have experienced various situations and challenges in the classroom. Experience gives them more opportunities to evaluate their learning practices, identify areas for improvement, and make adjustments.

Age is another factor that affects teachers' reflection skills. The results of this study are in line with Marcos & Tillema (2006) who stated that older teachers tend to be more comfortable and capable of critical reflection, while younger ones are still at the stage of developing reflection skills. Older teachers tend to have a broader perspective and are able to reflect more deeply than younger teachers. This may be due to emotional maturity and broader life experiences.

Civil servant status and certification are two factors that also influence teacher ability, although the effect is not direct depending on other factors. Participants who are civil servants have better cognitive ability scores than non-civil servants. Job stability, as experienced by teachers with permanent status, tends to provide more opportunity for teachers to focus on professional development, including reflection. Teachers with permanent employment status often have more access to training and resources that support skill improvement, including reflection. However, they also noted that intrinsic motivation is a key factor that influences how actively teachers reflect, regardless of their employment status (Olawale & Hendricks, 2023).

Certification is another factor after employment status. Certification requires continuous professional development for teachers. Good access is an important reason why certification affects reflection skills. Certified teachers are more likely to have access to professional learning communities and training that supports critical reflection on their learning practices.

6. Conclusion

The conclusion from the results of this study shows that the average teacher's reflection skills are good. Although in the application there are still many limitations. This data can be used as an initial introduction and in terms of its components, practical, cognitive and critical abilities are still smaller than other components. The results also show that gender, teaching experience and age play an important role in influencing teachers' reflection skills. Female teachers are often more reflective, teachers with more experience have better depth of reflection, and older age can provide a deeper perspective in the reflection process.

Limitations

This study experienced limitations in the use of instruments. The survey method using self-assessment has limitations, namely conditions in the field where teachers sometimes overestimate or even underestimate their abilities.

Recommendation

The results of this study can be used as an initial assessment or preliminary study that provides data, especially for researchers who will conduct research related to the teacher reflection process. The reflection process should be given intensive attention because of its recognized usefulness in developing teachers' professionalism. The reflection process, especially the ability to practice reflection, must be trained and facilitated. Many teachers feel that they have reflected but are not good at documenting the results of reflection. Therefore, with the

development of technology, it is necessary to develop applications that make it easier for teachers to reflect, especially making reflection journals. In addition, research related to reflection training programs with various causal factors can be a future research theme.

Acknowledgments

Thanks are due to BRIN of the Ministry of Education and Culture for providing the PDP grant so that this research can run properly. Thanks also go to the teacher participants who contributed to filling out the survey.

Conflict of Interest

The authors declare that there is no conflict of interest.

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