

A COMPREHENSIVE REVIEW OF THE IMPACT OF TEACHER PROFESSIONAL DEVELOPMENT AND SELF-EFFICACY ON THEIR PERFORMANCE

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ABSTRACT

This study explores the significant relationship between Teacher Professional Development (TPD), teacher performance, and self-efficacy, aiming to understand how professional growth initiatives influence educators' teaching effectiveness and confidence. As educational systems strive for continuous improvement, the role of TPD has become increasingly vital in enhancing teaching quality and student outcomes. The goal of the current study is to examine the Impact of Teacher Professional Development on Performance and Self-Efficacy in district Pakpattan. As a result, the total sample size was 248. Given the objectives of the study, a well-structured questionnaire was developed as a research tool to gather data. In conclusion, the research conducted on teacher-student relationships and their impact on academic performance, motivation, and engagement has provided valuable insights into the importance of fostering positive interactions in educational settings. Ultimately, the study concludes that while professional development is a valuable tool for improving certain teaching competencies, it should be part of a broader strategy that includes long-term support, contextual relevance, and other influencing factors such as mentorship, administrative backing, and collaborative learning opportunities. Teacher development and self-efficacy play a crucial role in class room and students' development.

Keywords: Professional Development, Teacher's Self-Efficacy, Teacher Performance.

Background

People who oversee the teaching and learning process at various educational levels and possess strong credentials in terms of general culture, professional knowledge and skills, and competence are employed in the teaching profession, which is one of the most significant parts of the educational system. The qualifications and quality of instruction are improved by a teacher's competencies (Kulshrestha & Pandey, 2013). A key element of current educational reforms aimed at improving teacher quality is professional development. It is widely acknowledged that teachers' professional development is a dynamic process that spans their lives and encompasses various forms of learning. Professional development plays a vital role in improving professional performance, rectifying ineffective practices, easing the implementation of educational policies, and guaranteeing change. This is supported by studies showing that the lack of professional development is an important reason why primary school teachers cannot teach science course effectively (Baysal & Mutlu, 2021).

Combining interactive and people-centered approaches, professionalism ensures that professional standards are upheld, information is expanded, and competence is attained. They

continued by saying that a person's career, rank, level of skill, and goals might all influence how they define professionalism. It is believed that a teacher's professional identity and views about what it takes to be a successful teacher are closely linked to their professionalism. Additionally, they proposed a distinction between professionalism and non-professionalism. They view professionalism as a functional component that is associated with a teacher's position, whereas professionalism is more closely linked to a teacher's abilities, expertise, and behavior (Leung, 2009).

Teachers are expected to continuously learn and enhance their abilities because teaching is a professional job. Teachers' professional degrees and performance may be improved by persistent learning; professional credentials are seen as strong social and political markers of a teacher's professionalism. The reestablishment, growth, and extension of teachers' knowledge and abilities are referred to as professional development for teachers (Khan & Abdullah, 2019). Teachers' practical experience and the creation of teaching practices that enable students to acquire independent, reflective, and critical thinking abilities are key components of innovation in teachers' professional development. According to some, professional development is a cognitive and individual endeavor that calls for emotional investment, trying out novel concepts, enhancing teaching, and engaging with new ideas (Girvan et al, 2016).

Professional development refers to a continuous process where individuals acquire new skills, knowledge, and experiences relevant to their profession, helping them to improve performance and adapt to changing demands. In education, it involves structured learning activities, such as workshops, peer observations, mentoring, and collaborative learning, aimed at enhancing teachers' instructional practices and effectiveness. Research shows that effective professional development is content-specific, collaborative, sustained over time, and directly connected to classroom practices (Darling-Hammond et al., 2017). This type of development not only boosts teachers' confidence and skillsets but also correlates positively with improved student outcomes, highlighting its essential role in education reform and instructional quality (Desimone & Garet, 2015).

Teacher professional development

Teacher professional development is a structured and ongoing process that enhances educators' skills, knowledge, and effectiveness, ultimately aiming to improve student outcomes. Key areas in this field cover training in instructional practices, classroom management, technology integration, and reflective practices. Practitioners, academics, and legislators have started to consider ways to enhance teachers' learning more methodically as the expectations for deeper and more complicated student learning have grown (Will, 2019). These efforts range from hiring, training, and support to mentorship and other leadership possibilities. Sophisticated teaching strategies are needed to assist students in gaining the competencies required for the twenty-first century; such includes a thorough comprehension of difficult material, critical thinking, the ability to solve complicated problems, good cooperation and communication, and self-direction. Thus, educators must have the opportunity to develop the pedagogies required to convey these skills (Darling et al., 2017).

Teachers and other education professionals are involved in a burgeoning nationwide activism movement that goes beyond simply advocating for wage increases. It's critical to retain teachers and provide them a livable salary, but it's also critical to save public education and provide greater resources for their pupils. Teachers wondered if their acts would result in

change when they returned to their classrooms to do the tasks for which they had been educated. According to Carver and Darling (2017), the three main causes of teacher turnover have been a general unhappiness with teaching, a lack of administrative support, and the demands of test-based accountability. In the field of education, finding out more about how teachers feel about their work and how governments and districts may promote growth is becoming important. Salary has been one of the most commonly mentioned factors contributing to teacher unhappiness (Ingersoll et al., 2018).

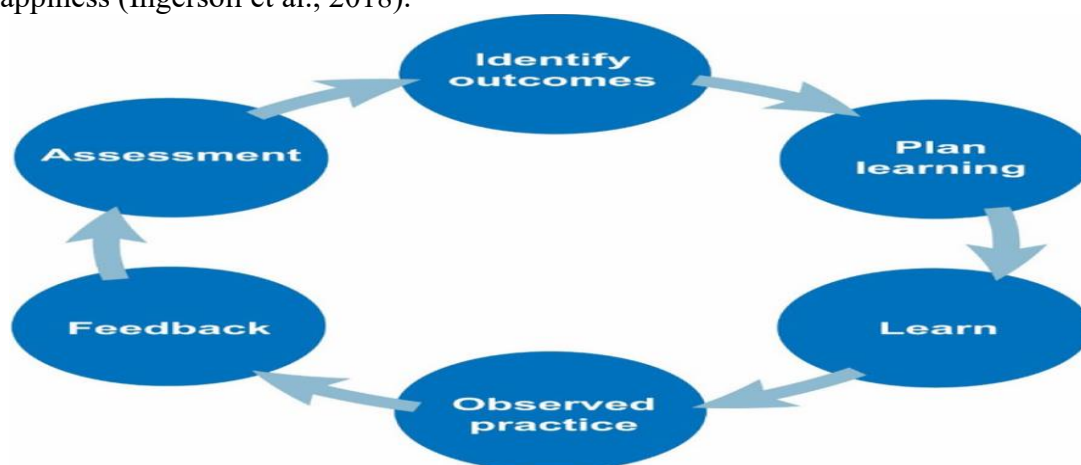


Figure 1: The learning cycle

Key Characteristics of Effective Professional Development

Thomas & Palmer (2014) argued that In addition to knowledge, beliefs need to receive greater attention since they are particularly close to practice because they influence our perception of the world and tell us how to behave in certain circumstances. Beliefs serve as a link between information and behavior, operate as filters and frames, and offer an orienting and directing role. Three aspects of teacher beliefs have been found to be highly significant when it comes to teaching with technology: (i) views about teaching with technology, (ii) beliefs about self-efficacy, and (iii) epistemological beliefs.

Beliefs about teaching methods with technology

Teachers' dedication to using technology can be linked to their "belief in the transformative potential of the technology and recognition of its educational value." Goos and Bennison (2008), for instance, shown that instructors who have more favorable opinions about using technology to teach mathematics are more likely to employ it. Positive attitudes include, for instance, the conviction that technology facilitates a deeper comprehension of mathematics or makes switching between various representations easier. It is emphasized, therefore, that opinions regarding the negative consequences of technology use must also be considered. These views include, for instance, the notions that using technology takes up excessive amounts of time, that it causes students to lose their manual abilities, that it makes them reliant on calculators, and that it hinders comprehension.

Self-efficacy beliefs

Clark-Wilson and Hoyles (2019) identify self-efficacy in using technology in front of the class is probably the cause of the discrepancy between the actual implementation of technology-based teachings and their intended implementation. When it comes to teaching with technology, "self-efficacy beliefs may be more important than skills and knowledge." This may be especially true since the use of technology puts teachers in more unstable situations and

calls into question their authority and role as the only source of knowledge (Thurm and Barzel 2019). Beliefs in one's own skills, or self-efficacy beliefs, have been demonstrated to influence motivation, perseverance, decision-making, and instructional behavior. Specifically, more favorable perceptions about teaching mathematics using technology and more regular use of technology are associated with domain-specific self-efficacy for doing so.

Epistemological beliefs

Dewey et al. (2009) explained Beliefs on the nature of learning and knowing are encapsulated in epistemological beliefs. There are two types of beliefs on the nature of study: dynamic and static. In the former, mathematics is viewed as a process of inquiry, while in the latter, it is viewed as a collection of rules and methods. It is common to distinguish between constructivist and instructive perspectives on learning. Research shows that teachers who have a dynamic view of mathematics and stronger constructivist beliefs are more likely to be active technology users, use technology in a more student-centered manner, and see technology as an instructional tool rather than just a computational tool. However, one must exercise caution when it comes to oversimplifying complex relationships. Furthermore, as opinions regarding technology are frequently based on and developed from epistemological views, these beliefs are equally significant.

Belief development

Palmer (2014) studied the three aspects of teacher beliefs stated above are intimately related to one another. Therefore, if one wants to help teachers change their views, none of them can be addressed alone. It is not simple to assist educators in altering their ideas, nonetheless. As previously said, beliefs serve as filters that affect how an individual perceives and understands new information and experiences. Teachers often use conflicting facts to reinforce their own ideas and filter new information from professional development programs via their preexisting belief systems. This complexity necessitates providing instructors with opportunities to consider their ideas and practices, see other teaching philosophies, exchange implementation experiences, and adopt an evolutionary approach where beliefs and practices evolve together. Additionally, mastery experiences—personal successful experiences—are thought to be especially crucial for bolstering self-efficacy beliefs.

Professional development for teaching with technology

Although teacher attitudes and expertise have been recognized as critical components for using technology to teach arithmetic, little is known about how well professional development programs foster these skills. Generally speaking, professional development programs for teaching mathematics with technology have been the subject of very few studies. They also pointed out that details of the professional development programs and efficacy metrics were frequently left out. The ICME topical survey of Hegedus et al. (2017) concluded that the professional development program for teaching mathematics with technology is evaluated in very few studies. Who saw that research on mathematics education generally hardly ever looks at the causal relationships between teacher or student results and involvement in professional development programs in different subjects? They concluded that "more effectiveness studies are needed, especially if researchers studying mathematics professional development wish to be involved in policy discussions regarding the professional development provided to mathematics teachers."

Drijvers et al. (2018) noted that this is especially troubling because the researchers are often heavily involved in the planning and delivery of professional development programs. It

indicates favorable effects on teaching methods and even student outcomes, and is unique since it includes a control group. Studies that support this claim also show that lesson plans have improved in quality; however, they do not establish a causal relationship between professional development sessions and an experimental design. Changes in beliefs are difficult to achieve in research that use teacher beliefs as an outcome measure. According to the author, a shift in perspective about the use of technology in education was limited by epistemological ideas. Reflection on instructors' views and teaching practices was highly valued in the professional development program. Positive impacts on beliefs relating to technology were noted in this study; however, rule-based instructors did not gain from the professional development program, and epistemological views remained unchanged throughout time. The causal consequences of professional development programs for teaching using technology on teachers' beliefs and knowledge are often poorly understood. Studies that are experimental or quasi-experimental are particularly lacking. It is still true in many ways that the statement that "research in the field of teacher development courses in mathematics and technology is still in its infancy" was made.

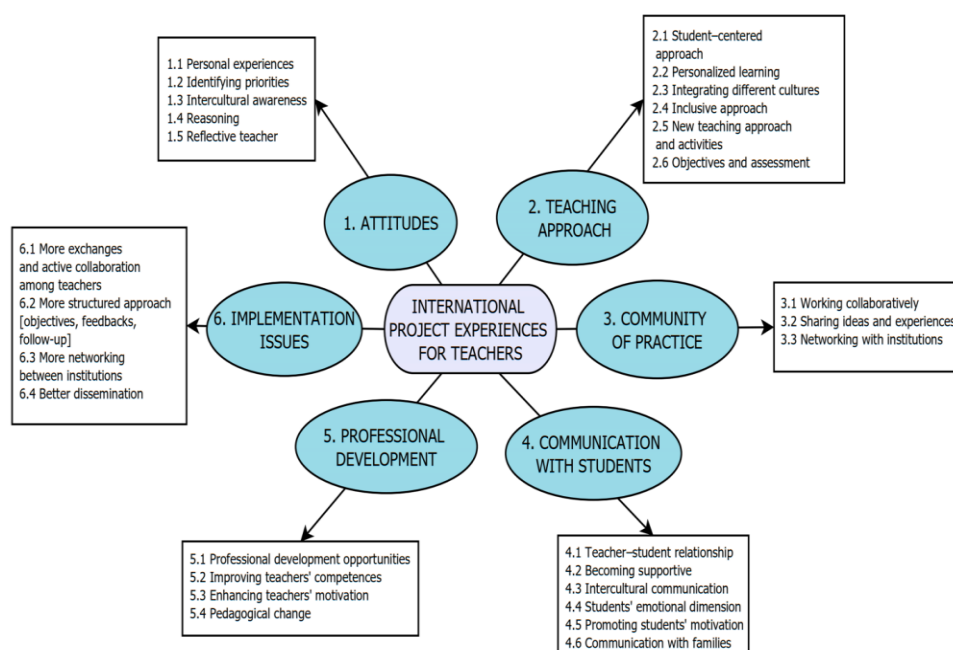


Figure: Teacher Professional Development in International level Context

Teacher Self-Efficacy

A teacher's self-efficacy is defined as their belief in their own abilities, and there are three basic categories into which this research field may be divided. Initially, the impact of teacher effectiveness on pupils was documented in this field of study. Studies have indicated that an instructor's assessment of their own abilities influences students' learning because it influences their choice of instruction. Effective educators, for example, consistently maintain high levels of student engagement and devote more time to challenging kids because they believe that these children can learn and need more time and attention (Good & Brophy, 2003).

Since self-efficacy is strongly correlated with the choice to complete a task, the amount of effort put in, and the degree of perseverance, it is often regarded as one of the most potent behavioral incentives. Within the realm of education, this may be seen as a teacher's assessment of their own ability to affect students' learning or to achieve the intended educational objectives. It has been shown those teachers with high (generic) teaching self-efficacy experiment more with novel and cutting-edge teaching materials and more with alternative teaching approaches (Almajnuni & Alwerthan, 2024). Additionally, they create better student accomplishment and show higher levels of professional devotion. Since these beliefs support and are a prerequisite for real participation in a task, measuring self-efficacy beliefs as results of professional development activities makes sense (Boeve-de et al., 2022).

The RAND Corporation identified teacher efficacy as the most crucial factor in change implementation in the early days of teacher efficacy research. The RAND study found that instructors were more successful at bringing about change when they felt they could have a beneficial influence on students' academic performance. The idea of efficacy is domain and context specific, according to additional study on teacher self-efficacy. In one area of their work, teachers may feel very effective, while in another, they may feel ineffective. There is little question from research those classrooms and children benefit from high levels of teacher self-efficacy. Teacher self-efficacy has been shown to affect teacher strategies teacher's goals and aspirations (Klassen & Tze, 2014).

Over the past 20 years, laborers in other sectors of the economy have witnessed increases in pay; however, teachers have not had the same outcomes. The most straightforward reason has been the political aspect of teacher wages, which is influenced by state and municipal legislation and collective bargaining (Hanushek, 2015). While the public's focus has been drawn to the education system by the regular disputes over vouchers and charter schools as well as the poor performance of schools, nothing has done so more successfully than the recent strikes that have occurred in six states against teacher salaries. Teachers have worked hard to dispel the myth that teaching is a low-skilled industrial job that can be readily replaced by anybody, instead of a highly professional position needing specific knowledge and abilities (Cheng et al., 2019).

Higher efficacious teachers find their work more fulfilling, hold themselves to higher standards, evaluate themselves when pupils fall short, establish objectives and create plans for achieving them, have a positive outlook, and feel in charge of their classroom. High feelings of efficacy teachers are more likely to be enthusiastic about their work and to plan and organize their lessons more effectively (Martin et al., 2008). These results indicate that more research on teacher efficacy may have an impact on education; nonetheless, despite these encouraging outcomes, it is still difficult to define and assess teacher efficacy, making it a notion that is somewhat illusive. The overall assumptions held by educators about the ability of instruction to reach challenging pupils seem to be reflected in general teaching efficacy. The confidence a teacher has in his or her ability to implement plans to get around hurdles to students' learning is known as personal teaching effectiveness. It is more autonomous and concentrates on the accomplishments of a single teacher rather than the abilities of educators as a whole (Powers et al., 2016).

Teacher professional development (PD) plays a pivotal role in improving teacher performance and self-efficacy, which, in turn, enhances student outcomes and overall school success. Effective PD is designed to improve teachers' knowledge, skills, and attitudes, which

are essential for both personal growth and fostering a productive learning environment (Darling-Hammond, Hyler, & Gardner, 2017). With the rapid evolution of educational needs and technological advancements, continuous PD is essential for teachers to stay current, adapt to new methodologies, and meet diverse student needs (Desimone & Garet, 2015).

Self-efficacy, or the belief in one's capabilities to execute actions effectively, is crucial for teachers, as it influences their motivation, resilience, and willingness to innovate in the classroom (Tschannen-Moran & Hoy, 2001). Research has shown that teachers with high self-efficacy are more likely to employ effective teaching strategies and better manage classroom dynamics, thereby positively impacting student achievement (Bandura, 1997). Teacher PD that targets self-efficacy can empower educators to take on challenges, persist through setbacks, and develop a sense of agency in their teaching practices (Kraft, Blazar, & Hogan, 2018).

Moreover, professional development programs that focus on collaborative learning, reflection, and practical application have proven to be more effective in enhancing teacher performance than those that simply offer theoretical knowledge (Guskey, 2002). Studies suggest that ongoing, job-embedded PD that aligns with school goals is more likely to produce sustained improvements in teacher performance (Desimone, 2009). Thus, designing PD programs with a focus on building self-efficacy and practical skills can foster a more motivated, competent, and adaptable teaching workforce.

Professional Development and Teacher Performance

This consensus, articulated by Desimone (2009), maintains that strong topic emphasis, active learning, collaboration, alignment with pertinent policies and curriculum, and ample learning time for participants are all characteristics of good professional development. Self-efficacy was shown to be strongly associated with knowledge, motivation, and confidence. Additionally, several of the instructors who took part in Coldwell's study claimed that participating in professional development boosted their confidence, which in turn resulted in the affirmation of their subject-matter expertise. According to other educators, their confidence grew to the point that they began applying for promotions. Several of Coldwell's participants talked about other "mediating outcomes," such as better teaching methods and higher levels of work satisfaction. It was discovered that professional development and continuous learning opportunities improved instructors' teaching and classroom procedures. They affirmed that professional development is essential to enhancing teachers' subject-matter expertise and their "ability to teach to high standards."

As an example, Cabaroglu (2014) examined the effects of action research on professional growth and self-efficacy. The findings demonstrated that the participants had better teaching efficacies, elevated self-awareness, boosted problem-solving abilities, and encouraged independent learning. The results also showed that the growth of preserve English language teacher candidates' self-efficacy was significantly influenced by action research as a professional development tool.

Moreover, Alibakhshi and Dehvari (2015) further looked at the opinions of Iranian high school EFL instructors on ongoing professional development. The main professional development activities of the participants were attempted to be identified by the researchers. Twenty English instructors were interviewed as part of a phenomenological research methodology to achieve this goal. The data were then submitted to content analysis using the Randor model. The findings showed that the participants' perceptions of ongoing professional development included staying current, improving language proficiency, studying for

enjoyment, never-ending education, and, at the end, professional revitalization. They also gained professional growth through employment, visiting events for professional development, and formal schooling.

Furthermore, in a recent study, Nazari et al. (2019) examined the opinions of 427 Iranian EFL instructors, both seasoned and inexperienced, about Technological Pedagogical Content Knowledge (TPACK) and how it affects their professional growth. The findings showed that experienced and rookie instructors' perceptions of TPACK differed significantly from one another. Among other things, their findings showed that, depending on their needs, rookie and experienced EFL instructors favored various professional development activities and programs.

In another attempt, Soodmand & Hosseini (2019) also looked into how EFL instructors' motivational teaching practices were impacted by their sense of self-efficacy. In order to do this, 112 English instructors were chosen to take part in the study from China's postsecondary educational institutions. The participants filled out a questionnaire that asked about their self-efficacy perspective, motivating teaching techniques they used in the English classroom, and demographic data. The findings showed that the participants' self-efficacy explained more than one-third of the variation in their motivational teaching behaviors and was substantially correlated with the prediction of their motivational teaching techniques. Furthermore, the study demonstrated a clear relationship between the growth of English instructors' motivating tactics and their realization of their feeling of self-efficacy.

Wolters and Daugherty (2007) have proposed a link between the mastery goal-oriented classrooms teachers establish in their classes and teacher efficacy. In a recent empirical study, Fackler and Malmberg (2016) claimed to have found a common pattern in fourteen OECD nations and shown a link between teacher efficacy and student learning accomplishment. Researchers also looked at how effective teachers are in different situations or settings when carrying out their duties. Contextual elements that are frequently considered by teacher effectiveness researchers include aspects of the school setting or the degree of job satisfaction with the perceived work environment. For instance, teachers who have poor self-efficacy are more likely to experience the stress that comes with their line of work, which is also strongly linked to burnout and job satisfaction. The context-specific aspect of teacher efficacy may account for the observed findings about the strong relationship between contextual factors and efficacy.

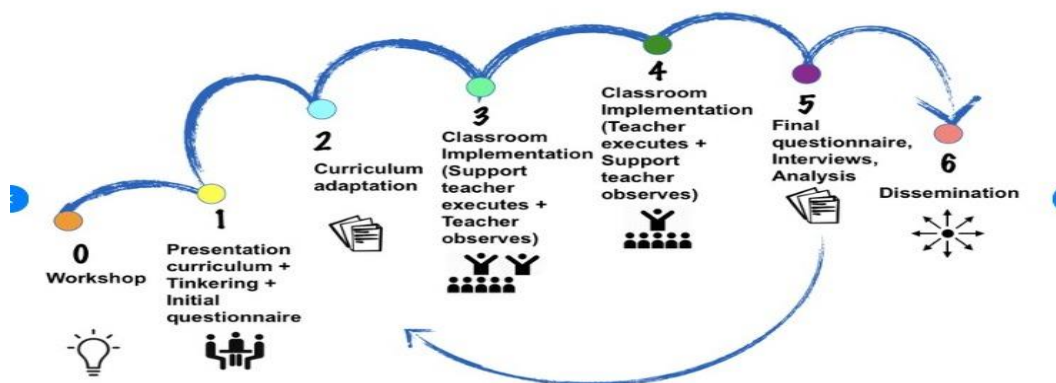


Figure 3: Steps of teachers training

Third, a number of investigations looked at teacher efficacy using the instructor's own demographic data, such as years of experience and grade level taught. Singh and Sinha (2013) found an adverse relationship between teacher efficacy and the grade level they teach, based on a research they conducted with instructors ranging from preschool to high school. In this field of study, teaching experience has been thoroughly examined as a predicate of instructors' self-efficacy. While several studies have documented the beneficial impacts of teacher effectiveness on student learning and instruction, conflicting findings have been seen about the evolution of teacher efficacy over time. Teacher effectiveness may either stabilize over time or alter as a result of their pedagogical experience.

Sitzmann & Yeo, (2013) also clarified that there is a well-established belief that there is a strong link between a teacher's quality and students' academic achievement. Because of this, there is a long tradition in the field of education of emphasizing the quality of teachers. In a 1983 study titled "A Nation at Risk," the National Commission on Excellence in Education recommended that the nation concentrate on increasing the number of competent teachers in the workforce. As a result of the research, several academics, politicians, and educators in the field have been attempting to enhance the teaching staff. There is a growing focus on the need and necessity of more stringent guidelines and instructor accountability.

As per the request for exceptionally qualified educators in the sector, the National Commission on Teaching and Americas The importance of providing teachers with high-quality continuing education was highlighted by Lumpe et al. (2014), and education institutions have focused on enhancing this aspect of teacher preparation by offering master's degrees. As a result, the proportion of educators who possess a master's degree in education or are pursuing one has increased. The discipline that awarded the greatest number of masteries degrees for the 2008–2009 academic years was still education, accounting for 23.8% of all graduate students, according to the Council of Graduate Schools.

Sims & Fletcher-Wood, (2021) highlighted that despite an increase in the number of master's degree-holding teachers and a growing focus on improving teacher quality through professional development education, both on campus and online, there is still a dearth of research on cutting-edge programs like the rapidly expanding online professional development programs. It is necessary to investigate how professional continuing education impacts teacher efficacy, since more and more teachers actively pursue higher degrees or other forms of professional development. The majority of the body of research on teacher efficacy to date has examined teaching experience as only the quantity of years spent in the classroom. Specifically, not much focus has been placed on how professional development initiatives or teachers' personal introspection within the setting affects the evolution of teacher efficacy.

Conclusion

This study is significant as it provides valuable insights into the ways professional development programs enhance teaching performance and promote effective methods, which are essential for improving the quality of education. By focusing on self-efficacy, it also aims to reveal how such programs boost teachers' confidence in their abilities, as high self-efficacy is linked to increased motivation, resilience, and openness to new teaching strategies. The findings will be useful for educational policymakers and institutions in designing impactful training modules that meet teachers' needs in modern classrooms. Additionally, this research fills a gap in existing literature by offering comprehensive data on the direct and indirect effects of teacher training on performance and self-efficacy. It can guide future training programs by

helping administrators optimize resources toward areas that benefit teaching quality and teacher confidence, ultimately supporting student outcomes.

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