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Review article

Preservice teachers' professional identity: A systematic review of empirical research in Europe

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ABSTRACT

This study is a systematic review of preservice teachers' professional identity (PI). It focuses on empirical research published in English between 2014 and 2024 concerning university-based initial teacher education in the European Higher Education Area. The review aims to provide an updated overview of the theoretical foundations informing research on preservice teachers' PI and to identify empirical insights into its development. The search employed two search strings across four databases, yielding 57 studies that met predetermined inclusion criteria. The thematically analyzed studies demonstrated varied theoretical foundations but also supported a shared understanding of preservice teachers' PI involving psychological, pedagogical, social, societal, and contextual aspects. They further highlighted three research areas in preservice teachers' PI development, i.e., beliefs and perceptions, tensions, and supplementary interventions in teacher education. This review advocates for clear conceptualizations of preservice teachers' PI along with explicit theoretical delineation to ensure stability and comparability across teacher identity research.

1. Introduction

Negotiating one's professional identity (PI) as a teacher entails asking and answering two fundamental questions: "Who am I as a teacher?" and "Who do I want to be?". Teachers' PI is widely conceptualized as a dynamic, multifaceted, and contextually situated construct (Beauchamp & Thomas, 2009; Beijaard et al., 2004; Beijaard & Meijer, 2017; Clandinin & Husu, 2017; Golzar, 2020; Nichols et al., 2016; Wong & Liu, 2024). It develops and is continually reconstructed through teachers' personal and professional experiences, while also varying across individuals, institutional settings, and cultural contexts (Hanna et al., 2020; Karousiou et al., 2019; Lee & Schallert, 2016; Melville et al., 2013). Teachers' PI provides a powerful lens for understanding teachers' actions, decision-making, and professional practices, and has thus become central to research on teaching quality, motivation, commitment, well-being, and career trajectories (Noonan, 2019; Schutz et al., 2018).

Teachers' PI matters because it shapes not only how teachers understand and enact their professional roles but also how they experience their work and sustain their careers. This is because teachers' PI exists both within the internal psychological space and within the relational and contextual frameworks that shape this space (Hong et al., 2024). Teachers who develop a strong PI demonstrate greater pedagogical confidence (Sun et al., 2025), deeper engagement with professional practices and performance (Ye et al., 2025), and more accurate decision-making (Beijaard et al., 2004; Ho et al., 2025; Pishghadam et al., 2022). Further, teachers' PI may support adherence to one's values and beliefs about education (Mockler, 2011), as well as inform how teachers renegotiate or defend themselves as professionals (Ruohotie-Lyhty, 2018). A well-developed PI additionally functions as a psychological resource that can protect teachers' well-being and resilience by fostering a sense of purpose, professional commitment, and adaptive coping in the face of stressors, thereby reducing burnout and promoting sustained engagement over time (Fairbanks et al., 2010; Lindqvist & Nordänger, 2016; Zhang et al., 2024). Teachers' PI is thus a key contributor to teachers' professional lives, motivation, job satisfaction, commitment, teacher attrition, and their long-term retention in the profession (Hong, 2010).

How teachers' PI forms and develops remains one of the main challenging areas in teacher education research (Caires et al., 2012; Deniz, 2022). This challenge is closely linked to ongoing variation in theoretical foundations which limits how empirical studies conceptually operationalize teachers' PI development. For example, several elements involved in the development of PI have different developmental potential for individual teachers (Schellings et al., 2023), and a single

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theory may be insufficient to adequately conceptualize teachers' PI development (Pishghadam et al., 2022). Further, several terms have been proposed to conceptualize teachers' PI, including identity construction (e.g., Hong et al., 2018), identity formation (e.g., Rodgers & Scott, 2008), identity work (e.g., Stenberg, 2010), and identity negotiation (e.g., Juutilainen et al., 2024). Each term emphasizes different analytical dimensions depending on the research focus and theoretical framework (Hong et al., 2024). These terms represent interconnected processes within broader PI development, and a holistic understanding of PI development requires a more inclusive and conceptually grounded framework (Zembylas, 2018; Zembylas & Chubbuck, 2018).

Research suggests that teachers' PI formation starts early and that teacher education plays a crucial role in fostering it. Preservice teachers enter teacher education with a tentative PI that includes images of teachers, initial beliefs, and concepts about what makes a good teacher, coupled with implicit theories of teaching and learning (Botha, 2020; Flores & Day, 2006; Leijen & Kullasepp, 2013; Pillen et al., 2013). Negotiating this early PI is a complex process (Buchanan, 2015), and teacher education facilitates preservice teachers' learning to think, know, feel, and act like teachers (Dassa & Derose, 2017; Feiman-Nemser, 2008). Given that the initial stage of a career most often represents a developmental task occurring during the transition from adolescence to adulthood, preservice teachers' PI can also be viewed from a developmental perspective (Abramson & Schachter, 2024). Initial teacher education (ITE) programs can either support or hinder this identity development on individual and societal levels alike (Friesen & Besley, 2013). As ITE is a foundational period for developing one's PI, such development becomes one of the core foci of any ITE program (Alsup, 2006; Beijaard et al., 2004; Salonen et al., 2025).

The provision of teacher education varies considerably. In many countries, the "traditional" pathway, often called mainstream programs in the ITE context, is through a university-based teacher education program (European Education and Culture Executive Agency, 2021). University-based teacher education programs continue to be the main and most systematically organized route into the profession, offering preservice teachers structured coursework, supervised practice, and ongoing opportunities to reflect on their emerging professional roles (Darling-Hammond et al., 2002; Forslund Frykedal & Zimmerman Nilsson, 2025). "Alternative" pathways have proliferated since the 80s to expedite formal preparation and teacher licensure, prioritizing learning the professional skills needed for teaching either on the job (alternative models) or alongside an experienced mentor teacher (residency models) (Matsko et al., 2022). The value of these pathways for teacher quality and teacher retention has been considerably debated (Grossman & Loeb, 2021), although some research suggests their quality of preparation does not differ from traditional programs regarding in-service teachers' pedagogical knowledge (Wright, 2020) and classroom management (Lucksnat et al., 2024). Concerning preservice teachers' PI, however, these programs may differ. Teachers in traditional programs "often experience a more sequential identity development process with preservice clinical experiences," whereas teachers in alternative programs experience an identity development process while in the survival stage of learning how to teach on the job (Hover et al., 2025, p. 87). Traditional and alternative routes to teacher education have different structures, coursework, and field experiences (Turner et al., 2018), which affect preservice teachers' PI development (Dassa & Derose, 2017).

Despite recent efforts to conceptualize preservice teachers' PI (e.g., Hong et al., 2024; Schutz et al., 2018), few reviews have synthesized empirical studies on this topic. Izadinia's (2013) landmark systematic review addressed preservice teachers' PI by identifying commonly used methodologies and analyzing key findings about how their identities are formed. Her review of 29 studies reported that preservice teachers failed to incorporate a realistic and nuanced understanding of PI development adequately. Most studies consisted of small-scale, qualitative projects that lacked systematic comparisons across different aspects of PI, while psychological and sociological perspectives were largely absent. Izadinia (2013) underscored the importance of broadening theoretical frameworks in preservice teachers' PI research and encouraged scholars to expand upon her contributions. Since her review only covered studies published before 2013, there remains a need to capture theoretical and empirical developments in more recent research. A later systematic review by Rodrigues and Mogarro (2019) addressed this topic focusing solely on preservice teachers preparing for secondary education. Several studies have reviewed the body of in-service teachers' PI literature, for example in relation to teachers and their professional lives (Beijaard et al., 2004; Rushton et al., 2023), secondary education teachers (Pérez Gracia et al., 2022), mathematics teachers (Meyer et al., 2022), science teachers (Zhai et al., 2024), and language teachers (Cheung, 2014). Other studies have alternatively focused on distinct aspects of preservice teachers' PI (e.g., Huston, 2017; Moloney & Giles, 2015) or quantitative measurements for measuring teachers' PI (e.g., Zhang & Zhou, 2025).

This study systematically reviews empirical studies on preservice teachers' PI from 2014 to 2024. This review aims to provide an updated account of the theoretical orientations informing these studies in the context of university-based ITE, and to determine the key empirical contributions concerning preservice teachers' PI development. This study identified 57 empirical studies following the PRISMA model to explore the following research questions:

1. What theoretical perspectives inform research on preservice teachers' professional identity in university-based initial teacher education?
2. What do empirical studies demonstrate about preservice teachers' professional identity development in university-based initial teacher education?

2. Methodology

2.1. Research design

This study adopted a systematic review methodology. Systematic reviews identify existing knowledge (Newman & Gough, 2020) and critically analyze studies to evaluate methodologies and examine implications. They also find gaps for future research and offer new insights. To answer the research questions, relevant empirical studies were retrieved from four databases, i.e., Education Database (ProQuest), the Education Resources Information Center (ERIC), Taylor and Francis (T&F), and Web of Science (WoS). These databases were selected for their reliability and comprehensive coverage of research in the educational sciences.

Google Scholar was not included as a primary database in the present review. During preliminary searches in the databases, the search query run on Google Scholar using the first search string returned over 15.000 records, many of which were irrelevant to our research focus. The decision to exclude Google Scholar as a database was informed by both the unmanageable number of retrieved records and well-documented methodological concerns regarding the transparency, reproducibility, and manageability of Google Scholar searches in systematic reviews (see also Haddaway et al., 2015; Halevi et al., 2017).

To search for publications on preservice teachers' PI, we employed two search strings in each database:

String 1: ("preservice teacher*" OR "pre-service teacher*" OR "student teacher*") AND ("professional identity" OR "teacher identity") AND ("initial teacher education" OR "teacher education program*" OR "preservice teacher education" OR "pre-service teacher education" OR "teacher education" OR "teacher training")

String 2: ("preservice teacher*" OR "pre-service teacher*" OR "student teacher*") AND ("teacher identity formation" OR "teacher identity development" OR "teacher identity negotiation") AND

("preservice teacher education" OR "pre-service teacher education" OR "teacher education" OR "teacher training")

The first search string used the terms *professional identity* and *teacher identity*. The second search string used keywords related to preservice teachers' PI development, specifically *teacher identity formation, teacher identity development,* and *teacher identity negotiation.* In line with the terminology adopted by Izadinia (2013), the present review used a focused set of highly interrelated, widely established process-oriented terms to capture the core literature on preservice teachers' PI development. Additionally, the keyword selection was theoretically informed by studies conceptualizing PI (e.g., Abramson & Schachter, 2024; Rodgers & Scott, 2008; Zembylas, 2018).

Following the PRISMA 2020 guidelines (Page et al., 2021), the search and screening processes illustrated in Fig. 1 were conducted in three consecutive phases, using predefined inclusion and exclusion criteria (Table 1). Both search strings were first applied across all four databases in Spring 2024, and the search was last updated on February 15, 2026.

2.2. Item identification, screening, and inclusion

A total of 1.498 records were retrieved from the four databases using the search strings. These records were initially filtered by year of

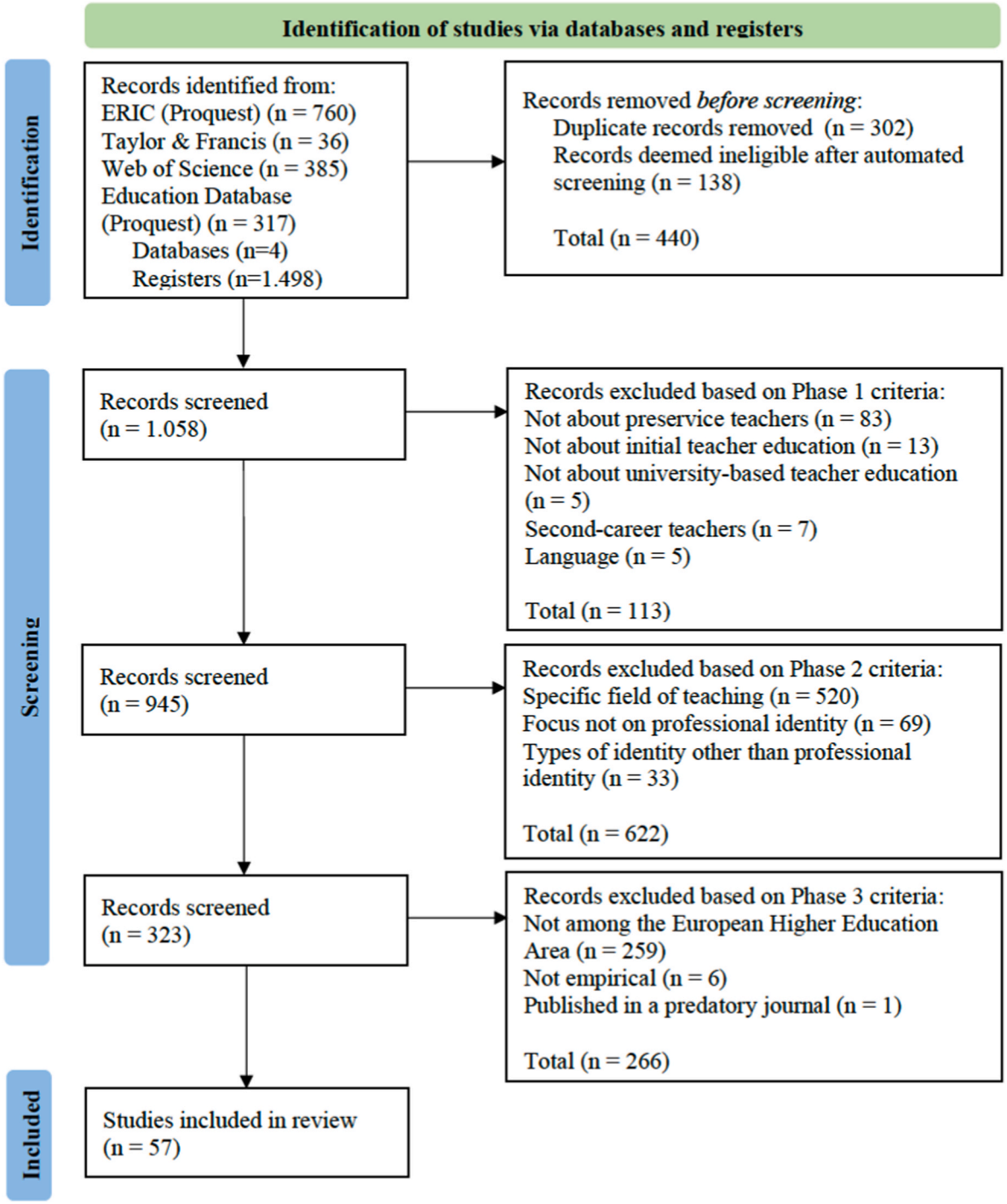


Fig. 1. PRISMA flow diagram: An overview of the search process.

Table 1
Inclusion and exclusion criteria.

Screening	Inclusion Criteria	Exclusion Criteria
Phase 1	The item has been published between 2014 and 2024.	The item has been published before 2014 or after 2024.
	The study has been peer-reviewed.	The study has not been peer-reviewed, or the study has been published as a blog post, opinion piece, editorial, conference paper, conference poster, conference abstract.
	The abstract and keywords are available in English.	The abstract and keywords are not available in English.
	The keywords are mentioned in the title, abstract, or keywords.	The keywords are not mentioned in the title, abstract, or keywords.
Phase 2	The study indicates preservice teachers' PI as the focus of the study in its title, abstract, or keywords.	The study does not explicitly indicate preservice teachers' PI as the focus of the study or only mentions PI in passing in the abstract (e.g., conclusions or practical implications of the study).
	The study pertains to preservice teachers' PI admitted to a university-based teacher education program and currently training to become teachers.	The study concerns PI development in professional fields other than teaching (e.g., nursing, business, engineering), or the study concerns aspects related to the processes of becoming a teacher without an explicit connection to PI.
	The study concerns ITE at any point in a university-based teacher education program.	The study addresses PI after graduation from a teacher education program, in-service professional development, postgraduate or fast-track programs, and contexts that are not university based.
	The study's sample or group of participants is or includes preservice teachers studying in a university-based teacher education program with an undetermined subject area or specialization.	The study's sample or group of participants does not include preservice teachers at all, or the study addresses preservice teachers preparing for special education, early childhood education, and subject-specific education. For example, the study's sample or group of participants is high school students seeking entry into teacher education programs, beginning teachers ("teacher candidates," "prospective teachers"), in-service teachers, retired teachers, paraprofessional or teaching assistants, non-teaching professionals, practicum mentors, or teacher educators.
	The study is in English.	The study is in a language other than English.
	The full text of the study is accessible.	The full text of the study is not accessible due to paywall restrictions or cannot be retrieved despite communication with its authors.
Phase 3	The item is an empirical study that involves primary data collection or analysis and presents original research findings.	The item is a theoretical, conceptual, or methodological publication; a literature review; or a commentary that does not involve primary data collection or analysis.
	The research is conducted in a EHEA member country.	The research is conducted in a not a EHEA member country.

Note. PI = Professional Identity. ITE = Initial Teacher Education. EHEA = European Higher Education Area.

publication, language, and peer-review status, where available, using the advanced search features of the databases. Subsequently, 302 duplicate records were removed prior to screening. Because some duplicates may have been overlooked during the automatic filtering process, an additional manual re-scan was conducted, resulting in 138 records being identified as ineligible. As a result of this process, 1.058 records were included in the screening stage. The bibliographic and contextual information for the items that met the initial inclusion criteria was recorded in an Excel spreadsheet.

In the first phase, clear inclusion and exclusion criteria were applied to assess the eligibility of studies for this review. Studies were included if preservice teachers constituted the primary participant group. Studies focusing on other participants, such as teacher educators (e.g., Fitzgerald & Bradbury, 2023), mentor teachers (e.g., Badia & Clarke, 2022), or principals (e.g., Lundberg et al., 2024), were excluded (n = 83). Studies focusing solely on second-career teachers (e.g., Du et al., 2023; Hogg et al., 2024) were also excluded (n = 7), as this review addresses preservice teachers entering the profession for the first time. Another criterion required participants to be enrolled in university-based ITE programs following either a concurrent undergraduate pathway or a consecutive pathway, the latter referring to integrated programs in which undergraduate and graduate studies form part of a comprehensive teacher education program. Studies examining preservice teachers in postgraduate concurrent programs (e.g., Banegas, 2023; Penman & Redder, 2023) or alternative pathways to teaching (e.g., Hahl & Mikulec, 2020) were therefore excluded (n = 18). Studies whose abstracts were available in English but whose full texts were published in another language were also excluded (n = 5). The application of Phase 1 criteria led to the exclusion of 113 studies.

In the second phase, the remaining 945 studies were screened again using additional inclusion and exclusion criteria. Studies that did not focus on the PI of preservice teachers (e.g., Hasse, 2017) (n = 69) or that examined identities other than PI were excluded (e.g., Bhopal, 2015) (n = 33). Studies addressing teacher education in general were included, whereas those focusing on teacher education for a specific subject (e.g., Cinarbas & Daloglu, 2024; Schulman & Demantowsky, 2024) were excluded (n = 520). The application of Phase 2 criteria led to the exclusion of 622 studies.

In the third phase, two additional inclusion criteria related to the studies' context within the European Higher Education Area (EHEA) were applied. Consequently, studies conducted outside the EHEA were excluded (e.g., Murray-Orr & Mitton-Kukner, 2017; Trent, 2018) (n = 259). Country membership in the EHEA is defined by participation in the European Cultural Convention and a commitment to the Bologna Process objectives in higher education systems (European Education and Culture Executive Agency, 2021). The European Commission first implemented the Bologna Process in the EHEA in 1999, aiming to enhance consistency across European higher education systems (European Higher Education Area, 2010). For teacher education, this translated into a more uniform and official accreditation process and greater unity among teacher education programs (European Higher Education Area, 2010). Focusing on studies conducted within the EHEA allowed us to analyze preservice teachers' PI within a comparatively coherent and policy-aligned teacher education framework, thereby reducing contextual heterogeneity related to governance structures, qualification frameworks, and program organization. This methodological choice strengthened the internal comparability and interpretability of the findings across studies.

The geographical distribution of the included studies is presented in Fig. 2. The empirical context of each study was identified by the country where data were collected. For multi-country studies, each EHEA country represented in the data collection was counted separately in the distribution. In cases where a study was conducted across both EHEA and non-EHEA countries, only the European context(s) was included in the country-level distribution.

In the third phase, six non-empirical studies and one study published

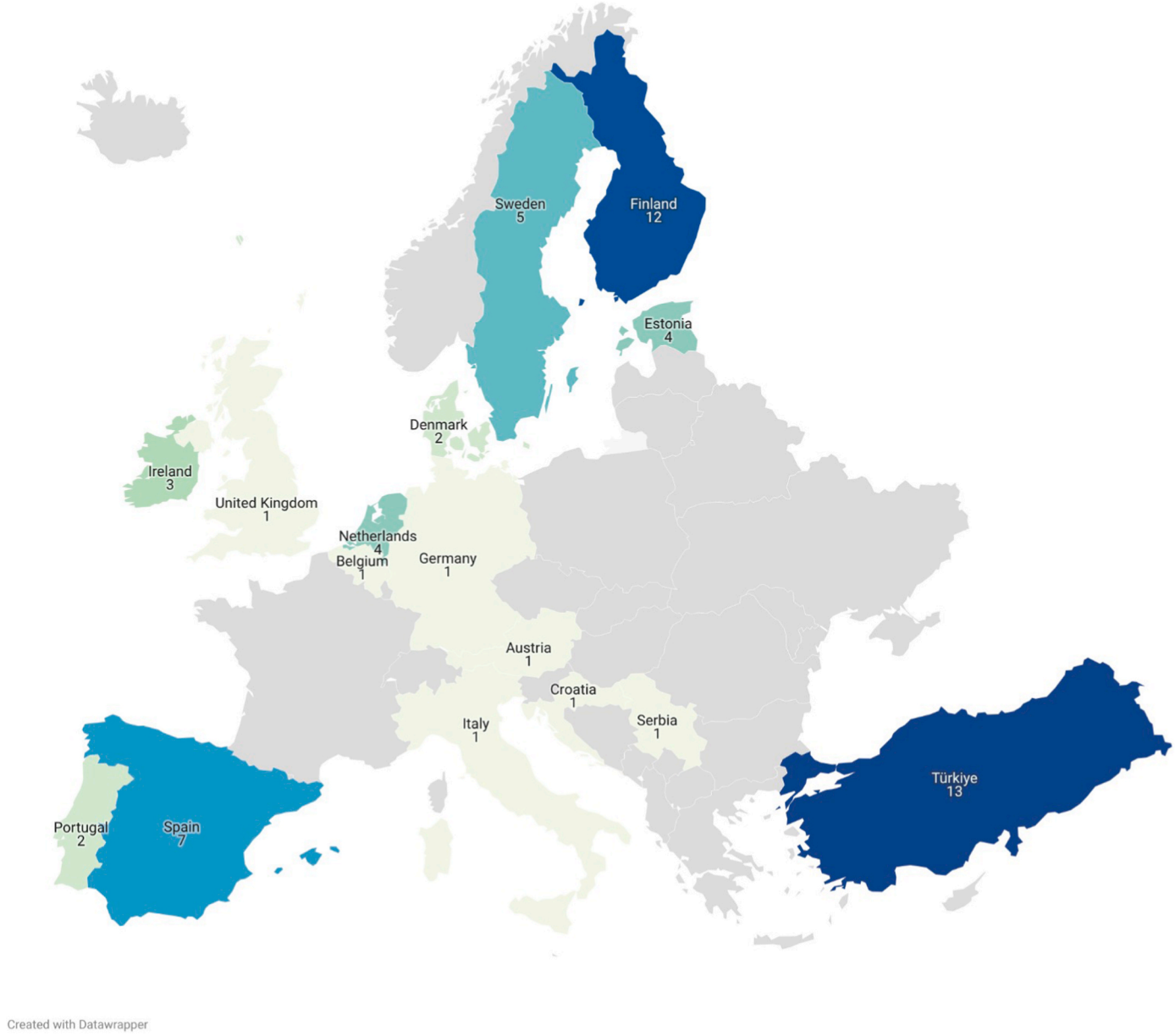


Fig. 2. The geographical distribution of the included studies.

in a predatory journal were identified and excluded. After applying the Phase 3 criteria, 266 studies were excluded. At the end of the three-phase screening process, 57 studies were identified as eligible for review.

Throughout all screening phases, screening decisions were discussed between the authors, and any disagreements or uncertainties were resolved through consensus. When necessary, a colleague familiar with the study's aims and scope was consulted to support decision-making and enhance the internal quality assurance of the screening process.

2.3. Data extraction and analysis

The bibliographic information initially cataloged for the selected studies was supplemented with additional details. This information was organized in an Excel spreadsheet. To answer our first research question, we focused on the sections outlining the theoretical orientations underpinning each study. While some studies had a dedicated section for this, others described their conceptualization of teachers' PI in sections preceding the Methods section. We followed a data-driven approach (see Johnson & Christensen, 2024), whereby the developed codes reflected the authors' definition of teachers' PI, where available, and the study's theoretical premises and assumptions. We thematically classified these codes under five major categories including approaches and concepts, theories, frameworks, models, and general theorization of teachers' PI.

To answer our second research question, we first focused on the Methods section of the selected studies. We extracted data from the Methods section concerning the research design, participants, data collection method(s), and data analysis method(s). We additionally extracted the research questions or objectives from the selected studies. To each of these, we assigned a primary descriptive code (Saldaña, 2021) that was inductively developed. Using ATLAS.ti 25.0.1 for Windows, we employed this primary code to identify the corresponding findings in the Results or Findings section. When the findings were being coded, we coupled each primary descriptive code with a secondary descriptive code that captured the key findings or results. These secondary descriptive codes were also inductively developed. The result was a two-part code, and a primary code could be coupled with several secondary codes.

The resulting two-part codes were organized according to the thematic proximity of the primary codes. We assigned tentative names to the thematic units and subunits we developed through this process. Next, we evaluated the internal thematic coherence of each subunit based on the secondary codes. This led to a more refined reorganization of the two-part codes that reflected the connections among individual findings or results. This reorganization meant that two-part codes were moved under thematic units different from those originally developed solely based on the topics shared by the primary codes (i.e., those based on the identified research questions, aims, or objectives). This iterative process resulted in the development of new thematic subunits that were eventually organized under three overarching themes: (1) PI development through beliefs and perceptions about the profession, (2) preservice teachers' PI development through tensions, and (3) fostering preservice teachers' PI development in teacher education programs. These themes and their corresponding subthemes are presented in Table 2 and reported in more detail in the following section.

3. Findings

3.1. Conceptualizing preservice teachers' professional identity

The analysis revealed considerable variation in how teachers' PI was defined across the reviewed studies. For example, several studies operationalized PI in vague terms or in terms that aligned with their research objectives. Many of these studies connected teachers' PI to discourses and narratives (n = 15), reflection (n = 11), emotions (n = 11), and tension (n = 11). Other studies conceptualized PI drawing attention to beliefs (n = 9), agency (n = 3), efficacy (n = 3), motivation (n = 3), self-image (n = 2), task perception (n = 2), and the impact of successes and failures (n = 2). Disaggregated aspects of PI included suitability for the profession, working-class positionality, global citizenship education, 21st-century skills and metacognitive awareness, autobiographical memories, and attitudes towards cultural diversity. The theoretical connections drawn between these aspects and the concept of PI largely served to contextualize and frame the research objectives.

Table 2
Overarching Themes of Preservice teachers' Professional Identity Development in University-based Initial Teacher Education.

Overarching themes	Subthemes	Minor themes
PI development through beliefs and perceptions about the profession	Intrinsic identity orientations	Ideal characteristics
		Levels of identity perception
		Metacognitive awareness
		Moral values
		Possible selves
		Self-efficacy and job motivation
	Professional self-orientations	Agency
		Action
		Competencies
		Educational environments
		Goal attainability
		Idealized vision of teaching
		Idealized vision of oneself as a future teacher
		Roles
Preservice teachers' PI development through tensions	Formative experiences in education	Past and present educational experiences
		Practicum experiences
		Teaching experiences
		Social exposure
	Navigating tensions	Emotions
		Experiences of success and failure
		Positioning and repositioning
Fostering preservice teachers' PI development in teacher education programs		Reflective practices
		Possible program-level interventions

Note. PI = Professional Identity.

Despite the observed conceptual variation, clear definitions of teachers' PI were identified in most studies but not of preservice teachers' PI per se. One of the most prominent definitions was that of teachers' PI as an ongoing, dynamic, and multidimensional formation process. Schellings et al.'s (2024) definition encapsulated the key conceptualizations in most of the reviewed studies:

> Teachers' PI is a dynamic and ongoing process characterized by the complex interplay between personal beliefs, ideals, background, and one's learning history, including norms and values held, as well as the requirements of the school context they work in, including the practical situations they face and the widely accepted standards for the teaching profession in general (p. 4).

This prevalent understanding of teachers' PI highlights it as a "multidimensional and dynamic process" (n = 32) and as an "ongoing, dynamic formation process" (n = 20). Complementary definitions included teachers' PI as a meaning-making structure and as a professional resource or instrument. Eight studies had no definition of teachers' PI (Karataş & Yüce, 2024; Keane et al., 2023; Lindqvist et al., 2023; Lourenço, 2021; Martínez-de-la-Hidalga & Villardón-Gallego, 2017; Qin et al., 2023; Raus and Falkenberg, 2014; Živković, 2018). Table 3 presents the various definitions of teachers' PI in the examined studies.

The theoretical lens through which teachers' PI was examined varied considerably. Fourteen studies employed an explicit theory to examine PI. Some studies used Herman and colleagues' Dialogical Self Theory (Henry, 2016; Stenberg et al., 2014, 2025; Stenberg & Maaranen, 2020; Toompalu et al., 2017), Markus and Nurius's possible selves theory (Erdem, 2020; Çetin & Eren, 2019), Erikson's identity status theory (Álamo & Llorent, 2024), Bhabha's third space theory (Qin et al., 2023), Linehan and McCarthy's Positioning Theory and Communities of Practice (Correa et al., 2014), and Festinger's cognitive dissonance theory (Hanna et al., 2019). These theories highlighted the importance of inner dialogues, motivation, aspirations, tensions, negotiations, and ongoing commitments in shaping teachers' sense of self. One study employed Dweck's mindset theory (Lutovac & Flores, 2021), which illustrates how teachers interpret successes, challenges, and career decisions that influence their developing identities. Lastly, Maaranen and Stenberg (2020) and Stenberg et al. (2014) referred to personal practical theories, which emphasized the interaction between beliefs, contextual knowledge, and classroom experiences in building teachers' PI. The choice of these theories suggests an underlying agreement that preservice teachers' PI development is situated within broader discursive and cultural contexts, and that it involves self-reflection, engagement with psychological tensions, motivational factors, and participation in practice.

Sixteen studies drew on a particular theoretical framework to conceptualize teachers' PI. While seven studies cited Gee (Çetin & Eren, 2019; Göker, 2020; Lehtinen et al., 2024; Neander Christensson, 2024; Ó Gallchóir et al., 2018; Poom-Valickis & Löfström, 2019; Vizek Vidović & Domović, 2019), three studies were primarily informed by Gee's framework, which assesses relationships among subject knowledge, didactics, and pedagogical knowledge (Anspal et al., 2019; Seban, 2015; Çilsalar Sagnak & Sancak Aydin, 2021). Two studies used the Teachers' Professional Identity Framework, which emphasizes three identity development components, i.e., field-content knowledge, pedagogical knowledge, and didactic experiences (Atal & Sancar, 2022; Çilsalar Sagnak & Sancak Aydin, 2021). White and McSharry (2021) employed communitas, i.e., positive experiences and solidarity, to investigate preservice teachers' threshold experiences as they balance student and teacher roles, particularly during unprecedented circumstances. Neander Christensson (2024) used a Mediated Discourse Analysis framework that emphasized the use of language in teacher education

Table 3
Conceptualizations of preservice teachers' professional identity in the reviewed studies.

Summarized conceptual understandings	Explicit definitions of teachers' professional identity	Reviewed articles
A dynamic process	multidimensional and dynamic	Anspal et al., 2019; Arvaja & Sarja, 2021; Çelik et al., 2021; Cengelci & Egmir, 2022; Çetin & Eren, 2019, 2022; Çetinkaya, 2024; Çilsalar Sagnak & Sancak Aydin, 2021; De Backer et al., 2023; Erdem, 2020; Flores, 2020; Göker, 2020; Henry, 2016; Iranzo-García et al., 2020; Juutilainen et al., 2024; Kavrayici, 2020; Keane et al., 2023; Lindqvist et al., 2017, 2023; Lutovac & Flores, 2021; Maaranen & Stenberg, 2020; Meyer et al., 2023; Neander Christensson, 2024; Ó Gallchóir et al., 2018; Poom-Valickis & Löfström, 2019; Rinne et al., 2023; Seban, 2015; Steinbeiss, 2021; Stenberg et al., 2025; Toompalu et al., 2017; Trevisan, 2024; Vizek Vidović & Domović, 2019
	an ongoing, dynamic formation process	Arvaja & Sarja, 2021; Çelik et al., 2021; Çilsalar Sagnak & Sancak Aydin, 2021; Correa et al., 2014; Dahl, 2020; De Backer et al., 2023; Flores, 2020; Iranzo-García et al., 2020; Juutilainen et al., 2024; Meyer et al., 2023; Neander Christensson, 2024; Ó Gallchóir et al., 2018; Schellings et al., 2024; Seban, 2015; Stenberg et al., 2014, 2025; Stenberg & Maaranen, 2020; Varis et al., 2023; Vizek Vidović & Domović, 2019; White & McSharry, 2021
	the interplay between individual agency and social dimensions of learning	Bradshaw & Younie, 2016; Oliveira Leite et al., 2024; Seban, 2015
	a process of social positioning of self and other	Neander Christensson, 2024
	an integrative process recognition and performances in society	Göker 2020 Çilsalar Sagnak and Sancak Aydin 2021
A meaning-making structure	a subjective meaning of being a teacher	Martínez-de-la-Hidalga & Villardón-Gallego, 2017; Rinne et al., 2023; Toompalu et al., 2017
	a personal narrative	Atal & Sancar, 2022; Lutovac & Flores, 2021
	a conceptual understanding of oneself as a teacher	Çelik et al., 2021; Poom-Valickis & Löfström, 2019; Trevisan, 2024; Vizek Vidović & Domović, 2019
	a motivational precursor to goals, beliefs, and knowledge	Çetin & Eren, 2019, 2022
	an (unconscious) structure	Stenberg et al., 2025; Trevisan, 2024; Vizek Vidović & Domović, 2019
	a cognitive and/or affective filter	Çetin and Eren 2019
	a perception and self-knowledge	Atal & Sancar, 2022; Lehtinen et al., 2024; Varis et al., 2023
	a representation of how one sees oneself	Iranzo-García et al., 2020; Poom-Valickis & Löfström, 2019
	the self's meaning of enacting roles/positions	Ó Gallchóir et al., 2018; Vizek Vidović & Domović, 2019
	an umbrella term	Kavrayici 2020
	a way of speaking about change	Correa et al. 2014
	a construct that is changing, co-constructed, crucially contextualized and limited	Correa et al. 2014
A professional resource or instrument	a framework for teachers' professional self-understanding	Çetin & Eren, 2019, 2022; Çilsalar Sagnak & Sancak Aydin, 2021; De Backer et al., 2023; Göker, 2020; Iranzo-García et al., 2020; Kavrayici, 2020; Lutovac & Flores, 2021; Ó Gallchóir et al., 2018; Stenberg et al., 2014
	a basis	Stenberg et al., 2025; Stenberg & Maaranen, 2020
	an analytical tool for understanding schools and society	Çilsalar Sagnak & Sancak Aydin, 2021; Seban, 2015
	a mediator for professional goals and beliefs	Çetin & Eren, 2019, 2022
	a compass to navigate teaching dilemmas	Seban 2015
	a lens through which one views the teacher's work	Rinne et al., 2023; Schellings et al., 2024
	an organizing element	Flores 2020
	A strong factor in teacher motivation, satisfaction, and commitment to their work	Stenberg et al. 2014

and societal levels of discourse. Atal and Sancar (2022) employed the Professional Identity Framework that included fundamental variables affecting teachers' PI (e.g., value, job satisfaction, job motivation, self-image). Lastly, Meyer et al. (2023) conceptualized teachers' roles through three domains of professional knowledge, distinguishing among subject specialists, didacticians, and pedagogues. The frameworks employed by these studies highlight the complexity and multifaceted nature of PI from personal, professional, and societal perspectives.

Some studies relied on a particular approach to conceptualize teachers' PI. Consistent with the holistic approach were Korthagen's onion model (Raus, 2017; Raus & Falkenberg, 2014; Steinbeiss, 2021) and Beijaard and colleagues' teacher professional identity model (Anspal et al., 2019). These models explored PI as a layered resource in teaching, interconnected with others and the broader world. Following the onion model and the ecological self, Raus (2017) and Raus and Falkenberg (2014) linked education to sustainability, helping preservice teachers situate their practice within interconnected political, social, cultural, and economic contexts. A dialogical approach showed that personal experiences are expressed through borrowed voices, reflecting the dynamic interplay between self and others (Arvaja & Sarja, 2021; Stenberg et al., 2014). Similarly, symbolic interactionism viewed meaning as constructed through identification with others, mediated by shared symbols and language shaped by ongoing social interaction (Ó Gallchóir et al., 2018). Lindqvist et al. (2017) presented symbolic interactionism as a theoretical framework comprising premises and concepts for interpreting social realities. A hermeneutic phenomenological approach explained PI as evolving through interpreting present experiences in light of past and narrative trajectories (Rinne et al., 2023). Meyer et al. (2023) used the concepts of actual and designated identity to explain preservice teachers' current and anticipated future selves. De Backer et al. (2023) examined how different teaching formats (i.e., team teaching, traditional teaching) shape PI development in workplace

learning contexts. Adopting a broader perspective, Lehtinen et al. (2024) conceptualized PI through global megatrends, i.e., long-term transformations with significant implications for the profession.

Advocating an integrated perspective, some studies used certain models. The didactic triangle model explained teachers' PI as a balanced relationship among the teacher, student, and content influenced by environment and community alike (Maaranen & Stenberg, 2020; Stenberg et al., 2014; Stenberg & Maaranen, 2020; Çetinkaya, 2024). The laminal model interpreted the concept by internalizing and externalizing social messages about professional roles (Toompalu et al., 2017). Valle's social-observational model posited that PI development is informed by others' exemplary behavior models (Falcón-Linares, 2023). Related to this model was the concept of vicarious learning, in which individuals learn to behave by observing role models (Falcón-Linares, 2023), and the Apprenticeship of Observation, which involves teachers' prior student experience as a "frame of reference" influencing their future teaching (Falcón-Linares, 2023; Gamze, 2018, p. 12). The cognitive coaching model highlighted preservice teachers' critical reflection on their transition from student to teacher (Göker, 2020). Finally, Friesen and Besley's Single-factor Model of Teacher Professional Identity, originally developed to assess preservice teachers' early identity, highlighted the potential values of teachers' PI from developmental and psychological perspectives (Çetin & Eren, 2019, 2022). The use of these models suggests an attempt to understand teachers' PI by breaking it down into its constituent parts while accounting for psychological development through social interaction.

Across the reviewed studies, preservice teachers' PI is approached through a range of conceptual emphases. Such emphases include individual and psychological processes (e.g., self-reflection, tension, motivation, and aspirations), pedagogical elements (e.g., subject, didactic and pedagogical knowledge, and classroom experiences), social dimensions (e.g., interactions with peers, mentors and role models), and contextual influences (e.g., institutional settings and wider community). Although the varied theoretical lenses in the examined body of literature do not lend themselves to a consensus of what preservice teachers' PI is, they nonetheless draw attention to the multifaceted and layered nature of the concept.

3.2. *Preservice teachers' professional identity development in university-based initial teacher education*

The analysis of the empirical studies demonstrated that preservice teachers' PI development in university-based initial teacher education is shaped by three interrelated themes: (1) PI development through beliefs and perceptions about the profession, (2) preservice teachers' PI development through tensions, and (3) fostering preservice teachers' PI development in teacher education programs.

3.2.1. *Preservice teachers' beliefs and perceptions about the profession*

A large body of the reviewed literature attempted to elucidate the role of preservice teachers' individual beliefs systems in PI development. Empirical research focusing on preservice teachers' beliefs and perceptions examined their views on the ideal teacher, the teaching profession, and the educational environments available to them.

Intrinsic identity orientations were a prominent subtheme in studies examining preservice teachers' perceived innate teacher qualities. Such orientations were examined through preservice teachers' metacognitive awareness (Cengelci & Egmir, 2022), beliefs about their self-efficacy, and job motivation (Atal & Sancar, 2022; Stenberg et al., 2014; Çetinkaya, 2024). They were additionally examined through possible selves (Erdem, 2020; Çetin & Eren, 2019), levels of identity perception (Cengelci & Egmir, 2022; Erdem, 2020; Çelik et al., 2021), and the ideal characteristics preservice teachers believed formed the foundation of their PI (Kavrayici, 2020; Martínez-de-la-Hidalga & Villardón-Gallego, 2017; Poom-Valickis & Löfström, 2019; Raus, 2017; Rinne et al., 2023; Steinbeiss, 2021; Stenberg et al., 2014; Trevisan, 2024; Çetinkaya, 2024; Çilsalar Sagnak & Sancak Aydin, 2021). The physical portrayal of PI through body language was important to preservice teachers' understanding of "good" or "bad" teacher traits (Ó Gallchóir et al., 2018), as were moral values (Atal & Sancar, 2022; Flores, 2020; Lindqvist et al., 2023; Stenberg et al., 2014; Álamo & Llorent, 2024; Çetinkaya, 2024). Preservice teachers may judge their own and peers' suitability through a comparison of espoused moral values (Lindqvist et al., 2023), and the coherence of espoused values becomes central to preservice teachers' statements as they transition into the profession (Flores, 2020).

The second subtheme concerned preservice teachers' professional self-orientations, which involved their idealized visions of teaching and of themselves as future teachers. The visions of an ideal teacher and of the teaching profession were rooted in preservice teachers' perception of teaching as a special and sacred profession (Çetinkaya, 2024) or in their social heritage (e.g., positive or negative school experiences), and they had a strong impact on choice of profession (Rinne et al., 2023). The teaching profession was understood as grounded in ethical and humanistic values, elevating the profession beyond technical aspects (Falcón-Linares, 2023). This understanding entailed ethical considerations and the responsibility to persevere (Martínez-de-la-Hidalga & Villardón-Gallego, 2017; Schellings et al., 2024). For example, preservice teachers perceived "darkness" and "insecurity" in their chosen profession, but expressed a strong desire to enter classrooms and do their best for their students (Flores, 2020, pp. 153–154), guided by an apparent dedication to students' development (Çilsalar Sagnak & Sancak Aydin, 2021). However, their vision of an ideal teacher self often coexisted with uncertainty about how to reach it (Poom-Valickis & Löfström, 2019).

Preservice teachers' professional self-orientations additionally encompassed certain beliefs. First, such beliefs concerned "good" teaching based on what they thought teacher action should be (Falcón-Linares, 2023; Neander Christensson, 2024; Raus & Falkenberg, 2014; Steinbeiss, 2021; Çetinkaya, 2024; Çilsalar Sagnak & Sancak Aydin, 2021). Preservice teachers often described teacher actions similarly when discussing "good" teaching, revealing inevitable tensions and attitudes related to emotional distance and authority (Steinbeiss, 2021). Beliefs about "good" teaching were shaped by professional experiences mainly gained from practicum periods (Maaranen & Stenberg, 2020; Poom-Valickis & Löfström, 2019) and affected PI development. For instance, preservice teachers with prior teaching experience showed more realistic self-analysis, while those without it tended to align themselves more closely with their ideal professional selves (Poom-Valickis & Löfström, 2019). Second, beliefs informing preservice teachers' professional self-orientations concerned teacher agency (Oliveira Leite et al., 2024), goal attainability (Çetin & Eren, 2019; cf. Çetin & Eren, 2022), and anticipated teacher roles (Martínez-de-la-Hidalga & Villardón-Gallego, 2017; Schellings et al., 2024; Stenberg et al., 2014; Vizek Vidović & Domović, 2019; Çetinkaya, 2024; Çilsalar Sagnak & Sancak Aydin, 2021). Third, a set of beliefs concerned the skills and competencies that preservice teachers regarded as a crucial component of their PI (Atal & Sancar, 2022; Cengelci & Egmir, 2022; Iranzo-García et al., 2020; Lindqvist et al., 2023; Neander Christensson, 2024; Poom-Valickis & Löfström, 2019; Steinbeiss, 2021; Stenberg et al., 2014; Çilsalar Sagnak & Sancak Aydin, 2021). These included content mastery, pedagogical knowledge, instructional clarity and organization, digital literacy, making the learning process learner-centered and meaningful, and projecting a professional image. Interactional skills (Atal & Sancar, 2022; Iranzo-García et al., 2020; Lindqvist et al., 2023; Stenberg et al., 2014) and 21st-century learner skills (Cengelci & Egmir, 2022) were also deemed necessary.

Professional self-orientations also encompassed preservice teachers' perceptions of their educational environments. Such environments were distinguished in (ideal) working environments and (ideal) learning environments (Steinbeiss, 2021). Preservice teachers believed these

environments should mirror real-life settings, functioning as spaces for education and nurturing that they could influence or organize (Çetinkaya, 2024). Collaborative learning environments with students and community collaboration with educational bodies, families, organizations, and broader community services were considered valued aspects of these educational environments (Iranzo-García et al., 2020; Oliveira Leite et al., 2024; Stenberg et al., 2014). Preservice teachers' metaphors about educational environments reflected this understanding and sometimes carried critical undertones, including views on the teacher's role, the political focus on education, and the link between school and society (Schellings et al., 2024).

In addition to educational environments in which they were expected to work, preservice teachers' beliefs also included their experiences in higher education learning environments. Several studies suggested that to promote ongoing professional development, preservice teachers believed they need a space where they can engage in continuous training, hands-on experience, mentorship, and critical collaborative learning with student groups (Falcón-Linares, 2023; Poom-Valickis & Löfström, 2019; Schellings et al., 2024; Trevisan, 2024; Çelik et al., 2021). Such engagement could also be achieved through learning-abroad experiences (Raus & Falkenberg, 2014). Beliefs about teacher autonomy and agency within the university environment (Neander Christensson, 2024), as well as the consistency of teacher education programs (Çelik et al., 2021), were important to preservice teachers' perception of their own PI. However, they also noted the need for equality and recognition from educators (Oliveira Leite et al., 2024), and expressed an expectation that teacher education provide a comprehensive "toolbox" for the profession (Rinne et al., 2023, p. 7). Finally, they called for more inclusive teacher education that recognizes differences in appearance, language, and culture as normative rather than subject to discrimination (Poom-Valickis & Löfström, 2019).

3.2.2. *Preservice teachers' professional identity development through tensions*

This theme illustrates the interplay among conditions, challenges, and transitions that shape preservice teachers' PI. It reveals how struggles and contradictions serve as catalysts for identity development. Furthermore, it demonstrates how PI development involves reconsidering the profession's significance and its associated practices, as well as one's own suitability for the profession. Within this iterative and recurring process, PI development occurs when positioning oneself as a student and future teacher.

The first subtheme captured how tensions, dilemmas, or conflicts stemming from past and present educational experiences are instrumental in preservice teachers' PI development. Early educational experiences as students were found to be formative, including mainly negative schooling memories, emphasizing the need to advocate for students and teachers whose behavior or attitude rendered them role models (Kavrayici, 2020; Keane et al., 2023). Current educational experiences in teacher education entailed "turning-point memories" that helped shape preservice teachers' life stories through a personal meaning-making and storied process (Dahl, 2020, p. 134). Such experiences also initiated the confrontation of internal tensions and challenges related to preservice teachers' role as students and their future work as teachers (Flores, 2020; Holappa et al., 2022; Juutilainen et al., 2024; Kavrayici, 2020). Tensions mapped onto key teaching domains, such as instructional and emotional support, conflicting roles, expectations (Hanna et al., 2022), diversity, and work-life balance (Hanna et al., 2019). They also arose from a perceived gap between research-informed classroom practices and university-taught educational theories (Qin et al., 2023). Navigating tensions was particularly problematic in the absence of anticipated support and mentoring during practicum experiences (Ó Gallchóir et al., 2018).

Tensions related to experiences of inadequate preparation for teaching, challenges in integrating theory and practice, and PI development would be mitigated or become less pronounced over time. This was achieved when preservice teachers progressively gained more practical teaching experience (Álamo & Llorent, 2024; Anspal et al., 2019; Arvaja & Sarja, 2021; Dahl, 2020; Flores, 2020; Kavrayici, 2020; Lindqvist et al., 2017; Qin et al., 2023; Toompalu et al., 2017; Trevisan, 2024; Varis et al., 2023; White & McSharry, 2021; Ó Gallchóir et al., 2018), better accommodated students' learning needs (Qin et al., 2023), and expanded their perceptions on teachers' roles and teaching (Qin et al., 2023; Varis et al., 2023). Additionally, tensions were mitigated when preservice teachers actively reflected on and took ownership of their learning (Juutilainen et al., 2024). To reduce tensions from limited experience, preservice teachers preferred early teaching practice alongside their studies to build confidence and test their ideals against classroom realities (e.g., Lindqvist et al., 2017). Further, social exposure and relationships with key stakeholders in teacher education (e.g., pupils, peers, mentors, and faculty) emerged as central to preservice teachers' PI development through tensions (Correa et al., 2014; Dahl, 2020; Gamze, 2018; Henry, 2016; Juutilainen et al., 2024; Kavrayici, 2020; Lindqvist et al., 2017, 2023; Maaranen & Stenberg, 2020; Qin et al., 2023; Varis et al., 2023; White & McSharry, 2021). Engaging with peers perceived as suitable for teaching, such as those with appropriate values, social skills, and deep-learning commitment (Lindqvist et al., 2023), helped preservice teachers shape and assess their emerging identities (Živković, 2018).

The second theme captured how preservice teachers navigated and affectively responded to perceived tensions or challenges. Emotions were a significant component of this subtheme. Atal and Sancar (2022) presented emotions as an intrinsic dimension of PI, alongside those of self-efficacy, self-esteem, self-image, motivation, and satisfaction. Three studies specifically mentioned "emotional dissonance" where preservice teachers experienced changes in their PI as either ruptures or moments of epiphany during teacher training (Dahl, 2020; Lindqvist et al., 2023; White & McSharry, 2021). Moments of epiphany sparked "feelings of meaningfulness" (Dahl, 2020, p. 134), while reflections on oneself as a teacher evoked "mixed feelings," including hope and a lack of motivation (Flores, 2020, p. 153). Further, specific situations and disorienting dilemmas evoked a wide range of challenging emotions, e.g., disempowerment (White & McSharry, 2021), helplessness and perplexity (Toompalu et al., 2017), uncertainty about entering the teaching profession (Varis et al., 2023; White & McSharry, 2021), doubt about readiness (Poom-Valickis & Löfström, 2019; Varis et al., 2023), and vulnerability from feeling inadequate or unsuitable for teaching (Holappa et al., 2022).

In the studies emphasizing the affective dimension of tensions in preservice teachers' PI development, preservice teachers demonstrated self-compassion. They actively sought to enhance their well-being, mitigate the impact of negative emotions, and find opportunities to better prepare themselves for the profession by embracing their vulnerability. Reflective practices (Holappa et al., 2022; Qin et al., 2023) and connections formed through shared distressing situations (Lindqvist et al., 2017; White & McSharry, 2021), whether experienced or anticipated, were found conducive to managing challenging emotions and developing their PI. Nonetheless, preservice teachers may struggle to sustain PI development under several challenging emotions (Živković, 2018), often postponing coping to future practice and anticipating early-career difficulties like workload and burnout (Lindqvist et al., 2017).

In addition to navigating the affective landscape created by perceived tensions, preservice teachers developed their PI through experiences of success and failure. Success was often tied to external recognition and reinforcement, while failure was linked to feelings of responsibility, reflection on teaching practices, and broader societal considerations (Gamze, 2018). Preservice teachers' perceptions of success or failure, whether their own or their students', shaped their career choices, teaching approaches, and sense of professional responsibility (Lutovac & Flores, 2021). These studies show that both personal and student experiences of failure can prompt preservice teachers to reflect

on their practice, reassess the value they assign to teaching, and channel these insights into ongoing professional growth.

Another way in which preservice teachers responded to tensions was by stance-taking. This stance-taking was discussed in terms of identity positions (Henry, 2016; Seban, 2015; Stenberg & Maaranen, 2020) or positioning and repositioning in PI development (Arvaja & Sarja, 2021; Dahl, 2020; Gamze, 2018; Henry, 2016; Keane et al., 2023; Lehtinen et al., 2024). For example, preservice teachers positioned themselves as agentic educators within participatory pedagogy, emphasizing meaningful knowledge and pupils as active agents, thereby distancing themselves from more traditional, authoritative pedagogies (Arvaja & Sarja, 2021). Further, they positioned themselves as teachers becoming mentor-like figures whose role extended beyond pedagogy, aspiring to foster the success of all students while serving as role models for those from similar backgrounds (Keane et al., 2023). Finally, preservice teachers often took a passive stance toward societal issues, but this gradually changed through action-oriented learning and a belief in teachers' potential to make a difference (Lehtinen et al., 2024).

3.2.3. *Fostering preservice teachers' professional identity development in teacher education programs*

This theme encompasses the studies addressing internal and external efforts that can further develop preservice teachers' PI. These studies indicate that preservice teachers' PI development is closely tied to reflective practices and opportunities to engage in authentic pedagogical activities. Further, they imply artificial intelligence, cross-departmental collaboration, and sustainability-focused pedagogies may help preservice teachers see their PI as adaptable, future-oriented, and connected to broader educational concerns. This theme underscores the importance of teacher education in remaining responsive to broader social, technological, and ecological challenges.

An important part of teacher education programs is encouraging preservice teachers to develop a PI by engaging in reflective practice. Reflection was evident in several of the examined studies, with a few highlighting its importance in their findings as a prominent intervention for identity development. These studies utilized assignments, discussions, and inquiries that encouraged preservice teachers to critically relate their learning experiences to their developing PI, e.g., writing and analyzing narratives, participating in debates, peer discussions on video cases, discussing letters from (fictional) teachers (e.g., Atal & Sancar, 2022; Flores, 2020). However, preservice teachers were uncertain about the role of educational inquiry in their future careers and regarded it as something outside their PI (Giralt-Romeu et al., 2021).

Many studies explored approaches applicable to teacher education for facilitating PI development. Such approaches were collaborative cross-departmental projects (Bradshaw & Younie, 2016) and team teaching combined with structured guidance, feedback, and collaboration with teacher educators and peers (De Backer et al., 2023). Other approaches argued for the use of affective pedagogy to enhance preservice teachers' emotional well-being (Falcón-Linares, 2023); cognitive coaching to develop preservice teachers' overall teaching skills and self-efficacy (Göker, 2020); and Communities of Practice to help reveal preservice teachers' dilemmas, challenges, and fears (Correa et al., 2014). One study proposed global citizenship education as a way of enabling preservice teachers' address complex challenges and engage actively at local and global levels (Lourenço, 2021). Further, the concept of the ecological self was suggested (Raus, 2017; Raus & Falkenberg, 2014), arguing that preservice teachers' PI should integrate nature and sustainability topics into daily teaching practices (e.g., outdoor and experiential learning) as well as transdisciplinary approaches related to learning sustainability (Raus, 2017). Finally, one study advanced the potential of tools powered by artificial intelligence in educational settings, such as enhancing learning experiences, facilitating activity planning, and increasing accessibility for individuals from diverse socioeconomic backgrounds (Karataş & Yüce, 2024).

4. Discussion

This systematic review provides a comprehensive synthesis of empirical research on preservice teachers' professional identity (PI) within university-based initial teacher education (ITE) across the European Higher Education Area (EHEA). Drawing on 57 studies published between 2014 and 2024, this review demonstrates that preservice teachers' PI is characterized by both conceptual diversity and a degree of theoretical fragmentation within shared conceptual backgrounds. That is, despite employing some commonly used frameworks, the reviewed studies employed multiple, only partially overlapping perspectives. Nearly half of the studies emphasized teacher education programs as a critical period in the development of PI. Teacher education is a critical period for professional development and serves as a catalyst for reflective PI development (Alsup, 2006; Beijaard et al., 2004; Buchanan, 2015; Salonen et al., 2025). The review indicates that empirical studies on preservice teachers' PI development center on preservice teachers' beliefs and perceptions; experiences of and response to tension; and practices to support preservice teachers' PI in teacher education.

4.1. *The challenge of defining preservice teachers' professional identity*

This review first examined which theoretical perspectives inform research on preservice teachers' PI in university-based ITE. A considerable number did not conceptualize PI through a theoretical framework specific to this construct, instead relying on range of ontological and epistemological perspectives (e.g., dialogical, psychological, sociocultural). Despite the diversity of the theoretical approaches employed, the findings converged in highlighting the complex and multilayered nature of preservice teachers' PI. The understanding of preservice teachers' PI as an ongoing, dynamic, and multidimensional process shaped through the interplay of internal and contextual influences resonates with earlier research (e.g., Beauchamp & Thomas, 2009; Beijaard et al., 2004; Beijaard & Meijer, 2017; Clandinin & Husu, 2017; Golzar, 2020; Hong et al., 2024; Wong & Liu, 2024). Preservice teachers' PI was often examined through psychological, pedagogical, social, societal, and contextual aspects identified in research on teachers' PI. Such aspects have also been reported in recent studies outside the EHEA (Hong et al., 2024; Mockler, 2011; Sun et al., 2025; Ye et al., 2025; Zhang et al., 2024), as well as in key review studies (Beijaard et al., 2004; Izadinia, 2013; Rodrigues & Mogarro, 2019; Rushton et al., 2023).

The conceptual understanding the reviewed studies converged on reinforces theories positioning preservice teachers' PI not as a fixed attribute but as something continually developed through interactions between internal factors (e.g., beliefs, emotions, values) and contextual forces (e.g., peers, practicum, institutional norms). The findings also imply that no single theoretical perspective (e.g., ecological, sociocultural, narrative) fully captures preservice teachers' PI development; hybrid or multidimensional frameworks may be theoretically justified (see also Pishghadam et al., 2022). However, because PI may be shaped by diverse theoretical orientations and overlapping descriptors, conceptualizing it remains rather challenging (Zembylas & Chubbuck, 2018). This stresses the importance of clear definitions and theoretical grounding. Treating preservice teachers' PI as indistinguishable from teachers' PI, or merely as its early stage, together with such conceptual and theoretical ambiguity, risks overlooking the distinctive features of early identity development and the unique conditions of ITE, thereby limiting more nuanced understandings.

4.2. *Preservice teachers' professional identity through beliefs, perceptions, and tensions*

The review additionally examined what empirical studies demonstrate about preservice teachers' PI development in university-based ITE. The review showed that preservice teachers' PI is contingent on preservice teachers' beliefs and perceptions, which were a prominent theme

in the examined studies. This finding supports those of earlier reviews on teachers' PI, which argue that teachers' values, beliefs, feelings, teaching practices, and experiences help shape their PI (Beijaard et al., 2004; Izadinia, 2013; Rodrigues & Mogarro, 2019). The theme about preservice teachers' beliefs and perceptions about what it means to be a teacher supports literature positing that PI is grounded in perceived ideal personality traits for teachers (Beauchamp & Thomas, 2010), possible selves (see also Hamman et al., 2013), and self-perception (Salonen et al., 2025). Preservice teachers, after all, enter teacher education programs with an idealization of the teacher and the teaching profession, often involving a vision of "good teachers" and "good teaching" (Alsup, 2006; Maaranen et al., 2016). The findings showed that this vision is shaped by prior personal and professional experiences both before and after entry into teacher education programs. This is in line with earlier research (e.g., Beauchamp & Thomas, 2011; Buchanan, 2015), supporting the view that preservice teachers' PI begins to develop before entry into teacher education programs (Botha, 2020; Flores & Day, 2006). During their studies, preservice teachers acquire educational knowledge and skills that shape their beliefs while developing their PI (Melville et al., 2013; Rodrigues & Mogarro, 2019). Early practicum experiences test the alignment of self-beliefs with practice, yet ideals often deviate from actual experiences in universities, schools, and society (Leijen & Kullasepp, 2013; Pillen et al., 2013). Therefore, helping preservice teachers become more aware of how their beliefs influence their practices can support their career longevity and motivate them to remain in the profession (e.g., Fairbanks et al., 2010). We argue that addressing preservice teachers' beliefs and perceptions before and during ITE can better guide curricular affordances for PI formation, improve resilience, and promote long-term retention in the profession.

Another prominent theme in the reviewed studies was that of tensions in preservice teachers' PI development. Such tensions manifested in struggles, conflicts, pedagogical dilemmas, and questioning of competence and suitability. Discrepancies have been elsewhere shown to cause tensions or "struggle" (Pillen et al., 2013, p. 661), and to involve expectations, unmet needs, or feeling unsuited for the teaching profession (Olsen, 2016). When these tensions are too high and preservice teachers lack mentorship, they will be unable to develop their PI and be vulnerable to attrition (Alsup, 2006; Beauchamp & Thomas, 2009; Forslund Frykedal & Zimmerman Nilsson, 2025; Izadinia, 2015; Lindqvist & Nordänger, 2016). Tensions were found to render PI development an emotion-laden process. Preservice teachers responded to perceived tensions by navigating their emotions, taking a stance between student and teacher positions, and negotiating experiences of success and failure. This finding is important because it further validates teaching as an "emotional profession" (Dassa & Derose, 2017, p. 110), where emotional experiences reveal key information about one's changing "identity commitment" (Nichols et al., 2016, p. 407). Emotions are present in preservice teachers' practicum experiences (e.g., Yuan & Lee, 2016), which involve many struggles and failures (Danyluk et al., 2021). We argue that tensions are not merely challenges to be overcome or a by-product of learning, but integral to preservice teachers' PI development. Teacher education should therefore continue addressing preservice teachers' dual role as teachers and students (see also Lee & Schallert, 2016) while equipping preservice teachers with structured opportunities to explore and regulate their emotional experiences as part of their PI development.

4.3. Supporting preservice teachers' professional identity development

The reviewed studies also addressed practices or strategies in teacher education programs, with reflection practices being the most prominent way of monitoring identity development and regulating internal conflicts and emotions. The emphasis on reflection practices aligns with the extensive research highlighting the benefits of reflective practices for preservice teachers' professional growth and identity development in the field (e.g., Izadinia, 2013; McKay, 2021; Woolcott et al., 2024; Yüce et al., 2024). Reflection can be included, for example, in narrative writing, discussions, and peer interaction. Reflection as an educational activity in teacher education may help preservice teachers strengthen their teacher selves (Beauchamp & Thomas, 2010), make sense of their experiences (Izadinia, 2013), and understand and enhance emotional resilience (Woolcott et al., 2024; Yüce et al., 2024) and well-being through creative and novel methods (McKay, 2021). This, in turn, may strengthen their confidence, commitment, and attachment to the profession. However, research also shows that preservice teachers' reflection journals remain at a descriptive level by the end of teacher education (Körkkö et al., 2016). We argue that preservice teachers' reflection skills should be deliberately, formatively, and regularly monitored and supported through explicit instruction along with regular feedback from both mentors and peers.

In addition to reflection, the third theme demonstrated the benefits of supplementary interventions within teacher education programs. Expanding teacher education to include global citizenship education, interdisciplinary collaboration, and engagement with broader social and professional communities encourages preservice teachers to situate their identities within wider societal contexts. The integration of digital tools, particularly artificial intelligence, offers further opportunities to enrich learning experiences and improve accessibility in the evolving teaching landscape (see also Collie & Martin, 2024; Guan et al., 2025). Moreover, embedding sustainability and ecological perspectives into teaching practices promotes a future-oriented and socially responsible understanding of PI (see also Segovia, 2010). Preservice teachers' PI development can be further fostered through approaches that integrate authentic pedagogical experiences and structured support mechanisms, such as cognitive coaching and team teaching. Preservice teachers' PI development can be effectively supported through diverse, context-sensitive approaches implemented within or alongside formal teacher education programs, as well as through individual and collaborative initiatives.

4.4. The geographical representation of empirical studies within the European Higher Education Area

The inclusion criteria of this review were limited to studies conducted within the EHEA, so that the geographical scope of the evidence base is inherently bounded. Nevertheless, the distribution of studies across countries reveals a notable imbalance, with a strong concentration in Türkiye and Finland, followed by a smaller cluster in Spain, Sweden, and Estonia. Most other contexts were underrepresented. This pattern suggests that the empirical knowledge base on preservice teachers' PI remains both regionally constrained and unevenly distributed within Europe, being largely shaped by the limited number of studies in other national contexts. Notably, Türkiye and Finland, two structurally distinct contexts, account for a disproportionately large share of studies on preservice teachers' PI compared to other EHEA countries. Türkiye represents a context in which entry into teacher education is relatively less competitive, and where the teaching profession faces challenges related to status and societal recognition (Kılınç et al., 2012). More recently, the expansion of private schools has further intensified these challenges, raising concerns about teachers' qualifications, rights, and social benefits (Erdem & Pamuk, 2025). In contrast, Finland claims to have a highly competitive and university-regulated teacher education, recognized for its strong grounding in educational sciences and its research-based approach that fosters pedagogical thinking and critical reflection (Virtanen et al., 2025). While largely valued by teachers, this research-based orientation has been criticized for leading to a growing decontextualization of teacher education, as preservice teachers report that it distances their preparation for school realities and the need for more practical tools to better understand students and their behavior (Kauko, 2023). The prominence of these contrasting contexts suggests that the knowledge base on preservice teachers' PI potentially obscures how PI develops within the more

complex and often contested realities of teacher education systems, including challenges related program diversification as well as tensions between policy narratives and everyday educational practice.

5. Limitations

This review is subject to certain limitations. First, it focuses exclusively on studies conducted within university-based ITE programs in the EHEA. While this scope provides a degree of contextual comparability in terms of policy and program structures, it also results in a geographically bounded and predominantly Western-oriented perspective on preservice teachers' PI (see also Izadinia, 2013). Second, only English-language publications were included, which may have excluded relevant studies published in other languages and limited the diversity of perspectives represented. Third, although the search strategy was designed to ensure consistency by using terminology emphasizing the developmental aspects of the concept, well-documented variations in terminology related to preservice teachers and PI may have led to the omission of some relevant studies. In particular, the scope of the search terms used to operationalize preservice teachers' PI was limited to a focused set of widely used, development-oriented terms (i.e., identity formation, identity development, and identity negotiation). Closely related terms used in the literature, such as identity work, identity co-construction, and collaborative identity work, were not included as separate or additional search terms. Not using terms in the search strings emphasizing the relational and collective nature of identity may have limited the inclusion of studies conceptualizing preservice teachers' PI primarily through interactional, discursive, or collaborative lenses. Finally, the analysis revealed that several aspects of preservice teachers' PI were often addressed within the same study, making clear thematic categorization across the reviewed body of literature inherently challenging despite the two-phase analytical approach employed in this review.

6. Implications for further research

The findings of this review suggest several implications for future research. First, there is a need to broaden the scope of preservice teachers' PI beyond predominantly Western-centric contexts by systematically incorporating underrepresented regions and multilingual sources, thereby fostering a more globally representative and culturally responsive knowledge base. Furthermore, the concentration of research within a limited number of EHEA countries revealed a geographical imbalance. Adopting comparative and cross-national research designs may better account for contextual variation and complexity. The findings additionally point to the need for more consistent conceptualizations of preservice teachers' PI, supported by theoretical frameworks that explicitly link identity development to experiences within ITE. The study further indicates that the predominance of development-oriented terminology warrants broader conceptual engagement with complementary perspectives, such as identity work, identity construction, and co-construction, to more comprehensively capture the relational, discursive, and contextually situated nature of preservice teachers' PI. Accordingly, future studies may approach preservice teachers' PI through frameworks that acknowledge its holistic and multifaceted nature, as this may contribute to a more coherent conceptualization of the construct and enable more meaningful practical advancements (Abramson & Schachter, 2024; Zembylas, 2018). Taken together, these directions suggest that strengthening conceptual clarity, theoretical grounding, and contextual sensitivity is essential for advancing both research and practice in this field.

7. Conclusion

This review of empirical studies on preservice teachers' PI offered a comprehensive and updated overview of the theoretical frameworks informing research within the context of university-based ITE in the EHEA. The findings reinforce the dynamic, multifaceted, and contextually situated nature of preservice teachers' PI, and support its central role in how preservice teachers' locate and position themselves within the teaching profession. Additionally, the study identified three main areas of concern for empirical research on how preservice teachers develop their PI. The review underscored the pivotal role of preservice teachers' beliefs and perceptions in mediating PI development, as well as the significance of emotion-laden tensions for PI development. Furthermore, the review indicated a set of evidence-informed practices within teacher education that can meaningfully support PI development. Such practices strengthen preservice teachers' sense of professional self and supports their well-being, resilience, and long-term retention. In turn, a stronger grounding in PI development contributes to improving teacher education programs, enhancing the broader societal positioning of the profession and supporting the sustainability of the teaching workforce. However, clear conceptualizations of preservice teachers' PI along with explicit theoretical delineation are crucial for ensuring stability and comparability across teacher identity research.

CRediT authorship contribution statement

Çagil Çetinkaya: Writing – original draft, Visualization, Project administration, Investigation, Formal analysis, Data curation, Conceptualization. **Sotiria Varis:** Writing – review & editing, Writing – original draft, Supervision, Funding acquisition, Formal analysis, Conceptualization.

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Data availability

The review paper used already published articles as data source, all cited sources used for the analysis are freely available.

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