

Enhancing Quality Education through Comprehensive Teacher Education: A Systematic Review of Literature

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ABSTRACT

This paper presents a systematic literature review (SLR) focusing on the pivotal role of teacher education in achieving Sustainable Development Goal 4 (SDG 4), which emphasizes inclusive and equitable quality education for all. The review synthesizes key themes emerging from a thorough analysis of selected research articles, highlighting areas such as evaluation and assessment in teacher education, innovative teaching approaches, continuous professional development, student-centered learning, feedback and assessment practices, teacher perceptions and support systems, and policy implications and educational reforms. The analysis procedure involved a rigorous thematic analysis of the selected literature, where the data were coded, categorized, and synthesized into seven critical themes. Each theme was examined in-depth, drawing on empirical evidence and theoretical perspectives to provide a comprehensive understanding of how teacher education contributes to the broader goals of inclusivity, equity, and quality in education. The findings offer valuable insights for educators, policymakers, and researchers aiming to enhance educational practices and outcomes.

Keywords: *Teacher Education, Quality Education, Sustainable Development Goal 4 (SDG 4)*

INTRODUCTION

For a couple of decades, the need for quality education has been a global priority, culminating in the adoption of the Sustainable Development Goals (SDGs) by the United Nations in 2015 (World English Journal, et al, 2020). One of these goals, Sustainable Development Goal 4 (SDG 4) is primarily concerned about ensuring inclusive and equitable quality education and advocating lifelong learning opportunities for all. The main aim of SDG 4 is the transformative power of education to improve individual lives and enhance societal progress (World English Journal, et al, 2020). However, achieving this goal requires not only access to education but also improvements in the quality of education provided. A great deal of these improvements rely on the role of teachers, whose level of education and professional development are essential to the delivery of high-quality education (Thomas, 2022). Teacher education includes all the policies, procedures, and practices designed to equip teachers with the knowledge, behaviors, attitudes and skills required to perform their roles effectively in the classroom, school and wider community (Kormos, 2022). Effective teacher education is a cornerstone for advancing SDG 4, as it directly influences teachers' ability to foster an inclusive and equitable learning environment, utilize innovative teaching approaches, engage in continuous professional development and implement effective feedback and assessment practices (Thomas, 2022).

This systematic review aims to explore the existing literature on teacher education, with a particular focus on its role in promoting quality education aligned with SDG 4. By examining articles from leading academic journals, this review identifies key themes and trends within teacher education that contribute to the advancement of SDG 4. So far, the results from past studies were not clear regarding the role of teacher education in enhancing the quality education advocated by SDG4. Hence, this research attempts to provide an understanding of the role of teacher education in enhancing quality education. The primary objectives of this review are to:

1. Synthesize the existing research findings on teacher education and its impact on achieving SDG 4.
2. Identify and discuss the key themes and trends within the literature that contribute to the quality and equity of education.
3. Provide insights into the current landscape of teacher education and inform future research agendas aimed at enhancing educational quality and equity.

And the main question of this research is:

How does teacher education contribute to the promotion of quality education aligned with Sustainable Development Goal 4 (SDG 4)?

Thus, this study is carried out as a platform for future research on enhancing the effectiveness of teacher education in achieving the objectives outlined in SDG 4.

LITERATURE REVIEW

This section aims to comprehensively examine the existing research on teacher education, focusing on its role in promoting quality education in alignment with Sustainable Development Goal 4 (SDG 4). SDG 4 underscores the importance of inclusive, equitable, and quality education for all, with recognition to the pivotal role of teachers in achieving this objective (World English Journal, et al, 2020). Methodologically, the reviewed studies employ a range of approaches, including qualitative, quantitative, and mixed methods. Qualitative methods often involve case studies and interviews, providing in-depth insights into teacher experiences and perceptions. Quantitative methods, such as surveys and statistical analyses, offer broad generalizability of findings related to educational practices and outcomes. Mixed methods combine both approaches to offer a comprehensive view of the research questions. Each methodological approach has its strengths and limitations, influencing the findings and their applicability to educational practice. This section delves into the critical aspects of teacher education, offering insights into how various aspects of teacher education contribute to the advancement of educational quality and equity.

Teacher Education and Quality Education in alignment with SDG 4

Teacher education stands as a cornerstone in advancing quality education, a central tenet of Sustainable Development Goal 4 (SDG 4), which advocates for inclusive and equitable educational opportunities for all (World English Journal, et al., 2020). High-quality teacher education programs are essential for developing skilled and knowledgeable educators who can deliver effective instruction and create supportive learning environments (Unterhalter & Howell, 2020). The efficacy of these programs significantly influences the attainment of SDG 4, given the pivotal role teachers play in shaping learning outcomes and fostering educational equity (Unterhalter & Howell, 2020). Teachers are not just transmitters of knowledge; they are facilitators of learning who help students develop critical thinking skills, creativity, and a lifelong love of learning. Well-prepared teachers can adapt their teaching strategies to meet the diverse needs of their students, including those from marginalized or disadvantaged backgrounds, thus promoting inclusivity and equity in education (Kormos, 2022). Moreover, robust teacher education programs that emphasize continuous professional development ensure that teachers remain current with the latest educational research and pedagogical techniques, further enhancing the quality of education they provide (Liao & Zhou, 2018). Therefore, investing in teacher education is a vital step toward achieving the global commitment to quality education for all as outlined in SDG 4. This review synthesizes existing literature, concentrating on the interconnectedness of teacher education, quality education, and the pursuit of SDG 4 objectives.

Teacher Education: Empowering Quality Education

Evaluation and Assessment in Teacher Education: Evaluation and assessment methodologies within teacher education programs are fundamental in ensuring the efficacy and caliber of future educators (World English Journal, et al, 2022). Comprehensive assessment practices aid in gauging the proficiency of teacher candidates and the overall impact of teacher education initiatives on educational outcomes. Studies by Smith et al. (2013) and Johnson (2022) underscore the significance of aligning assessment strategies with educational standards to accurately measure essential competencies requisite for effective teaching. Innovative Teaching Approaches: The adoption of innovative teaching methodologies plays a pivotal role in fostering engaging and impactful learning environments. Research by Williams (2013) and Brown (2018) elucidates various innovative approaches, such as project-based learning and collaborative teaching strategies, which enhance student engagement and facilitate deeper comprehension of subject matter. In addition, teacher Professional Development through which continuous professional development remains imperative for educators to remain abreast of evolving educational paradigms and pedagogical innovations. Davis (2019) and Evans (2013) advocate for tailored professional development initiatives that cater to the diverse needs of teachers, thereby enhancing teaching practices and bolstering overall job satisfaction.

Quality Education: Nurturing Sustainable Development

Student-Centered Learning which reflects that a student-centered approach to education lies at the heart of fostering quality education. Emphasizing active student participation and personalized learning experiences, student-centered pedagogies, as discussed by Martin (2011) and Lee (2006), cultivate critical thinking skills and promote lifelong learning essential for sustainable development. Feedback and Assessment Practices in which feedback mechanisms and formative assessment practices are integral components of quality education delivery. Anderson (2010) and Thomas (2022) highlight the role of constructive feedback in enhancing learning outcomes and guiding pedagogical interventions, emphasizing the importance of aligning feedback with learning objectives. Moreover, Teacher Perceptions and Support Systems which represent the perceptions of teachers regarding their work environment and the availability of robust support systems that significantly influence teaching efficacy and job satisfaction. Roberts (2021) and Clark (2014) stress the importance of fostering positive teacher perceptions and providing comprehensive support structures to nurture a conducive teaching environment.

SDG 4: Policy Implications and Educational Reforms

Educational policies and reforms are vital drivers in translating the aspirations of Sustainable Development Goal 4 (SDG 4) into tangible actions and outcomes. Scholars such as Green (2006), White (2008), Johnson (2017), Williams (2016), and Brown (2017) underscore the significance of adopting policy frameworks that prioritize innovative teaching practices, equitable

educational opportunities, and continuous professional development for educators. By championing innovative teaching methodologies, policymakers can foster dynamic learning environments that cater to diverse student needs and promote active engagement (Brown, 2017). Furthermore, addressing disparities in access to educational resources and opportunities ensures that marginalized and disadvantaged groups receive the support they need to thrive academically, thereby advancing the principle of equity at the core of SDG 4 (Kormos, 2022). Additionally, prioritizing ongoing professional development opportunities empowers educators to refine their pedagogical skills, stay abreast of emerging trends, and adapt their practices to meet evolving student needs, thereby driving continuous improvement in educational outcomes (Brown, 2017). Ultimately, the convergence of these policy initiatives serves to advance the overarching agenda of quality education and sustainable development outlined in SDG 4, contributing to the realization of a more just and prosperous society where every individual has the opportunity to unlock their full potential through education (World English Journal, et al, 2023).

Past studies reveal limited information about the intersectionality of teacher education with specific aspects of educational quality and equity, necessitating further exploration and analysis in future research endeavors.

RESEARCH METHODOLOGY

This study employed a systematic literature review (SLR) approach to examine the existing research on teacher education and its role in advancing Sustainable Development Goal 4 (SDG 4). The SLR methodology was chosen for its rigor and ability to synthesize existing research in a structured and comprehensive manner. The data collection process involved a comprehensive search of academic databases such as Scopus, Web of Science, and Google Scholar, focusing on articles published between 2007 and 2023. The selection criteria included peer-reviewed journal articles that specifically addressed teacher education in the context of quality, equity, and inclusivity in education.

The study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a transparent and replicable review process. The PRISMA framework was applied to systematically identify, screen, and assess the quality of the studies included in the review. Initially, titles and abstracts were reviewed to determine their relevance to the research questions. Subsequently, full-text reviews were conducted to confirm that the articles met the inclusion criteria. Thematic analysis was then applied to identify and categorize key themes emerging from the literature.

This approach is consistent with the methodologies used in similar studies that have explored teacher education and professional development. For instance, Xie and Cui (2021) employed a systematic review to examine the implementation of formative assessment in English writing

classes, applying a similar multi-stage selection process (Xie & Cui, 2021). Similarly, Deneen et al. (2013) used a systematic approach to evaluate changes in teacher education programs, emphasizing the importance of rigorous screening and thematic analysis to extract relevant findings (Deneen et al., 2013). Below is a table summarizing the systematic review process.

Table 1 Summary of the Systematic Review Process

Stage	Description		
Defining Research Question	The research question guiding this systematic review is: "How does teacher education contribute to the promotion of quality education aligned with Sustainable Development Goal 4 (SDG 4)?"		
Inclusion & Exclusion Criteria	<table border="0"> <tr> <td data-bbox="509 674 1015 1104"> <p>Inclusion:</p> <ul style="list-style-type: none"> Studies published in peer-reviewed journals. -Articles focusing on teacher education and its impact on educational quality and equity. -Research aligning with the themes of evaluation and assessment, innovative teaching approaches, professional development, student-centered learning, feedback and assessment practices, teacher perceptions, and policy implications. </td> <td data-bbox="1015 674 1421 1104"> <p>Exclusion:</p> <ul style="list-style-type: none"> - Studies not related to teacher education. - Articles not published in peer-reviewed journals. - Research that does not address the key themes or does not align with SDG - Articles not published in English </td> </tr> </table>	<p>Inclusion:</p> <ul style="list-style-type: none"> Studies published in peer-reviewed journals. -Articles focusing on teacher education and its impact on educational quality and equity. -Research aligning with the themes of evaluation and assessment, innovative teaching approaches, professional development, student-centered learning, feedback and assessment practices, teacher perceptions, and policy implications. 	<p>Exclusion:</p> <ul style="list-style-type: none"> - Studies not related to teacher education. - Articles not published in peer-reviewed journals. - Research that does not address the key themes or does not align with SDG - Articles not published in English
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Conducting the Literature Search	A comprehensive search was conducted across major academic databases, including Scopus, using keywords such as "teacher education," "quality education," "SDG 4," "evaluation and assessment," "innovative teaching approaches," "professional development," "student-centered learning," "feedback practices," "teacher perceptions," and "policy implications."		
Selecting Relevant Studies	The initial search yielded a large number of articles. Each article was screened based on the title and abstract to assess its relevance to the research question. Full texts of potentially relevant articles were then reviewed to ensure they met the inclusion criteria.		
Data Extraction and Analysis	Data from the selected articles were extracted using a standardized form. This form captured information on study characteristics, methodologies, key findings, and the themes addressed. The extracted data were then synthesized to identify common themes and insights related to the role of teacher education in promoting quality education.		

Data collection

The data collection process involved a comprehensive search of academic databases, including Scopus, Web of Science, and Google Scholar. The search targeted articles published between 2007 and 2023, focusing on topics related to teacher education, quality, equity, and inclusivity in education.

1. Identification Phase:

- **Scopus Database:** The initial search in the Scopus database yielded 850 articles related to teacher education and SDG 4.
- **Web of Science:** 720 articles were identified through the Web of Science database.
- **Google Scholar:** An additional 1,000 articles were retrieved from Google Scholar.

2. Screening Phase

After removing duplicates (approximately 500 articles), the remaining 2,070 articles were screened based on titles and abstracts to assess their relevance to the study's research questions.

- **Inclusion and Exclusion Criteria:**
 - **Inclusion Criteria:** Peer-reviewed journal articles focusing on teacher education, published in English, and addressing aspects of quality, equity, and inclusivity.
 - **Exclusion Criteria:** Articles not directly related to teacher education, non-peer-reviewed sources, and those lacking empirical evidence were excluded.

Following the screening process, 350 articles were shortlisted for full-text review.

3. Eligibility Phase:

- After conducting a full-text review, 331 articles were further excluded due to insufficient focus on the core themes or failure to meet quality standards.
- This process resulted in 19 articles that met all the inclusion criteria and were deemed relevant for thematic analysis.

4. Final Analysis

The final number of articles analyzed and reviewed in this systematic literature review was 19. These articles were subjected to thematic analysis, allowing the identification and categorization of key themes that provide insights into the current state of teacher education and its alignment with SDG 4.

The selected articles used in the systematic review are presented below. Each entry includes the author(s), year, title, journal, and a link to the article.

Table 2 Selected Articles of the Systematic Review

Authors	Title	Year	Source title	DOI
Caughlan S.; Jiang H.	Observation and Teacher Quality: Critical Analysis of Observational Instruments in Preservice Teacher Performance Assessment	2014	Journal of Teacher Education	10.1177/0022487114541546
Chao T.-Y.; Sung Y.-T.; Huang J.-L.	Construction of the situational judgment tests for teachers	2020	Asia-Pacific Journal of Teacher Education	10.1080/1359866X.2019.1633621
Cheng M.M.H.; Tang S.Y.F.; Cheng A.Y.N.	Differences in pedagogical understanding among student-teachers in a four-year initial teacher education programme	2014	Teachers and Teaching: Theory and Practice	10.1080/13540602.2013.848566
Chien Y.-T.; Chang C.-Y.; Yeh T.-K.; Chang K.-E.	Engaging pre-service science teachers to act as active designers of technology integration: A MAGDAIRE framework	2012	Teaching and Teacher Education	10.1016/j.tate.2011.12.005
Deneen C.; Brown G.T.L.; Bond T.G.; Shroff R.	Understanding outcome-based education changes in teacher education: evaluation of a new instrument with preliminary findings	2013	Asia-Pacific Journal of Teacher Education	10.1080/1359866X.2013.787392
Forlina C.; Chambersb D.	Teacher preparation for inclusive education: Increasing knowledge but raising concerns	2011	Asia-Pacific Journal of Teacher Education	10.1080/1359866X.2010.540850
Jiang F.; Lin S.; Menon Mariano J.	The influence of Chinese college teachers' competence for purpose support on students' purpose development	2016	Journal of Education for Teaching	10.1080/02607476.2016.1226555

Harjanto I.; Lie A.; Wihardini D.; Pryor L.; Wilson M. Kwan T.Y.L.	Community-based teacher professional development in remote areas in Indonesia Student-teachers' evaluation on the use of different modes of problem-based learning in teacher education	2018 2008	Journal of Education for Teaching Asia-Pacific Journal of Teacher Education	10.1080/02607476.2017.1415515 10.1080/13598660802375933
Lee H.-J.; Han C.	Bringing digital resource decision-making up to date: preparing the inaugural class of digitalised preservice teachers for informed evaluation of digital resources	2023	Journal of Education for Teaching	10.1080/02607476.2022.2078692
Lo L.N.-K.; Lai M.; Wang L.	The impact of reform policies on teachers' work and professionalism in the Chinese Mainland	2013	Asia-Pacific Journal of Teacher Education	10.1080/1359866X.2013.809054
Liaw E.-C.	Application of computer-mediated communication on teacher efficacy during school-based field experience	2017	Teaching and Teacher Education	10.1016/j.tate.2017.03.002
Poonputta A.	The Impact of Project-Based and Experiential Learning Integration on Pre-Service Teacher Achievement in Evaluation and Assessment	2023	International Journal of Learning, Teaching and Educational Research	10.26803/ijlter.22.7.19
Tang S.Y.F.; Chow A.W.K.	Communicating feedback in teaching practice supervision in a learning-oriented field experience assessment framework	2007	Teaching and Teacher Education	10.1016/j.tate.2006.07.013
Tindowen D.J.; Bangi J.; Parallag C., Jr.	Pre-service teachers' evaluation on their student internship program	2019	International Journal of Learning, Teaching and Educational Research	10.26803/IJLTER.18.10.18
Wang W.	Evaluation of 2+2 alternative teacher performance appraisal program in Shanxi, People's Republic of China	2007	Teaching and Teacher Education	10.1016/j.tate.2006.05.005
Xie Q.; Cui Y.	Preservice teachers' implementation of formative assessment in English writing class: Mentoring matters	2021	Studies in Educational Evaluation	10.1016/j.stueduc.2021.101019

resources, educators can create interactive and immersive learning experiences that cater to diverse learning styles and needs.

Cheng et al. (2014) further explore the benefits of problem-based learning (PBL) and collaborative methodologies in teacher education. PBL promotes a hands-on approach where students tackle real-world problems, thereby developing critical thinking and problem-solving skills. Collaborative learning methodologies, on the other hand, emphasize teamwork and collective problem-solving, fostering a sense of community and shared learning among students. These innovative methods not only enhance pedagogical competencies but also prepare teachers to design and implement engaging, student-centered learning experiences (Jiang, 2017).

Emerging trends in teacher education, such as the adoption of technology and innovative teaching methods, ensure that educator preparation remains relevant and forward-looking (Liaw, 2017). The integration of digital tools, coupled with approaches like PBL and collaborative learning, supports the development of essential skills in teachers and students alike. By embracing these trends, teacher education programs can better address the complex and dynamic needs of today's classroom environments. This emphasis on innovation helps create an educational landscape that is inclusive, adaptable, and well-equipped to prepare students for the challenges of the modern world (Liaw, 2017).

In summary, innovative teaching approaches are vital for advancing educational practices and ensuring that teacher education remains responsive to contemporary needs. By incorporating technology and forward-thinking methodologies, educators are better positioned to foster an engaging and effective learning environment, ultimately contributing to improved student outcomes and a more dynamic educational system.

Teacher Professional Development

Ongoing professional development is a cornerstone of effective teacher education, ensuring that educators remain knowledgeable about current educational practices and advancements. Forlina and Chambers (2011) explore how teacher preparation for inclusive education can benefit from continuous professional learning. They argue that regular training helps teachers stay updated on inclusive strategies and practices. Harjanto et al. (2018) examine the role of community-based professional development in remote areas, showing how localized training programs can address specific regional educational challenges. These professional development programs provide teachers with opportunities to enhance their skills, adapt to new teaching methods, and address contemporary educational issues. Engaging in continuous professional learning not only strengthens educators' instructional practices but also fosters a proactive approach towards innovation and adaptation. This commitment to lifelong learning is crucial for enhancing teaching effectiveness and contributing to the overall improvement of student outcomes.

Student-Centered Learning

Student-centered learning prioritizes the needs and development of learners by focusing on personalized and engaging educational experiences. Wang (2007) evaluates alternative teacher performance appraisal programs, highlighting how these programs can be designed to better reflect student-centered teaching practices. Xie and Cui (2021) discuss the impact of mentoring on formative assessment in pre-service teacher training, emphasizing the importance of individualized feedback and support. This approach acknowledges that each student has unique strengths, challenges, and learning styles, and it tailors instruction to meet these individual needs. By fostering a supportive and responsive learning environment, student-centered learning promotes collaboration, inquiry, and critical thinking (Xie & Cui, 2021). This paradigm shift not only enhances academic achievement but also supports the holistic development of students, ensuring that educational practices are equitable and inclusive. Embracing student-centered learning helps create a more just educational system and supports the achievement of SDG 4 by providing all students with the opportunity to succeed.

Feedback and Assessment Practices

Effective feedback and assessment practices are crucial for the growth and development of both educators and students. Anderson (2010) explores how regular and constructive feedback helps educators refine their teaching practices and address areas for improvement. This process enables teachers to continuously enhance their instructional strategies and respond to classroom challenges effectively. Thomas (2022) highlights the importance of timely feedback for students, which helps them understand their academic progress, set goals, and engage in self-assessment. Feedback mechanisms establish clear expectations and criteria for success, fostering a transparent and supportive learning environment. By promoting open communication between teachers and students, feedback practices contribute to a culture of continuous improvement and accountability (Jiang, 2017). This dynamic feedback loop not only enhances educational experiences but also supports the development of essential skills such as self-reflection and goal-setting, laying the foundation for lifelong learning.

Teacher Perceptions and Support Systems

Understanding teacher perceptions and providing robust support systems are critical for the effectiveness and sustainability of teacher education programs. Clark (2014) investigates how teachers' perceptions of their training experiences influence their willingness to adopt new teaching methods. When educators view their training as relevant and comprehensive, they are more likely to implement innovative strategies in their classrooms. Roberts (2021) emphasizes the importance of strong support systems, including mentorship and professional development opportunities, in addressing both professional and personal needs of teachers. Effective support networks contribute to a positive work environment, enhancing job satisfaction and overall well-

being. By fostering a culture of collaboration and open communication, educational institutions can tailor support systems to address the unique challenges faced by teachers. Prioritizing teacher perceptions and support ensures that educators are well-equipped to meet their professional goals and enhance student learning outcomes.

Policy Implications and Educational Reforms

Policy implications and educational reforms significantly shape the trajectory and effectiveness of teacher education. Research by Kwan (2008) and Harjanto et al. (2018) highlights the importance of policies that support professional development and promote educational equity, both of which are essential for advancing teaching quality and student success.

Professional Development and Teacher Empowerment

Policies designed to bolster the professional development of educators play a crucial role in enhancing teaching efficacy. For instance, Kwan (2008) emphasizes that well-structured professional development programs can provide teachers with advanced pedagogical techniques and tools to improve their instructional practices. A practical example of this is the implementation of the Professional Learning Communities (PLCs) model, where teachers collaborate regularly to share best practices and address instructional challenges. This model has been successfully adopted in various countries, such as Finland, where it has contributed to significant improvements in teaching quality and student achievement.

Moreover, investing in digital literacy and technology integration through targeted professional development can empower teachers to utilize innovative teaching tools effectively. For example, integrating training on digital platforms like Google Classroom or Microsoft Teams can enhance educators' ability to deliver interactive and engaging lessons, thus improving student outcomes. Policies that fund such professional development initiatives ensure that educators are well-equipped to navigate the complexities of modern education (Kwan, 2008).

Promoting Educational Equity

Equitable access to quality education is fundamental for addressing systemic disparities and fostering inclusive learning environments. Harjanto et al. (2018) highlight that policies aimed at reducing educational inequities can promote social mobility and support marginalized communities. Specific examples include the implementation of targeted funding programs for schools in underprivileged areas or the development of inclusive curricula that address diverse learning needs.

For instance, the introduction of the Pupil Premium funding in the UK provides additional resources to schools based on the number of disadvantaged students, allowing for tailored support and interventions that address the unique challenges faced by these learners. Similarly, reforms

that promote inclusive education practices, such as differentiated instruction and culturally responsive teaching, can ensure that all students have access to high-quality education, regardless of their background (Harjanto et al., 2018).

Aligning with Sustainable Development Goals (SDG 4)

Educational reforms aligned with Sustainable Development Goal 4 (SDG 4) are essential for preparing teachers to address contemporary global challenges. For example, incorporating sustainability and global citizenship themes into teacher training curricula can equip educators to address issues such as climate change and cultural diversity. A case study of the "Green Schools" initiative in the United States demonstrates how integrating environmental education into the curriculum can raise awareness about sustainability among students and foster a sense of responsibility towards the environment.

Furthermore, reforms that emphasize lifelong learning and adaptability can prepare teachers to respond to emerging challenges and innovations. Policies that support continuous professional growth and encourage participation in international exchanges or research collaborations can help educators stay abreast of global educational trends and best practices (Harjanto et al., 2018). Overall, policy implications and educational reforms are pivotal in shaping the effectiveness of teacher education. By implementing policies that support professional development, promote educational equity, and align with SDG 4 objectives, policymakers can create a more responsive and equitable education system. Practical examples and case studies underscore the importance of these reforms in fostering a supportive and inclusive educational environment that meets the needs of all learners and prepares them for the complexities of the modern world.

CONCLUSION

The The conclusion of this systematic review underscores the pivotal role of teacher education in advancing the objectives outlined in Sustainable Development Goal 4 (SDG 4), which aims to ensure inclusive and equitable quality education for all. Through an analysis of various key themes, including evaluation and assessment, innovative teaching approaches, professional development, student-centered learning, feedback practices, teacher perceptions, and policy implications, the review offers a comprehensive understanding of the current landscape of teacher education. Firstly, teacher education programs should prioritize the integration of comprehensive evaluation and assessment methodologies. This entails not only measuring teacher effectiveness but also fostering a culture of reflective practice and continuous improvement. By incorporating diverse assessment strategies, such as formative assessments and peer evaluations, educators can gain valuable insights into their teaching practices and tailor instruction to meet the diverse needs of their students.

Secondly, there is a pressing need to embrace and promote innovative teaching approaches within teacher education curricula. Educators should be encouraged to explore emerging technologies, pedagogical strategies, and learning environments that foster creativity, adaptability, and engagement. By equipping teachers with the skills and resources to leverage these innovations effectively, teacher education programs can enhance the quality and relevance of instruction, ultimately benefiting student learning outcomes. Furthermore, the importance of ongoing professional development for teachers cannot be overstated. Teacher education institutions should prioritize the provision of continuous learning opportunities that empower educators to stay abreast of best practices, emerging trends, and advancements in the field of education. This may include mentorship programs, collaborative learning communities, and targeted workshops designed to address specific areas of professional growth.

Additionally, the shift towards student-centered learning should be embraced and embedded within teacher education programs. Educators should be equipped with the knowledge and skills to design personalized learning experiences that prioritize individual student needs, interests, and abilities. By fostering a student-centered approach to instruction, teacher education programs can create more inclusive and equitable learning environments that empower all students to succeed. Feedback practices should also be integrated into teacher education programs as integral components of effective teaching and learning. Educators should be trained in providing constructive feedback that facilitates growth and development among both teachers and students. By nurturing a culture of feedback and reflection, teacher education programs can cultivate a community of lifelong learners committed to continuous improvement.

Lastly, policy implications must be addressed to create an enabling environment for quality education. Policymakers should prioritize the development and implementation of coherent and supportive policies that facilitate equitable access to education for all learners. This may involve investing in infrastructure, allocating resources to underserved communities, and addressing systemic barriers to educational attainment. In conclusion, the findings of this systematic review underscore the imperative for continuous improvement and innovation within teacher education programs to advance the objectives of SDG 4. Future research efforts should focus on developing and implementing strategies that further enhance the quality, equity, and accessibility of education on a global scale. By embracing these recommendations, teacher education programs can play a pivotal role in shaping the future of education and realizing the vision of SDG 4.

ETHICS STATEMENTS

This study was conducted with the approval of the Swinburne University Human Research Ethics Committee (Approval Number: 20226390-10109)

AUTHOR STATEMENTS

Badriya Ambu-Saidi: Badriya wrote the majority of the paper, including the introduction, literature review, methodology, results, and Findings sections, as part of her research project.

Fung, C.Y: Fung, as one of Badriya's supervisors, provided substantial feedback on the literature review and methodology, ensuring the academic rigor and coherence of these sections.

Turner, K: Turner, another supervisor, reviewed the data analysis and results sections, offering critical insights and suggestions to enhance the clarity and accuracy of the data.

Lim, A.S.S: Lim, the third supervisor, reviewed and provided feedback on the overall structure and flow of the manuscript, and contributed to the final revisions to ensure the quality and completeness of the paper.

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DECLARATION OF INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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