

Overview Research on Teacher Training Evaluation Based on Scopus Data from 2000 to 2024

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Abstract

This study aims to provide an overview of teacher training evaluation based on Scopus data from January 2000 to January 2024. The PRISMA model is used to guide the selection of articles. After selection and review, 34 scientific articles are included in the analysis. The author group analyzes information such as the number of research articles, countries, authors, citations, keywords, fields, models, and evaluation methods. The results show that in the last 5 years, the number of research articles on teacher training evaluation has significantly increased. The evaluation fields are relatively diverse, with a focus on English language professional development. There are three groups of evaluation models, among which the evaluation model is increasingly perfected with additional evaluation content. The evaluation methods used include survey research, in-depth interview methods, observational methods, Q-Methodology, process evaluation methods, and self-assessment. Through this overview study, educational researchers and teachers can identify important information about the evaluation of teacher professional development to guide appropriate teacher training activities or select future research topics.

Keywords: evaluation, overview, professional development, teachers, Scopus.

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1. Introduction

Teachers are one of the crucial factors determining the quality of education because they are directly responsible for imparting knowledge, developing character and competencies, creating a positive learning environment, and assessing, supporting, and guiding learners during the learning process. In a constantly changing society, teachers cannot limit themselves to their current position and knowledge. All teachers must possess the skills to adapt, supplement, and continuously absorb new competencies and knowledge (Trošelj et al., 2021). Therefore, the professional development of teachers becomes an indispensable issue, especially in the context of digital transformation, globalization, and the development of a market economy. Stemming from practical demands, research on the professional development of teachers has been continuously increasing in recent years (Trošelj et al., 2021).

Evaluating the professional development activities of teachers plays a crucial role in improving the quality of teacher professional development and enhancing the teaching effectiveness of teachers. According to Thomas R. Guskey (2000), Peter Earley & Vivienne Porritt (2014), effective evaluation must be conducted regularly to create conditions for improvement in both the quality and outcomes of the teacher professional development process. (Earley & Porritt, 2014; Guskey, 2000). Maria S. Poulou and colleagues (2023) assert that there is a need for appropriate assessments to measure classroom practices and identify both the strengths and areas for improvement of teachers to enhance the quality of teacher professional development (Poulou et al., 2023).

In order to provide readers with a comprehensive overview of the trends in motion, and provide direction for

future research, the author group conducts an overview of the evaluation of teacher professional development based on Scopus data from January 2000 to January 2024 in this study.

2. Methodology

The article employs the PRISMA systematic review method. The author group selects articles for the overview analysis from the Scopus database. We use the following syntax to search for articles in the Scopus data: TITLE (teacher AND professional AND development AND assessment) AND (LIMIT-TO (OA , "all")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j")).

The retained articles must be published in journals, written in English, from January 2000 to January 2024. We exclude articles that are published in other kinds of publications such as conference proceedings, books, and commercial journals; those that are not written in English; and those which were not published between January 2000 and January 2024. In the end, 34 articles met the criteria for inclusion in the analysis.

Figure 1 illustrates the flow of information through various stages of the system evaluation using the PRISMA method.

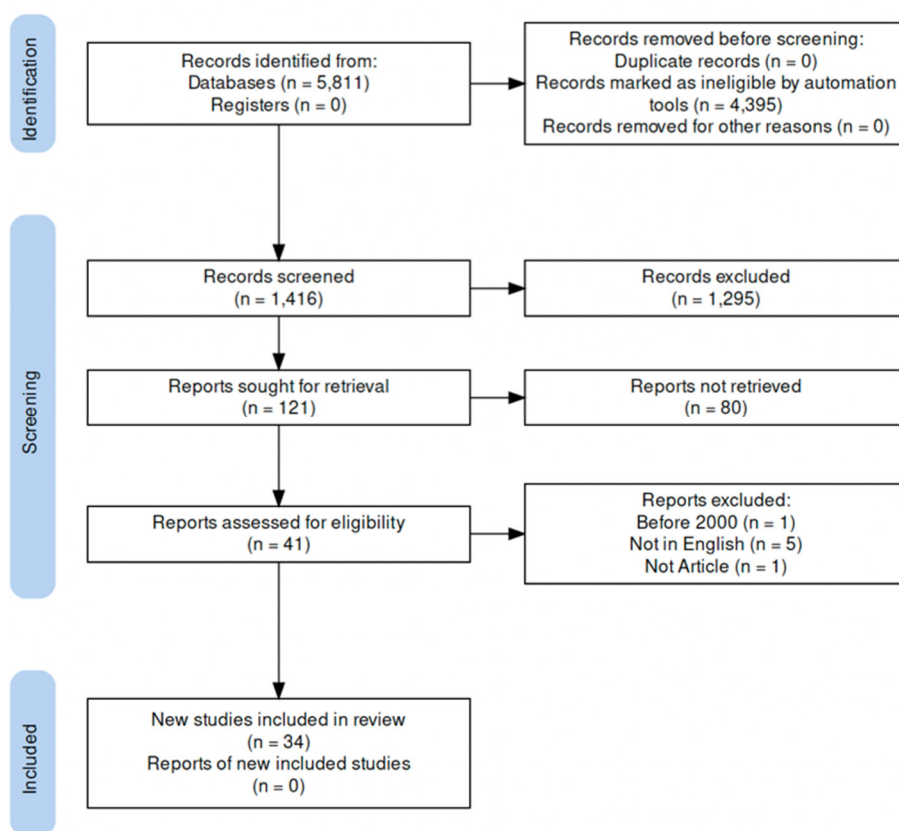


Figure 1: The flow of information through various stages of a system evaluation

3. Findings

3.1. General issues

3.1.1. The number of articles and journals interested in the evaluation of teacher professional development

Figure 2 provides an overview of the distribution of the number of teacher professional development documents from 2000 to 2024. The total number of analyzed articles is 34, and the quantity of scientific articles is unevenly distributed across the years. The chart also indicates that during this period, there were several phases where the issue of teacher professional development was not prominently addressed. From 2002 to 2008 and from 2010 to 2017, there were no scientific publications in the Scopus database studying the evaluation of teacher professional development. In contrast, the number of published articles on the evaluation of teacher professional development has increased since 2019, reaching its peak in 2023 with 11 research articles published. This suggests that the topic of evaluating teacher professional development has been attracting the attention of many researchers. The reason could be that, following the COVID-19 pandemic, the demand for teacher training to meet the requirements of innovative teaching activities is increasing, leading to a higher demand for the evaluation of teacher training activities.

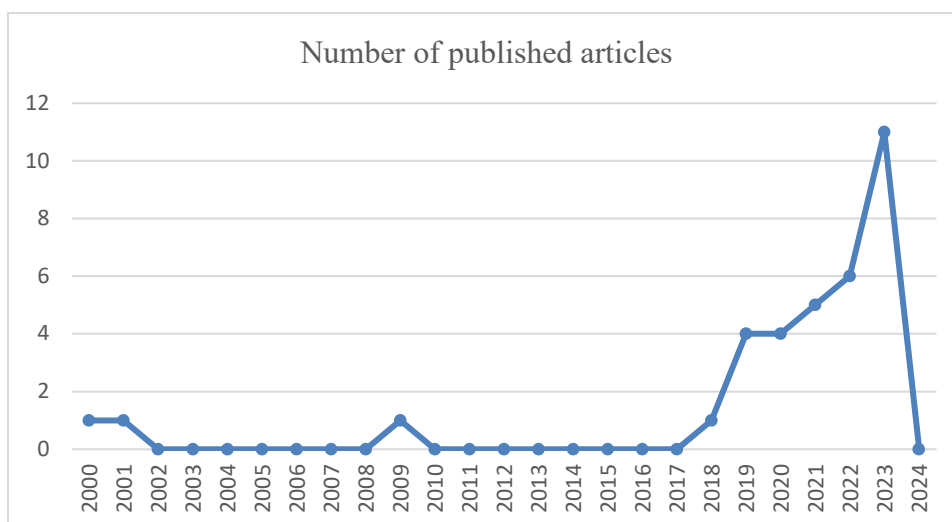


Figure 2: The distribution of the number of teacher professional development documents

Statistics from the Scopus database also provide an overview of the situation of journals publishing research articles on the evaluation of teacher professional development.

Table 1 displays the data of articles on the evaluation of teacher professional development from various journals:

Journal	Number of articles
Assessment In Education Principles Policy And Practice	2
Cogent Education	2
Science Education	2
Profile Issues In Teachers Professional Development	2
Journal Of Museum Education	1
Russian Psychological Journal	1
Sustainability Switzerland	1
Studies In Educational Evaluation	1
Teacher Development	1
Language Testing In Asia	1
Journal Of Vocational Education And Training	1
School Effectiveness And School Improvement	1
Applied Linguistics Review	1
Journal Of Language And Linguistic Studies	1
Journal Of Educational And Social Research	1
Reflections	1
Journal Of Elementary Education	1
International Journal Of Instruction	1
International Journal Of Assessment And Evaluation	1
Indonesian Journal Of Applied Linguistics	1
Frontiers In Psychology	1
Frontiers In Education	1
Ets Research Report Series	1
Education Sciences	1
Education Research International	1
Journal Of The Serbian Chemical Society	1
Journal Of In-Service Education	1
Research In Educational Administration And Leadership	1
Teaching And Teacher Education	1
British Journal Of In-Service Education	1

Table 1: Number of articles on the evaluation of teacher professional development from various journals

Looking at Table 1, we can see that the articles are fairly evenly distributed across the journals. Among them, the journals Assessment In Education Principles Policy And Practice (Q1), Cogent Education (Q2), Science Education (Q1) and Profile Issues In Teachers Professional Development (Q2) are those which paid more attention to the evaluation of teacher professional development (accounting for 23,5%).

It can also be seen that the article Reasons for teachers’ successful development of a formative assessment practice through professional development—a motivation perspective on Assessment In Education Principles Policy And Practice (Q1) by Catarina Andersson and Torulf Palm has been cited the most (32 times of citation) (Andersson & Palm, 2018). It is followed by Reforming Primary Science Assessment Practices: A Case Study of One Teacher's Professional Development Through Action Research by Briscoe Carol and Wells Elaine (25 times of citation) (Briscoe & Wells, 2002). The third most cited one is the study by Kramer Maria and colleagues (Kramer et al., 2020) together with other studies (Heredia, 2020), (Giraldo, 2021)...

3.1.2. The keywords used when discussing the evaluation of teacher professional development

Figure 3 depicts a visual map of research trends using the Vosviewer software on the evaluation of teacher professional development from 2000 to 2024 based on Scopus data. The mapping results reveal three clusters focusing on research topics: the first cluster (in red with 5 factors) includes professional development, assessment competencies, learning assessment, process assessment, and mobility; the second cluster (in green with 4 factors) involves teacher professional development, language assessment competencies, professional development programs, and teacher training; the third cluster (in navy blue with 3 factors) encompasses dynamic approaches, assessment, and teacher professional development.

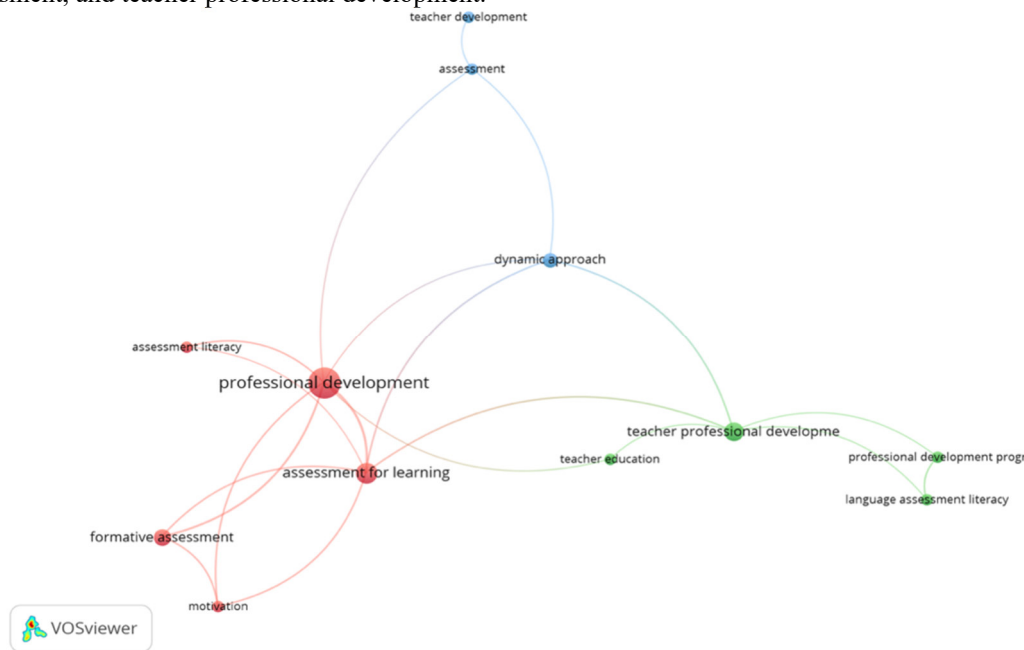


Figure 3. The keywords used in studies

3.1.3. The countries with research on the evaluation of teacher professional development.

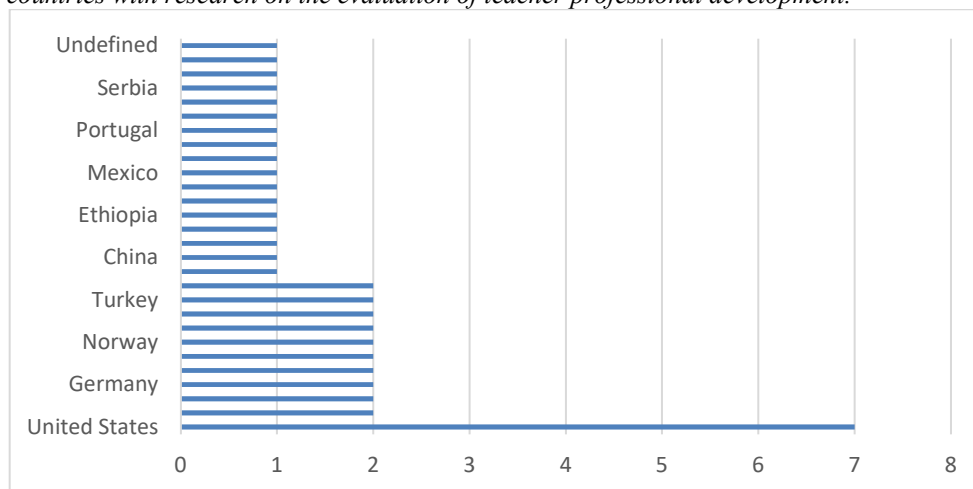


Figure 4: Countries that have publications on the evaluation of teacher professional development

Looking at Figure 4, we can see that the United States is the country with the highest contribution in terms of the number of published documents on the evaluation of teacher professional development, with a total of 7 analyzed documents. The articles from American researchers focus on various issues related to the evaluation of

teacher professional development, such as process assessment (Gusho et al., 2023; Heredia, 2020; Wylie et al., 2009); action study (Briscoe & Wells, 2002), etc. Some countries with a quantity of 2 articles include Colombia, Greece, Norway, Thailand, and the United Kingdom. The remaining countries contribute 1 article each on this issue. This result provides information for researchers, teachers, and professionals interested in the evaluation of teacher professional development. It indicates that the Scopus database lacks studies on the evaluation of teacher professional development in developing countries, such as some Asian and African nations.

3.2. The fields of evaluating teacher professional development.

It can be noticed that, among the 34 analyzed research articles, the authors have studied the evaluation of teacher professional development in various fields. For example, teacher professional development in English, history, science, mathematics, chemistry, information technology, etc. (Andersson & Palm, 2018; Baron et al., 2020; Chen et al., 2022; Chinda & Hinkelman, 2023; Cooper et al., 2018; Dahri et al., 2022; Hendrix et al., 2021; Hiew & Murray, 2021; Murphy et al., 2015; O'Brien et al., 2022; Ravitz et al., 2017).

The evaluation of teacher professional development in English is addressed in the studies by Hiew & Murray (2021) and Chinda & Hinkelman (2023). Hiew & Murray (2021) assess a program aimed at enhancing the professional skills of English teachers in Sabah, Malaysia. (Hiew & Murray, 2021). Chinda & Hinkelman (2023) investigate the awareness and practice of English as a foreign language assessment by teachers in Hokkaido, Japan, and the impact of the professional development program on the participants. (Chinda & Hinkelman, 2023). Regarding the issue of professional development for history teachers, there is one work by Cooper and colleagues (Cooper et al., 2018), and another by Baron Christine and colleagues (Baron et al., 2020). The evaluation of professional development activities for science teachers is addressed in the studies by Murphy and colleagues, as well as one by Hendrix and colleagues (Hendrix et al., 2021; Murphy et al., 2015). Tomašević I. Biljana studies the evaluation of professional development activities for chemistry teachers. (Tomasevic et al., 2021). In addition, researchers are also interested in evaluating the professional development of information technology competencies for teachers. It was studied by Ravitz and colleagues (Ravitz et al., 2017) and Dahri Nisar Ahmed and colleagues (Dahri et al., 2022). Furthermore, some researchers are interested in evaluating teacher professional development activities related to process assessment (Andersson & Palm, 2018) (Sandal, 2023) or self-assessment (O'Brien et al., 2022).

Thus, it can be seen that the field of teacher professional development is relatively diverse in terms of evaluation. However, in general, it can be observed that the Scopus database lacks comprehensive evaluations of teacher professional development, such as those related to curriculum innovation or textbook innovation, and on a larger scale, activities on a regional or national level. Additionally, it is noticeable that these studies have mainly focused on assessing the professional development activities of secondary or university-level teachers, with limited research addressing the field of professional development for preschool teachers.

3.3. Model for evaluating professional development activities for teachers

In the reviewed studies, there are four research papers addressing the model for evaluating professional development activities for teachers.

The authors Katrina McChesney & Jill M. Aldridge provide a comprehensive assessment of various models for evaluating professional development activities for teachers. The authors suggest that there are three main groups of evaluation models: (1) Assessing the characteristics of the professional development activity itself (topic of professional development, duration, opportunities for participant reflection and feedback, the connection between theory and practice, transformative outcomes, etc.); (2) Evaluating contextual factors and strategies related to teacher professional development (information about participants, school context/policy environment, etc.); (3) Specific impacts of professional development that need to be assessed (teacher learning, attitudes and beliefs, changes in teaching practices, and student outcomes, etc.). The authors also affirm that the third group of evaluation models is effective, but combining this model with other evaluation models is deemed necessary. (McChesney & Aldridge, 2019).

Some models have been employed regularly including the model by Kirkpatrick (Kirkpatrick & Kirkpatrick, 2006), the model by Andey and colleagues (Philip, 2004), and the model by Huber (Huber, 2011).

The Kirkpatrick evaluation model consists of four levels: Level 1: Learner's reaction to the professional development course; Level 2: Knowledge and skills acquired and improved by learners through the professional development course; Level 3: Specific behaviors exhibited by learners; Level 4: Applied results of learners after the training course.

Meanwhile, Adey and colleagues' model examines the effectiveness of professional development from five perspectives: (1) The nature of innovation; (2) Program quality; (3) Teaching department or community; (4) School senior leaders; and (5) Learner changes.

However, both models have their limitations. Kirkpatrick's evaluation model is unidimensional and does not allow for separate assessments for each level. Additionally, his model centers on the participant, contrasting with

Adey and colleagues' model, which includes evaluating program content characteristics. Both models focus on assessing the progress and completion of a program.

Huber's evaluation model incorporates factors for pre-training assessment of the common, professional, and personal backgrounds of participants, including job profiles, educational goals, professional needs, and interest in career development, along with other relevant factors (Huber, 2011).

Based on the evaluation model by Huber (Huber, 2011), the highly influential Adult Learning Theory, first proposed by Knowles (1980) and further developed by him and subsequent researchers, is known as andragogy, which is defined as 'the arts and science of helping adults to learn' (Knowles, 1980) and the andragogical model by Knowles et al. (2005) (Knowles et al., 2005), Wendy Hiew & Jill Murray recommend adding four more factors to the one by Huber. They are (1) Selection of participants based on the objectives of a program; (2) Incorporation of adult learning principles; (3) Follow-up support; (4) Methods for assessing the impact of a program based on the program objectives. This enhanced model has several advantages in evaluating teacher training activities. It provides opportunities for planning and designing more effective and robust professional development programs for teachers by examining suitable methods for selecting program participants aligned with the program's objectives. This ensures that teachers can successfully integrate knowledge and materials into their classrooms. Additionally, this evaluation model provides guidance for program designers and providers to evaluate the program's impact by adjusting evaluation methods to align with the program's goals (Hiew & Murray, 2021).

Murphy Cliona and colleagues apply the core concept framework of Desimone (2009) (Desimone, 2009) into investigating the impacts of professional development on teachers and students, focusing on key factors: (1) Teachers' effective participation in professional development; (2) Changes in teachers' knowledge and attitudes toward Inquiry-Based Science Education (IBSE) and elementary school science; (3) Changes in teachers' classroom practices; (4) Changes in teaching that enhance students' learning (Murphy et al., 2015).

Therefore, it can be seen that Wendy Hiew and Jill Murray's evaluation model is a comprehensive model with various factors. (Hiew & Murray, 2021). However, the application of any researcher's evaluation model depends on the specific evaluation purpose and conditions. Evaluators need to consider the specific purposes, requirements, and conditions to appropriately apply these evaluation models.

3.4. The evaluation method to evaluate teacher training activities

Regarding the evaluation method of professional development activities for teachers, studies have utilized methods such as survey questionnaires, in-depth interviews, observation, Q-Methodology, process evaluation, etc.

In the analyzed articles, 6 studies employed survey questionnaire methods. For example, Catarina Andersson & Torulf Palm (2018) combined a survey questionnaire investigation with interview methods to assess teacher training conducted in the spring of 2011. They asserted that the theory of expected value and achievement motivation could help explain the successful development of teachers in the practice of process evaluation. This combination can be a useful tool for understanding the teacher's role in professional development (Andersson & Palm, 2018). Ravitz Jason and colleagues conducted a survey with participants before and after each course to assess the professional development of computer science teachers in Google's CS4HS program (Ravitz et al., 2017). Several other studies also utilized surveys combined with in-depth interview methods to evaluate professional development activities for teachers. (Hvalby, 2023) (Cortez Ochoa et al., 2023) (de Vries et al., 2023) (AYLÍN, 2019; Bozkuş, 2019).

Meanwhile, Christine Baron and colleagues apply the Q-Methodology method (Baron et al., 2020). Maria S. Poulou and colleagues suggest conducting an internal school community evaluation by gathering feedback from teachers and school administrators through classroom observation assessments, where trained teachers demonstrate the outcomes of their professional development activities (Poulou et al., 2023).

Several studies employ teacher training evaluation through interview methods (Andersson & Palm, 2018) (Chinda & Hinkelman, 2023). Maria S. Poulou and colleagues recommend instructional coaching embedded with performance feedback as an effective form of PD that can provide a promising method for supporting teachers' implementation of classroom practices and bridging the implementation gap (Poulou et al., 2023). Studies (Chinda & Hinkelman, 2023) (Gusho et al., 2023) also implement process evaluation methods to enhance the effectiveness of teacher professional development.

There are two studies proposing the evaluation of teacher training activities through self-assessment. Vejvoda, J., Stadler and colleagues propose a self-assessment tool based on the IN.K19+ scenario for teachers (Vejvoda et al., 2023). Warsi Lubna Quddus and Khurshid Khalid have applied a practical and sequentially designed model with explanatory characteristics. To collect data, the Self-Assessment Instrument for Teaching Practice (SAITP) was designed to assist English language teachers (ELT) in self-assessing their teaching practices. This study paves the way for a culture of self-assessment and personal development within the teacher community (Warsi & Khurshid, 2022).

4. Discussion

Through our research, we have found that, among the 34 studies we reviewed and analyzed, many addressed various issues related to the evaluation of teacher professional development activities. We provided an overview of the systematic relationship of issues such as the number of articles and journals related to teacher training evaluation, trends in researching the evaluation of teacher professional development activities through keyword systems, countries with studies on teacher training evaluation, areas of evaluating teacher professional development, and the models and methods for evaluating teacher professional development activities. Although there have been overview studies on teacher training (Postholm, 2012) or trends in teachers' professional development strategies or the impact of teacher professional development on students. (Ahmad Zaky El Islami et al., 2022; Basma & Savage, 2018; Postholm, 2018), the novelty of the current study lies in systematically reviewing the evaluation of teacher professional development activities based on the Scopus database. The PRISMA method used in the paper serves as a scientific foundation, contributing to the reliability of the provided information. This is an important theoretical platform that will help future researchers overview other issues related to teacher professional development activities in general and the evaluation of teacher professional development activities in particular.

5. Conclusion

Through our systematic review, we have observed that, in the last 5 years, the evaluation of teacher professional development activities has garnered significant attention from researchers and journals listed in the Scopus database. These studies have addressed various aspects of evaluating teacher professional development activities. Notably, evaluation models for professional development activities have not only focused on the factors of the training activities but have also emphasized contextual factors and the impact of professional development activities from a dynamic approach. Evaluation methods have also been enhanced by incorporating more appropriate methods, such as Q-Methodology, observation methods, school-embedded evaluation methods, and process assessment methods. These research findings serve as a foundational premise for future researchers to construct theoretical frameworks for applying models and research methods in evaluating teacher professional development activities, aiming to enhance research outcomes, particularly in developing countries, to provide a more comprehensive understanding of teacher professional development globally.

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