

Teacher self-efficacy and the implementation of inclusive practices: a systematic review

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Abstract

As inclusive education gains more attention and gets more widely implemented, classrooms have become increasingly diverse over the past years. With these changes, teachers also need more complex skills and competencies to be able to cater the needs of these more diverse classrooms. Additionally, teacher self-efficacy, defined as teachers' confidence in their ability to effectively teach and support student learning, plays a critical role in inclusive education, where higher self-efficacy has been closely linked to the successful implementation of inclusive practices. But how exactly does teacher self-efficacy affect the implementation of inclusive practices? This systematic review investigates the relationship between teacher self-efficacy and the implementation of inclusive practices by answering the following research question: *"How does teacher self-efficacy affect the implementation of inclusive education practices?"*. A systematic review methodology was employed, adopting a narrative synthesis approach to explore relationships within and between studies. Nine peer-reviewed studies were examined, and findings were mixed, four studies reported a significant positive relationship between teacher self-efficacy and the implementation of inclusive practices, while two studies found no significant association. Additionally, differences were observed between high and low self-efficacy teachers in reported use of inclusive strategies. Several predictive and contextual factors emerged, including teacher attitudes, management expectations, classroom size, and stress levels. Furthermore, teacher training and organizational support were identified as influences on both self-efficacy and inclusive practice outcomes. In conclusion, the review suggests that teacher self-efficacy is a meaningful, though not uniformly predictive, factor in implementing inclusive education. These findings highlight the importance of supporting teachers through targeted training and institutional support to strengthen self-efficacy and improve inclusive teaching practices.

Samenvatting

Naarmate inclusief onderwijs meer aandacht krijgt, en steeds vaker wordt toegepast, worden klaslokalen steeds diverser. Deze leerlingen hebben diverse behoeften, en leraren hebben bepaalde competenties nodig om deze leerlingen te begeleiden. Daarnaast speelt "self-efficacy", het vertrouwen in het eigen vermogen om iets te kunnen, een grote rol in inclusief onderwijs. Een hogere mate van self-efficacy is namelijk verbonden aan de implementatie van inclusief onderwijs. Maar op welke manier beïnvloedt de mate van "self-efficacy" van leraren dan precies de implementatie van inclusief onderwijs? Deze systematische review onderzoekt de relatie tussen de self-efficacy van leraren en de implementatie van inclusief onderwijs aan

de hand van de volgende onderzoeksvraag: “*hoe beïnvloedt de self-efficacy van leraren de implementatie van inclusief onderwijs?*”. Er werd een systematische reviewmethodologie toegepast, waarbij een narratieve synthese-benadering werd gehanteerd om de relaties binnen en tussen studies te onderzoeken. Negen peer-reviewed studies zijn geanalyseerd, en de resultaten waren gemengd. Vier studies rapporteerden een significant positieve relatie tussen teacher self-efficacy en de implementatie van inclusieve praktijken, terwijl twee studies geen significante associatie vonden. Daarnaast werden er verschillen waargenomen tussen leraren met hoge en lage self-efficacy in het gebruik van inclusieve strategieën. Verschillende voorspellende en contextuele factoren kwamen naar voren, waaronder de houding van leraren, verwachtingen van het management, klasgrootte en stressniveaus. Verder werden lerarenopleiding en organisatorische ondersteuning geïdentificeerd als beïnvloedende factoren op zowel self-efficacy als de resultaten van inclusieve praktijken. Deze review suggereert dat teacher self-efficacy een betekenisvolle, maar niet eenduidig voorspellende factor is bij de implementatie van inclusief onderwijs. Deze bevindingen benadrukken het belang van gerichte training en institutionele ondersteuning om de self-efficacy van leraren te versterken en inclusieve onderwijspraktijken te verbeteren.

Introduction

As education is universally recognized as a fundamental right, ensuring inclusivity has become a critical priority in today's global education systems, with the ongoing diversification of education systems further necessitating the implementation of inclusive education (Cerna et al., 2021; OECD, 2023; United Nations, 2015; United Nations General Assembly, 2007). Numerous definitions of inclusive education can be found, including “the movement towards school systems that welcome all learners despite their background, disability or other personal characteristics” (Malinen et al., 2012, p. 526), essentially providing all students with equal opportunities and respect (Almalky & Alrabiah, 2024).

In research, inclusive education came into the picture towards the end of the 1980s (Kozleski & Yu, 2016). In 1990, the world conference on education for all followed, starting a movement towards inclusive education. Subsequently, the Salamanca Statement cemented the global focus on inclusive education, asserting that “children must be given the opportunity to achieve an acceptable level of learning” (UNESCO, 1994, p. 3). Both movement and statement plead towards the concept of a school for all, a place that responds to individual needs, includes everybody and celebrates differences (UNESCO, 1994).

Complementing the Salamanca Statement (UNESCO, 1994), the 2015 UNESCO Incheon Declaration and Sustainable Development Goals (SDGs) emphasize inclusive education as vital to global development (United Nations, 2015). Specifically, SDG 4 underscores the importance of providing inclusive and equitable quality education for all, with particular attention on individuals with disabilities and marginalized groups, intending to reduce systemic gaps in access and equity. In 2008, the Convention on the Rights of Persons with Disabilities included an article on inclusive education (OHCHR, n.d.), reinforcing principles first emphasized in the Salamanca Statement (UNESCO, 1994), which called for inclusive mainstream education systems to accommodate all children, including those with disabilities. International legislations were complemented by national policies, reinforcing the need for more inclusive education practices (Equality Act, 2010; Individuals with Disabilities Education Act [IDEA], 2004; Ministerie van Algemene Zaken, 2024). To summarize, a global focus can be found on making education more inclusive, which changes educational practices worldwide (Kart & Kart, 2021).

To make education more inclusive and follow the goals of aforementioned legislations, certain practices are required. Inclusive education practices can include differentiated instruction, peer tutoring, and team-based learning (Duquette, 2016; Fisher & Schumaker, 1995). Additionally, inclusive practices include adapting the curriculum to different needs of

students, followed by adapted teaching (Yılmaz & Yeganeh, 2021). As classrooms become increasingly diverse, teachers need to develop the skills required to meet the varied needs of their students effectively, and to be able to include inclusive education practices (Yılmaz & Yeganeh, 2021). These skills, also called competencies, evolve from "regular competencies," such as basic instructional techniques, to "complex competencies" that involve adapting to diverse classroom dynamics (Smeets et al., 2015). In more inclusive classrooms, for instance, the approach to giving instructions may shift from simply "explaining clearly" to "adjusting instructions" to suit individual learning needs. This highlights the pivotal importance of equipping teachers with flexible and adaptive competencies to support inclusive education. However, in practice, teachers may not feel self-efficacious and well-equipped to take on these competencies (De Boer et al., 2011; Smeets et al., 2015).

As described by Bandura (1986), self-efficacy is an individual's belief in their capacity to organize and execute the actions needed to produce a desired outcome. Bandura (1997) identified four sources of self-efficacy: "mastery experiences", "vicarious modeled experiences", "forms of social persuasion", and "psychological indexes". These four sources of self-efficacy develop a person's perception of self-efficacy. An individual's perception of their self-efficacy affects the initiation and persistence of their problem-solving and adaptive behavior (Bandura, 1978). Furthermore, if self-efficacy is low, an individual is more likely to avoid or procrastinate a task and experience self-doubt. When self-efficacy is high, a person is more likely to approach, tackle and overcome challenges and, therefore, build confidence over time (Bandura, 1978). In conclusion, an individual's level of self-efficacy determines the belief they have in themselves to complete a task.

In the context of teachers, teacher self-efficacy refers to teachers' confidence in their ability to effectively teach and foster student learning (Morris, 2023). Considering inclusive education, it is important for teachers to feel equipped to take on challenges, as a close association between self-efficacy and implementing inclusive education practices was found (Woodcock et al., 2022). Sharma et al. (2012) identified three dimensions of measuring teachers' self-efficacy in inclusive settings. Starting with "self-efficacy in inclusive instruction", referring to strategies that promote the inclusion of all learners. Secondly, "efficacy in collaboration" is included, indicating the teachers' perception of cooperating with other professionals and parents. Lastly, "managing the classroom" was identified, referring to teaching efficacy in dealing with disruptive behaviors. These three dimensions provide a structured approach to examining how teachers perceive their capabilities across different aspects of teaching, which is crucial for understanding variations in teacher effectiveness and

student outcomes. Additionally, teachers' self-efficacy is found as a strong indicator of intentions to implement inclusive education and is therefore essential for the implementation of inclusive education practices (Hussain et al., 2023).

When implementing new practices, six essential stages of implementation interact with each other throughout the implementation process. The six stages of implementation entail "exploration and adoption", "program installation", "initial implementation", "full operation", "innovation", and "sustainability" (Fixsen et al., 2005). To ensure that students benefit from the implementation in the intended way, it is important that the implementation reaches at least the "full operation" stage of implementation. When reaching this stage, the program becomes fully operational, with staff adapting to the new ways of working.

Interacting with the implementation, there are several implementation drivers that determine the success of the implementation (Fixsen et al., 2005). Implementation drivers for practices are organizational support, leadership, and staff competency. According to Fixsen et al. (2005), it is important to ensure that staff, teachers in this case, have the necessary skills and training to deliver the practice effectively. Factors negatively influencing the implementation process include a lack of resources, and teachers are not always trained to foster inclusive educational practices (Fixsen et al., 2005; Mendoza & Heymann, 2024). Factors that positively influence the implementation of inclusive education practices include teachers' in-service and pre-service training. Additionally, teacher training can improve teaching strategies and knowledge of disabilities (Mendoza & Heymann, 2024). Teacher self-efficacy influences how teachers can successfully implement inclusive education practices and is an important aspect for making education more inclusive (Chao et al., 2017).

Given the factors that both support and hinder the implementation of inclusive education, what are the latest advancements concerning the relationship between teachers' self-efficacy and the implementation of inclusive education practices? Specifically focusing on mainstream primary education, this study aims to critically examine the relationship between teacher self-efficacy and the implementation of inclusive education in mainstream primary education. In particular, it seeks to synthesize recently conducted research to understand how teachers' self-efficacy in their inclusive classroom practices influences the adoption and implementation of inclusive education practices. It is important to combine existing research, providing a strong evidence base for decision-making and to identify possible gaps in research. Additionally, exploring the relation between teacher self-efficacy and the implementation of inclusive education practices can help teachers feel more confident and capable (Johnson, 2023). Furthermore, findings might help policy makers and

practitioners continuing to improve inclusive education (Mendoza & Heymann, 2022). To synthesize recently conducted research, the research question of this review study will be *“How does teacher self-efficacy affect the implementation of inclusive education practices?”*. To answer this question, the research methodology is presented first, followed by the results of the systematic review. The discussion and conclusion reflect on the findings, with relevant materials provided in the appendices.

Research methodology

Design

To answer the aforementioned research question, a systematic review was conducted. The method of systematic review was chosen since it is important to analyze and collate existing research (Lasserson et al., 2019). This systematic review was developed following the PRISMA reporting guidelines (Page et al., 2021). The primary objective of the current paper is to analyze existing research to understand how teacher self-efficacy influences teachers' abilities to adopt, sustain and implement inclusive teaching practices.

Selection Criteria

To ensure clarity of the scope of the review and to verify inclusion decisions, a list of selection criteria was developed (Page et al., 2021). Studies were included if they were published after 2015, after publication of the UNESCO Incheon Declaration (2015). Furthermore, studies were qualified for inclusion if they had clear methodologies or robust data analysis, if they had an abstract in English, and were peer reviewed. Additionally, studies were included if they explored the implementation of inclusive education, mention teacher self-efficacy, and if the research was focused on primary education. A more detailed list of the inclusion and exclusion criteria is presented in Appendix A.

Search Strategy

Databases ERIC, PsychINFO, and web of science were included in the search which was done on 31.03.25. In each database, one search was conducted with the following search terms: "teacher self-efficacy" OR "teaching confidence" OR "teacher belief*" OR self-efficacy OR self efficacy OR confidence OR self esteem OR self-concept OR self-perception AND inclusive education OR inclusive classroom OR inclusive pedagogy OR inclusion OR "special education inclusion" AND teacher* OR educator* OR professor* OR instructor* AND implementation OR adoption OR apply OR application OR implement OR intervention OR integration OR information utilization OR innovation OR DE "Attitude Change" OR DE "Evaluation Utilization" OR DE "Research Utilization".

Search terms were based on the core components of the research question, namely teacher self-efficacy, implementation, and inclusive education practices. Synonyms and variant spellings (e.g., 'inclusion', 'inclusive education') were included to capture the full range of relevant terminology used in the literature. Boolean operators (AND/OR) were used to combine terms and broaden the search to include studies using alternative terminology. Initial search results were reviewed and terms were adjusted to improve relevance.

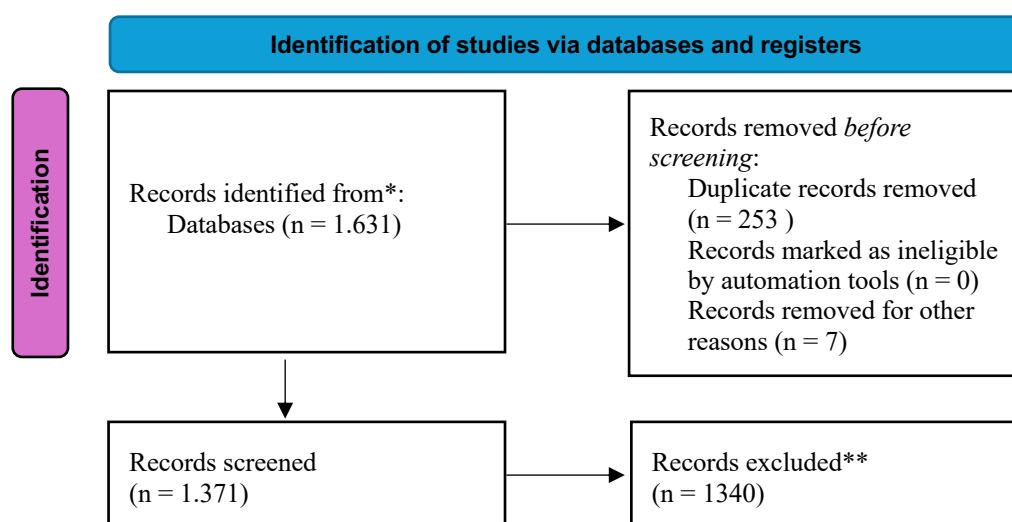
In PsycINFO, the search was limited to articles published after 2015, and dissertations were excluded. In ERIC, only peer-reviewed articles and articles published after 2015 were included. In Web of Science, the search was filtered to include articles published after 2015 and written in English. Although it was possible to apply language and dissertation filters in PsycINFO and ERIC, these were not used in the current search.

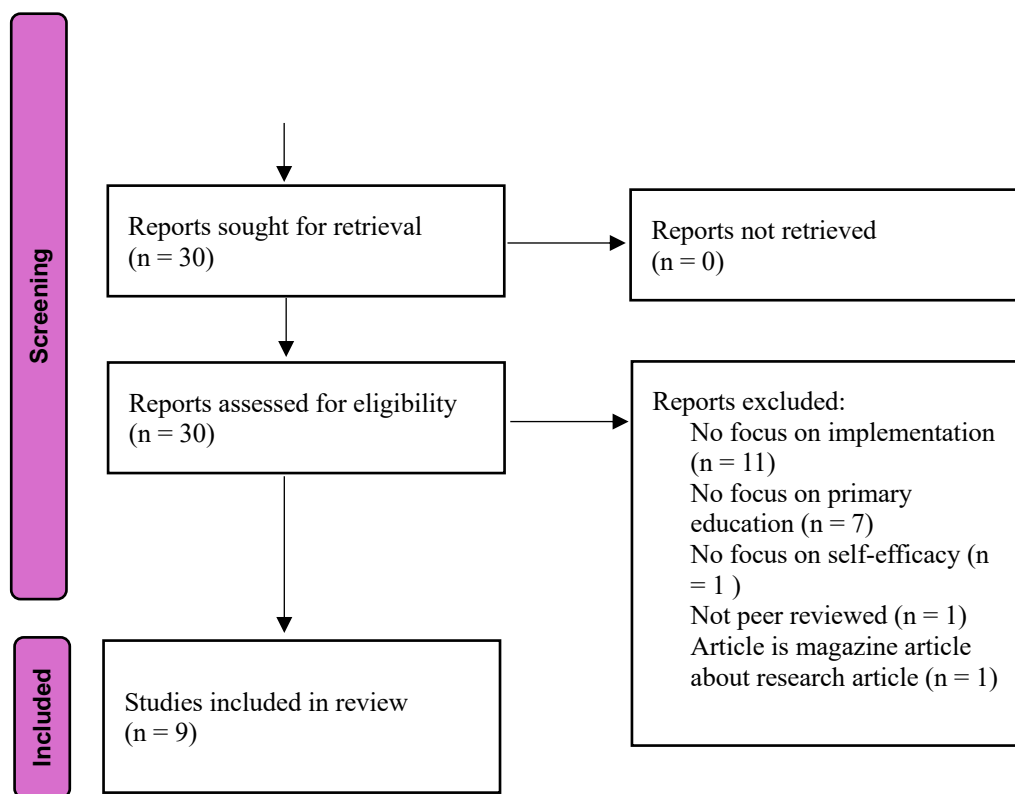
Selection Procedure

Articles were managed using Zotero (version 6.0.36; Zotero, n.d.). The number of articles included and excluded at each step were taken track of using the PRISMA flow diagram as presented in Figure 1. In the identification phase, after the articles were retrieved, 253 duplicates were removed with help of Zotero. Seven articles were removed because they were written in another language besides English. In the first screening round, titles and abstracts were screened and selected based on inclusion and exclusion criteria (Appendix A). After this selection round, 30 articles were included in the second round of screening, and 1,340 were excluded. A total of 30 articles were assessed for eligibility, practicing a full-text screening. A total of nine articles got through the second round and were included in the review.

Figure 1

PRISMA flow diagram





Data Extraction

Before starting data extraction, an initial version of the extraction table was developed. To evaluate its effectiveness, the table was piloted with two articles. This testing helped identify gaps in the information being captured, leading to the refinement and expansion of the table. Through this iterative process, key themes were established to ensure comprehensive and consistent extraction of relevant data. The final version of the table (Appendix B) included the following themes: author(s), year, data collection method and instrument, country, population, findings relevant to the present study, and limitations. A narrative synthesis approach was adopted to explore relationships within and between studies (Akers et al., 2009), as it accommodates the varied nature of the data.

After data extraction, the findings were grouped into themes using an inductive thematic analysis approach (Braun & Clarke, 2006). The themes, teacher self-efficacy, classroom practices, and contextual and structural influences were developed based on patterns and recurring concepts identified across the included studies. No ethical approval was required for this review study, as it only utilized publicly available literature.

Quality Appraisal

A quality assessment was done on all included articles. To assess the included quantitative and qualitative studies, the Quallsyst appraisal (Kmet et al., 2004) was used. Each study received a summary score between 0 and 1, calculated by dividing the total score by the maximum possible score (excluding items marked "N/A"). Consistent with conventions in the

literature (e.g., scores ≥ 0.75 = strong, $0.55\text{--}0.74$ = moderate, < 0.55 = weak), studies were categorized accordingly. This led to one strong qualitative study (0.80), five strong quantitative studies (0.80), and one quantitative study of moderate quality (0.68). A detailed table of the quality appraisal is provided in Appendix C for quantitative studies and in Appendix D for qualitative studies.

The Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was applied to evaluate the mixed methods studies. Each study was assessed using five criteria for the qualitative part, five criteria for the quantitative part, and five for the mixed methods integration. Each criterion was rated with “yes”, “no”, or “can’t tell”. A modified scoring approach as suggested by Hong et al. (2019) was applied whereby the overall quality rating reflects the lowest scoring component of the study. The results of this quality check were one mixed methods study of moderate quality with 0.60 and one with 0.80 on the MMAT. A detailed version of the quality appraisal for mixed-methods studies is provided in Appendix E.

Results

After the full-text screening, nine articles were left. Main results of the studies included correlations between teacher self-efficacy and inclusive practices, as well as differences between high-efficacious and low-efficacious teachers. Additionally, several factors influencing the relationship between teacher self-efficacy and the implementation of inclusive practices were identified. In total, four studies reported a significant relationship between teacher self-efficacy and the implementation of inclusive practices, and two studies found no significant relationship. Themes emerged including self-efficacy, classroom practices, and contextual and structural influences.

Study Characteristics

The studies included in this review varied in design and scope. In terms of geographic distribution, one study was conducted in Australia, six in Europe, and two in Afrika. The sample size ranged between five and 1125 participants. Study designs included two mixed-method studies, one qualitative and six quantitative studies. The main research method was survey research, with eight studies including survey research. Two studies were a combination of surveys and interviews, one was a combination of surveys and observations, and one study was a discourse analysis. Six studies included only teachers who were teaching in mainstream primary schools, two studies included teachers from special education and mainstream education but reported the results separately, and one study focused on primary and secondary mainstream teachers as well as special education teachers, however qualitative data was solely derived from mainstream primary teachers.

Self-efficacy

In multiple studies, teacher self-efficacy was shown to affect the implementation of inclusive practices in differing ways. Several studies reported a significant correlation between teachers' self-efficacy and (predicted) inclusive practices (Gülsün et al., 2023; Wilson et al., 2016; Wilson et al., 2022). Similarly, Omoro and Possi (2023) identified a weak but significant correlation between teachers' self-efficacy for classroom management and observed inclusive classroom management ($r = 0.217$, $p = 0,034$, $p < 0.05$). Hellmich et al. (2019) found that collective self-efficacy predicted teachers' intentions to implement inclusive practices, however, it did not predict their regular teaching practices in diverse classrooms. Likewise, Omoro and Possi (2023) reported no significant relationship between teachers' self-efficacy and observed inclusive teaching practices. In sum, in four out of six studies, a significant relationship was found between self-efficacy and inclusive teaching practices, in two out of six studies this relationship was not found.

Subsequently, multiple studies identified predictors of intentions to implement inclusive practices. According to Wilson et al. (2022), teachers with more positive attitudes exhibited higher self-efficacy and stronger intentions to implement inclusive education, which is consistent with the results reported by Hellmich et al. (2019). Several other predictors of teachers' intentions to implement were collective self-efficacy beliefs, perceptions of school management's expectations, gender, conscientiousness, extraversion and neuroticism (Hellmich et al., 2019; Wilson et al., 2016). However, Wilson et al. (2016) found that intentions to implement inclusive practices did not predict reported behavior. Interestingly, a later study by Wilson et al. (2022) revealed that both intentions and self-efficacy were significantly associated with reported inclusive behavior. However, in this study they found that after adding demographics, implicit and explicit attitudes, intentions and self-efficacy to a regression analysis, only self-efficacy was a significant predictor of inclusive practices, which is in line with what Wilson et al. (2016) found. Overall, these findings point to teacher self-efficacy as a potentially important predictor of intentions to implement inclusive practices. however, its role may be influenced by other variables such as attitudes and contextual variables.

Beyond self-efficacy and intentions, further predictors of teachers' inclusive practices were also explored in the literature. Gülsün et al. (2023) found that teachers reported lower self-efficacy when their classrooms included a higher number of students with attentional or behavioral difficulties. The study further indicated that this reduction in self-efficacy was associated with a decline in the quality of teachers' instructional behavior. This relates to the

findings of Engelbrecht and Savolainen (2018), who found that teachers with bigger classrooms had more difficulties implementing inclusive practices than teachers with smaller classroom sizes. Another predictor of teacher behavior was found by Johnson (2023), who found that the levels of stress a teacher experiences were related to their willingness to implement inclusive practices. To summarize, predictors of teacher behavior were related to their classrooms, and the amount of stress.

Classroom Practices

Building on the preceding findings, this section focuses on how inclusive teaching is manifested through specific classroom practices. To start, low-efficacious teachers reported different practices than high-efficacious teachers (Kuronja et al., 2019; Woodcock et al., 2022). In the study by Kuronja et al. (2019), the group of low-efficacious teachers consisted of mainstream primary school teachers, while the high-efficacious group comprised special education teachers. Although the focus of this thesis is primarily on mainstream primary school teachers, this comparison was included to illustrate how different levels of self-efficacy may be reflected in classroom practices across teaching contexts. For example, low-efficacious teachers asked for help from professionals or made use of teaching assistants to include all students in classroom activities (Kuronja et al., 2019; Woodcock et al., 2022). Additionally, low-efficacious teachers focused on broad behavior management, grouping students based on student abilities, and focused more on academic outcomes. On the contrary, teachers with higher self-efficacy were adapting instructions to student's needs and understood that all students need adjusted work. Another contrast is that high-efficacious teachers fostered cooperation and inclusive participation through responsive and differentiated teaching strategies, while low-efficacious teachers focused on maintaining classroom order. Worth mentioning is that both low-efficacious and high-efficacious teachers valued welcoming, fun and engaging classrooms. In conclusion, high-efficacious teachers reported more needs-based approaches to inclusive practices than low-efficacious teachers.

Furthermore, Kuronja et al. (2019) found that their identified group of low-efficacious teachers reported higher scores of self-efficacy on certain socio-pedagogical areas than high-efficacious teachers. Their low-efficacious teachers had higher self-efficacy in communication skills, conflict resolution, effective classroom management, reinforcing and developing a pupil's social competence, and collaborating with the parents of pupils. In conclusion, while these teachers scored lower on self-efficacy in general, they did not score low on all practices.

Contextual and Structural Influences

Different contextual factors were found to influence the relation between self-efficacy and implementation of inclusive practices. To start, training was identified as a factor that significantly affected both teacher self-efficacy and the execution of inclusive practices in the classroom. For example, Engelbrecht and Savolainen (2018) found that higher trained teachers had more self-efficacy for inclusive practices than lower trained teachers did. This is in line with what Johnson (2023) found, which is that years of experience increased confidence among teachers when it came to inclusive practices, and he found that teachers wanted more training so they can better understand how to implement inclusive practices. Specifically, Gülsün et al. (2023) found that teaching experience predicted teachers' self-efficacy in behavior management of students with behavioral difficulties. Furthermore, while this study focuses on mainstream teachers, it is worth noting that Kuronja et al. (2018) found that special education teachers reported significantly higher self-efficacy in managing classroom behavior and adapting instruction for students with learning and emotional/behavioral difficulties. This contrast underscores the potential influence of specialized training on teacher self-efficacy.

Another factor which affected the relation between self-efficacy and implementation was the amount of organizational support present. Some studies researched the effects of organizational support on the implementation of inclusive education. To start, school managements' expectations were predictors of teachers' intentions to implement inclusive education practices (Hellmich et al., 2019). Additionally, good support systems for teachers increased implementation of inclusive practices (Engelbrecht & Savolainen, 2018; Johnson, 2023). Specifically, teachers reported needing more support from administration to successfully implement inclusive education. These findings highlight the critical role of administrative support in facilitating the effective implementation of inclusive education.

Finally, Engelbrecht and Savolainen (2018) observed that contextual factors, such as training, support, and classroom size, influenced the implementation of inclusive practices in South African and Finnish classrooms. While South African teachers expressed positive attitudes towards inclusive practices, their ability to implement them was hindered by these external factors. In contrast, Finnish teachers, who faced fewer such constraints, were better able to demonstrate inclusive practices. These findings underscore the importance of external support and resources in shaping both self-efficacy and the successful implementation of inclusive education.

Discussion

The aim of the current paper was to discover the ways in which teacher self-efficacy affects the implementation of inclusive education practices. In response to the research question, the findings appear to be contradictory, with four studies reporting a significant relationship between teacher self-efficacy and the implementation of inclusive practices, while two studies found no significant relationship. Furthermore, predictors of intentions to implement were found, as well as differences in reported inclusive practices between low and high-efficacious teachers, and contextual factors such as training, organizational support, classroom sizes and levels of stress, which influenced the implementation of inclusive education.

Comparison with Previous Research

Starting with the main relationship between self-efficacy and the implementation of inclusive education practices, the contrary findings indicate that the relationship between teacher self-efficacy and the implementation of inclusive practices appears to be multifaceted and context-dependent. While several studies (Gülsün et al., 2023; Wilson et al., 2016; Wilson et al., 2022) demonstrate a positive correlation between self-efficacy and inclusive practices, others present a more nuanced picture. For instance, Omoro and Possi (2023) reported only a weak correlation for classroom management and found no significant link between self-efficacy and actual observed inclusive teaching behavior. While this is an interesting finding, it should be interpreted with caution. Although the study received a relatively high quality score (0.86) based on the Quallsyst check, the authors themselves acknowledged specific limitations that may have influenced the results. These included potential response bias in self-reports, a lack of inter-rater reliability during classroom observations, and a small sample size. While this does not undermine their findings, it suggests the need for a more cautious interpretation.

One of the main predictors of intentions to implement inclusive practices found in this study was positive attitudes. Teachers with more positive attitudes had, first of all, higher self-efficacy (Hellmich et al., 2019; Wilson et al., 2022). Supported by results in the literature, where a relationship between self-efficacy and attitudes was also found (Avramidis et al., 2019; Savolainen et al., 2011; Yada & Savolainen, 2017). Additionally, teachers with more positive attitudes also had stronger intentions to implement inclusive education (Hellmich et al., 2019; Wilson et al., 2022). Teacher attitudes towards inclusive education has widely been researched in the past, and evidence supports this finding (Avramidis et al., 2019; Urton et al., 2023).

Factors that negatively affected teacher self-efficacy were a higher number of students with attentional and behavioral difficulties in a classroom, and generally large classrooms (Gülsün et al., 2023; Johnson, 2023). This was directly in line with findings by Smeets et al. (2015). Another factor negatively affecting teacher self-efficacy was high levels of stress in teachers (Johnson, 2023). This finding interestingly relates to Bandura's (1997) four sources of self-efficacy. Bandura (1991) stated that high stress levels can have a negative effect on self-efficacy. In relation to the implementation of inclusive education, by reducing stress in teachers, self-efficacy could increase leading to more implementation of inclusive education.

The findings of the differences between high and low-efficacious teachers (Kuronja et al., 2018; Woodcock et al., 2022) was also a clear finding in the literature. First, high-efficacious teachers demonstrated practices such as differentiated instruction, flexible learning, and individual learning goals (Woodcock et al., 2022). Differentiated instruction and identifying needs-based learning were identified as a “complex competency” in inclusive practices (Smeets et al., 2015) and identified as inclusive practices (Fisher & Schumaker, 1995; Yilmaz & Yeganeh, 2021). On the contrary, low-efficacious teachers demonstrated grouping students on ability, focused on maintaining classroom order, rule enforcement, and among other things sought help from teaching assistants. Besides “team learning”, which is what could be happening when grouping students, was identified as an inclusive practice (Fisher & Schumaker, 1995), the other practices identified as done by low-efficacious teachers are not identified as inclusive practices in the literature (Fisher & Schumaker, 1995; Smeets et al., 2015; Yilmaz & Yeganeh, 2021). The contrast between high- and low-efficacious teachers as demonstrated here, could highlight that teachers with higher self-efficacy might be more intended to implement inclusive practices.

Another factor influencing teacher self-efficacy was training. A difference between higher and lower trained teachers was found (Engelbrecht & Savolainen, 2018), as well as years of experience and teaching experience (Gülsün et al., 2023; Johnson, 2023). This was also found in the literature, where having less knowledge and skills in teaching inclusive education negatively influenced teachers' self-efficacy (Van Staden-Payne & Nel, 2023). Additionally, some argue that teacher training is a strong predictor of teacher self-efficacy (Pov et al., 2024). This relates to the finding of (Engelbrecht & Savolainen, 2018) since they researched the difference between Finnish and South-African teachers, and they found that Finnish teachers, who had enjoyed higher education, were more positive about inclusive education. This is directly in line with the literature. Findings suggest that teachers with

additional training have more positive attitudes regarding inclusive education (Hsien et al., 2009).

Years of experience was identified by Johnson (2023) as an indicator for teacher confidence. While years of experience has been identified as a predictor of teachers' self-efficacy (Hafner, 2024), this study only found confidence as a result. It is important to emphasize that while experience can enhance confidence in certain areas like classroom management, it does not automatically translate to increased self-efficacy in all teaching domains.

Another finding was the effect of organizational support on teacher self-efficacy. Good support systems for teachers were found to increase implementation of inclusive practices (Engelbrecht & Savolainen, 2018; Johnson, 2023), as well as management's expectations were predictors of teachers' intentions to implement inclusive practices. This is in line with the literature, where findings suggest that teachers' sense of efficacy is influenced by the behaviors of the direction of the school (Stevenson Winn et al., 2021; Smeets et al., 2015).

Theoretical Implications

The findings of this study offer several implications for the theoretical frameworks that guided the research. First, the four sources of self-efficacy by Bandura (1997) were fully covered in the included papers. Where "mastery experiences" and "modeled experiences" can be found in training and years of experience, which were both found to positively influence teachers' self-efficacy. Additionally, "Forms of social persuasion" can be related to management's support and how it was found to affect implementation of inclusive practices. Lastly, Bandura's "psychological indexes" showed up in the literature in the form of how if teachers experienced less stress, self-efficacy would be higher.

From the perspective of the implementation drivers by Fixsen et al. (2005), the findings of this study underscore the importance of all three drivers. First, "organizational support" and "Leadership" showed up in forms of the effects of management support and managements' expectations and their effects on the implementation of inclusive education. Finally, "staff competencies" in forms of teacher training and the effects not only on self-efficacy but also on attitudes and implementation. Together, these frameworks emphasize that while teacher attitudes and efficacy are essential, they operate within a broader implementation system that must also be explicitly addressed to effect real change in inclusive practice.

Practical implications

The findings of this study have several practical implications for the implementation of inclusive education. First, it is important to highlight the role of teacher self-efficacy. Strengthening teacher self-efficacy could support the successful implementation of inclusive education. Targeted teacher training that explicitly aims to enhance self-efficacy may strengthen teachers' confidence and thereby promote the implementation of inclusive practices (Tschannen-Moran & McMaster, 2009). Additionally, as previously noted, more visible and supportive school leadership can play a key role in enhancing the implementation of inclusive practices.

Limitations and future research

A key limitation of the current study lies in the quality appraisal process, which was conducted by a single researcher. This raises concerns about potential assessment bias and limits the reliability of the evaluations due to the absence of inter-rater verification. Additionally, the review was constrained to studies published in English which may have introduced a language bias and restricted the applicability of findings to a broader, more diverse educational context. The exclusion of grey literature further compounds the risk of publication bias, potentially skewing the results toward studies with positive or significant outcomes. Moreover, the stringent inclusion and exclusion criteria, while instrumental in maintaining methodological rigor, led to the omission of a substantial number of studies. As a result, potentially valuable insights and nuanced findings may have been overlooked. Another notable limitation concerns the reliance on self-reported data in many of the included studies. While such data can offer useful perspectives, it is susceptible to social desirability bias and may not always accurately reflect actual behaviors. Although prior research (e.g., Clunies-Ross et al., 2008) suggests a reasonable correspondence between self-reports and observed teaching practices, caution is warranted. Future research should prioritize the use of observational or mixed-method designs to triangulate data sources and enhance the validity of findings.

Conclusion

The findings of the current paper indicate a noticeable relationship between teacher self-efficacy and implemented inclusive practices. Predictive factors of intentions to implement inclusive practices were attitudes, management's expectations, classroom size and teacher stress. Additionally, differences in behavior and practices between teachers with high and low self-efficacy were found. Lastly, factors affecting the relationship between self-efficacy and classroom practices were teacher training and organizational support. Overall,

the evidence suggests that enhancing teacher self-efficacy through targeted training, support, and stress reduction could facilitate more effective implementation of inclusive education.

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Appendix A

Table 1

Inclusion and Exclusion Criteria

Domain	Inclusion	Exclusion
Population and focus	Studies focused on teachers in teachers in mainstream primary education.	The research is not focused on mainstream primary education, studies focusing solely on students, parents, or administrators without addressing teachers.
Topic		Studies that do not explore the implementation of inclusive education.
Study design	Empirical studies, including qualitative, quantitative, and mixed-methods research, Systematic reviews or meta-analyses related to teacher self-efficacy and inclusive education.	Studies that lack clear methodologies or robust data analysis.
measurement	Studies that measure teacher self-efficacy using validated tools or discuss its influence qualitatively.	The relation between teacher self-efficacy and implementation of inclusive education has not been empirically researched.
Publication type	Peer reviewed studies	
Time frame	Published between 2015 and 2025.	
Language	Whole article written in English	

Appendix B

Table 2

Data Extraction Table (n = 9)

Study	Data collection method and instrument	Country	Population	Findings relevant to the present study	Limitations
(Engelbrecht & Savolainen, 2018)	Semi-structured interviews & Questionnaire (SACIE, TEIP)	Finland, South Africa	1170 primary and secondary education teachers	South African teachers expressed strong support for inclusive education in principle, but implementation was hindered by large class sizes, limited training, and lack of professional support. Finnish teachers were more cautious about inclusion but demonstrated more effective inclusive practices due to robust teacher education programs and well-established support systems.	Context-specific and locally governed implementation limits generalizability and consistency across settings.
(Gülsün et al., 2023)	Questionnaire (SACIE, TEIP)	Finland	384 primary education teachers	Teacher behavior was predicted by self-efficacy in behavior management, years of working in the current school, and collective teacher efficacy in student discipline. Teaching experience significantly predicted teachers' self-efficacy in behavior management.	Self-reported data
(Hellmich et al., 2019)	Questionnaire	Germany	290 primary education teachers	Intentions to implement inclusive education practices are predicted by attitudes, collective self-efficacy and perceptions of school management's expectations. Everyday practices of teachers are predicted by intentions regarding implementation of inclusive practices. Teachers have high self-efficacy beliefs concerning teaching inclusive education.	Self-reported data

Study	Data collection method and instrument	Country	Population	Findings relevant to the present study	Limitations
(Johnson, 2023)	Discourse analysis	USA	5 second grade mainstream primary & special education teachers	Specific considerations for building teacher self-efficacy to implement inclusive practices were experience, observations of exemplar models, administrative support, low levels of stress.	Singular observer
(Kuronja et al., 2018)	Questionnaire	Slovenia	162 mainstream primary & special education teachers	Special education teachers had higher levels of self-efficacy, but mainstream classroom teachers showed higher levels of responsiveness to learning and behavior difficulties.	Self-reported data
(Omoró & Possi, 2023)	Questionnaires (TSES, TEICPS) & observation (IPOCS)	Tanzania	72 primary education teachers	Teachers' self-reported self-efficacy scores in inclusive classrooms were high, but observed scores of self-efficacy were low.	Self-reported data, observations done by singular researcher, no inter-reliability analysis conducted
(Wilson et al., 2016)	Questionnaire	Scotland	142 primary education teachers	Teachers' self-efficacy was a significant predictor of reported inclusive behavior. Teachers who scored higher on conscientiousness reported more positive attitudes, self-efficacy and intentions.	Self-reported data
(Wilson et al., 2022)	Questionnaire (IDP, TSES, MATIES, ST-IAT, DIS)	Scotland	87 primary education teachers	Significant correlations between teachers' attitudes, self-efficacy and reports of inclusive teaching. Significant correlations between intentions, self-efficacy and reported behavior Teachers with more positive attitudes had higher self-efficacy and intentions to use inclusive methods.	Self-reported data

Study	Data collection method and instrument	Country	Population	Findings relevant to the present study	Limitations
(Woodcock et al., 2022)	Semi-structured interviews & Questionnaire (TSES)	Australia	41 primary education teachers	A clear distinction between behaviors in teachers with high self-efficacy and teachers with low self-efficacy	Self-reported data

Note. SACIE = Sentiments, Attitudes and Concerns about Inclusive Education; TEIP = Teacher Self-Efficacy for Inclusive Practices; TSES = Teachers' Sense of Efficacy Scale; TEICPS = Teacher Efficacy in Inclusive Classroom Practices; IPOCS = Inclusive Practices Classroom Observation Scale; IDP = Interaction with Disables Persons Scale; MATIES = Multidimensional Attitudes towards Inclusive Education Scale; ST-IAT = Single Target Implicit Association Test; DIS = Differentiated Instruction Scale

Appendix C

Table 3

Qualsyst (Kmet et al., 2004) Quantitative Studies Appraisal (n=6)

Qualsyst criteria	(Kuronja et al., 2018)	(Wilson et al., 2022)	(Wilson et al., 2016)	Hellmich et al., 2019)	(Omoró & Possi, 2023)	(Gülsün et al., 2023)
Objective	2	2	2	2	2	2
Design	2	2	1	2	2	2
Subject selection	1	2	1	1	2	1
Subject characteristics	2	2	1	2	2	2
Random allocation	N/A	N/A	N/A	N/A	N/A	N/A
Blinding investigators	N/A	N/A	N/A	N/A	N/A	N/A
Blinding subjects	N/A	N/A	N/A	N/A	N/A	N/A
Outcomes	2	2	1	1	2	1
Sample size	2	2	2	2	2	2
Analysis	1	2	2	2	1	2
Estimate of variance	0	2	2	2	2	2
Confounding	0	1	2	2	1	2
Results	1	2	2	2	2	2
Conclusion	2	2	2	2	1	2
Total score (0-1)	0.68	0.95	0.82	0.86	0.86	0.91

Appendix D

Table 4

Qualsyst (Kmet et al., 2004) Qualitative Studies Appraisal (n=1)

Qualsyst criteria	(Johnson, 2023)
Question/objective	2
Study design	1
Context	2
Theoretical framework	2
Sampling strategy	1
Data collection	1
Data analysis	2
Verification	2
Conclusion	1
Reflexivity	2
Score (0-1)	0.80

Appendix E

Table 5

Mixed Methods Studies Appraisal (Hong et al., 2018) (n=2)

Qualsyst criteria	(Woodcock et al., 2022)	(Engelbrecht & Savolainen, 2018)
Screening Questions		
Clear research questions	Yes	Yes
Collected data address questions	Yes	Yes
Qualitative component		
Appropriate approach	No	Yes
Collection methods adequate	Yes	Yes
Findings adequately derived	Yes	No
Interpretation sufficient	Yes	Yes
Coherence between sources	Yes	No
Quantitative component		
Relevant sampling?	Yes	Yes
Representative sample?	Yes	Yes
Appropriate measurements?	Yes	Yes
Low nonresponse bias?	No	Yes
Appropriate analysis?	Yes	Yes
Mixed-methods component		
Adequate rationale	No	Yes
Different componenets integrated	Yes	Yes
Components adequately interpreted	Yes	Yes
Inconsitencies adequately addressed	Yes	Yes
Quality criteria	Yes	Yes
Results (0-1)	0.80	0.60