INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 15, Issue 1, (2026) E-ISSN: 2226-6348

Factors Influencing Mathematics Teachers' Self-Efficacy: A Systematic Literature Review Based on Bandura's Theoretical Framework

Nuraina Amalia Raduan, Siti Mistima Maat

Faculty of Education, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia

DOI Link: http://dx.doi.org/10.6007/IJARPED/v15-i1/27632

Published Online: 16 February 2026

Abstract

This study aims to examine research trends and identify factors influencing mathematics teachers' self-efficacy through a Systematic Literature Review (SLR) guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A comprehensive literature search was conducted using the Web of Science and Scopus databases, focusing on journal articles published between 2020 and 2025 related to teacher self-efficacy and mathematics teaching. A total of 20 empirical studies met the inclusion criteria and were systematically analysed. The findings indicate that research on mathematics teachers' self-efficacy is predominantly quantitative in nature and conducted across both developing and developed countries, involving pre-service and in-service teachers. Drawing on Bandura's Social Cognitive Theory, four major sources of self-efficacy were identified: mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states. Among these, mastery experiences emerged as the most dominant factor influencing mathematics teachers' self-efficacy. Overall, this review provides a comprehensive overview of recent research patterns and highlights the importance of developing mathematics teachers' self-efficacy holistically to enhance the effectiveness of mathematics teaching and learning.

Keywords: Mathematics Teacher Self-Efficacy, Self-Efficacy Factors, Mathematics Teaching, Mathematics Education, Systematic Literature Review

Introduction

Mathematics is widely recognised as a foundational subject that plays a critical role in developing students' logical reasoning, problem-solving abilities, and higher-order thinking skills. However, persistent concerns regarding students' low achievement and disengagement in mathematics classrooms have intensified scholarly debates within the social sciences about the factors that shape effective teaching practices. Beyond content knowledge and pedagogical skills, increasing attention has been directed toward teachers' psychological and motivational characteristics particularly teacher self-efficacy as a key determinant of instructional quality and student learning outcomes.

Teacher self-efficacy refers to teachers' beliefs in their capability to organise and execute actions required to successfully accomplish teaching tasks. Prior research has consistently demonstrated that teachers with high self-efficacy are more likely to adopt innovative instructional strategies, persist in the face of challenges, and positively influence students' academic achievement and motivation. In mathematics education specifically, self-efficacy has been linked to classroom management, instructional decision-making, and teachers' willingness to implement student-centred and inquiry-based approaches. Consequently, mathematics teacher self-efficacy has emerged as a critical construct in contemporary discussions on teacher effectiveness, professional development, and educational reform.

The theoretical foundation of teacher self-efficacy is firmly grounded in Bandura's Social Cognitive Theory, which posits that self-efficacy beliefs are shaped through four primary sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states. While this framework has been widely applied across educational contexts, recent empirical studies suggest that the relative influence of these sources may vary depending on teaching context, career stage, and instructional demands. For instance, recent research highlights the growing importance of mastery experiences and emotional regulation in mathematics teaching, particularly amid increased curricular demands, technological integration, and post-pandemic instructional challenges.

Although the body of empirical research on mathematics teachers' self-efficacy has expanded considerably in recent years, existing studies remain fragmented across contexts, methodologies, and focal variables. Many studies focus on isolated factors or specific populations, making it difficult to develop a coherent understanding of overarching research trends and dominant influences shaping mathematics teachers' self-efficacy. Moreover, there is a lack of systematic synthesis that critically integrates recent empirical findings within a unified theoretical framework, particularly studies published in the last five years.

The present study conducts a Systematic Literature Review (SLR) guided by the PRISMA framework to address this gap with the aim of synthesising recent empirical research on mathematics teachers' self-efficacy published between 2020 and 2025. Anchored in Bandura's Social Cognitive Theory, this review seeks to identify prevailing research trends and systematically categorise the factors influencing mathematics teachers' self-efficacy. By consolidating findings across diverse educational contexts, this study contributes to ongoing scholarly debates by clarifying dominant patterns, highlighting underexplored areas, and informing future research, policy, and teacher professional development initiatives.

Research Objectives

The objectives of this study were formulated to guide the implementation of the systematic literature review. Specifically, this study aims to:

1. To identify research trends related to teacher self-efficacy in mathematics teaching.
2. To identify the factors influencing mathematics teachers' self-efficacy based on Bandura's Theory.

Methodology

This study employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach as the main guideline to ensure that the processes of article searching, screening, and selection were conducted in a transparent, systematic, and replicable manner. The PRISMA framework provides a comprehensive reporting structure that clearly documents each stage of the literature review process, from the initial search phase to the final selection of articles (Page et al., 2021).

Article Search Strategy

According to Liberati et al. (2009), the PRISMA flow diagram consists of four main stages: identification, screening, eligibility, and inclusion. These stages were applied systematically in this study to ensure a rigorous selection of relevant literature.

Identification

The identification stage involved an initial literature search conducted using two major databases: Web of Science (WoS) and Scopus. The Web of Science database was selected due to its high-quality indexing and reliability, making it a strong source for systematic review research (Yan & Zhiping, 2023). In addition, the Scopus database was chosen because of its broader coverage, including a wide range of journals in education, social sciences, and behavioural sciences. This selection is supported by previous studies highlighting Scopus as a database that offers extensive literature coverage and robust citation records for academic analysis (Martín-Martín et al., 2018). Clear inclusion and exclusion criteria were established to ensure that only studies relevant to the research topic and published in academic journals were selected. The initial search was conducted using broad search queries aligned with the research focus. The search strings applied in both databases are presented in Table 1.

Table 1
Keywords and Databases Used for Article Search

Database	Search Keywords
WoS (Web of Science)	TS= (("teacher self-efficacy" OR "teaching efficacy" OR "teacher confidence") AND ("mathematics teacher*" OR "math teacher*" OR "mathematics education"))
Scopus	(TITLE-ABS-KEY (("teacher self-efficacy" OR "teaching efficacy" OR "teacher confidence") AND ("mathematics teacher*" OR "math teacher*" OR "mathematics education")))

The keywords were developed by combining terms related to teacher self-efficacy and the context of mathematics education. Equivalent search strings were applied across both databases to ensure consistency in the search process.

Screening

During the screening stage, articles were filtered based on predefined inclusion and exclusion criteria. Only journal articles published in English between 2020 and 2025 were included in the analysis. Studies published before 2020, non-English publications, and document types such as conference proceedings, books, theses, dissertations, and review articles were excluded.

The five-year publication period was selected to ensure that the reviewed studies reflected current and relevant research trends. English-language articles were prioritised to facilitate accurate interpretation and analysis, as the selected databases predominantly index English publications. Furthermore, only open-access journal articles within the field of mathematics education were included, as journal articles generally provide detailed and rigorous reporting of empirical findings (Moher et al., 2009). The inclusion and exclusion criteria applied in this study are summarised in Table 2.

Table 2
Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Language	English	Non-English
Time Frame	2020 – 2025	< 2020
Type of Literature	Journal Articles	Conference papers, books, reviews

Eligibility

The eligibility stage involved a detailed evaluation of articles based on their titles, abstracts, and research focus. Each article was carefully examined to ensure alignment with the objectives of the study. Articles that did not meet the inclusion criteria—such as those published before 2020, dissertations, theses, systematic review studies, and non-English publications—were excluded at this stage.

Following the initial screening, 58 articles were subjected to full-text review. Of these, 38 articles were excluded because they did not directly address mathematics teacher self-efficacy or the factors influencing it. Ultimately, 20 articles that were directly relevant to the research objectives were selected for in-depth analysis. The overall article selection process is illustrated using the PRISMA flow diagram, as shown in Figure 1 (Mengist et al., 2020).

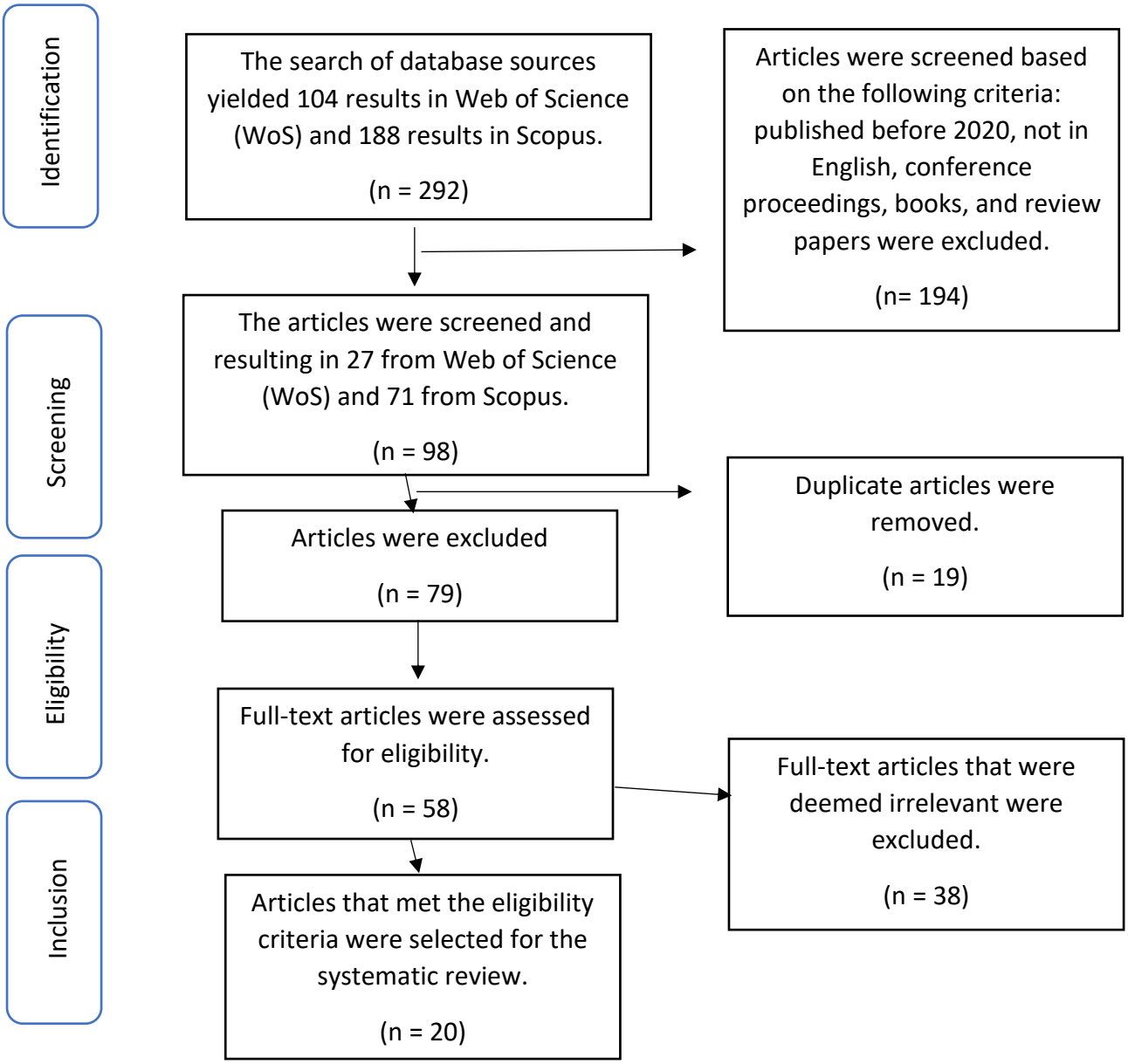

Figure 1: Article selection process using PRISMA (Source: Mengist et al., 2020)

Inclusion

The inclusion stage represents the final phase of the article selection process. Articles included at this stage specifically addressed factors influencing mathematics teachers' self-efficacy. A total of 20 articles were selected from the Web of Science and Scopus databases. These articles formed the basis of the systematic review and were analysed according to predefined criteria. Table 3 presents a summary of the selected studies, including authors, publication year, country, and research focus.

Table 3
List of Previous Studies

No.	Author	Article Title
1.	Grigaliuniene, M., & Lehtinen, E. (2025)	Mathematics teachers' career length and teaching self-efficacy.
2.	Göçer, V., & Özeren, E. (2025)	Exploring the effects of curiosity and anxiety on Mathematics teaching efficacy beliefs in primary school teachers.
3.	Charoentham, M., Kantathanawat, T., & Pimdee, P. (2025)	Integrating Computational Thinking and STEM Pedagogy to Strengthen Special Education Teacher Self-Efficacy: Evidence from Thailand.
4.	Porta, T., & Gaunt, L. (2025)	'Look at solutions': Teacher self-efficacy for differentiated instruction in senior-secondary mathematics.
5.	Edosomwan, K., & Sanders, M. (2025)	Interrogating Tracked Mathematics Teacher Practices: A Logistic Regression Analysis
6.	Ramaila, S., Molefe, P., & Baloyi, E. M. (2025).	SAIP 2025 teacher training workshop: Monitoring the impact on teacher confidence in science and mathematics instruction.
7.	Asante, J. A., Awuah, F. K., & Folson, D. (2025)	Teachers' Readiness and Self-Efficacy in Implementing Inquiry-Based Learning in Primary Mathematics Education: A Case of Sekyere Kumawu District, Ghana.
8.	Li, S., Qi, C., & Li, R. (2025)	The conceptualization of mathematics teachers' professional competence in project-based learning contexts.
9.	Yang, K. L., Wu, H. K., Wu, J. Y., Lin, K. Y., & Hsu, Y. S. (2025)	Identity and experience matter: Differences between secondary STEM teachers' self-efficacy and commitment in integrated STEM teaching activities.
10.	Pikk, K., Leijen, Ä., Radišic, J., & Uibu, K. (2025)	Exploring the Relationship between Teachers' Beliefs on the Nature and Learning of Mathematics and Self-Efficacy in Teaching Mathematics at the Primary School Level.
11.	Zonnefeld, V. L., & Helming, L. M. (2024).	The Effects of a Mediated Field Experience Methods Course on Pre-Service Elementary Mathematics Teachers' Beliefs.
12.	Olawale, B. E., & Hendricks, W. (2024).	Mathematics teachers' self-efficacy beliefs and its relationship with teaching practices.
13.	Twohill, A., NicMhuirí, S., Harbison, L., & Karakolidis, A. (2023)	Primary preservice teachers' mathematics teaching efficacy beliefs: The role played by mathematics attainment, educational level, preparedness to teach, and gender.
14.	Umugiraneza, O., Bansilal, S., & North, D. (2022)	An Analysis Of Teachers' Confidence in Teaching Mathematics and Statistics
15.	Wijesundera, S., & Wijethunga, K. (2021).	The association between teachers' mathematical beliefs, teacher characteristics and student achievements at the junior secondary level of education in Sri Lanka.
16.	Zakariya, Y. F., & Adegoke, N. A. (2024)	Teacher instructional practices: untangling their complex relations with self-efficacy, job satisfaction, stress, and cooperation among mathematics teachers.

17.	Salomón-Plata, M. S., Chamoso-Sánchez, J. M., Diego-Mantecón, J. M., & Rodríguez-Sánchez, M. M. (2024)	Characterizing prospective Secondary Education Mathematics Teachers' self-efficacy.
18.	Perochena Gonzalez, P., Cardenas Lizarazo, J. A., Mosquera Gende, I., & Guerrero Barona, E. (2020)	Self-efficacy of Colombian Mathematics Teachers According to their Professional Self-Perception and other Variables.
19.	Ambusaidi, A. K., & Alhosni, K. Z. (2023).	Mathematics and Science Teachers' Perceptions of the Factors Influencing Teaching and Professional Identity.
20.	Bakar, N. S. A., Maat, S. M., & Rosli, R. (2020).	Mathematics Teacher's Self-Efficacy of Technology Integration and Technological Pedagogical Content Knowledge.

Findings

The primary objective of this systematic literature review was to identify research trends and factors influencing mathematics teachers' self-efficacy. A total of 20 journal articles met all the inclusion criteria and were selected for detailed analysis.

Objective 1: Research Trends in Mathematics Teacher Self-Efficacy

Table 4

Research trends in previous studies

Author	Publication's Year	Country	Method
Göçer, V., & Özeren, E.	2025	Turki	Quantitative
Charoentham et al	2025	Thailand	Quantitative
Porta, T., & Gaunt, L.	2025	Australia	Qualitative
Edosomwan, K., & Sanders, M.	2025	Amerika Syarikat	Quantitative
Ramaila, S., Molefe, P., & Baloyi, E. M.	2025	Afrika Selatan	Quantitative
Li, S., Qi, C., & Li, R.	2025	China	Quantitative
Yang, K. L., Wu, H. K., Wu, J. Y., Lin, K. Y., & Hsu, Y. S.	2025	Taiwan	Quantitative
Pikk, K., Leijen, Ä., Radišic, J., & Uibu, K.	2025	Estonia	Quantitative
Zonnefeld, V. L., & Helming, L. M.	2024	Amerika Syarikat	Mixed
Olawale, B. E., & Hendricks, W.	2024	Afrika Selatan	Quantitative
Twohill, A., NicMhuirí, S., Harbison, L., & Karakolidis, A.	2023	Ireland	Quantitative
Umugiraneza, O., Bansilal, S., & North, D.	2022	Afrika Selatan	Quantitative
Bakar, N. S. A., Maat, S. M., & Rosli, R.	2020	Malaysia	Quantitative
Wijesundera, S., & Wijethunga, K.	2021	Sri Lanka	Quantitative
Zakariya, Y. F., & Adegoke, N. A.	2024	Norway	Quantitative
Salomón-Plata, M. S., Chamoso-Sánchez, J. M., Diego-Mantecón, J. M., & Rodríguez-Sánchez, M. M.	2024	Sepanyol	Qualitative

Perochena Gonzalez, P., Cardenas Lizarazo, J. A., Mosquera Gende, I., & Guerrero Barona, E.	2020	Columbia	Quantitative
Grigaliuniene, M., & Lehtinen, E.	2025	Lithuania	Quantitative
Ambusaidi, A. K., & Alhosni, K. Z.	2023	Oman	Quantitative

Based on the systematic analysis of the selected articles, the findings indicate a growing research interest in mathematics teacher self-efficacy in recent years. In terms of research design, the majority of studies employed quantitative approaches, with 17 out of 20 articles adopting this methodology. Only two studies used qualitative approaches, while one study employed a mixed-methods design. This strong inclination toward quantitative research suggests that scholars in this field primarily focus on measuring and examining statistical relationships between teacher self-efficacy and various related variables. For instance, studies conducted by Göçer and Özeren (2025) in Turkey and Li, Qi, and Li (2025) in China utilised structured instruments to assess teachers' self-efficacy and analyse the effects of specific influencing factors.

From a geographical perspective, research on mathematics teacher self-efficacy is global in nature, encompassing studies conducted in countries such as the United States, South Africa, Turkey, China, Malaysia, and several European nations. Notably, countries such as the United States (Edosomwan & Sanders, 2025; Zonnefeld & Helming, 2024) and South Africa (Ramaila et al., 2025; Olawale & Hendricks, 2024; Umugiraneza et al., 2022) demonstrated consistent research output between 2020 and 2025. These trends reflect the widespread recognition of mathematics teacher self-efficacy as a critical issue in international education, with researchers increasingly focusing on understanding and enhancing teachers' confidence in mathematics instruction.

Objective 2: Factors Influencing Mathematics Teachers' Self-Efficacy Based on Bandura's Theory

Table 5

Findings from previous studies by category of factors influencing self-efficacy

Author/Year	Mastery Experiences	Vicarious Experiences	Verbal Persuasion	Physiological and emotional states
Göçer et al. (2025)				✓
Charoentham et al. (2025)	✓	✓	✓	
Porta et al. (2025)	✓			
Edosomwan et al. (2025)			✓	
Ramaila et al. (2025)	✓		✓	
Asante et al. (2025)	✓			
Li et al. (2025).	✓			
Yang et al. (2025).	✓	✓		
Pikk et al. (2025)				✓

Zonnefeld et al. (2024).	✓			
Olawale et al. (2024).			✓	✓
Twohill et al. (2023).	✓	✓	✓	
Umugiraneza et al. (2022)	✓			
Bakar et al. (2020).	✓		✓	
Wijesundera et al. (2021).	✓			
Zakariya et al. (2024)	✓		✓	
Salomón-Plata et al. (2024)	✓	✓	✓	✓
Perochena Gonzalez et al. (2020).			✓	
Grigaliuniene et al. (2025)	✓			
Ambusaidi et al. (2023).	✓		✓	
Total	15	4	10	4

To address the second research objective, an in-depth analysis was conducted on the factors identified across the 20 selected studies. These factors were categorised according to the four primary sources of self-efficacy proposed in Bandura's Social Cognitive Theory (1986): mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states. The findings reveal that mastery experiences were the most dominant factor influencing mathematics teachers' self-efficacy, reported in 15 of the reviewed studies. This highlights the critical role of successful teaching experiences, teaching practice, and professional training in strengthening teachers' confidence in their instructional abilities.

Physiological and emotional states were identified in 10 studies, encompassing psychological aspects such as teaching anxiety, self-confidence, and curiosity. These internal states were found to have a direct influence on teachers' perceptions of their competence in teaching mathematics. In contrast, vicarious experiences and verbal persuasion were reported less frequently, with each factor appearing in only 4 studies. Overall, these findings suggest that current research places greater emphasis on personal teaching experiences and teachers' psychological conditions as primary contributors to the development of mathematics teacher self-efficacy.

Discussion

This systematic review aimed to examine individual and contextual factors influencing mathematics teachers' self-efficacy, as well as to analyse current research trends in this area. Based on the analysis of 20 recent journal articles published between 2020 and 2025, the findings indicate a strong preference for quantitative research designs, with 17 out of 20 studies adopting this approach. This reflects a prevailing trend in the field toward examining relationships between variables using numerical data. Furthermore, the geographical

diversity of the studies spanning countries such as Turkey, Thailand, the United States, South Africa, China, Taiwan, Estonia, Malaysia, Sri Lanka, Norway, Colombia, and Lithuania demonstrate that mathematics teacher self-efficacy is a globally relevant research topic.

The findings related to the second research objective underscore the importance of Bandura's sources of self-efficacy within the context of mathematics teaching, particularly mastery experiences and physiological and emotional states. Mastery experiences emerged as the most frequently reported factor, indicating that teachers' direct experiences of success or failure in the classroom form the foundation of their self-efficacy beliefs. Demographic factors such as teaching experience and effective professional training were consistently associated with higher levels of teacher self-efficacy, as they provide opportunities for teachers to develop and refine their instructional skills.

Additionally, physiological and emotional states, reported in ten studies, were found to significantly influence mathematics teacher self-efficacy. Psychological factors such as self-confidence, pedagogical understanding, and teaching anxiety play a crucial role in shaping teachers' beliefs about their capabilities. This suggests that teachers' internal emotional regulation and coping strategies are essential components of effective mathematics instruction.

Conversely, vicarious experiences and verbal persuasion received less emphasis in the reviewed literature. Although these sources contribute to self-efficacy development, the findings indicate that personal teaching experiences and psychological conditions exert a stronger influence on mathematics teachers' self-efficacy. This pattern reflects a research focus on experiential and affective dimensions of teacher development.

Overall, the findings highlight the need for interventions that prioritise the enhancement of mastery experiences and the management of teachers' psychological well-being to foster mathematics teacher self-efficacy holistically.

Conclusion

In conclusion, this systematic literature review provides a comprehensive overview of research trends and factors influencing mathematics teacher self-efficacy over the past five years. The findings demonstrate a growing body of research addressing mathematics teacher self-efficacy across diverse educational contexts and pedagogical approaches. This study contributes to the existing literature by offering a systematic synthesis of recent empirical studies and identifying research gaps for future exploration, particularly the need for longitudinal and qualitative studies that examine the development of teacher self-efficacy over time.

Although this review identified key factors based on Bandura's sources of self-efficacy, it also emphasises that the development of mathematics teacher self-efficacy is critical for enhancing the effectiveness of mathematics teaching and learning. It is hoped that the findings of this review will serve as a valuable reference for policymakers and teacher educators in designing targeted interventions that strengthen all four sources of self-efficacy, ultimately improving the quality of mathematics instruction in the future.

References

Ambusaidi, A. K., & Alhosni, K. Z. (2023). Mathematics and Science Teachers' Perceptions of the Factors Influencing Teaching and Professional Identity. *Problems of Education in the 21st Century*, *81*(3), 303-326.

Asante, J. A., Awuah, F. K., & Folson, D. (2025). Teachers' Readiness and Self-Efficacy in Implementing Inquiry-Based Learning in Primary Mathematics Education: A Case of Sekyere Kumawu District, Ghana. *SAGE Open*, *15*(3), 21582440251375212.

Bakar, N. S. A., Maat, S. M., & Rosli, R. (2020). Mathematics Teacher's Self-Efficacy of Technology Integration and Technological Pedagogical Content Knowledge. *Journal on Mathematics Education*, *11*(2), 259-276.

Bandura A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Charoentham, M., Kantathanawat, T., & Pimdee, P. (2025). Integrating Computational Thinking and STEM Pedagogy to Strengthen Special Education Teacher Self-Efficacy: Evidence from Thailand. *Journal of Cultural Analysis and Social Change*, 685-695.

Edosomwan, K., & Sanders, M. (2025). Interrogating Tracked Mathematics Teacher Practices: A Logistic Regression Analysis. *Journal of Urban Mathematics Education*, *18*(1), 65-86.

Göçer, V., & Özeren, E. (2025). Exploring the effects of curiosity and anxiety on Mathematics teaching efficacy beliefs in primary school teachers. *BMC psychology*, *13*(1), 665.

Grigaliuniene, M., & Lehtinen, E. (2025, June). Mathematics teachers' career length and teaching self-efficacy. In *Frontiers in Education* (Vol. 10, p. 1536429). Frontiers Media SA.

Li, S., Qi, C., & Li, R. (2025). The conceptualization of mathematics teachers' professional competence in project-based learning contexts. *Eurasia Journal of Mathematics, Science and Technology Education*, *21*(7), em2660.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. PLoS Medicine, 6(7), e1000100. https://doi.org/10.1371/journal.pmed.1000100

Mengist, W., Soromessa, T., & Legese, G. (2020). Method for Conducting Systematic Literature Review and Metaanalysis for Environmental Science Research. MethodsX, 7, 100777.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. BMJ, 339(jul21 1), b2535–b2535. https://doi.org/10.1136/bmj.b2535

Olawale, B. E., & Hendricks, W. (2024). Mathematics teachers' self-efficacy beliefs and its relationship with teaching practices. *EURASIA Journal of Mathematics, Science and Technology Education*, *20*(1), em2392.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. International Journal of Surgery, 88(March), 1–9. https://doi.org/10.1016/j.ijsu.2021.105906

Perochena Gonzalez, P., Cardenas Lizarazo, J. A., Mosquera Gende, I., & Guerrero Barona, E. (2020). Self-efficacy of Colombian Mathematics Teachers According to their Professional Self-Perception and other Variables. *Universitas Psychologica*, *19*.

Pikk, K., Leijen, Ä., Radišic, J., & Uibu, K. (2025). Exploring the Relationship between Teachers' Beliefs on the Nature and Learning of Mathematics and Self-Efficacy in Teaching Mathematics at the Primary School Level. *LUMAT: International Journal on Math, Science and Technology Education*, *13*(1), 3.

Porta, T., & Gaunt, L. (2025). 'Look at solutions': Teacher self-efficacy for differentiated instruction in senior-secondary mathematics. *Journal of Research in Special Educational Needs*, *25*(4), 1089-1100.

Ramaila, S., Molefe, P., & Baloyi, E. M. (2025). SAIP 2025 teacher training workshop: Monitoring the impact on teacher confidence in science and mathematics instruction. *International Journal of Learning, Teaching and Educational Research*, (9), 817-836.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80(1), 1.

Salomón-Plata, M. S., Chamoso-Sánchez, J. M., Diego-Mantecón, J. M., & Rodríguez-Sánchez, M. M. (2024). Characterizing prospective Secondary Education Mathematics Teachers' self-efficacy. *Uniciencia*, *38*(1), 211-229.

Sü Eröz, S. (2017). The Relationship between individual innovativeness and locus of control: A Research on Tourism Faculty Students. Journal of Tourism and Hospitality Management , 5 (1), 46-52.

Twohill, A., NicMhuirí, S., Harbison, L., & Karakolidis, A. (2023). Primary preservice teachers' mathematics teaching efficacy beliefs: The role played by mathematics attainment, educational level, preparedness to teach, and gender. *International Journal of Science and Mathematics Education*, *21*(2), 601-622.

Umugiraneza, O., Bansilal, S., & North, D. (2022). An Analysis of Teachers' Confidence In Teaching Mathematics and Statistics. *Statistics Education Research Journal*, *21*(3), 1-1.

Wijesundera, S., & Wijethunga, K. (2021). The association between teachers' mathematical beliefs, teacher characteristics and student achievements at the junior secondary level of education in Sri Lanka. *Sri Lanka Journal of Social Sciences*, *44*(2).

Yang, K. L., Wu, H. K., Wu, J. Y., Lin, K. Y., & Hsu, Y. S. (2025). Identity and experience matter: Differences between secondary STEM teachers' self-efficacy and commitment in integrated STEM teaching activities. *Eurasia Journal of Mathematics, Science and Technology Education*, *21*(4), em2609.

Yu-Liang, A. C. (2009). A case study of elementary beginning mathematics teachers‟ efficacy development. International Journal of Science and Mathematics Education,, 271-297.

Zakariya, Y. F., & Adegoke, N. A. (2024, July). Teacher instructional practices: untangling their complex relations with self-efficacy, job satisfaction, stress, and cooperation among mathematics teachers. In *Frontiers in Education* (Vol. 9, p. 1367076).

Zonnefeld, V. L., & Helming, L. M. (2024). The Effects of a Mediated Field Experience Methods Course on Pre-Service Elementary Mathematics Teachers' Beliefs. *International Electronic Journal of Mathematics Education*, *19*(3).