

## RESEARCH ARTICLE

# The Influencing Factors on the Motivation of Teachers' Professional Development: A Systematic Literature Review

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## ABSTRACT

**Background:** When determining the states and levels of teachers' professional development (PD), motivation plays a crucial role in their continuous PD. Teachers' PD motivation is dynamically influenced by a variety of individual and environmental factors. Many researchers have conducted empirical studies on the influencing factors of teachers' PD motivation from different perspectives and aspects. However, there is no literature that systematically integrates these influencing factors and reveals the interaction mechanisms among them.

**Aim:** This study aimed to synthesise the influencing factors related to teachers' PD motivation and management strategies.

**Methods:** This study used a systematic literature review to examine factors influencing teachers' PD motivation and identify key influencing factors and the interaction mechanisms among them.

**Results:** This study found a few findings. Firstly, the influencing factors of teachers' PD motivation can be divided into three levels: individual-level, environmental-level, and PD activities level (PD-level). Secondly, the school's positive shared vision, goals, mission, and value norms are the key to the formation of teachers' intrinsic motivation for PD. Thirdly, external environmental factors help teachers internalise external values as personal beliefs by meeting their basic psychological needs for competence, autonomy, and relatedness, thus forming intrinsic motivation.

**Conclusion:** This study examined factors influencing teachers' PD motivation and how these factors interact to affect their level and nature. The findings have important implications for teachers, school leaders, and policymakers in supporting teachers' PD motivation across career stages.

**Keywords:** Influencing Factors; Motivation, Teachers' Professional Development; Systematic Literature Review

## 1. Introduction

Teachers' professional development (PD) is defined as any activity that fosters the exchange of ideas among educators or enhances their professional knowledge and skills <sup>[1]</sup>. Teachers' PD occurs inside or outside schools in formal and informal forms and throughout a teacher's teaching career. Acting as a channel

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for bolstering the expertise, knowledge, and effectiveness of teachers, PD is seen as the cornerstone of excellent education <sup>[2]</sup> and the key to the overall improvement of the educational system's quality <sup>[3]</sup>. Only by maintaining continuing PD throughout their careers can teachers keep pace with the rapid changes of knowledge and technology <sup>[4]</sup>, adapt to constant revolution in the educational field <sup>[2, 5]</sup>, and maintain enthusiasm and energy throughout their careers <sup>[6]</sup>. Accordingly, the importance of providing ongoing support for teachers' PD cannot be overstated <sup>[7]</sup>.

However, teachers' continuous PD is not self-evident <sup>[8]</sup>. The success of teachers' PD cannot be separated from the decisive role of their motivation to participate in PD <sup>[8, 9]</sup>. Motivation is a concept used to describe and elucidate human behaviour <sup>[10]</sup>. It is defined as a set of psychological forces that direct, invigorate, and maintain effort in jobs, projects, and tasks <sup>[11, 12]</sup>. Simply put, motivation is the reason underlying behaviour <sup>[13]</sup> and a determinant of the direction and intensity of behaviour <sup>[14]</sup>. Motivation can be categorised into two types generally: intrinsic motivation and extrinsic motivation <sup>[15, 16]</sup>. Intrinsic motivation depends on a person's perception of the relevance and value of the PD opportunity, and may also reflect the fulfilment of the internal need for achievements <sup>[17]</sup>, while extrinsic motivation originates from a person's desire to attain material incentives, recognition, or rewards, or avoiding punishment <sup>[16, 17]</sup>. In adult learning, teachers' PD is primarily driven by intrinsic motivation, which is the ideal motivation to facilitate teachers' high-level development <sup>[18]</sup>.

Teachers need a constant stream of motivation to maintain ongoing PD throughout their entire career. Educational institutions are entrusted with the mission of continuously stimulating and enhancing teachers' PD motivation <sup>[11, 19]</sup>. However, the stimulation and activation of teachers' PD motivation is challenging due to the contextual, relational, and dynamic character of motivation <sup>[14, 20]</sup>. First, motivation is contextual and relational. The quantity and nature of motivations are determined by the context of the individual and the social environment they live. Motivations are the result of an interaction and dialectical connection between individuals as subjects and the external world as objects, representing a unity of contradictions between social and individual, material and idealistic, and objective and subjective aspects <sup>[14]</sup>. Although every motive originates from within individuals, it has its roots outside the object <sup>[14]</sup>. Therefore, motivation is influenced by both individuals' characteristics (e.g., age, level of education, personal qualities, and subject value) and the social conditions in which they live (e.g., family, work environment, and relevant policies). These influences may be positive or negative for teachers' PD motivation <sup>[21]</sup>. Second, motivation is dynamic and changeable <sup>[14, 20]</sup>. Motivation varies among different teachers and at different stages of their development. Furthermore, the action often arises from a combination of motivations rather than a single one, and the priority or strength of these motivations varies according to the conditions <sup>[14]</sup>.

Examining the factors influencing teachers' PD motivation and their interactions is crucial for understanding the mechanisms underlying its formation and evolution. The understanding holds significant importance for educational institutions seeking to develop effective strategies to stimulate teachers' PD motivation <sup>[22, 23]</sup>. Focusing on this aim, prior empirical studies were conducted from various perspectives. For example, Philips et al. (2025) <sup>[24]</sup>, Happel and Song (2020) <sup>[25]</sup>, Affounh et al. (2020) <sup>[26]</sup>, and Zhang et al. (2020) <sup>[27]</sup> specifically concentrated on the obstacles and supportive factors for teachers' participation in PD. Meanwhile, Wang (2025) <sup>[28]</sup>, Lyu (2025) <sup>[29]</sup>, Ezel Acar and Erozan (2024) <sup>[11]</sup>, Fütterer et al. (2024) <sup>[30]</sup>, Wijaya et al. (2024) <sup>[31]</sup>, Tang et al. (2023) <sup>[23]</sup>, Zhang, Admiraal, and Saab (2021) <sup>[16]</sup> respectively explored the influence of organisational factors, such as school culture, organisational fairness, leadership, work pressure, and emotional pressure, as well as personal factors like self-efficacy, teaching experience, professional ethics, and values on teachers' PD motivation. Some scholars have also found that factors at the PD level, such as the meaning and value of PD, the content and structure of PD, and the actual effects of PD,

can also influence teachers' decisions to participate in PD [19, 24, 32-35]. Some other scholars have attempted to synthesise a categorical framework of the influencing factors of teachers' PD motivation based on their empirical research. For example, Caffarella and Zinn (1999) developed a conceptual framework of barriers and supports affecting teachers' PD [36]. The framework encompasses four categories of factors: (i) people and interpersonal relationships, (ii) institutional structures, (iii) personal considerations and commitments, and (iv) intellectual and personal characteristics. Nonetheless, the influence of PD characteristics was not taken into account in the study.

In the Teacher CPD Motivation Model proposed by McMillan et al. (2016) [37], three categories of influencing factors were identified: (i) intrinsic factors (personal motivation factors), (ii) contingent factors (school-related motivation factors), and (iii) tangential factors (system-wide motivation factors). Within this model, with regard to individual-level factors, only those directly associated with stimulating intrinsic motivation were included, such as advancement, growth, and achievement. Individual factors, including self-efficacy, professional level, study ability, age, gender, and career, were not identified. Similarly, PD-level factors were excluded from consideration. Additionally, based on the literature review, Njenga proposed a theoretical framework of teachers' participation in continuing PD [38]. In this framework, contextual factors and personal factors influencing teachers' participation in PD were differentiated and categorised. Still, PD-level factors were excluded. Furthermore, the factors identified by Hur and Hara [35] were categorised into three groups: (i) internal, (ii) external, and (iii) outcome factors, with PD-level factors specifically mentioned in this study. Although Hur and Hara also proposed internal and external factors, corresponding respectively to the individual-level and environmental-level factors in this study, their framework lacked comprehensiveness [35]. In addition, the interaction mechanism among influencing factors has also attracted the attention of scholars in recent years. In a qualitative study, Liu elaborated on the formation process of the intrinsic motivation for teachers to integrate their personal values and PD into the school's value culture. The empirical studies of Lyu (2025) [29] and Wang (2025) [28] revealed the psychological mechanism by which school cultural factors influence teachers' PD motivation.

In conclusion, although research on the influencing factors of teachers' PD motivation and their interactions has garnered increasing scholarly attention and emphasis, a comprehensive and integrated framework remains lacking in the current literature. It is essential to systematically integrate these influencing factors and reveal the interaction mechanism among them, which will provide educational institutions with a comprehensive and systematic overview of the influencing factors affecting teachers' PD motivation. Hence, this study aimed to synthesise the influencing factors related to teachers' PD motivation and management strategies. A total of two research questions were developed to guide this research:

RQ1: What are the influencing factors that affect teachers' PD motivation?

RQ2: How do these influencing factors interact with each other regarding teachers' PD motivation?

## **2. Method**

To address the limitations of traditional literature reviews, namely low reliability, poor validity, and susceptibility to bias [39], this study employed a systematic literature review. The review was structured in a rigorous, transparent, and replicable method to minimise bias [40]. This review employed the PRISMA 2020 guidelines to systematically review studies [41], particularly those focusing on factors influencing teachers' PD motivation, in order to identify key influencing factors and their interactions.

## 2.1. Search strategy

A total of three databases: Scopus, Web of Science, and ProQuest, were selected to search for relevant articles. The current review used keyword groups: “professional development” and synonyms (“faculty development,” “teacher learning,” “faculty learning,” “educator learning”), “motivation” and “motive”, and “factors” with “impede” and “barriers.” “Motivation” and “factors” were each paired separately with “professional development”. The reason for this was to consider that motivation was not only a stable mental state, but also a mental process resulting in the initiation and maintenance of action <sup>[29]</sup>, indicating that motivation exists throughout the entire process of teachers’ PD. Hence, factors affecting teachers’ PD were included. Searches were limited to titles and filtered for peer-reviewed journal articles in English with final published status, without time limits. The first search was conducted from 17 November 2024 to 29 November 2024, retrieving 618 articles. To supplement the latest literature, a second search was conducted on 28 December 28, focusing on literature published after 29 November 2024, yielding 92 additional articles (see Table 1).

**Table 1.** Search Strings and Search Result.

Database	Search Strings	Date Range	Results	Total
Scopus	Group 1 (TITLE (“professional development” or “faculty development" or "teacher learning" or "faculty learning" or "educator learning") AND (TITLE (“motivation” or “motives”) AND (LIMIT-TO (LANGUAGE, “English”) AND (LIMIT-TO (SRCTYPE, “journal”) AND (LIMIT-TO (PUBSTAGE, “final”) AND (LIMIT-TO (DOCTYPE, “article”)	17/11/2024	93	417
		28/12/2025	15	
	Group 2 (TITLE (“professional development” or “faculty development" or "teacher learning" or "faculty learning" or "educator learning") AND (TITLE (“factors” or “impede” or “barriers” ) AND (LIMIT-TO (LANGUAGE, “English”) AND (LIMIT-TO (SRCTYPE, “journal”) AND (LIMIT-TO (PUBSTAGE, “final”) AND (LIMIT-TO (DOCTYPE, “article”)	29/11/2024	282	
		28/12/2025	27	
WoS	Group 1 “Professional development” or “faculty development" or "teacher learning" or "faculty learning" or "educator learning" (Title) AND “motivation” or “motives” (Title) and Article (Document Types) and English (Languages)	17/11/2024	57	235
		28/12/2025	12	
	Group 2 “Professional development” or “faculty development" or "teacher learning" or "faculty learning" or "educator learning" (Title) AND “factors” or “impede” or “barriers” (Title) and Article (Document Types) and English (Languages)	29/11/2024	150	
		28/12/2025	16	
ProQuest	Group 1 TITLE ("professional development" or "faculty development" or "teacher learning" or "faculty learning" or "educator learning") AND TITLE (“motivation” or “motives”) AND English (languages) AND article (Document type) AND Peer Review	17/11/2024	10	58
		28/12/2025	7	
	Group 2 TITLE ("professional development" or "faculty development" or "teacher learning" or "faculty learning" or "educator learning") AND TITLE (“factors” or “impede” or “barriers”) AND English (languages) AND article (Document type) AND Peer Review	17/11/2024	26	
		28/12/2025	15	
TOTAL			710	

## 2.2. Article selection

The identified articles were screened using four inclusion criteria to ensure relevance: (i) full text availability, (ii) document type: journal articles, (iii) focus on in-service, full-time teachers at any education level, and (iv) content must address factors influencing teachers' PD participation, particularly those affecting the development and maintenance of PD motivation. Also, the review employed three exclusion criteria: (i) document type: proceedings, reviews, and book chapters, (ii) focus on principals, pre-service teachers, student teachers, part-time teachers, or other professionals, and (iii) content addressing the application of PD-acquired knowledge or skills. A total of 710 articles were retrieved from both search phases and screened multiple rounds by the author [ZYY] using the inclusion and exclusion criteria above (Fig. 1). Ultimately, 630 articles were excluded, and 80 were retained for analysis. In cases of uncertainty, the selection was discussed among three authors [ZYY, QYC, and LL].

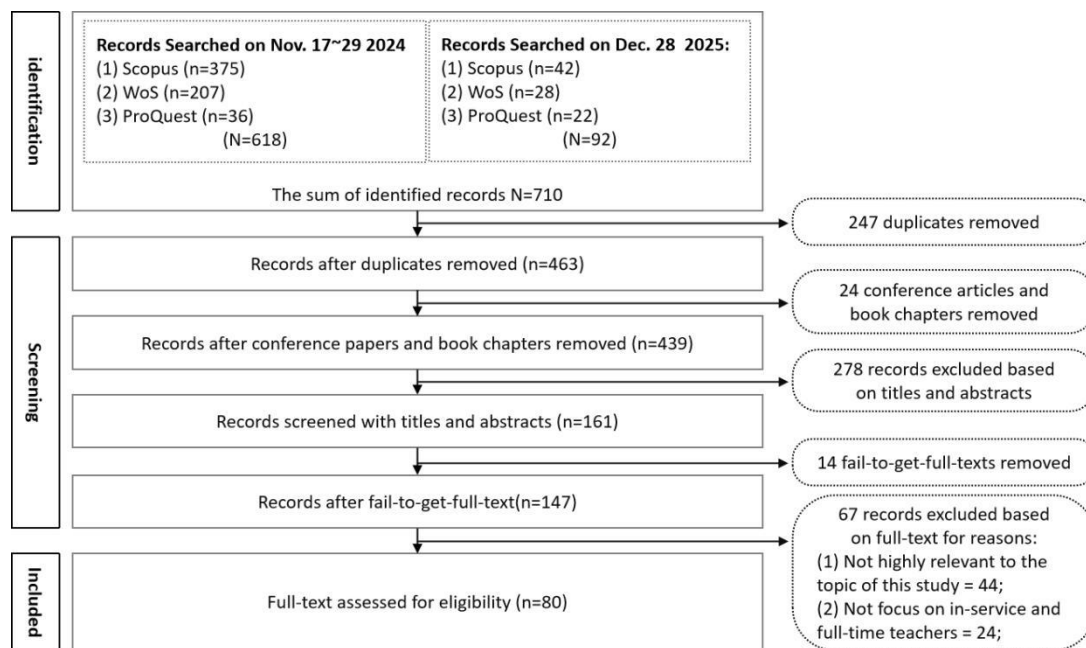


Figure 1. Flowchart of the Article Selection.

## 2.3. Data extraction

Data were extracted using a predetermined checklist that included author, year of publication, country, research method, participant numbers, and educational category, as well as research perspective, results, or conclusions (influencing factors and/or interactions among them). Data extraction was conducted by the first author for systematic analysis, and the fourth and fifth authors reviewed the extracted data.

## 2.4. Quality assessment

The Mixed Methods Appraisal Tool (MMAT) <sup>[42]</sup> was used to assess the included studies. Articles were scored and classified into high (80–100%), medium (50–79%), or low (below 50%) quality categories. The assessment resulted in a total of 76 articles (95%) categorised as having high quality, 3 (3.75%) as having moderate quality, and 1 (1.25%) as having low quality.

## 2.5. Literature coding and analysis

### 2.5.1. Theoretical framework

**The basic process of motivation.** Urhahne and Wijnia proposed the basic motivational model (see Fig. 2) to illustrate the fundamental process of motivated action <sup>[43]</sup>. This process unfolds within a complex social,

cultural, and environmental context (i.e., the situation) in which individuals engage <sup>[43]</sup>. According to Figure 2, motivated action arises from the interaction between the individual and their environment <sup>[44]</sup>. The self serves as the starting point, enabling individuals to set goals, initiate behaviours, and sustain them until goals are achieved <sup>[45]</sup>. Since motivation is defined as the process that initiates and sustains goal-directed behaviour <sup>[46]</sup>, goals form the foundation of motivated action and guide behaviour. Actions are performed to approach positive outcomes or avoid negative ones <sup>[47]</sup>. Outcomes refer to the physical, emotional, or social consequences of behaviour <sup>[43]</sup>, often accompanied by feelings of self-worth, self-actualisation, or accomplishment. The valence of consequences determines the valence of outcomes. These multifaceted outcomes influence future situations and goal setting <sup>[43]</sup>. As a foundational framework for all motivated actions, this model is also applicable to teachers' motivation in PD.



Figure 2. The Basic Motivational Model <sup>[43]</sup>.

**Herzberg's two-factor theory.** Herzberg's two-factor theory was introduced in 1959. The theory is also known as the motivation–hygiene or dual-factor theory <sup>[48]</sup>. It identifies two categories of factors influencing employee satisfaction or dissatisfaction: motivation factors and hygiene factors <sup>[49]</sup>. Motivation factors, such as challenging work, recognition, personal achievement, career advancement, and professional growth, drive job satisfaction. Meanwhile, hygiene factors, such as salary, benefits, company policies, interpersonal relationships, and social status, can prevent dissatisfaction but do not inherently motivate <sup>[49]</sup>. As such, while hygiene factors may reduce demotivation, they cannot sustain long-term motivation on their own <sup>[37]</sup>. The theory helps identify interventions that enhance lasting satisfaction and motivation in organisations <sup>[48]</sup>. In this study, motivation factors are integrated into the motivational process, while hygiene factors are treated as contextual influences that do not directly trigger participation in PD but can amplify or diminish the effects of motivation factors. A theoretical framework for this study was developed by integrating Herzberg's two-factor theory with the basic process of motivation (Fig. 3).

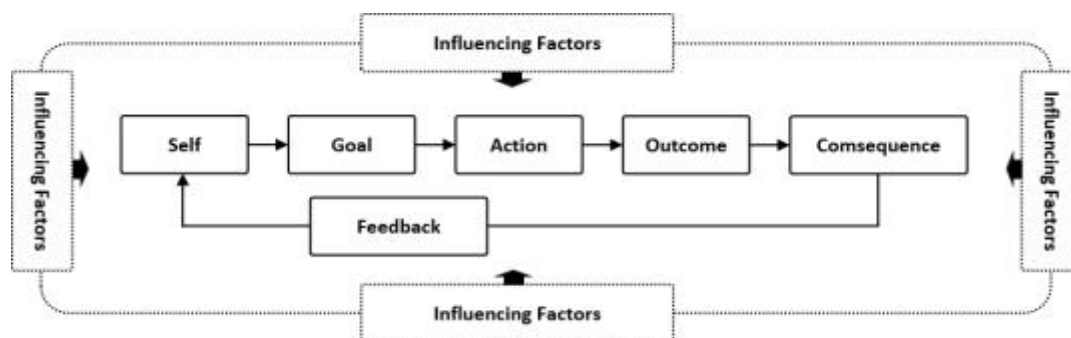


Figure 3. Theoretical Framework.

## 2.5.2. Coding and analysis

The coding and analysis process of this review followed a number of steps. First, the 80 included studies were summarised and analysed by year, author origin, educational level, research method, research perspective, and content to identify the basic distribution characteristics of the review papers. Second, using Atlas.ti24, relevant text fragments related to factors influencing teachers' PD participation and their interactions were extracted, tabulated, and coded. While all articles identified factors affecting teachers' PD

motivation, only 39 discussed both factors and their interplay. Based on the review, these factors were categorised into three main types: individual-level, environment-level, and PD level. Individual-level factors were further divided into three subcategories: external characteristics, intellectual traits, and beliefs and values. Environment-level factors included school-related and society-related factors. Given the complexity of school-related factors, they were subdivided into culture and climate, interpersonal relationships, and school support. PD-level factors were grouped into three dimensions: perceived meaning and value of PD, content, structure, and format, and actual effectiveness. The coding results are presented in Table 2.

**Table 2.** Coding Results of Influencing Factors.

Coding Level 1	Coding Level 2	Coding Level 3	Examples
Individual-level Factors	1.1 Individual external characteristics	——	Gender, Age or career stage, Health
	1.2 Individual intellectual characteristics	——	Self-efficacy, Professional level, Study ability, Renovation ability, Perception ability of individual's PD needs, Past PD experience
	1.3 Individual beliefs and values	——	Work ethic, Professional identity, Passion for profession, Perception of the meanings or values of work, Perception, attitude, and beliefs of the learning meanings and values
External Environment-level Factors	2.1 School-related factors	2.1.1 School culture	Shared vision, mission, and goal, School culture which is supportive of PD, Learning culture and staff ethos, Value and high expectations for teachers from school leaders, Moderate competition, Inclusive leadership style that encourages teacher autonomy, Organizational fairness
		2.1.2 Interpersonal relationship	Positive working relationships with colleagues and leaders, Faculty respect each other, Recognition and encouragement provided for teachers' work by colleagues and leaders, Relatedness
		2.1.3 School conditions	Support of time, funds, related technology, PD opportunities provided by school, Incentive policies including promotion, evaluation, rewards, Work pressure and challenge, Professional guidance from leaders and colleagues
	2.2 Society-related factors	2.2.1 Support from families	Family balance, Heavy housework, Raising children
		2.2.2 Feeling valued at the national level	Positive social evaluation, Good career status
PD-level Factors	3.1 Perceived meanings and values of PD		The PD opportunities address teachers' needs, Practicality of PD, Perceived benefits, Relevance to teachers' field of study
	3.2 Content structure and form of PD		Interaction and feedback, Flexible structure, Simple-to-follow format, An easy way to use technology systems
	3.3 Actual effect of PD		Student change, Improve teaching efficacy, Significant gains in knowledge, teaching methods

### 3. Results

#### 3.1. Characteristics of review papers

The key characteristics of the review studies were analysed by publication year, author origin, educational level, research method, research perspective, and content focus (see Table 3). Nearly 82.50 per cent of the articles were published in the past decade, reflecting growing scholarly interest in factors influencing teachers' PD motivation. The largest proportion of articles was conducted in Asian countries

(42.50%), followed by those from European countries (28.75%), and then those from North American countries (22.50%). Most articles focused on primary and secondary school teachers (53.75%), followed by higher education (26.25%), vocational education (6.25%), mixed settings (6.25%), and further education (1.25%). However, a total of five articles did not specify the educational context.

All articles were empirical. Specifically, a total of 48.75 per cent of articles used quantitative methods, 31.25 per cent used qualitative, and 20.00 per cent used mixed methods. Among the 39 quantitative articles, the articles' sample sizes ranged from 35 to over 38,000, with 30 (76.92%) articles including more than 200 participants. Qualitative articles employed case study, grounded theory, action research, and ethnography. In terms of perspective, 45 articles (56.25%) examined teachers' past PD experiences, while 31 (38.75%) focused on specific PD programmes, activities, or formats. Of the 80 articles, 41 (51.25%) addressed only influencing factors, whereas 39 (48.75%) also discussed their interplay.

**Table 3.** The Key Characteristics of the Review Studies.

Items	Number of studies	Percentage
Publication year		
2003~2013	14	17.50%
2014~2025	66	82.50%
Origin (Author)		
Asia:China/UAE/Turkey/Iran/Pakistan/Palestine/Nepal/Thailand/Vietnam/Malaysia/Singapore/Indonesia/Philippines	34	42.50%
North America: USA/Canada	18	22.50%
Europe:UK/Netherlands/Sweden/Germany/Spain/Slovenia/Ireland/Hungary/Greece/Serbia/Turkey/North Cyprus	23	28.75%
Africa: Ghana /Tanzania / Ethiopia /	4	5.00%
Oceania:Australia	1	1.25%
Educational category		
Primary and secondary school	43	53.75%
General higher education	21	26.25%
Vocational education	5	6.25%
Further education	1	1.25%
Mixed	5	6.25%
Not mentioned	5	6.25%
Research Method		
Qualitative	25	31.25%
Quantitative	39	48.75%
Mixed	16	20.00%
Research Perspective		
Focusing on teachers' past PD experience	45	56.25%
Focusing on specific PD activity / mode / programme /type	31	38.75%
Based on the observation of current situation of teachers' PD	3	3.75%



Items	Number of studies	Percentage
Focusing on personal PD experience	1	1.25%
the correlation of content		
only including influencing factors	41	51.25%
both including influencing factors and the interaction among them	39	48.75%

**Table 3.** (Continued)

## 3.2. Study results

### 3.2.1. Influencing factors that affect teachers' PD motivation

All 80 selected studies reported influencing factors. Based on a comprehensive review, factors with similar meanings but different terminology were identified and categorised into three main categories and eight subcategories: individual-level, environmental-level, and PD-level factors. A detailed list of factors affecting teachers' PD motivation, including the number of articles referencing each, is provided in Appendix A.

#### The individual-level factors

A total of 55 articles reported the individual-level factors. The individual-level factors were classified into three subcategories: (i) individual external characteristics, (ii) individual intellectual characteristics, and (iii) individual beliefs and values.

##### (1) Individual external characteristics

Individual external characteristics that influence PD motivation include gender, age (or career stage), and health. Given the strong overlap between age and career stage, this study treats them as a single subcategory under external characteristics. Of the 18 studies reporting on these factors, 6 examined gender, 14 addressed age or career stage, and 2 explored health.

Findings on gender were inconsistent. A total of five of the six studies identified gender differences in teachers' PD motivation. Kao et al. found no significant difference among elementary school teachers regarding web-based PD <sup>[50]</sup>. In contrast, Badri et al. reported significant differences in perceived PD needs and barriers between male and female teachers <sup>[51]</sup>. Reichenberg and Andreassen observed gender differences in Norway but not in Sweden <sup>[52]</sup>. Affounh found female teachers more actively engaged in training <sup>[26]</sup>, while Matiba reported higher PD participation among male teachers <sup>[53]</sup>. These discrepancies appear context-specific: when PD activities align with the needs or motivations of a particular gender group, that group tends to participate more.

Age-related differences in PD motivation were well documented. Since new and experienced teachers, as well as career stages, are closely related to age, this study consolidates them under the age factor. A total of 10 studies reported age effects, showing two main patterns. First, perceived PD needs, support, and barriers varied by age group <sup>[27, 51, 52, 54]</sup>. For example, teachers aged 25 to 29 and 30 to 39 reported higher barriers than those under 25 or over 40 <sup>[51]</sup>. Second, veteran and experienced teachers generally showed lower PD motivation than younger or novice teachers <sup>[8, 16, 53, 55]</sup>.

Only two articles mentioned health factors <sup>[36, 56]</sup>. Although rarely discussed, physical health was a fundamental prerequisite for active PD participation.

## (2) Individual intellectual characteristics

All motivation theories emphasise the central role of competence in the motivational process [57]. Among the 80 articles, 39 identified competence-related factors (e.g., professional level, learning ability, adaptability, awareness of PD needs, past PD experience, and self-efficacy) as key influences on PD motivation [16, 31, 34, 54, 58-62]. Caffarella and Zinn [36] and Ji [63] defined such attributes as intellectual factors. Building on this, this study categorised teachers' professional ability, skills, and self-efficacy under intellectual factors. Of these 39 articles, 13 highlighted insufficient ability as a barrier to PD motivation, while 26 emphasised that confidence and competence enhance motivation. Overall, intellectual factors, including professional ability, self-confidence, and self-efficacy, were critical prerequisites for teachers' PD.

## (3) Individual beliefs and values

Beliefs and values shape human behaviour and self-understanding in relation to oneself, others, and the world [64]. Teachers' beliefs and values encompassed their perspectives, conceptions, and attitudes toward their roles, positions, teaching strategies, and learning strategies [65], including work ethic, professional identity, commitment to the profession, passion for teaching or profession, perception of the meanings and values of work, as well as the meanings and values of learning.

Findings from 29 articles demonstrated that individual beliefs and values were strongly linked to teachers' intrinsic motivation for PD. Cornejo Happel and Song found that personal values, especially the belief that improving teaching through systematic inquiry is meaningful, play a key role in teachers' decisions to engage in SoTL research [25]. Dahri et al. found that individual beliefs have more influence than environmental factors [66]. Zhou and Tu revealed that teachers' psychological states and beliefs about their professional roles most strongly predict PD participation [67]. Additionally, a total of seven articles identified interest in teaching and learning [68], personal values [18, 67, 69-71], and beliefs about learning [50] as central to developing intrinsic motivation.

## **The environmental-level factors**

When examining teachers' participation in PD activities, environmental factors, including school and societal contexts, must not be overlooked [22]. In this review, factors at the environmental level were divided into two sub-levels: school-related factors and society-related factors. A total of 64 articles reported on the environmental factors. All 64 articles examined school-related factors, and seven of these articles additionally examined society-related factors.

### (1) School-related factors

School-related factors encompassed school conditions (48 articles), school interpersonal relationships (15 articles), and school culture (34 articles).

School conditions included support in time, funding, technology, PD opportunities, and incentives such as promotion, evaluation, and rewards. Lack of time (26 articles) and funding (18 articles) were major barriers, with teachers often unable to participate in PD due to these constraints [51, 72-79]. Access to PD opportunities, resources, incentives, and logistical support also strengthened participation [21, 22, 25, 29, 33, 63, 80-85]. Liu et al. found that school leader support reduced teacher stress and enhanced confidence, aiding the development of intrinsic motivation [18]. School interpersonal relationships refer to those between teachers, colleagues, and school leaders [16]. These relationships are closely linked to teachers' sense of relatedness, namely the need for attachment and belonging [15]. The review found that the relationships could significantly enhance PD motivation [29, 62, 86-88]. In contrast, poor interpersonal relationships hindered teacher participation in PD [11, 89, 90].

Culture is defined as shared knowledge, beliefs, values, traditions, rituals, symbols, and language within a group <sup>[91]</sup>. School culture significantly influenced teachers' behaviour and attitudes <sup>[92]</sup>. Though less tangible than resources or technical support, it strongly affected teachers' willingness to learn. Key aspects of school culture included the teaching and learning ethos <sup>[18, 22, 60, 63, 67, 75, 93]</sup>, leadership style <sup>[8, 11, 23, 68, 94]</sup>, organisational fairness <sup>[28]</sup>, institutional structures <sup>[36, 37]</sup>, support for teacher autonomy <sup>[8, 57, 60-62, 69, 93]</sup>, work pressure and emotional demands <sup>[8, 93]</sup>, institutional vision and mission <sup>[11, 29, 69]</sup>, and alignment between teachers' values and the school's vision and mission <sup>[11, 18, 69]</sup>. In summary, the teaching and learning ethos, leadership style, and support for autonomy were most frequently emphasised, while vision, mission, and value alignment were seen as crucial for sustaining intrinsic motivation in PD.

## (2) Society-related factors

Society-related factors included the need for teachers to feel valued at the national level (two articles), family support (five articles). Liu et al., in a case study, found that positive social evaluation contributes to teachers' sense of professional value, a prerequisite for sustained development after qualification <sup>[18]</sup>. Saglam et al. also found that this perception was a key component of self-efficacy <sup>[95]</sup>. Family responsibilities or work-life balance often hinder teachers' PD, according to Burton <sup>[56]</sup>, Huang <sup>[96]</sup>, Serafini <sup>[97]</sup>, and Anitasari & Retnawati <sup>[98]</sup>. Teachers frequently discontinued professional learning due to family demands <sup>[96]</sup>.

## The PD-level factors

A total of 36 articles reported PD factors. Overall, these factors related to PD quality significantly influenced individuals' attitudes and willingness to participate <sup>[30, 31]</sup>. PD quality was assessed across three dimensions: (i) the meaning and value of PD (29 articles), (ii) content structure and format (25 articles), and (iii) the actual impact of PD (9 articles).

The meaning and value of PD referred to how well teachers perceive PD as meeting their needs, being beneficial, or aligning with their field of study <sup>[80]</sup>. Teachers were more likely to engage in PD only when they found it meaningful, practical, and usable <sup>[22, 29, 30, 32, 33, 63, 74]</sup>. Features of PD were found to either hinder or promote teacher engagement <sup>[63, 74]</sup>. The content and structure of PD were key to its effectiveness <sup>[32, 99, 100]</sup>. The format of PD, namely face-to-face sessions <sup>[34, 35, 66, 78]</sup>, online delivery <sup>[54, 101, 102]</sup>, collaborative learning <sup>[32, 67, 74, 103]</sup>, or one-off, short-term whole-school initiatives <sup>[104]</sup>, as well as the strategies and types of activities used <sup>[26, 57, 71, 105]</sup>, were identified as influential factors. Finally, a total of nine studies indicated that the actual impact of PD or prior PD experience influenced teachers' willingness to continue participating. Teachers who had successful learning experiences are more likely to remain autonomously motivated to learn <sup>[16, 50, 80]</sup>. In contrast, negative PD experiences reduce continued engagement <sup>[31, 35]</sup>.

### 3.2.2. Interactions among influencing factors affecting teachers' PD motivation

A total of 39 articles reported interrelationships among factors influencing teachers' PD motivation. Personal dimensions were identified as major driving forces in PD <sup>[25]</sup>, while environmental factors such as supportive institutional infrastructure, departmental recognition, and adequate resources were just necessary but not sufficient conditions for teachers' sustained engagement in PD <sup>[25, 26]</sup>. The personal beliefs and values <sup>[18, 29]</sup>, including work ethic <sup>[18]</sup>, professional identity <sup>[94]</sup>, commitment for profession <sup>[100]</sup>, passion for teaching or profession <sup>[18]</sup>, perception of the meanings or values of work <sup>[18]</sup>, perception, attitude and beliefs of the learning meanings and values <sup>[26, 31, 106]</sup>, and perception of individual's PD needs (De Brabander & Glastra, 2018, 2018, Huang, 2022) were found to play a decisive role in the formation of intrinsic motivation.

In addition, self-efficacy was reported to be positively correlated with teachers' PD motivation by Zhang et al. <sup>[16]</sup>, Hilel and Ramírez-García <sup>[94]</sup>, and Sun et al. <sup>[61, 107]</sup>. A total of nine articles highlighted the

significant and positive effect of environmental factors in school level, such as tasks factors [8, 37, 93, 106, 108], interpersonal relations [37], relatedness [31], principal's transformational leadership patterns [8, 16, 94], supportive organisational climate or culture [28, 67, 106], collaborative learning [67], on PD motivation. Additionally, several environmental factors at the school level, such as colleague support [8], task autonomy [8, 62], organisational learning culture [67, 106], and managerial effectiveness [67] were further identified as moderators influencing the relationship between personal factors and PD motivation.

## 4. Discussions

This study aimed to systematically and comprehensively synthesise the factors that influence teachers' motivation for PD, and to elucidate the interaction mechanism among these factors. This study made a significant contribution by providing a more comprehensive conceptual framework for understanding the factors influencing teachers' PD motivation and the interaction mechanism among these factors. Although previous studies have proposed similar theoretical frameworks based on their empirical studies, these frameworks inevitably omit certain influencing factors due to their focus on specific PD programmes, conditions, or contexts. In contrast to previous empirical studies, this research adopted a more comprehensive approach by synthesising various empirical findings from prior research to account for the diverse situations, conditions, and contexts of teacher PD.

### 4.1. Influencing factors that affect teachers' PD motivation

This study identified three main categories and eight subcategories of factors influencing teachers' PD motivation. These three main categories represent three distinct levels of influencing factors: individual-level, environmental-level, and PD level. The individual-level is further divided into individual beliefs and values, individual intellectual characteristics, and individual external characteristics. The environmental level encompasses school-related and society-related factors. The PD-level is categorised into meanings and values of PD, content structure and form of PD, and actual effect and quality of PD. These three levels of influencing factors form a comprehensive theoretical framework (Figure 4) for analysing the factors that need to be considered in order to stimulate teachers' motivation to participate in PD.

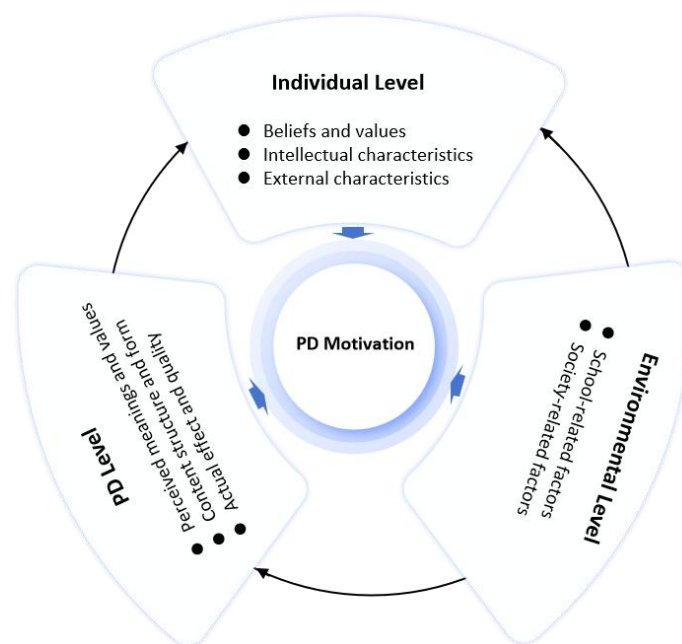


Figure 4. Conceptual Framework of Factors Influencing Teachers' PD Motivation.

This study found that individual-level factors are generally regarded as the primary catalysts for the formation of teachers' intrinsic motivation in PD <sup>[16]</sup>. Personal beliefs and values, including work ethic, professional identity, passion for teaching, perceived meaning and value of work, attitudes toward learning, and awareness of individual PD needs, play a decisive role in shaping intrinsic motivation. Individual intellectual characteristics, including professional competence, learning ability, innovative capacity, and self-awareness in PD, which reflect teachers' level of self-efficacy, can enhance or diminish PD motivation. Teachers with higher self-efficacy show greater motivation for PD than their peers, regardless of the source of motivation. Individual external characteristics, such as gender, age, and career stage, primarily influence teachers' PD needs and preferences. Differences in PD motivation associated with these factors are primarily shaped by internal factors such as beliefs, values, and self-efficacy. In other words, motivational differences stemming from internal factors often manifest as variations across gender, age, and career stage.

Environmental-level factors play an indispensable role in shaping teachers' PD motivation by exerting influence on individual factors <sup>[18]</sup>. School culture, climate, and interpersonal relationships play a key role in shaping individuals' beliefs, values, and PD-related self-efficacy. Time, funding, and PD opportunities constituted major barriers, particularly for teachers with low or no intrinsic motivation toward PD. Teachers with high intrinsic motivation can typically overcome these challenges. In the absence of PD opportunities provided by schools, teachers with high self-directed PD motivation will actively seek external PD opportunities through various means <sup>[62]</sup>. School-based support, including the promotion system and policy, material incentives, serves as the primary source of extrinsic motivation and also contributes to strengthening intrinsic motivation. Social factors outside the school, such as family support and national-level values and policies, have a direct impact on teachers' self-efficacy and motivation. Therefore, social factors indirectly shape motivation through the school context as a mediating factor.

When teachers are given opportunities to choose PD activities or when such initiatives are implemented in a top-down manner, PD-level factors become crucial. The perceived value and meaning of PD, along with its content structure, delivery format, technological support, and effectiveness, collectively influence the overall determination process.

#### **4.2. Interaction mechanism of factors influencing teachers' PD motivation**

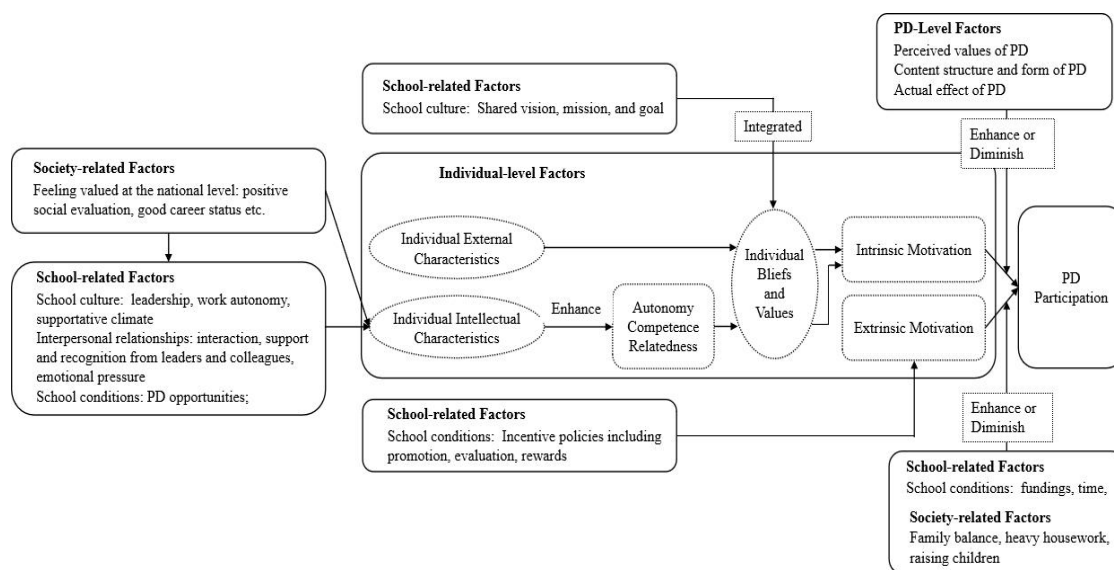
There is no complex process for the formation of extrinsic motivation of teachers' participation in PD. As shown in Figure 5, extrinsic motivation of teachers' engagement in PD primarily originates from school incentive policies in promotion, evaluation, and rewards, and mandatory participation. Intrinsic motivation arises from personal enjoyment, interest <sup>[109]</sup>, or an individual's perception of the relevance and value of PD <sup>[17]</sup>. Compared with extrinsic motivation, the formation process of intrinsic motivation is more complex. However, once established, its influence and motivational force are more enduring <sup>[110]</sup>. Intrinsic motivation reflects a state of a high degree of self-determination <sup>[19]</sup> and is considered the ideal form of motivation for teachers' PD. For educational institutions, it is more important to foster teachers' intrinsic motivation for PD, which serves as a crucial force driving their continuous engagement in such activities.

Self-determination theory (SDT) is widely used to explain the formation process and mechanisms of teachers' intrinsic motivation. According to SDT, extrinsic motivation can be either autonomous or controlled, based on the extent of internalisation experienced by an individual, a process by which external motivations are integrated into personal values and self-attributes <sup>[111, 112]</sup>. Furthermore, the extent to which motivation is internalised is closely linked to three psychological needs: autonomy (experienced as personal volition), competence (perceived efficacy within a specific context), and relatedness (a sense of connection derived from shared goals or purpose alignment) <sup>[113]</sup>. The formation of intrinsic motivation in teachers' PD

is a process whereby individual teachers, influenced by external environmental factors, experience the satisfaction of their psychological needs for autonomy, competence, and relatedness, leading to the internalisation of organisational goals and values as their own personal beliefs and values (Figure 5).

Teachers' intrinsic motivation for PD develops concurrently with their successful personal development. In the early career stages, teachers often engage in PD driven by external motivations originating from such factors as school assessment, promotion, rewards, and mandatory requirements. Under this moderate external pressure, teachers engage in PD and pursue personal growth guided by the school's shared vision, goals, mission, and values norms. In this process, the study found that transformational and inclusive leadership that supports creativity and autonomy, as well as task autonomy at work, improves the fulfilment of teachers' autonomy requirements. [29]. Also, factors related to the dimension of school culture and interpersonal relationships, as well as societal influences, such as a cultural climate that promotes and values learning, high expectations for teachers from both the school and the nation, positive working relationships among colleagues and leaders, mutual respect among faculty members, and recognition and encouragement of teachers' efforts by colleagues and administrators, serve to strengthen teachers' sense of belonging, thereby fulfilling their needs for relatedness. [28, 67, 100, 106]. Finally, factors in the dimension of school support, including professional guidance from leaders and colleagues, support in terms of time, funds, related technology, and PD opportunities provided by the school, enhance teachers' sense of self-efficacy and strengthen their confidence in PD [67, 106]. Through the interaction of various internal and external factors, teachers achieve personal development and recognise the significance and value of their work [61]. Meanwhile, the school's shared vision, goals, and value norms are recognised and internalised by teachers, serving as intrinsic motivational forces that drive their ongoing engagement in PD [28, 29, 67, 106]. Additionally, there is no evidence to indicate that the PD-level factors contribute to the formation of PD motivation. However, existing research suggests that factors such as PD-level and work-family balance may influence the enhancement or diminishment of various types of teacher PD motivation.

In summary, the formation process of teachers' intrinsic motivation for PD is a process in which internal and external factors interact to jointly promote teachers' personal growth. Whether external environmental factors support or hinder the formation of teachers' intrinsic motivation for PD depends on the role these factors play in meeting individual psychological needs [114].



**Figure 5.** The interaction mechanism of factors influencing teachers' PD motivation.

### **4.3. Limitations**

This systematic literature review was conducted in a rigorous and methodical manner. However, certain limitations were present. Firstly, the findings were based on the strings used on the databases selected. Some significant literature, which did not contain the designated search strings or was not present in other databases but indeed discussed the factors influencing teachers' PD motivation and their interactions, was inevitably overlooked. Secondly, during the literature search process, the language restriction was limited to English, resulting in the exclusion of studies on the topic written in other languages. This limitation might have resulted in the omission of relevant publications within this field. Furthermore, the search process in this systematic literature review was restricted to journal articles only.

### **4.4. Implications**

As the core of PD <sup>[115]</sup>, motivation plays a crucial role in determining the effectiveness and success of teachers' PD programmes or actions <sup>[8, 9]</sup>. Highlighting the significance of PD, a crucial responsibility of educational institutions is to stimulate teachers' motivation for their continuing PD. Based on a consideration of giving an insight into the effective strategies to stimulate and maintain teachers' PD motivation, this study systematically and comprehensively synthesises the factors influencing teachers' PD motivation and elucidates the interrelationships among these factors. The findings of this study have significant implications both for theory and practice in the field of teachers' PD motivation.

First, for the theoretical implication, this study enhances the understanding of factors influencing teachers' PD motivation and provides a comprehensive conceptual framework for these influencing factors. Influenced by factors such as individual characteristics and the social conditions in which they live, teachers' PD motivations are diverse, dynamic, and changeable. It is essential and of great importance to identify these specific influencing factors related to individual characteristics and social environment. Though many studies have examined the influencing factors on teachers' PD motivation, most have focused on several specific factors or one particular PD programme, resulting in findings that do not cover the full range of influencing factors. Employing the method of systematic literature review, this study aimed to systematically and comprehensively synthesise the influencing factors and their interactions to the greatest extent possible. The conceptual framework developed in this study can be applied to analyse motivation-related issues in the field of teachers' PD.

Second, for the practical implication, a systematic and comprehensive understanding of these influencing factors and their roles within teachers' PD motivation work system contributes to more effective efforts to stimulate and sustain teachers' PD motivation for individual teachers, educational institutions, and nations. For individual teachers, it is essential to recognise that their personal development is closely linked to student achievements and the overall growth of the school. Only by consistently aligning one's professional beliefs and values with those of the institution can an individual secure institutional support and recognition, thereby realising their full developmental potential. For schools to stimulate and maintain teachers' PD motivation, it is suggested that they internalise the goals and mission of the organisation into the commitments and responsibilities of teachers, while enhancing their professional identity and ethics. Additionally, it is recommended that schools prioritise support for and appreciation of educators, create a collaborative, inclusive, supportive, and empowering learning environment that nurtures teachers' sense of autonomy, competence, and relatedness. Furthermore, there should be a focus on assessing teachers' development needs by establishing flexible and optional PD learning projects for teachers to choose independently from, as well as providing rich learning resources and opportunities tailored to different stages

of development. For nations, it is crucial to foster a climate that upholds respect for educators and education while implementing incentive policies to promote and enhance the PD of educators.

## 5. Conclusion

This study investigated the factors influencing teachers' PD motivation and explored the interaction mechanisms through which these factors collectively shape teachers' intrinsic motivation for PD. The findings hold significant implications for individual teachers, school leaders, and policymakers in stimulating and sustaining PD motivation across teachers' different career stages.

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## Conflict of interest

The authors declare no conflict of interest

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## Appendix A. The Influencing factors on teachers' Professional development motivation

Individual-level			Environment-level					PD-level		
55			64					41		
IEC	IIC	IBV	School-related factors			Society-related factors		AEQ	CSF	MV
			CC	IR	SC	SF	VNL			
18	39	29	34	15	48	5	2	9	25	29
1.(Kennedy, 2011) <sup>[76]</sup>			√		√					

	Individual-level			Environment-level					PD-level		
	55			64					41		
	IEC	IIC	IBV	School-related factors			Society-related factors		AEQ	CSF	MV
				CC	IR	SC	SF	VNL			
	18	39	29	34	15	48	5	2	9	25	29
2.(Yilmaz et al., 2022) [78]	√	√	√			√				√	√
3.(Tearle, 2003) [99]				√		√				√	√
4.(Cornejo Happel & Song, 2020) [25]		√	√		√	√					√
5.(Glazer et al., 2009) [83]		√				√					√
6.(Lind, 2007) [77]		√				√					
7.(Ennes et al., 2021) [74]						√				√	√
8.(Stenfors-Hayes et al., 2010) [116]		√		√	√	√					
9.(Badri et al., 2016) [51]	√					√	√				√
10.(Chin et al., 2022) [73]	√	√	√	√		√					
11.(Caffarella & Zinn, 1999) [36]	√	√	√	√	√		√				
12.(Fang et al., 2021) [75]		√		√		√					
13.(Broad, 2015) [89]			√	√	√	√					
14.(Marynowski et al., 2022) [103]			√			√				√	√
15.(Serafini, 2018) [97]		√				√	√				
16.(Bell et al., 2008) [117]		√	√								
17.(Collier et al., 2022) [104]						√				√	
18.(Zhang et al., 2020) [27]	√					√					
19.(Abakah, 2023) [22]			√	√		√					√
20.(Affounch et al., 2020) [26]	√	√	√			√				√	√
21.(Aguilar-Mediavilla et al., 2023) [58]		√									
22.(Amponsah et al., 2023) [72]						√			√		
23.(Anitasari & Retnawati, 2018) [98]						√					
24.(Bautista et al., 2018) [59]		√	√								
25.(Belay & Melesse, 2024) [69]			√	√		√					
26.(Botham, 2018) [68]		√	√	√		√					
27.(Bouwma-Gearhart, 2012) [80]		√				√			√		√
28.(Burton, 2020) [56]	√	√	√			√	√				

	Individual-level			Environment-level					PD-level		
	55			64					41		
	IEC	IIC	IBV	School-related factors			Society-related factors		AEQ	CSF	MV
				CC	IR	SC	SF	VNL			
	18	39	29	34	15	48	5	2	9	25	29
29.(Carpenter, 2016) <sup>[105]</sup>										√	√
30.(Dahri et al., 2024) <sup>[66]</sup>		√	√						√	√	√
31.(Dayagbil & Alda, 2024) <sup>[21]</sup>						√					
32.(De Brabander & Glastra, 2018) <sup>[57]</sup>		√		√		√				√	√
33.(Evers et al., 2016) <sup>[108]</sup>				√							
34.(Evers et al., 2011) <sup>[81]</sup>				√		√				√	
35.(Ezel Acar & Erozan, 2024) <sup>[111]</sup>			√	√		√					√
36.(Fütterer et al., 2024) <sup>[30]</sup>										√	√
37.(Hardré, 2012) <sup>[70]</sup>		√	√			√					√
38.(Hilel & Ramírez-García, 2022) <sup>[94]</sup>		√	√	√							
39.(Huang, 2022) <sup>[96]</sup>		√			√	√	√				
40.(Hur & Hara, 2007) <sup>[35]</sup>		√		√					√	√	√
41.(Jackson et al., 2022) <sup>[84]</sup>	√					√					√
42.(Ji, 2023) <sup>[63]</sup>		√	√	√		√				√	√
43.(Kao et al., 2011) <sup>[50]</sup>	√	√	√						√		
44.(Khan & Kiran, 2018) <sup>[93]</sup>				√		√					
45.(Liu et al., 2019) <sup>[118]</sup>		√	√	√		√		√			
46.(Liu et al., 2014) <sup>[106]</sup>		√		√							
47.(Matiba, 2024) <sup>[53]</sup>	√					√					√
48.(McMillan et al., 2016) <sup>[37]</sup>			√	√	√	√					√
49.(Nguyen et al., 2022) <sup>[79]</sup>						√					√
50.(Njenga, 2023) <sup>[20]</sup>	√			√							
51.(Prenger et al., 2017) <sup>[90]</sup>					√					√	
52.(Reichenberg & Andreassen, 2018) <sup>[52]</sup>	√										
53.(Richter et al., 2025) <sup>[34]</sup>		√							√	√	
54.(Safian et al., 2021) <sup>[101]</sup>					√	√				√	
55.(Saglam et al., 2023) <sup>[95]</sup>				√				√			

	Individual-level			Environment-level					PD-level		
	55			64					41		
	IEC	IIC	IBV	School-related factors			Society-related factors		AEQ	CSF	MV
				CC	IR	SC	SF	VNL			
	18	39	29	34	15	48	5	2	9	25	29
56.(Shirazi et al., 2014) [60]		√	√	√							
57.(Tang et al., 2023) [23]				√							
58.(Truong, 2019) [102]		√							√	√	
59.(Vogrinc & Zuljan, 2009) [55]	√										
60.(Wang et al., 2024) [71]										√	
61.(Wang, 2024) [71]		√	√			√					
62.(Wichadee, 2012) [82]						√					√
63.(Wijaya et al., 2024) [31]			√		√	√			√		
64.(Yang, 2021) [19]	√	√	√	√	√	√				√	√
65.(Yue et al., 2017) [118]		√	√	√	√	√					
66.(Zhang et al., 2022) [8]	√	√		√	√						
67.(Zhang et al., 2021) [16]	√	√		√					√		
68.(Sun et al., 2020) [107]		√									
69.(Zhou & Tu, 2021) [67]			√	√						√	√
70.(Baraily & Belbase, 2024) [85]						√					
71.(Chang, 2025) [32]										√	√
72.(Heckathorn & Dotger, 2025) [88]					√	√					
73.(Lindholm et al., 2025) [33]						√				√	√
74.(Liu & Mutlu, 2025) [61]		√		√							
75.(Lyu, 2025) [29]				√	√	√					√
76.(Nedimovic & Dordev, 2025) [54]	√	√								√	
77.(Philips et al., 2025) [24]			√			√				√	√
78.(Tambak et al., 2025) [100]		√	√							√	
79.(Wang, 2025) [28]				√							
80.(Zafar et al., 2025) [62]	√	√		√	√						
Individual-level			Environment-level					PD-level			
			School-related factors			Society-related factors					
IEC = Individual external characteristics			CC = Culture and climate			SF = Support from families		AEQ = Actual effect and quality of PD			
IIC = Individual intellectual characteristics			IR = Interpersonal relationship			VNL = Value in national level		CSF = Content structure and form of PD			

Individual-level			Environment-level					PD-level		
55			64					41		
IEC	IIC	IBV	School-related factors			Society-related factors		AEQ	CSF	MV
			CC	IR	SC	SF	VNL			
18	39	29	34	15	48	5	2	9	25	29
IBV = Individual beliefs and values		SC = School conditions					MV = Meanings and values of PD			

(Continued)