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Improving Student Achievement Through Teacher Characteristics: Literature Review and Educational Policy Recommendations to Improve Teaching Quality

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ABSTRACT
This article examines the influence of teacher characteristics on student achievement, focusing on key factors such as formal education, teaching experience, and teacher self-efficacy. Based on a literature review, this study found that teacher characteristics play a significant role in improving teaching quality and student academic achievement. Furthermore, student perceptions of teaching quality also play a significant role as a mediator in strengthening the influence of teacher characteristics on student achievement. This study also identified that educational policies that support ongoing teacher training, transparent performance evaluations, and rewards for outstanding teachers are essential to improving teaching quality in Indonesia. Developing policies that support the development of teacher characteristics is expected to create a more effective learning environment, leading to improved student achievement throughout Indonesia. This article also provides suggestions for further research on other factors influencing the relationship between teacher characteristics and student achievement, as well as the influence of social and cultural contexts on education policy in Indonesia.

KEYWORDS
teacher characteristics, student achievement, education policy, self-efficacy, teacher training.

1. Introduction

Background

Education in Indonesia continues to face complex and diverse challenges, particularly in ensuring equitable access to quality learning across regions. Recent evidence shows that disparities in educational quality are still influenced by socioeconomic background, geographic location, school facilities, and the availability of qualified teachers. The OECD PISA 2022 report indicates that socioeconomically advantaged students in Indonesia outperformed disadvantaged students by 34 score points in mathematics, showing that inequality remains an important issue in student learning outcomes. In addition, UNICEF Indonesia's 2024 Annual Report highlights that, despite progress in expanding access to education, significant gaps remain in ensuring equitable and quality education, especially for children with disabilities and students at early childhood and secondary education levels. The Ministry of Education's Rapor Pendidikan Indonesia, which has been used since 2022 to support school and local government planning, also shows the importance of data-based strategies to improve the quality of learning services across regions. Therefore, improving education quality in Indonesia requires not only

expanding access and facilities but also strengthening teaching quality, teacher competence, and learning support systems, particularly in disadvantaged, remote, and vulnerable communities.

One of the main factors influencing the quality of education is teacher characteristics. According to the Ministry of Education and Culture (2020), teachers play a crucial role in determining student achievement, both in terms of academic ability and non-cognitive skills. These teacher characteristics encompass several dimensions, such as formal education, teaching experience, and teacher self-efficacy in managing the classroom and teaching the material. More teaching experience and formal education relevant to the subject matter can have a positive impact on teaching and student learning outcomes. Furthermore, teacher self-efficacy also influences how they manage the classroom, deliver material, and interact with students.

However, although teacher characteristics significantly influence student achievement, the greatest challenge facing education in Indonesia is the lack of professional training for teachers. Inadequate or unsustainable training often hinders the improvement of teacher skills and competencies. Research by the OECD (2020) shows that Indonesia has one of the lowest levels of teacher training compared to other ASEAN countries. This results in suboptimal teaching quality, which ultimately impacts student academic achievement. In line with this, research by Liputo et al. (2026) also highlights that poorly managed job satisfaction and stress, resulting from a lack of training and support for teacher professional development, can impact teacher performance and ultimately student achievement in schools. This research suggests that organisational culture and principal leadership that support teacher professional development can improve teaching quality and reduce job stress, contributing to improved student achievement at the senior high school level in Jambi Province.

In this context, the importance of quality teacher characteristics becomes highly relevant. Characteristics such as adequate education, extensive teaching experience, and high self-confidence in teaching can improve the quality of instruction received by students. Therefore, this study focuses on how teacher characteristics, both directly and indirectly, influence student achievement and how student perceptions of teaching quality can mediate this influence. This study will also discuss educational policies that can encourage improvements in teacher characteristics, which in turn will contribute to improving the quality of education in Indonesia.

This topic was chosen considering the crucial role of teachers in improving the quality of education in Indonesia, which currently faces significant challenges in terms of equity and quality improvement. With policies that support the development of teacher characteristics, such as continuous training and teacher professional certification, it is hoped that significant improvements in teaching quality will occur, which will ultimately contribute to improved student achievement throughout Indonesia. This research aims to provide insights into the importance of teacher characteristics in teaching and how education policies can be adjusted to more effectively support the development of these characteristics.

Quality education is strongly influenced by teacher characteristics, such as education, teaching experience, and self-confidence. This literature review aims to identify teacher characteristics that influence student achievement and understand the mechanisms of their influence, both directly and

through mediators such as student perceptions and parental involvement. Based on the literature review, this study will formulate policy implications that can improve the quality of teaching, such as ongoing training and development of teacher education in Indonesia. Based on this background, the problem formulation in this study is as follows:

Problem Formulation"

Based on the background above, this study focuses on examining the role of teacher characteristics in improving student achievement. Specifically, this article seeks to identify the teacher characteristics that influence student achievement, including education, teaching experience, and self-efficacy. In addition, this study also aims to explain the mechanisms through which teacher characteristics affect student achievement, both directly and indirectly through mediating factors such as students' perceptions of teaching quality. Finally, this article discusses the policy implications that need to be implemented to improve the quality of teaching in Indonesia, particularly through continuous teacher training, professional development, and performance evaluation. Therefore, the discussion in this article is directed toward understanding how teacher characteristics can become an important foundation for improving teaching quality and student learning outcomes.

2. Literature review

Teacher Characteristics

Teacher characteristics play a crucial role in shaping the quality of teaching and student achievement. These characteristics encompass various factors that influence teacher performance in the classroom, such as formal education, teaching experience, self-efficacy, communication skills, and classroom management. Recent studies show that teacher quality remains closely associated with student achievement, particularly when teachers demonstrate strong pedagogical competence, effective instructional strategies, and the ability to create a supportive classroom environment. Engida (2024) found that teaching quality in mathematics and English is associated with students' academic achievement, especially when teachers are evaluated through professional standards of classroom practice. In addition, Emiru (2024) emphasized that teacher self-efficacy has a significant relationship with student learning engagement, indicating that teachers' confidence in managing instruction and motivating students can contribute to better learning outcomes. Similarly, Jiang (2024) showed that supportive teacher-student relationships and effective classroom management are related to better classroom climate, which supports student learning. Therefore, teacher characteristics, including educational background, professional competence, teaching experience, self-efficacy, communication skills, and classroom management, should be considered important factors in improving teaching quality and student achievement.

This is also in line with the opinion of Ki Hajar Dewantara, an Indonesian educational figure, who stated that good education begins with skilled and well-educated teachers. According to Dewantara, a teacher must be able to develop themselves and adapt their teaching methods to students' needs in order to provide a quality education, as teachers are the spearheads in shaping student character and achievement (Dewantara, 1947). In his view, effective education can only be achieved if teachers possess adequate competencies and continuously hone their skills.

Meanwhile, teachers' self-efficacy, or their belief in their ability to manage the classroom and teach material effectively, has also been shown to significantly influence student achievement. Bandura (1997) stated that teachers with high self-efficacy tend to use more innovative teaching strategies and are confident in facing challenges in the classroom. Research by Tschannen-Moran & Hoy (2001) supports this by showing that teachers with high self-efficacy are better able to motivate students and create a positive learning environment, which directly impacts student achievement. In Indonesia, teacher self-efficacy has also been shown to influence teaching quality, despite challenges in ongoing training and professional development (Siregar & Irianto, 2021).

Communication and classroom management skills are two other equally important elements of teaching. Teachers who communicate well and deliver material clearly tend to be more successful in fostering better understanding among students. Hattie (2009) in his meta-analysis study stated that effective communication and teachers' ability to manage their classroom well are closely related to student achievement. Teachers who can manage time and maintain classroom order also tend to maximise student learning time, which contributes to better academic outcomes.

Several previous studies have also highlighted the importance of teacher characteristics in influencing student achievement. Danişman, Güler, & Karadağ (2019) in their meta-analysis found that teacher characteristics, such as pedagogical competence, personal qualities, and instructional management, have a positive influence on student achievement, although the effect is relatively small. This research provides important insights that although teacher characteristics are highly influential, other factors also play a role in determining student learning outcomes. Similarly, Toropova et al. (2019) in their study found that teacher quality, which includes aspects such as students' perceptions of teaching quality, is closely related to student achievement, and this indicates the importance of interactions between teachers and students in the learning process.

Sancassani (2023) also found that subject certification and subject-specific qualifications were associated with improved student test scores, particularly in science. While the effects of other characteristics varied, this study showed that teachers with specific certifications in their subject areas were able to significantly improve student learning outcomes compared to teachers without such certifications.

On the other hand, Canales et al. (2018) showed that teaching quality and teacher experience significantly impacted student achievement in mathematics and language in Chile, a country with similar challenges to Indonesia in terms of educational quality. This research reinforces the understanding that teacher experience and good teaching quality can improve student achievement, which also applies to the Indonesian educational context.

Overall, teacher characteristics are a significant factor in influencing student achievement. Therefore, developing teacher competencies through ongoing training, increasing self-efficacy, and policies that support communication and classroom management skills are crucial for improving the quality of teaching in Indonesia. Education policies that support the development of these characteristics can contribute to improving the overall quality of education and student learning outcomes in Indonesia.

Education Policy Related to Developing Teacher Characteristics

To improve teaching quality and student achievement, it is crucial to focus on developing teacher characteristics. One highly influential policy in Indonesia is teacher certification, which aims to ensure that every teacher possesses the minimum qualifications required to teach effectively. The Ministry of Education and Culture (2021) reports that teacher certification has improved teachers' professional competence in terms of pedagogical knowledge and teaching skills. However, ongoing, practice-based training is essential to further improve teaching quality.

Ongoing professional training is key to improving teacher pedagogical competence and self-efficacy. Darling-Hammond (2020) emphasised that training programs based on teaching practice and reflective evaluation can help teachers develop more effective teaching skills. This aligns with the findings of Siregar & Irianto (2021), who showed that practice-based training, involving classroom simulations and observer feedback, can increase teachers' confidence in managing classes and delivering materials, which in turn contributes to improved student achievement.

Furthermore, policies that support the development of teacher self-efficacy are crucial. Teachers with high self-efficacy tend to be more confident in implementing effective teaching methods and are able to create a positive classroom environment that supports student learning. Research by Tschannen-Moran & Hoy (2020) shows that teacher self-efficacy is directly related to teacher performance, and teachers who feel capable of managing their classrooms and teaching have a greater influence on student achievement.

Effective education policies must address the development of pedagogical competence through continuous training and teacher self-efficacy. Research by Sancassani (2023) emphasises the importance of subject-specific certification in improving student learning outcomes, particularly in specific areas such as science. In Indonesia, despite the implementation of certification policies, the gap in training between teachers in urban and rural areas remains a significant challenge. Therefore, a decentralisation policy on training that provides greater access for teachers in remote areas is crucial to ensuring equitable improvements in the quality of education.

With policies that support the development of teacher characteristics through ongoing training, certification, and strengthening self-efficacy, it is hoped that the quality of teaching in Indonesia can improve, which in turn will improve student achievement and the overall quality of education.

3. Methodology

Research Type

The type of research used in this article is a literature review. This approach was chosen to examine various previous studies relevant to the topic of teacher characteristics and their influence on student achievement. Through this literature review, the article aims to identify and analyse various previous research findings and provide a comprehensive overview of the relationship between teacher characteristics and student achievement. Furthermore, this literature review will also assess the extent to which various factors, both internal and external, influence teaching quality and student achievement.

By utilising this approach, the author hopes to formulate a clearer picture of the mechanism of influence of teacher characteristics on student academic achievement, as well as gain insight into educational policies

that support improving the quality of teaching.

Data Sources

The primary data sources in this study come from scientific journals, textbooks, research reports, and relevant articles focusing on the influence of teacher characteristics on student achievement. These sources were selected based on their depth and validity in providing empirical evidence related to the topic discussed. In addition to more recent and up-to-date references, this study also draws on classical literature that has provided a solid theoretical foundation in education, including Ki Hadjar Dewantara, who introduced the "Tut Wuri Handayani"-based educational philosophy and emphasised the importance of teacher characteristics in shaping student character. Furthermore, older literature was also used to understand the basic educational theories that emerged in the early days of the modern education system in Indonesia.

To ensure diversity and depth of sources, the selected articles include not only meta-analyses, case studies, and scholarly articles from leading journals such as Teaching and Teacher Education, the Journal of Educational Psychology, and the Review of Educational Research, but also important older literature. These references provide a deep understanding of the relationship between teacher characteristics and student achievement, from both the perspective of classical educational theory and recent findings that point to more effective educational policy.

By combining references from the classical period and current research, it is hoped that this study will be able to provide a comprehensive and holistic picture of the role of teacher characteristics in influencing student achievement in the current Indonesian educational context.

Analysis Method

The analysis used in this study combines two main approaches: thematic analysis and critical synthesis, which play a crucial role in exploring and categorizing key findings from previous research regarding the influence of teacher characteristics on student achievement.

Thematic analysis was conducted to identify and group research findings into relevant themes, such as teacher characteristics, student achievement, and educational policies that support teacher characteristic development. Each of these themes was examined in depth to assess the factors influencing the relationship between teacher characteristics and student achievement. The teacher characteristics theme encompassed aspects such as education, teaching experience, self-efficacy, communication skills, and classroom management. The student achievement theme explored various internal and external factors that contribute to student learning outcomes, including motivation, family support, and the quality of instruction students receive. The education policy theme addressed policies related to teacher training, certification, and professional development, which are crucial for improving overall teaching competence and quality.

Furthermore, in a critical synthesis, this study evaluated and critiqued existing research findings to gain a deeper understanding of the mechanisms underlying the relationships between variables and to identify gaps in the previous literature. This approach aimed to uncover weaknesses or limitations in research design, methodology, and contexts that have not been widely addressed in previous research. This synthesis also serves to identify areas requiring further research, such as the influence of teacher

characteristics across different cultural contexts and educational systems. Thus, the critical synthesis provides a more comprehensive picture of the relationship between teacher characteristics and student achievement.

Overall, the methodology in this study aims to deepen understanding of the factors influencing student achievement through teacher characteristics and to formulate educational policy implications that can be applied to improve the quality of teaching and learning in Indonesia. This study relies on a review of existing literature to contribute to the development of more effective and relevant policies in the Indonesian educational context.

4. Results

Thematic Findings on Teacher Characteristics

The literature review identified three dominant teacher characteristics related to student achievement: formal education, teaching experience, and teacher self-efficacy. Formal education, especially when aligned with the subject taught, was consistently reported as a factor that supports teachers' ability to explain content clearly and organise learning activities effectively. Darling-Hammond (2000) and Dewantara (1947) emphasise that teacher knowledge and professional competence are foundational elements in quality instruction.

Teaching experience also emerged as an important factor. Studies by Clotfelter et al. (2007) and Canales et al. (2018) indicate that experienced teachers tend to manage classrooms more effectively and adjust teaching strategies according to students' needs. However, Chetty et al. (2014) note that the effect of experience may decline after a certain point, suggesting that length of service alone is not sufficient without continuous professional learning.

Subject-specific qualification and certification were also found to be relevant. Sancassani (2023) shows that teachers with qualifications in the subjects they teach, particularly in technical subjects such as science and mathematics, are associated with better student test scores. This finding supports the importance of aligning teacher preparation with subject-matter demands.

Teacher self-efficacy was another recurring finding in the reviewed literature. Bandura (1997) and Tschannen-Moran and Hoy (2001) show that teachers who believe in their ability to manage learning tend to use more effective teaching strategies, create a more positive classroom climate, and motivate students more successfully.

Findings on Student Perceptions and Policy Themes

The review also found that student perceptions of teaching quality function as an important mediating factor. Feldman (1996), Pianta et al. (2008), Hernández et al. (2021), Barkley et al. (2022), and Huang and Liang (2023) indicate that students respond more positively when teachers explain material clearly, provide emotional and academic support, and build constructive classroom relationships.

In relation to education policy, the literature highlights three recurring themes: continuous professional training, transparent teacher performance evaluation, and recognition or rewards for teachers with strong performance. These themes appear repeatedly in studies discussing the improvement of teaching quality and teacher professionalism in Indonesia.

5. Discussion

Interpretation of the Results

The findings indicate that teacher characteristics influence student achievement not only through teachers' academic qualifications, but also through the way teachers transform their knowledge into classroom practice. Formal education provides the knowledge base, while teaching experience and self-efficacy shape how that knowledge is delivered, adjusted, and sustained in real learning situations.

The repeated finding that experience has limits is important for policy discussion. Seniority should not be treated as the only indicator of teacher quality. Instead, experience needs to be strengthened through reflective practice, mentoring, classroom-based training, and continuous evaluation. This means that professional development should be designed as a long-term process rather than a one-time certification requirement.

Student perceptions also help explain the mechanism through which teacher characteristics affect achievement. A teacher may possess strong academic qualifications, but the impact on students becomes stronger when students perceive the teaching process as clear, supportive, and meaningful. Therefore, teaching quality should be understood as an interaction between teacher competence and student learning experience.

Policy Implications for Improving Teaching Quality in Indonesia

Based on the findings, education policy in Indonesia should prioritise continuous and practice-based teacher training. Training should focus not only on academic content, but also on pedagogical skills, classroom management, communication, student engagement, and teacher self-efficacy. Such training is particularly important for teachers in rural and remote areas where access to professional development remains limited.

Teacher performance evaluation should also be strengthened. Evaluation needs to include classroom processes, teacher-student interaction, peer feedback, self-reflection, and student feedback, rather than relying only on final student scores. A more holistic evaluation model can help teachers identify areas for improvement and encourage more adaptive teaching practices.

Finally, policy support should include teacher welfare and recognition. Teachers who feel supported, fairly evaluated, and professionally appreciated are more likely to maintain motivation and improve their instructional performance. Therefore, policies on training, evaluation, certification, welfare, and rewards should be integrated as part of a comprehensive strategy to improve teaching quality and student achievement in Indonesia.

6. Conclusion

Summary of Findings

Teacher characteristics, particularly teaching experience, formal education, and self-efficacy, have been shown to have a significant influence on improving student achievement. Greater teaching experience enables teachers to manage classrooms more effectively and adapt their teaching approaches to students' needs. Formal education relevant to the subject matter also contributes to teachers' ability to convey

learning materials clearly and systematically. Furthermore, teacher self-efficacy plays a key role in motivating students and creating a positive learning environment. Student perceptions of teaching quality are also highly influential, as students who feel valued and supported by their teachers tend to be more motivated to learn and demonstrate better academic performance.

Overall, this study has answered the research questions by showing that teaching experience, formal education, and teacher self-efficacy are important teacher characteristics that influence student achievement. These characteristics affect student achievement both directly and indirectly through mediating factors, particularly students' perceptions of teaching quality. In addition, the findings indicate that educational policies aimed at improving teaching quality in Indonesia should focus on continuous teacher training, transparent performance evaluation, and rewards for outstanding teachers. Such policies are essential to support teacher professional development, improve teaching quality, and ultimately enhance student achievement.

Recommendation:

The implementation of policies that support improving the quality of teaching should focus on continuous training for teachers to strengthen their pedagogical competencies. Furthermore, policies that ensure transparent teacher performance evaluation and provide rewards for outstanding teachers will encourage professional development and increase teacher motivation. This is expected to continuously improve the quality of teaching, which ultimately impacts student achievement.

Suggestions for Further Research:

Further research is needed to explore other factors that influence the relationship between teacher characteristics and student achievement, such as the social and cultural context in Indonesia. More in-depth research can reveal how local context and cultural diversity influence the implementation of education policies and the development of teacher characteristics in Indonesia.

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