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The Profile of Classroom Action Research Skills Among Teachers in Indonesia: What is it Like and What Needs to be Done?

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ABSTRACT

Research skills are crucial for modern teachers to identify and solve learning problems in their classrooms effectively. This study aims to profile teachers' research skills in Indonesia, underscore their importance in today's educational landscape, and propose policy options for enhancement. Using a survey method, questionnaires were distributed to 50 participants selected through purposive sampling to ensure a diverse representation in fields of study, gender, teaching experience, and employment status. This diversity provides a comprehensive understanding of teachers' research skills across various educational contexts. The analysis of the questionnaires was supplemented by in-depth interviews with a selected subset of respondents using a semi-structured format. Quantitative and qualitative methods provided a broad and detailed understanding of teachers' research skills. Content analysis was employed to identify themes and patterns in respondents' experiences. The results indicate that 9% of teachers are at the beginning stage (level 1), 38% need improvement (level 2), 43% are confident (level 3), and only 4% possess strong skills (level 4). Male teachers predominantly exhibit skills at levels 3 and 4, while female teachers are primarily at levels 2 and 3. The study concludes that there is significant variability in teachers' research skills, highlighting the need for targeted professional development programs. Recommendations include extensive training in research methodologies, data analysis techniques, academic writing, mentoring from supervisors, professional development instructors, and research collaborations with university lecturers to enhance teachers' research competence.

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1. INTRODUCTION

Education as the foundation for national development places teachers at the forefront of this effort. However, more research skills among teachers can be necessary to effectively identify and resolve learning issues, thereby impacting the quality of education. Teachers face challenges in Indonesia, such as large class sizes, limited resources, and diverse student readiness levels (Luschei & Zubaidah, 2012). Classroom Action Research (CAR) is a crucial tool for improving learning quality, as it involves teachers directly in identifying, analyzing, and solving classroom problems (Putman & Rock, 2016). Enhancing CAR skills is essential for improving educational outcomes, enabling teachers to address challenges, implement evidence-based solutions, and improve student achievement (Susanti et al., 2015). CAR empowers teachers to explore their potential and act as agents of change in enhancing education quality (Kostandy, 2013).

The educational landscape in Indonesia has seen various transformations, such as implementing the "Merdeka" Curriculum and integrating digital learning tools. These changes necessitate that teachers continuously update their skills, making the ability to conduct CAR even more critical for addressing classroom challenges and improving student outcomes. However, many teachers struggle with CAR due to insufficient training, limited professional development resources, and lack of institutional support. This gap between theory and practice hinders their CAR implementation (Abdusyakur, 2023). Research indicates that public and private school teachers find developing and implementing CAR challenging, often due to limited practical knowledge (Fitria et al., 2019). Successful CAR implementations in other contexts, supported by robust professional

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development programs, demonstrate that adequate training and continuous support significantly enhance teachers' CAR skills (Mertler, 2009).

Teachers' ability to conduct CAR is essential for their professional growth and self-development. The lack of research skills can impede their engagement in CAR, thereby limiting their professional development and the improvement of their teaching practices. CAR is instrumental in continuous professional development, allowing teachers to reflect on their practices, identify areas needing improvement, and implement evidence-based strategies (Ronen, 2020). Teaching continually evolves, so teachers must enhance their knowledge and skills to remain effective. Professionalism encompasses mastery of subject matter and the ability to design and implement innovative learning strategies, manage classrooms, and adapt to diverse student needs (Schleicher, 2016).

CAR encourages teachers to critically analyze and reflect on their teaching practices, fostering innovation and adaptability to the evolving needs of students (Somekh & Zeichner, 2009). With Indonesia's varied educational challenges and regional diversity, CAR is particularly valuable. It allows for tailored interventions that address classroom issues and enhance student engagement and learning outcomes. Teachers proficient in CAR contribute to creating more effective, responsive, and inclusive curricula and teaching methods. The implementation of CAR encounters significant challenges, mainly due to a lack of understanding of its principles and methodology, as well as insufficient training for practical application. Policies should dedicate specific time for research, provide administrative support staff, and establish workshops and training sessions focused on CAR (Rahman, 2019). Limited access to research resources also creates obstacles, making effective CAR challenging for teachers.

Given the significance of CAR skills for teachers, strategic measures are essential to address these challenges. This study proposes key recommendations, including allocating dedicated time for research, reducing administrative workloads, and offering comprehensive professional development programs. These steps enhance CAR skills by allowing teachers to concentrate on research, receive practical training, and obtain ongoing support. Implementing these recommendations will strengthen teachers' capacity to conduct effective CAR, leading to better teaching practices and student outcomes. Intensive and structured CAR training should cover fundamental concepts and provide opportunities for guided action research. Educational policies must also highlight the importance of CAR in teacher professional development.

Understanding the profile of CAR skills among teachers in Indonesia, along with the challenges they face, this article aims to identify areas requiring further attention and intervention. The analysis provides recommendations for educational stakeholders in Indonesia to improve teaching quality and effectiveness through better implementation of CAR. Pinpointing areas needing additional focus and intervention is crucial in enhancing teaching and learning quality. This article intends to significantly contribute to the conversation on improving CAR skills in Indonesia. Ultimately, the goal is to advance education in Indonesia through continuous professional development for teachers, with CAR as a key component of this process.

2. MATERIAL AND METHOD

Study Design

This research utilized a mixed-method approach, combining surveys and in-depth interviews to gather comprehensive data on teachers' CAR skills. The survey method was employed to systematically collect data from a sample population to gain insights and understand patterns, behaviors, and attitudes within the larger population (Nardi, 2018). In-depth interviews were conducted to obtain detailed and nuanced insights into individuals' experiences, perspectives, and motivations, allowing for a deeper understanding of the research topic (Mears, 2012). The study spanned six months. This mixed-method design was selected to capture quantitative trends and qualitative insights, providing a more comprehensive understanding of the research problem.

Participants

The study population consisted of teachers from various fields of study, genders, teaching experiences, and employment statuses in Indonesia. Participants were selected through purposive sampling to ensure diverse representation (Campbell et al., 2020). The criteria for selection included gender, teaching experiences, and employment status. A total of 50 teachers participated in the study, representing these diverse backgrounds and experiences.

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Data Collection Instruments

Data were gathered using structured questionnaires and semi-structured interview guides. Structured questionnaires systematically collect uniform and comparable data from respondents, enabling efficient analysis and interpretation of specific research variables (Cohen et al., 2017). The questionnaire included sections on demographics, CAR knowledge, practical application, measuring skills in identifying problems, planning, implementing, and communicating CAR results. It contained 15 questions adapted from Smith & Rebolledo (2018). The semi-structured interview guide provides a framework for the interviewer, allowing flexibility to probe deeper into specific topics and ensuring both consistency and depth in the responses (Naz et al., 2022).

Data Collection Procedures

The data collection process involved distributing questionnaires to the selected participants and then scheduling and conducting in-depth interviews with a subset of respondents. Questionnaires were distributed electronically and collected over one month. Interviews were conducted virtually, recorded, and transcribed for analysis—the semi-structured format of the interviews allowed for both guided questions and open-ended responses.

Data Analysis

Quantitative data from the questionnaires were analyzed using descriptive statistics with Microsoft Excel. Qualitative data from the interviews were analyzed using content analysis, involving coding and identifying key themes and patterns. This systematic and objective qualitative technique identifies and counts the presence of certain themes, words, or concepts in the data collected (Krippendorff, 2018). Combining these methods allowed for robust analysis, ensuring comprehensive insights into the CAR skills of teachers.

The analysis of teachers' research skill levels was based on the criteria Smith and Rebolledo (2018) established, as shown in **Table 1**. The results of this analysis were then presented in graphs and narratives to provide an overview of teachers' Classroom Action Research skills in Indonesia. Based on these findings and analyses, recommendations and concrete steps were proposed in the reporting section to improve the quality and application of Classroom Action Research by teachers in Indonesia.

Table 1. Levels of research skills

Level	Criteria
0	I do not currently have this competency.
1	I am beginning to apply this competency.
2	I am applying this competency but have areas that require improvement.
3	I am applying this competency with confidence.
4	I am applying this competency with strength.

3. FINDINGS AND DISCUSSION

General Profile of Teachers' Research Skills

The study revealed significant variations in teachers' research skills based on gender, teaching experience, and employment status. These skills were categorized into five levels: Level 0, indicating no competence related to CAR; Level 1, indicating the initial application of CAR competencies; Level 2, indicating the application of CAR competencies with several areas needing improvement; Level 3, indicating the confident application of CAR competencies; and Level 4, indicating the proficient application of these competencies. (Smith & Rebolledo, 2018).

The general profile of teachers' research skills in Indonesia displays considerable variation, as illustrated in **Figure 1.** Teachers' research skills are distributed across levels 1-4, with varying percentages. There are no teachers in category 0 (lacking competence). Only 9% of teachers are at level 1. Conceptually, these teachers have acquired research theory either from their university studies or through professional training(Aripin et al., 2021). These skills include drafting proposals and practicing their implementation in the classroom (Nasrudin et al., 2022). Practically, these skills enable teachers to systematically plan and execute educational interventions, enhancing the effectiveness of teaching strategies. By developing and implementing well-structured research

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proposals, teachers can identify and address specific learning challenges, leading to improved classroom practices. This positively impacts student outcomes by fostering a more engaging and responsive learning environment, enhancing student achievement and motivation.

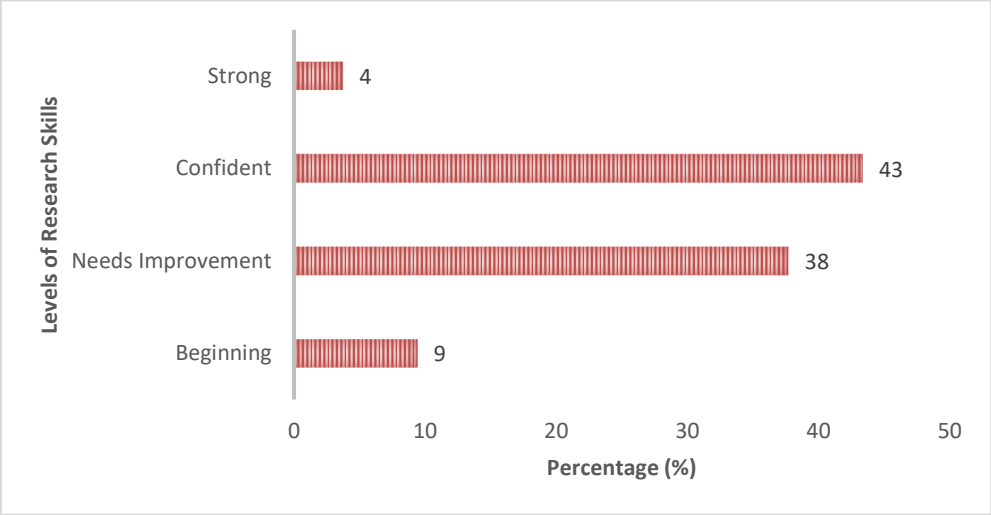

Figure 1. Profile of teachers' research skills levels

Teachers' research competencies are predominantly spread across levels 2 and 3. At level 2, representing 38% of the teachers, there is often practice in CAR, but improvement is still needed in planning, implementation, and publication. Teachers at this level often require assistance from colleagues and supervisors. Level 3 encompasses 43% of the teachers who confidently conduct CAR, having mastered both the concept and practice. The highest level of research skills, level 4 (proficient), includes only 4% of teachers. Teachers at this level have mastered the concepts and practices of CAR and can even mentor others in these competencies (Smith & Rebolledo, 2018).

Researchers interviewed a subset of respondents to validate the data presented in **Figure 1.** For illustration, excerpts from interviews with two respondents, R1 and R2, are included. These respondents were chosen to represent diverse attributes such as gender, teaching experience, and employment status. R1 is a government-employed teacher with over ten years of teaching experience. Below is an excerpt from the interview with R1.

Q : Have you ever received training or education on CAR? If yes, when did you acquire it?
R1 : I learned about CAR theory during my undergraduate studies and through some professional training sessions I attended.
Q : Has CAR become a routine practice for you?
R1 : (smiling) I have only implemented CAR once and am not even sure if I did it correctly.
Q : Why isn't CAR a regular practice for you?
R1 : The main reason might be a lack of motivation. Often, the administrative workload of a teacher is a significant factor. Additionally, there has not been a pressing need to conduct CAR. Usually, teachers become more involved in CAR when seeking promotion.

Based on the interview with R1, it was found that they had learned CAR theory during their undergraduate studies and through various training sessions but had only applied it once. The primary reasons for not implementing CAR included administrative workload and lack of necessity or obligation (Chairunnisa et al., 2020)

Additional interview insights were obtained from R2, a non-government female teacher with 5-10 years of teaching experience. Selected excerpts from her interview are presented below for discussion:

Q : Have you ever implemented CAR in your classroom?
R2 : Yes... a few times.
Q : What motivates you to carry out CAR?

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R2 : For me, the motivation is to participate in outstanding teacher competitions. Sometimes, I am invited by senior teachers to help them get a promotion.
Q : Are there any other motivations?
R2 : Sometimes, I also want to participate in seminars... and CAR becomes material for my presentation.

Findings from the interview with R2 reveal interesting contrasts with the responses from R1. As a non-government teacher, R2 is not required to carry out CAR but still chooses to do so. Her motivations include participating in competitions, assisting senior teachers, and attending seminars. These insights are valuable for policymakers to develop appropriate programs for both categories of teachers, such as those represented by R1 and R2. Current research skills for teachers are often facilitated or required only during final assignments for prospective teachers and promotions among civil servant teachers (Nasrudin et al., 2022).

Teachers may use research theories and training programs to enhance their CAR competencies. These programs might cover qualitative research methodologies, such as case studies and ethnographic research, which help teachers understand classroom dynamics and student behavior. (Candela et al., 2004). Quantitative research training could include statistical analysis and experimental design to evaluate the effectiveness of teaching interventions (Eccles et al., 2003). Combining qualitative and quantitative approaches, mixed-methods research training provides a comprehensive understanding of educational phenomena. (Lund, 2012). Training programs often encompass workshops on action research, seminars on educational research methods, and mentorship opportunities with experienced researchers (Koshy, 2009). These programs typically offer practical experience in drafting research proposals, data collection, analysis, and reporting, equipping teachers with the necessary skills to conduct effective CAR.

Teacher's Research Skills Based on Gender

Analyzing the distribution of research skills among teachers reveals differences between male and female teachers. This comparison highlights key variations in skill levels between genders, providing insights into areas that may benefit from targeted professional development. The profile of teachers' research skills based on gender is summarized as follows: Female teachers predominantly have research skills at levels 2 (49%) and 3 (35%), with a smaller proportion at level 1 (8%). In contrast, male teachers are primarily at levels 3 (35%) and 4 (20%), with the remaining at levels 1 and 2, each at 13%. These findings suggest that male teachers have higher research skills than female teachers, with a significant proportion of males achieving level 4, a level absent among females. This contrasts with previous research findings (Ain et al., 2019). The detailed distribution of these skills is illustrated in **Figure 2.**

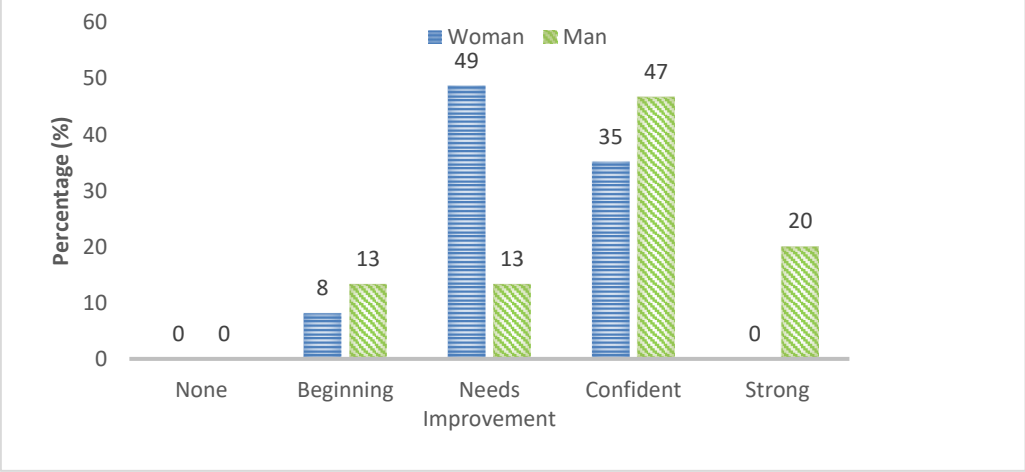

Figure 2. Profile of Teachers' Research Skill Level Based on Gender

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To further explore these findings, the researchers quoted four representative respondents, let us call them R3, R4, R5, and R6. R3 is a female civil servant teacher with 5-10 years of teaching experience and is married, while R4 is a non-civil servant teacher with 5-10 years of teaching experience and is unmarried. Below are excerpts from the interviews with R3 and R4, with the same questions about the knowledge and implementation of CAR in the field.

R3 : As women who have families, sometimes family interests are our priority. Regarding CAR, I understand the concept... and have tried it too. However, since there is no obligation and no demands, it is not always carried out.

R4 : I have done CAR several times, but there is still much to improve... especially when doing collective reflection. Sometimes, I also feel a lack of confidence.

Responses from male teachers, identified as R5 and R6, offer additional perspectives. R5 is a civil servant teacher with over ten years of teaching experience, while R6 has less than five years of teaching experience.

R5 : I conducted CAR when I was applying for a promotion. I had to do it, whether I liked it or not. From a theoretical perspective, I understand CAR and also know how to practice it. However, I asked for help when I had to write the article.

R6 : I have conducted CAR once to try it out. I just wanted to see the difference in the results... I did not make a report on the CAR.

Based on their responses, R3 can conduct CAR theoretically and practically. Despite her skills, she chooses not to perform it regularly due to the lack of guidance, placing her in category 4 (confident) if practiced more frequently. Conversely, R4 has implemented CAR several times but still requires further learning. R5, although proficient in theory and practice, needs improvement in reporting and publication. R6 initially experiments with CAR and requires further training to develop his research skills.

These differences in research skills by gender suggest that female teachers like R3 may have strong theoretical and practical abilities but need consistent support and guidance to practice CAR regularly. This indicates a need for structured mentoring programs to enhance their confidence and regular practice of CAR. On the other hand, male teachers such as R5 might benefit from additional training in specific areas like reporting and publication to utilize their CAR skills fully. These findings highlight the importance of targeted professional development that addresses the unique needs and strengths of both male and female teachers, ensuring they can effectively contribute to educational research and improvement (Li, 2016).

Differences in research skills based on gender can be attributed to several factors. Female teachers might face challenges accessing professional development opportunities due to traditional gender roles and responsibilities outside of work (Bierema, 2001). This limitation can hinder their ability to engage in continuous learning and skill enhancement. Additionally, male and female teachers' societal expectations and support systems may differ, influencing their professional growth (Sabbe & Aelterman, 2007). Male teachers might have more opportunities for mentorship and professional networking, which can enhance their research skills.(Bäker et al., 2020). Understanding these factors is crucial for designing targeted professional development programs that address the specific needs of both male and female teachers, ensuring equitable opportunities for skill development and career advancement.

Teacher Skills Based on Teaching Experience

Teaching skills are fundamental to the effectiveness of classroom learning. Accumulated experience over time significantly enhances these skills. Teachers with extensive teaching experience generally possess a deeper understanding of student needs, classroom management techniques, and effective teaching strategies (Podolsky et al., 2019). They are often more capable of customizing lesson materials to cater to diverse learning styles. This depth of experience allows teachers to implement a more holistic and inclusive educational approach, addressing both academic content and students' social-emotional development.

This study presents notable findings on the variation of research skills with teaching experience. Teachers with less than five years of experience typically fall into the 'needs improvement' and 'proficient' categories.

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Those with five to ten years of experience are predominantly at intermediate levels, although not yet reaching full proficiency. Teachers with over ten years of experience display a broad spectrum of skills, ranging from low to high proficiency. These results indicate that while some highly experienced teachers have developed advanced research skills, a significant number still require further development. Teachers with intermediate experience demonstrate relatively high skills, though none are fully proficient; some are at the beginning stages of their research activities. It is also observed that all teachers with less than five years of experience are found within the 'needs improvement' and 'proficient' categories. These findings are consistent with prior research (Feldon et al., 2011). **Figure 3** illustrates the detailed distribution of these skills.

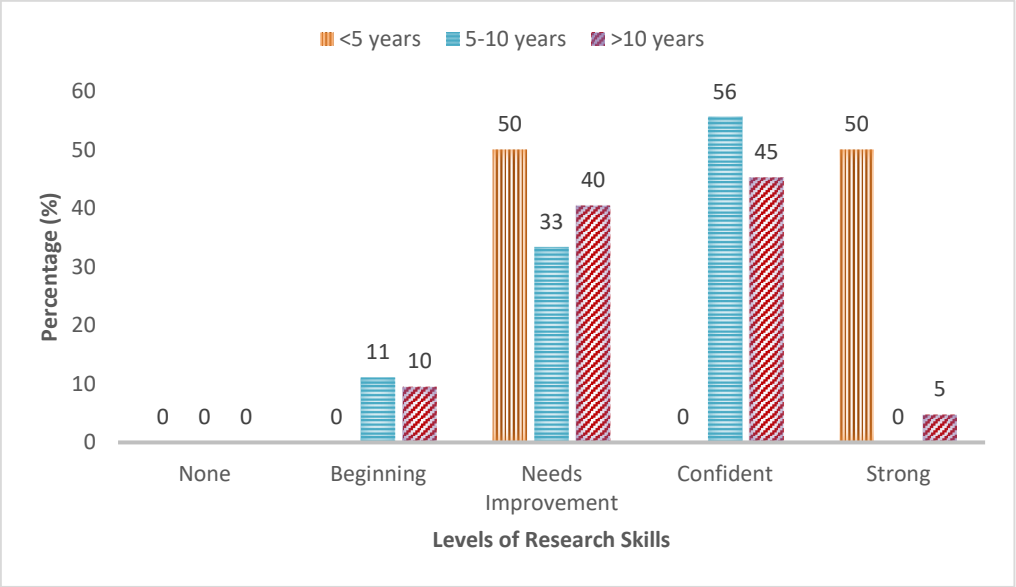

Figure 3. Profile of Teachers' Research Skill Level Based on Teaching Experience

Although theory suggests a linear correlation between teaching experience and research skills, various factors contribute to the observed variations. Teachers with extensive experience may encounter challenges aligning their methods and approaches with new educational developments. In contrast, less experienced teachers may lack practical experience but benefit from recent training and familiarity with current educational trends. These factors help explain why teachers with different experience levels exhibit variations in research skills. An interview with R7, a male teacher with less than five years of teaching experience, provides further insights into these findings.

R7 : I have not been teaching for long. However, as a young teacher, I am often asked for help by senior colleagues, especially in matters related to IT and research. Since my university days, I have frequently been involved in joint research projects with lecturers, including publications.

Fresh graduate teachers who gained substantial research experience during their university studies can positively impact their performance when they begin teaching. R7's experience indicates that teaching experience does not always correlate linearly with a teacher's research skills. This highlights the importance of collaboration between junior and senior teachers in conducting and publishing CAR. Combining new perspectives and contemporary knowledge from newer teachers with the wisdom and experience of veteran educators can enhance the overall effectiveness and innovation in educational research and practice (Bleicher, 2014).

Teacher Research Skills Based on Employment Status

Research skills in teachers are crucial for professional development and improving the quality of learning. Whether as public servants or private employees, employment status often affects teachers' access to resources, training, and opportunities to conduct research. Teachers in public schools may have more access to research

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funding and professional training. In contrast, teachers in private schools might have greater flexibility in implementing innovative teaching methods informed by current research. These differing circumstances contribute to variations in the research skills of teachers.

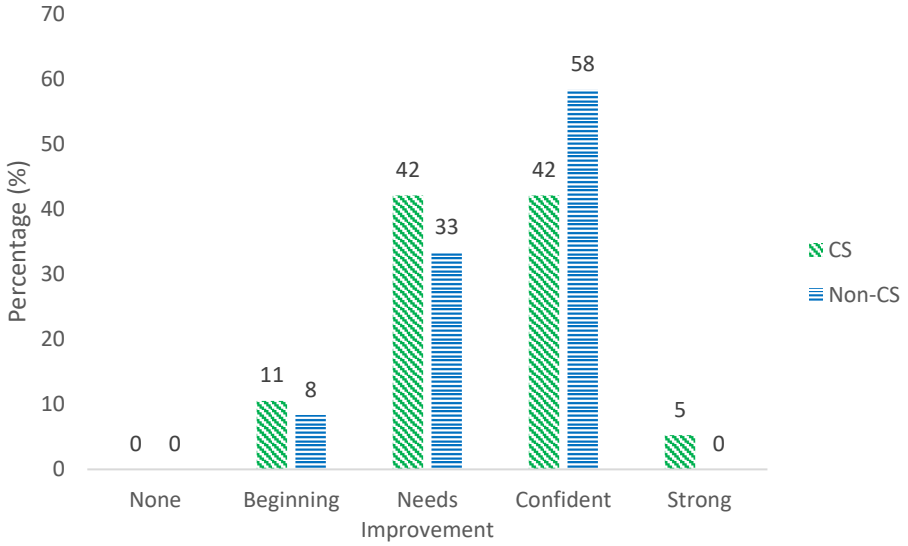

Figure 4. Profile of teachers' research skill levels based on employment status.

According to **Figure 4**, public school teachers have higher research skills due to better resource access and training opportunities. In contrast, private school teachers may have lower research skills due to limited access to formal research support despite having more flexibility in their approach. These findings highlight the need for targeted professional development to address these disparities and enhance research skills across different employment contexts (Mertler, 2018).

Several factors contribute to differences in research skills based on employment status. Public servant teachers often have greater access to research funding, professional training, and institutional support, which can enhance their research capabilities. Despite having fewer formal requirements to publish scientific works, non-public servant teachers may develop research skills driven by personal motivation and a desire to improve their teaching practices.

These findings have important implications for professional development programs. Enhancing existing support structures and providing more advanced research training for public servant teachers could further elevate their research skills. For non-public servant teachers, creating more formal training, support opportunities, and incentives to engage in research activities could help bridge the gap. Tailored professional development programs that address both groups' specific needs and contexts are essential to fostering a culture of continuous improvement and research in education (Webster-Wright, 2009).

Specific steps that can make CAR a regular practice for all teachers include providing dedicated time within the school schedule for CAR activities and ensuring this time is protected from other responsibilities; offering ongoing professional development and training workshops focused on CAR methodologies and best practices (Danielson, 2007); establishing mentorship programs where experienced researchers guide and support teachers in their CAR efforts (Karcher et al., 2006); integrating CAR requirements into teacher evaluation and career advancement criteria to emphasize its importance; and creating a collaborative environment through regular meetings and discussion groups where teachers share their CAR projects, findings, and experiences (Booch & Brown, 2003). Securing funding and resources to support CAR initiatives and providing access to relevant research materials and tools can further facilitate the regular practice of CAR among teachers (Archibald et al., 2011; Thomas, 2016).

Educational institutions and policymakers can collaborate to develop and implement a roadmap for CAR theory and practice. Establishing a clear and shared vision for the role of CAR in educational improvement is essential. Creating joint committees or task forces with representatives from schools, universities, and government agencies ensures diverse perspectives and expertise (Council et al., 2010). These committees can

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identify key areas for CAR integration and establish guidelines and standards for CAR implementation across different educational levels. Providing funding and resources, such as grants for research projects and access to training programs, is crucial. Developing and disseminating comprehensive training materials and resources covering CAR theory and practical application can help teachers at all stages of their careers. Regularly evaluating the impact of CAR on educational outcomes and making adjustments to the roadmap based on feedback and data will ensure its ongoing relevance and effectiveness. Collaborative efforts in organizing workshops, conferences, and seminars on CAR can promote a culture of continuous professional development and knowledge sharing among educators (McLaughlin & Black-Hawkins, 2007).

Limitation and Recommendations

A primary limitation of this research is the small sample size, which may affect the generalizability of the findings to a broader population of teachers. This constraint implies that the results might not fully represent the diversity of research skills among all teachers in Indonesia. Additionally, reliance on self-reported data may introduce bias, as participants might overestimate or underestimate their research skills. Future research should consider using a larger sample size and incorporating more objective measures of research skills to validate the results and provide a more comprehensive understanding.

Based on the findings of this study, several recommendations can be made to enhance teachers' research skills. Schools and educational institutions should offer ongoing professional development opportunities focused on CAR (Tunks, 2011;Rizakhojayeva, 2020). Regular workshops and training sessions can help teachers develop their research skills continuously (Mokkapati & Mada, 2018; Basilio & Bueno, 2019; Aripin et al., 2021) Establishing mentorship programs where experienced researchers and educators guide teachers in conducting CAR will provide necessary support and improve the quality of research (Ingersoll & Strong, 2011;Jacobson et al., 2020). Additionally, providing access to research materials, tools, and funding will support teachers' CAR initiatives. Promoting collaboration and knowledge sharing through regular meetings, discussion groups, and conferences will foster a collaborative environment and promote continuous learning among teachers (Hill & Haigh, 2012).

4. CONCLUSION

This research has successfully demonstrated the diverse distribution of research skills among teachers in Indonesia, highlighting variations based on gender, teaching experience, and employment status. The findings suggest that while some teachers possess high research skills, others require significant development and support. To address these disparities, educational policies should recognize the importance of CAR as a critical component of effective teaching practices, encouraging its regular implementation among all teachers. Additionally, establishing platforms for national seminars on CAR results and providing regular mentoring from supervisors and university faculty can enhance the quality and impact of CAR projects. Despite the small sample size, which limits the generalizability of the results, this study provides valuable insights and recommendations for improving teachers' research skills and fostering a culture of continuous improvement in education.

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