

Manifestations of professional identity work:

An integrative review of research in professional identity formation

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Abstract

Professional identity formation (PIF) is an integral part of educating professionals. A well-formed professional identity helps individuals to develop a meaningful professional self-understanding that facilitates their transition to and sustainability in professional work. Although professional identity and its formation are well theorized, it is largely unclear how the underpinning interpretive process of professional identity work leads to observable changes in thoughts, feelings and behaviours, and how these insights can be used in educational practice. To address this gap, we conducted an integrative review of 77 empirical articles on professional identity formation and inductively developed a four-fold typology of professional identity work, through which individuals reportedly make the shift from individual to professional. The theoretical contribution of this article is a more nuanced understanding of the practical manifestations of professional identity work. As a practical contribution, the typology may be used as a heuristic through which educators of professionals can support their students' professional identity formation, particularly where this is halted or complicated by obstructions.

Key words

Higher education, literature review, professional education, resilience, typology

Introduction

Recent years have witnessed significant interest in professional identity formation (PIF) in teaching (e.g., Pillen et al. 2013; Izadinia 2016; Deng et al. 2018; Kim et al. 2021), healthcare (e.g., Cruess et al. 2015; Noble et al. 2015; Hatem and Halpin 2019; Merlo et al. 2021), STEM (e.g. Park et al. 2018; Tomer and Mishra 2016; Nadelson et al. 2017) and other fields. A well-formed professional identity supports students with the transition to professional work, preparing them for the responsibilities of their role, for moral and ethical decision-making, and for thriving amidst often conflicting discourses, priorities and practices encountered when entering a profession (Pillen et al. 2013; Wald 2015). Despite different conceptual underpinnings of PIF, there is widespread agreement that PIF is the process through which individuals construct a professional identity (e.g., Slay and Smith 2011; Tan, Van der Molen, and Schmidt 2017) that enables students to learn the requisite knowledge, skills, behaviours and norms of professionalism (Wilkins 2020), and develop a sense of belonging to their chosen profession (Trede et al. 2012).

Contemporary research emphasizes the benefits of a well-formed professional identity, for example for employability (Tomlinson and Jackson 2021) and wellbeing (Toubassi et al. 2023), which can be fostered through specific educational interventions (Kratzke and Cox 2021). Despite recognizing the potential challenges to integrate PIF into a degree programme (Wilkins 2020), recent work tends to emphasize processes (e.g. reflection) and education opportunities (e.g. workplace socialization, entrusted responsibilities) for which student outcomes can be demonstrated (e.g. making sense of workplace challenges, self-understanding of one's professional values). They are thus proposed to support PIF (Sarraf-Yazdi et al. 2021; Carter 2021; Jowsey et al. 2020). In this article, we advance this work by focusing on professional identity work (PIW), the interpretive process that underpins PIF and through which professional identity is formed. PIW involves interpretation of personal, social and contextual experiences to construct, strengthen, maintain, revise and reconstruct one's professional self-understanding (drawing on Sveningsson and Alvesson 2003). In this way, as we

will show below, PIW transcends professional boundaries as students and graduates from different professional contexts and roles reportedly engage in similar interpretive work when developing, strengthening and adapting their professional self-understanding. PIW thus results in changes in people's thoughts, feelings and/or behaviours (Feiman-Nemser 2008) which individuals entering or working in any profession are likely to experience and which are important for their educators to know so that students' education and socialization can be appropriately supported.

While it is known that PIF is important and that it is scaffolded using specific educational interventions, there is currently little understanding of how students' identity work leads to professional identity formation. Although PIF is well theorized in the higher education literature (e.g. Nyström 2009; Mackay 2017; Jarvis-Selinger et al. 2019; Rodrigues and Mogarro 2019) – albeit largely within professional silos, the practical manifestations of PIW remain largely unknown (e.g. Nadelson et al. 2017). By practical manifestations we mean indications of changes in students' thoughts, feelings and/or behaviours that enable conclusions about the extent to which they have developed the requisite knowledge, skills, behaviours and norms of professionalism as well as feelings of belonging to their chosen profession. Such insights will enable educators of professionals to understand students' emerging priorities as a professional and help them find their place in the profession, particularly where recommended educational interventions are ineffective, contextually inappropriate or unfeasible. PIW may further involve dissonance as the expected identity clashes with what is encountered or can be achieved in practice (Wald 2015), affecting professionals' wellbeing and resilience (McCann et al. 2013) and contributing to attrition (Cidlinska et al. 2022). Without understanding the underpinning interpretive process of PIW, educators cannot effectively adapt and contextualize recommendations from the extant research in curriculum design, pedagogic practice or student support.

Current research also demonstrates newly identified complexities for educators of professionals. The existing models tend to conceptualize a process of development towards an integrated and cohesive professional identity that can be negotiated across contexts when the individual is successfully ‘formed’ (e.g. Nyström 2009). However, more critical work has argued that educating for global, multicultural or interprofessional work means that professional identities remain in flux, being re-shaped between multiple versions of an individual’s professional self as they move between contexts (Best and Williams 2019; Findyartini 2019; Nicholson and Maniates 2016). Minority groups and non-white, non-Western populations have argued that the white North American / Euro-centric source of much of the extant PIF literature may present challenges when trying to embed some of the advocated practices, such as socialization (e.g. lack of role models) or personal value reflection (e.g. in regions where social and cultural values take precedence over those of the institution or individual) (Wyatt, Rockich-Winston, et al. 2021; Zaneb and Armitage-Chan 2022). A better understanding of students’ priorities for their professional identity, the underpinning interpretive process of PIW and the ways in which educational strategies lead to PIF may therefore better support educators as they contextualize, adapt and apply published curriculum recommendations to their students’ unique needs.

To address this gap, this paper seeks to answer the question ‘how is professional identity work manifested in the extant research’. As educators and curriculum developers in professional programmes interested in how proposed interventions lead to PIF, we conducted an integrative review of 77 empirical articles that provide at least one excerpt indicating PIW. Using thematic analysis (Braun and Clarke 2006), we inductively developed an original typology consisting of four categories called (1) ‘becoming’ (PIW as a process of learning and development), (2) ‘aligning’ (PIW as a process of bringing into alignment people’s assumptions, values, norms, behaviours and professional self-understanding with the external expectations), (3) ‘exploring’ (PIW as exploring

the type of professional a person wants to be), and (4) ‘struggling’ (inability to achieve meaningful PIW), which we will introduce below.

The contribution of this paper is the novel typology of the practical manifestations of PIW, which enhances the current understanding of PIF in professional education by showing how students’ identity work leads to professional identity formation. It provides important insights into the often elusive process of professional identity work and enables educators to better understand and support their students’ PIF by using the typology as a heuristic and adapting it to their specific professional context. This is particularly pertinent where established educational practices prove troublesome or require contextualization, or where students are struggling to apply recommended educational strategies to support their PIF.

Methodology

We have chosen PIW, the interpretive process underpinning PIF, as the focus for this integrative review because it transcends professional contexts, enabling researchers to “step outside disciplinary boundaries [...] and venture beyond knowledge silos” (Breslin and Gattrell 2023, 139). According to Torraco (2005, 356), integrative literature reviews are “a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated.” He further posits that these reviews enable researchers to generate new insights into an established or emerging topic. In our case, PIW is an emerging topic that, arguably, “would benefit from a holistic conceptualization and synthesis of the literature to date” (ibid, 357), particularly since it operates in multiple professional contexts. We have used Cronin and George’s (2023) recent framework for conducting integrative reviews to achieve rigour and veracity in our approach.

Following Cronin and George's (2023) first step of identifying the types of studies available for synthesis, we searched the ISI Web of Science database (a comprehensive repository covering a range of professions) for 'professional identity work' as an exact term in the title, which identified only five articles. This dearth of existing research led us to extend the search to include the broader yet closely related constructs of 'professional identity formation', 'professional identity development', and 'professional identity construction' as exact terms in the title to identify articles that foreground these constructs, which we expected to be most relevant. The search was limited to a 10-year period (01/01/2012-31/12/2021) to provide a contemporary review and to articles published in English as these were expected to target a global audience. The combined searches yielded 188 results.

In Cronin and George's (2023) second stage, literature review, we firstly downloaded these articles and screened the abstracts, removing those written in other languages than English (n=5). Due to our interest in practical examples of PIW, we excluded non-empirical articles (conceptual papers n=18; review papers n=5; methodological papers n=4) and articles that examined the construct without reference to a professional or occupational context (e.g. 'school children'; n=7). Articles that could not be sourced despite our best attempts were also excluded (n=3). Then we read the findings sections of the remaining 146 empirical articles to identify any narrative or reflective data excerpts from which conclusions about changes to people's thoughts, feelings and/or behaviours (see Feiman-Nemser 2008) as evidence for PIW could be drawn. In this process, we excluded articles that evaluated an educational activity (n=35), articles that only provided numerical data (n=17) and articles that only included short snippets of data (n=17), which provided insufficient insights into PIW. In this step, we also mapped the professional field and countries where the underpinning research was conducted to understand the varying "representation from each community of practice" (Cronin and George 2023, 170). The final dataset includes 77 empirical

articles from 15 professions and involving 23 countries. Figure 1 depicts a schematic representation of this second stage.

FIGURE 1

Further information about the empirical studies in our dataset is available in the supplementary file.

Thematic analysis (Braun and Clarke 2006) and synthesis (the third step identified by Cronin and George 2023) followed. We coded empirical examples (our unit of analysis) reported in our dataset using an inductive thematic approach, in which labels were assigned to passages of text in which research participants reported changes to their thoughts, feelings and/or behaviours (see Feiman-Nemser 2008) as part of their professional education and socialization. A strength of this approach is arguably the focus on PIW, the interpretive process underpinning PIF that does not seem to be dependent on a specific professional context as our analysis indicates. A total of 19 codes were generated and clustered into initially three analytical categories as shown in Figure 2.

FIGURE 2

The category ‘becoming’ frames PIW as learning and development, with people foregrounding how they learn the requisite knowledge, skills and behaviours, how they integrate their personal and professional identities, and how they construct or maintain their professional self-understanding.

These codes foreground individual feelings of becoming (or being) a professional and developing professional status.

The category 'aligning' frames PIW as bringing into alignment people's assumptions, values, norms, behaviours and professional self-understanding with the external expectations of stakeholders, such as professional associations, pupils, patients, clients etc. They foreground the connection between the personal and social dimensions of PIF (e.g. Rodrigues and Mogarro 2019) and imply that a professional identity may never be fully formed due to changes to professional contexts, including increasing use of interprofessional teamwork (e.g Best and Williams 2019).

The category 'exploring' frames PIW as identifying the type of professional a person wants to be. They foreground the potential multiple professional identities in terms of specialisms (e.g. primary / secondary / special needs teacher in education, general practitioner / surgeon / neurologist etc. in the medical sciences), work environments (e.g. state or private practice in healthcare, large corporate / small and medium-sized enterprise), workplace cultures (e.g. extent to which personal / professional agency is encouraged or limited), or professional role (e.g. educational leader, engineering researcher). Their emphasis is on finding the right 'place' or 'niche' for the individual's longer-term career path.

A fourth and smaller category was identified during the analysis. Called 'struggling', these excerpts foreground significant difficulties with forming a professional identity, emphasizing perceived barriers to enacting an envisaged or desired professional self-understanding.

Since PIW has been significantly understudied across professions, the search for its practical manifestations required both a relatively large dataset comprising a range of professional contexts from which relevant empirical examples could be drawn and an inductive analytical approach to

identify and categorize these excerpts across professional ‘silos’. The analytical categories of ‘becoming’, ‘aligning’, ‘exploring’ and ‘struggling’ do not correspond to the 77 articles in our dataset but to empirical examples reported in these articles that provide insights into the practical manifestations of PIW. In some instances, an article reported excerpts that fitted in more than one category in our typology because its aims and focus differed from ours.

Importantly, we do not claim that our dataset and the resulting typology are exhaustive and will outline below areas for future research that could address the limitations in our approach. Rather, the value of the typology is two-fold: firstly, it enables a better understanding of how students’ identity work leads to professional identity development and how educators can scaffold and support their students’ PIF through specific educational interventions. Secondly, the typology identifies the underpinning process of PIW that has been reported in empirical studies across professional fields and countries, which makes it relevant for educators across a wide range of professions and geographic contexts.

Results

‘Becoming’

‘Becoming’ frames PIW as a process of learning and development during which individuals start to think, feel and act as professionals in their chosen line of work (see Feiman-Nemser 2008) as illustrated by the following excerpts:

“I can see now **how I have changed, how I have blossomed** {...}, how my insecurities are fading away, **how I am good enough for someone.**”
(second year note)’ (Boncori and Smith 2020, 278–79, emphasis added)

“I have an idea of where I see myself as a designer in the future and how I will approach designing. I am not there yet, as it will take many years for me to master the skill. {...} **The way I think about design today is**

completely different compared to how I thought about it before starting this class.” (Student 5, Prompt 5.5, S13)’ (Tracey and Hutchinson 2018, 276, emphasis added)

‘It suddenly became normal, when I tell my family at home, ““Oh, we have a dissection course. And that’s really fun.” And then I notice that they might think that’s weird. And then I think [...] half a year ago I myself might have thought that’s weird. **So I notice [...] something changed.**” (Student 25).’ (Shiozawa et al. 2019, 6, emphasis added)

Here, the research participants compare their current professional self-understanding with that at the beginning of their studies and in relation to their practical skills and abilities, with the emphasis being on themselves rather than the interplay with a professional context. There is retrospective reflection on their developing competence that helps them to feel increasingly like a professional as indicated by the text in bold. Illustrative examples for the codes within this category are provided in the supplementary file.

Despite a generally positive emphasis on growth, some excerpts indicate a disconnect between the stage of learning that individuals perceive to have reached and the learning they feel is required before they have ‘properly’ ‘become’ a professional. This disconnect is evident across professional fields, such as software engineering (“I need to learn a lot of coding and the real things before becoming [a software engineer]”, Tomer and Mishra 2016, 159) or medicine (‘It’s strange when patients call me “Doctor” though. I always correct them and tell them that I’m a medical student’, Hatem and Halpin 2019, 3). Other data excerpts suggest that participants do not feel they have ‘become’ a professional based on discipline-specific knowledge alone but identify a need for additional development, such as self-awareness, building relationships and developing personal attributes (e.g. empathy, ethical values) as illustrated in the following excerpt:

“I’ve learned that being a physician requires so much more than simply recognizing the diseases and treatments. I must learn to be aware of my biases and assumptions that may impact patient care. I must develop ethical values that will not be swayed by stress or pressure. I must prioritize communication and empathy so that I am able to establish meaningful relationships with my teammates and my patients. I must learn to value my own health, through mindfulness, nutrition, and exercise, before I focus on the health of others.” (Merlo et al. 2021, 5, emphasis added)

In summary, PIW as ‘becoming’ foregrounds the learning and development that students encounter in their education and socialization. Irrespective of the specific issues encountered in the respective professions, the focus is on constructing and strengthening an emerging professional identity that, through acquiring the requisite knowledge and skills, can result in people feeling like a professional and/or as part of the profession. This category implies a certain end point, often symbolized by rites of passage such as graduation, a teaching practicum, or swearing the Hippocratic oath. Here, PIF is framed as a finite process.

‘Aligning’

‘Aligning’ frames PIW primarily as a process of bringing into alignment one’s assumptions, values, norms, behaviours and emerging professional self-understanding with the external expectations of professional associations and other stakeholders. As such, and in contrast to ‘becoming’, ‘aligning’ emphasizes the contextual nature of PIF. This is illustrated by the following quotes:

‘Emma had **become aware that her interventions actually led to inactive students.** This was a **boundary experience.** She asked herself questions on how to change her behaviour and was able to take the first steps in **making a shift in her tutor style from teacher-oriented to learner oriented.**’

(Assen et al. 2018, 135, emphasis added)

‘Residents identified a change in their personal and professional identity, described as a discovery, or rediscovery, of the purpose of medicine and the identity of a physician: “Such an experience inherently redefines for an individual why they entered the medical profession in the first place ... to **remind myself that the most important job as a physician is to care for patients**” (2002/Haiti/internal medicine)’ (Sawatsky et al. 2018, 1386, emphasis added)

These excerpts illustrate alignment between different aspects of professional work, including engagement with one’s assumptions about the profession, key stakeholders and work practices.

Illustrative examples for each of the codes within this category are presented in the supplementary file. They share a focus on bringing into alignment what is important to an individual in their professional role, day-to-day work and specific work environment (including workplace culture).

However, attempts to generate alignment can also be fraught with tension, as the following excerpts indicate:

‘Renate [...] experienced competition with another student when trying to get access to an experience that was also meaningful [...]. The fact that this colleague managed to get access, while Renate failed, made her think about herself and her way of getting things done: “Her way is much more efficient, but **I am not sure if that is the person I want to be. I think not.** So, I notice I am torn between the person I want to be and the things I want to achieve.” (First rotation)’ (Adema et al. 2019, 1570, emphasis added)

‘The teachers argued that they would persist in the profession of teaching when school policies are against their expectation, yet they would resign and change their school [...]: “I prefer to resign. **The profession is part of our life and it should be aligned to our values. If not, I will be challenged and I suffer,** so I prefer to quit the school.”’ (Nazari et al. 2021, 9, emphasis added)

‘Tess takes responsibility for her students, but at the same time she is close to the students, because of her age. She likes to have some fun with them in the classroom and also meets students when she goes out. **She experiences difficulties regarding the role she needs to take inside and outside the school with regard to her students. She wants to have some fun with them, but is aware of her responsibilities as a teacher.**’ (Pillen et al. 2013, 248, emphasis added)

These excerpts suggest that it can be difficult to construct a professional identity in which one’s needs are fully aligned with the differing agendas encountered in professional education, socialization and practice. However, such alignment is important to achieve the employability (Tomlinson and Jackson 2021) and wellbeing benefits of PIF (Toubassi et al. 2023; Wald 2015). In this category, there appears to be recognition that PIW is not finite but required throughout one’s career, as illustrated by the following excerpt:

‘The learning was seen as perpetual and part of a natural progression: **“It’s a lifelong process ... Just like with our identity who we are outside our profession. We may have a solid foundation, have our core values that we believe in, but as we practice, experience more and more problems/situations, we mold and adapt. Our clients’ experiences, and our own experiences shape us. We learn something new every day, and though our identity may not change drastically each day, things add on or get removed and modified over time.”**’ (Gignac and Gazzola 2016, 309, emphasis added)

In summary, PIW as ‘aligning’ foregrounds the need to bring into alignment – and the manage the tensions between – the personal and wider social, contextual dynamics of professional work. The focus is on adapting one’s professional self-understanding and practice to the expectations and needs of key stakeholders throughout one’s career without betraying one’s values and motivations.

‘Exploring’

‘Exploring’ frames PIW primarily as a process of working out the type of professional a person wants to be in terms of career path, specialism, professional role or approach to their work. Although it also connects individual and contextual aspects of PIF, ‘exploring’ differs from ‘aligning’ by emphasizing the potential multiplicity of professional identities arising from specific specialisms and roles as shown in the following quote:

‘Someone else described the customization of their identity as a personally crafted undertaking: **“I believe the role I play in shaping my identity is in what I choose to focus on ... the different organizations I choose to work in ... specializing in different areas ... and then I think a big part of it is how I take my learning and my practice and piece them together. The piecing together helps me identify who I am as a counsellor.”**’ (Gignac and Gazzola 2016, 308, emphasis added)

This example illustrates a proactive stance towards PIF in that the research participant mentions a choice in organizational membership and specialism as well as the type of professional they could be(come), recognizing that there are multiple potential professional identities which may help them find their role or niche in the profession (e.g. Assen et al. 2018; Baxter Magolda 2008). Illustrative examples for each of the inductively developed codes within this category are presented in the supplementary file. They share a focus on finding the ‘right’ niche within a profession and resonate with ‘aligning’ in that one’s specialism, professional role, work environment and approach will need to feel ‘right’ for the individual. However, this category can also be informed by prejudice as suggested by the following quote:

‘When I view {the professional identities of} [writer, scholar, and researcher] from a functional perspective, the responses they evoke are much different than when I view them as professions, and THAT leads me to wonder why I automatically interpreted them in that way? **My negative**

feelings are feelings about stereotypical images of the professions as opposed to feelings about the work that a writer, a scholar, or a researcher might do.’ (Lawrence 2017, 198, emphasis added)

In summary, PIW as ‘exploring’ foregrounds the variety of specialisms, roles and work environments within a profession, demonstrating that ‘being’ a teacher, doctor, pharmacist, software engineer etc. can take many forms. Such recognition can give emerging (and established) professionals an opportunity to be the professional they want to be or that feels ‘right’ for them in a particular context and/or at a particular career stage. It may involve some ‘soul-searching’ for the kind of professional they aspire to be and the kind of role that would enable them to practise their aspirations.

‘Struggling’

The smaller category of ‘struggling’ indicates that PIW can break down and may consequently prevent individuals from constructing a meaningful professional self-understanding. Rather than simply working through tensions and experienced disconnects, which were part of ‘becoming’, ‘aligning’ and ‘exploring’, ‘struggling’ represents a more substantial arrest of PIW as individuals struggle to find a sense of belonging, comfort and cohesion with their professional role. This is powerfully illustrated through the following data excerpts from two studies that involved mask-making in medical education:

‘In this case we again hear a female student **wrestling with identity dissonance**. We were struck by the change in voice in the narrative’s i-poem. The student used the personal pronoun ‘my’ in association with the mask’s portrayal of life prior to medical school: “my complexion is rosy my eyes are bright my lips turn upward in a smile my mental landscape is represented by a shining sun”.

‘While describing being in medical school, she no longer represents herself in the descriptions of the mask. In describing her life at {institution}, she uses the definite article “the” instead of personal pronouns to refer to her physical self:

“the lips drawn together

“the eyes more plain

“the cheeks less rosy.”

‘In this linguistic transition, we heard the silenced gap that **separates the student’s personal identity (i. e., my) from her professional identity as a military medical trainee (i. e., the).**’ (Joseph et al. 2017, 103, emphasis added)

‘In a moving disclosure, one Mask student (#72) commented, “The mask is a representation of how I feel at this point in my medical training. **I feel pressure to speak positively** of medicine and my experiences (yellow/sun colors) although I **carry a lot of sadness** in my head (blue/purple). My eye has been trained to see the best in situations (gold), but I have also been **bruised by my experiences** (black eye). I have felt anger (red cheek) and embarrassment (pink cheek) but must still speak sparkling words as I go through this journey.” Researchers observed that this mask was divided into thirds, with the expressive part (the mouth) bathed in sun colors, while the mental anguish remains hidden. They speculated that the rosy cheeks were an outward sign of glowing wellbeing, but disguised feelings of anger and shame.’ (Shapiro et al. 2021, 610–11, emphasis added)

The creative process of mask-making and the accompanying reflections speak of the research participants’ bruising experiences encountered in their professional education and socialization that made them question their career choice. Other empirical examples drawn from our dataset refer to barriers in people’s work environments that prevent them either from undertaking a professional role or from undertaking the role in the desired manner:

‘I would say the “not Knowing” [sic] leads to an inability to construct a professional identity with confidence. I am training to do **this**. I may only be allowed to do **that**, or I may not be allowed to do anything at all.’ (Gignac and Gazzola 2016, 305, emphasis added)

‘Nika {...} felt taken aback by the restrictive rules, issues by LI {language institute} authorities, in terms of composing lesson plans, and teaching methods and materials: “I used to be an innovative {English as a foreign language} teacher, but the LI took that away from me. Everything was stipulated in advance. We had no freedom in designing our plans or running our classes.”’ (Moradkhani and Ebadijalal 2021, 10, emphasis added)

Other empirical examples again refer to struggling with one’s professional self-worth when their work is undermined by other stakeholders:

‘Problems inside and outside classroom {sic} prevent you from thinking about the quality of your teaching. **My once utopic viewpoint has become a dystopic one.** All I try to do is to get my students quiet, and that’s a hard task. {...} What you face in the real classroom is so complex and different from what you have studied in the books that you always feel helpless in doing your duty.’ (Mahmoudi-Gahrouei et al. 2016, 591, emphasis added)

‘I guess it’s difficult, ... when {as a pharmacist} you make recommendations to the doctors and they don’t choose to take it, that’s when I find it really difficult ... {...} **I ... felt like ... my hands are tied,** because he is like the main principal care provider so you can’t really undermine what he says but then again you sort of have this in the back of your mind that it is the wrong thing’ (Noble et al. 2015, 207–8, emphasis added)

In summary, PIW as ‘struggling’ foregrounds the tensions and difficulties that may prevent people from constructing a meaningful professional identity. It is possible that such struggles can be

overcome as people manage to make sense of who they may be(come) as professionals. However, it is also possible that these struggles may be more permanent, for example when individuals embark on professional education not because of a sense of vocation, but because the profession is valued in their family or wider society – or if their sense of vocation clashes with the family’s or society’s value system (e.g. Zaneb and Armitage-Chan 2022).

Discussion

As educators and curriculum developers in professional programmes, we sought to examine in this paper how the interpretive process of PIW is manifested in the extant PIF research, and thus to deepen our understanding of how educational interventions such as reflection and socialization, assumed to support PIF, achieve this in practice. The paper derives from an integrative review of 77 empirical articles from a range of professional and geographic contexts that provide at least one data excerpt evidencing the practical manifestations of PIW. Through inductive thematic analysis we developed a four-fold typology consisting of ‘becoming’, ‘aligning’, ‘exploring’, and ‘struggling’ that capture different framings of PIW that seem to apply across professional fields. Each of these foregrounds a particular aspect of PIW that has practical implications for supporting the education and socialization of professionals and for problem-solving when PIF becomes problematic.

The excerpts presented above to illustrate the four categories of our typology relate to well-established models of PIF, such as learning professional knowledge, skills and behaviours (e.g. Bentley et al. 2019), professionalism (Wilkins 2020), socialization into communities of practice (e.g. Cameron and Grant 2017; Lave and Wenger 1991), developing a personal-cum-professional identity (Cruess et al. 2015; Jarvis-Selinger et al. 2012; Trede et al. 2012), gaining confidence (e.g. Izadinia 2016; Moss et al. 2014; Sawatsky et al. 2020), developing professional status (e.g. Mahmoudi-Gahrouei et al. 2016), and ‘mobilizing’ a particular identity when working across

professional fields (Best and Williams 2019). Additional information about the articles included in this paper is provided in the supplementary file.

In practice, the four categories of our typology are likely co-exist as individuals proceed through professional education and socialization. It is possible that in their quest to ‘become’ a professional, students seek to ‘align’ their emerging professional identity to wider expectations. Drawing on Nyström (2009), Armitage-Chan and May (2019), for example, argue that students may strive to simply ‘fit in’ with their professional context early in their career, rather than develop a personal-cum-professional identity (e.g. Jarvis-Selinger et al. 2012; Trede et al. 2012). Similarly, students may be able to search for their professional ‘niche’ and/or overcome struggles by engaging with a wider group of stakeholders and learning more about different career paths and roles in the profession (‘exploring’). A well-known example from medical education is the Healer’s Art course (Lawrence et al. 2020; Rabow et al. 2007), which provides a space for students to engage with their own values as well as the values underpinning the medical profession. Nevertheless, for analytical purposes it is beneficial to consider the four categories of our typology as discrete to enhance the current understanding of PIW and develop and apply educational interventions that support students’ PIF.

Viewing these four categories as distinct helps to explain what is happening when individuals undertake PIW, particularly for those students who successfully utilize recommended educational strategies. These strategies have tended towards the following common, consistent themes: authentic workplace experiences, entrusted responsibilities, socialization, and reflection on tensions experienced (e.g. Cruess et al. 2019; Sarraf-Yazdi et al. 2021; Toubassi et al. 2023; Fitzgerald 2020). However, simply introducing ‘best practice’ interventions without understanding how they support – or hinder – professional identity work is problematic. Importantly, Sarraf-Yazdi et al. (2021) argue that simply introducing opportunities for PIF (such as workplace exposure) may be

counterproductive for some students. If there is inadequate support for the mechanisms by which socialization, workplace exposure and reflection lead to PIF, then an inability to manage and respond to the tensions and disconnects encountered may present a barrier to ‘becoming’, ‘aligning’ and ‘exploring’. PIF is then arrested, and due to their ‘struggles’, students may have no option but to revert to a prior, naïve self and reaffirm their pre-professional self-identity beliefs that jar with professional practices and expectations. This ‘arrest’ can be observed in excerpts relating to ‘struggling’: the possibility that a person feels unable – at least temporarily – to construct a meaningful professional identity. In her study of adolescents, Marcia (1980) refers to ‘identity moratorium’ to describe situations in which individuals struggle to align their personal self-understanding and values to a largely predefined identity. More recently, Cidlinska et al. (2022) explore such struggles in the context of increasingly neoliberal structures in higher education. In contrast to the tension experienced in ‘becoming’, ‘aligning’ and ‘exploring’, ‘struggling’ may involve deep-seated hurt (e.g. depiction of a black eye, see Shapiro et al. 2021) or feelings of being more permanently stuck (e.g. metaphor of tied hands, see Noble et al. 2015).

Recommended educational interventions may also be problematic for underrepresented groups. As Wyatt, Balmer et al. (2021) and Wyatt, Rockich-Winston et al. (2021) have explained, current interventions derive from studies of dominant populations and neglect the experiences and challenges of minority students. For example, in supporting ‘becoming’, cultural variation in motivations for being a professional are often neglected; in practice this means that the PIF interventions associated with ‘becoming’ may ignore cultural norms that devalue the personal transition to physician status and instead prioritize the retaining of family sociocultural values and being able to assist and support one’s community (Wyatt, Rockich-Winston, et al. 2021; Zaneb and Armitage-Chan 2022). The process of ‘becoming’ is therefore problematic when one’s choice for a profession jars with the dominant voice in education or society.

Similarly, Wyatt, Balmer et al. (2021) have highlighted that low-power groups are not empowered to question the identity of others, particularly those who are held in high esteem. Some students may also benefit from social and cultural capital that facilitates their socialization into the workplace and helps them to negotiate the different identities encountered (Tomlinson and Jackson 2021). This makes ‘exploring’ problematic when educational interventions rest on the assumption that all students have the necessary social and cultural capital to negotiate themselves into different groups and to reflect on the multiple role models they encounter in the professional and work contexts to which they are exposed to determine their own ‘best fit’. Finally, Zaneb and Armitage-Chan (2022) describe the stigmatization of the veterinary profession in certain global regions, thus problematizing the process of ‘aligning’: students may struggle with the tension arising from aligning their professional identity with a socially stigmatized group.

We propose that our typology can provide a heuristic for educators of professionals to identify learning activities that foster ‘becoming’, ‘aligning’ and ‘exploring’ or that support those students who may be ‘struggling’, in ways that are relevant to specific professional disciplines, local contexts and diverse student groups. ‘Becoming’ may be fostered through formal and informal learning activities that scaffold students to take on the activities and responsibilities that represent the professional they wish to become. Tensions that arise when students do not feel ready to be a professional can be managed through their increasing engagement in professional activities. ‘Aligning’ may be fostered through learning activities that prompt students to analyse their expectations for professional work alongside the needs and expectations of key stakeholders, helping them identify role models and aspired sets of professional values. ‘Exploring’ may be fostered by learning activities that expose students to different aspects of professional practice, such as internships through which they can get a ‘taste’ of different specialisms, roles and work environments. Heightened awareness of where this may be problematic, such as lacking skills or empowerment for reflecting on the multiple ways of being a professional can help educators to

target their efforts accordingly within their specific professional context. Recognizing the characteristics of ‘struggling’ enables educators to identify such students and help them find more productive ways to engage in PIW. The arrested PIF that this involves might be alleviated by opportunities to legitimately express feelings or struggles, and work through them. Indicative learning activities that support each aspect of PIW are provided in Table 1, which educators can contextualize, adapt and apply to their specific situation and student needs. Importantly, we encourage fellow educators of professionals to develop a coherent strategy of interventions that foster the priorities inherent in ‘becoming’, ‘aligning’ and ‘exploring’ and that support students who are ‘struggling’.

TABLE 1

Conclusion

This integrative review has addressed a gap in PIF research – its practical manifestations – to contribute theoretically to the understanding of the interpretive process of PIW and practically to the further development of targeted learning activities fostering PIF. As discussed above, the contemporary literature focuses on the benefits of a well-formed professional identity and associated educational interventions. There is thus benefit in centring higher education around PIF and having a consistent message about generally effective educational methods. However, there is also concern that these practices are often derived from the needs of dominant groups (largely white / Western-centric), leading to a lack of attention as to why established PIF interventions may fail to support underrepresented student groups.

Our inductively derived typology adds to contemporary PIF research by articulating the interpretive processes underpinning the recommended educational interventions. Where specific formal and informal curricular activities are in place, educators of professionals can consider whether these are intended to foster students' transition to 'becoming' a professional, encourage students to 'align' their emerging professional identity to a specialism or role, or engage them in identity 'exploration'. Educators can also reflect on the assumptions they are bringing to supporting students' PIF and use this understanding to develop their practice to better meet their students' needs. This awareness is particularly pertinent because 'becoming', 'aligning' and 'exploring' may be problematic if there is a disconnect between the intended PIF outcome and students' identity expectations, variation in the nature of students' identity goals for their personal or disciplinary context, or a deficiency in skills or agency in being able to process their experiences. As such, the identity goals, reflective skills, availability of role models etc. may need to be reviewed and refined so that 'becoming', 'aligning' and 'exploring' can more effectively be employed by students in their professional identity work.

Our review identified the following areas for further research. Firstly, there is scope to examine our typology through a more comprehensive review of the PIF literature. Using multiple databases, broadening the search terms to incorporate different combinations (e.g., 'development of professional identity'), and identifying additional sources from reference lists would enable researchers to ascertain if the four categories in our typology might be more prevalent in certain professional fields and/or conceptualizations of PIF, and also if there might be other interpretive processes at play. There may also be scope to conduct quantitative studies on PIW, developing and validating relevant measurement scales.

Secondly, it was notable that empirical examples of how individuals seek to maintain, revise or reconstruct their professional identity (see Sveningsson and Alvesson 2003) are underrepresented in the extant research. This may be because the majority of studies in our dataset examined PIF in

initial professional education when students try to ‘become’ a professional, ‘align’ their emerging identity to wider expectations, or ‘explore’ what kind of professional they could be. Future research should therefore examine the PIW of established professionals, using multiple points of data collection to identify, track and reflect upon any changes to individuals’ thoughts, feelings and behaviours (see Feiman-Nemser 2008) over time. Particularly beneficial may be longitudinal research across key transition points, such as from professional studies into practice, or from professional practice into leadership. These studies might fruitfully be conducted within a specific professional setting to provide more contextual insights than our review was able to achieve.

Thirdly, we see significant scope to utilize more innovative research methods to study PIW (Winkler et al. 2023). Reflective assignments provide rich ground for exploring the changes to an individual’s professional identity as part of their identity work and may be complemented by creative means such as mask-making (Joseph et al. 2017; Shapiro et al. 2021), art, poetry or music (Armitage-Chan et al. 2022) to capture more symbolic meanings. Similarly, we encourage greater use of naturally occurring data such as student assignments, class observations, or online methods such as video diaries or vlogs through which students’ PIW can be investigated in more depth in its original professional context.

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Figure 1: Schematic representation of compilation of dataset

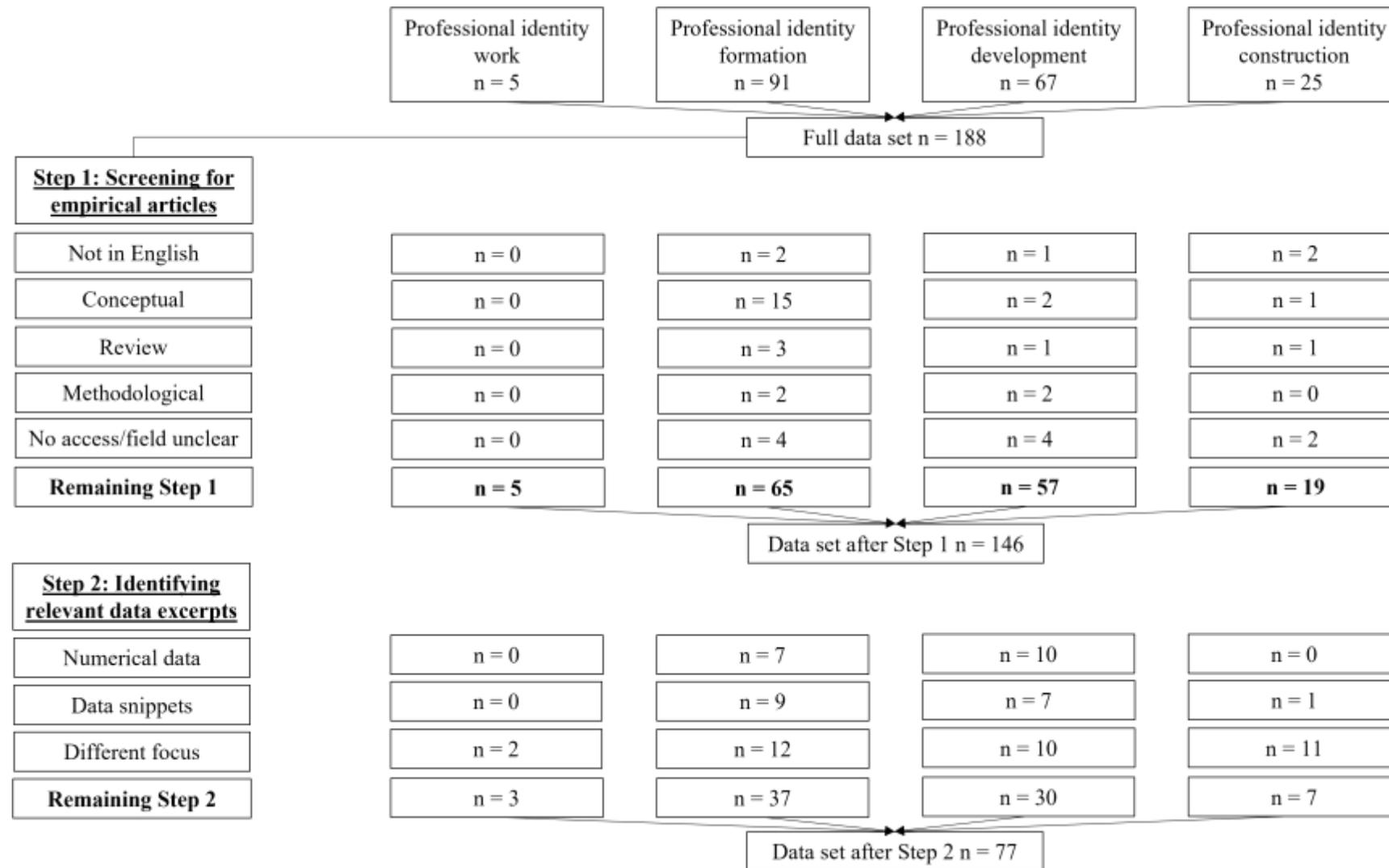


Figure 2: Coding framework identifying inductively developed codes and analytical categories

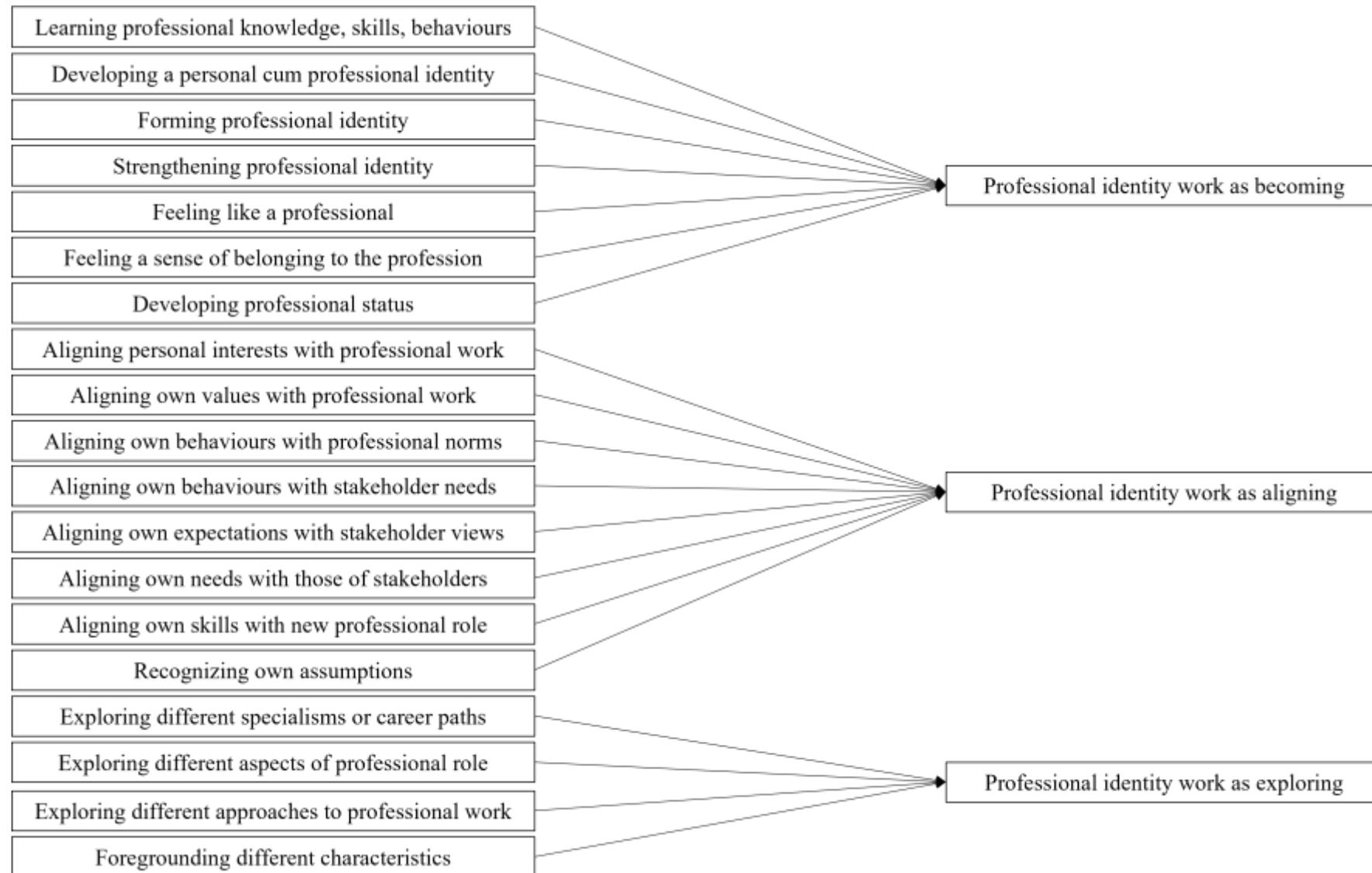


Table 1: indicative learning activities supporting each aspect of professional identity work

Category	Focus	Indicative learning activities	Aims / outcomes
‘Becoming’	Learning, development and personal growth	<ul style="list-style-type: none"> • Teaching requisite knowledge, skills, values, norms, behaviours (‘professionalism’) through case studies, role play and simulations • Opportunities to gradually develop independence and confidence e.g. through work-based learning 	Enabling students to practice in their chosen profession after graduation
‘Aligning’	Bringing into alignment own priorities with professional expectations	<ul style="list-style-type: none"> • Engagement with own values and priorities through critical reflection • Learning about professional values, norms, behaviours in practice (e.g. role models, mentoring) through internships and shadowing in different professional specialisms and roles 	Enabling students to identify their own values and priorities and to bring them in alignment with professional expectations
‘Exploring’	Finding the ‘right niche’ in the profession	<ul style="list-style-type: none"> • Engagement with own strengths and abilities through critical reflection in formal study and while on work experience • Learning about different specialisms, roles, work environments through engaging with established professionals from different specialisms and roles or multiple internships 	Enabling students to find a place in the profession in which they can thrive
‘Struggling’	Inability	<ul style="list-style-type: none"> • Engagement with own motivations and desires through critical reflection in formal study and while on work experience • Opportunities to broaden outlook on profession through engagement with established 	Enabling students to overcome barriers to engaging in professional identity work or make another career choice

professionals through extra-curricular activities or internships

- Pastoral support by programme staff and student support professionals to overcome feelings of hurt / career support to explore alternative careers
-

Supplementary file

Figure S1. Overview of final dataset according to professional field

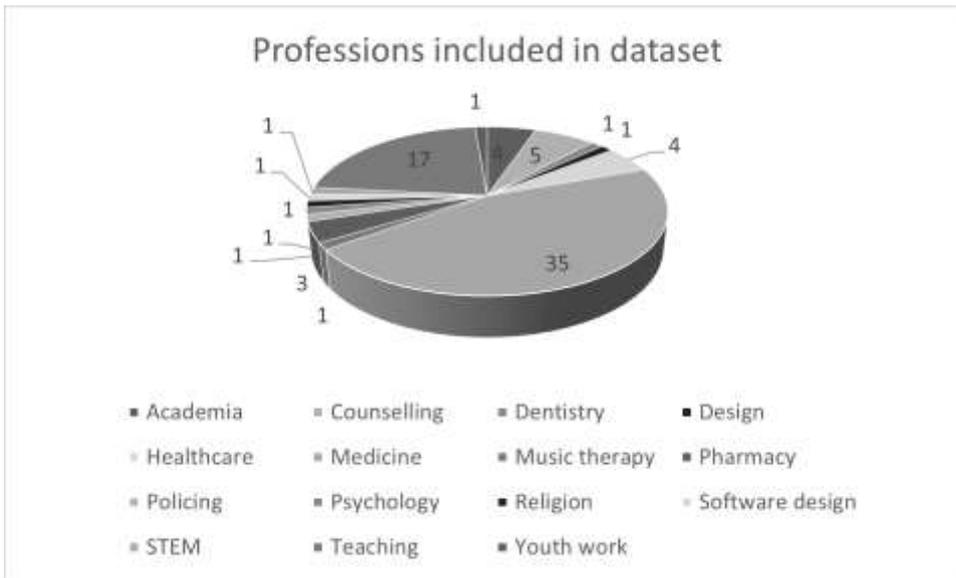


Figure S3. Overview of final dataset according to research method employed

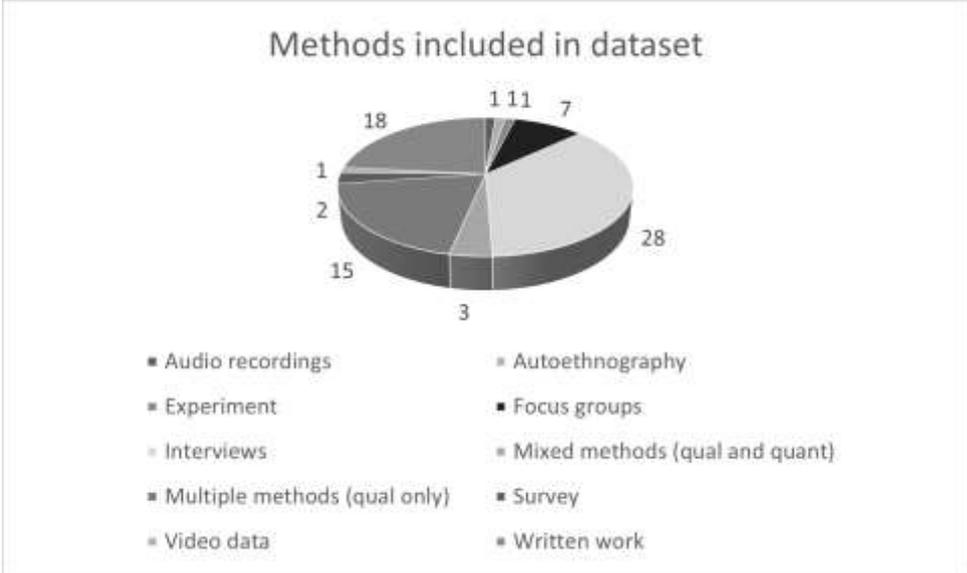


Table S1. Contextual information of the studies from which examples were cited in the text

Category	Excerpt	Research context
'Becoming'	<p>“I can see now how I have changed, how I have blossomed {...}, how my insecurities are fading away, how I am good enough for someone.” (second year note)’ (Boncori and Smith 2020, 278–79, emphasis added)</p>	<p>Auto-ethnographic study of identity flux and identity negotiation of a doctoral student in the UK.</p>
	<p>“I have an idea of where I see myself as a designer in the future and how I will approach designing. I am not there yet, as it will take many years for me to master the skill. {...} The way I think about design today is completely different compared to how I thought about it before starting this class.” (Student 5, Prompt 5.5, S13)’ (Tracey and Hutchinson 2018, 276, emphasis added)</p>	<p>Study of professional identity development in design education, involving the reflections of 69 undergraduate students in the US.</p>
	<p>‘It suddenly became normal, when I tell my family at home, “Oh, we have a dissection course. And that’s really fun.” And then I notice that they might think that’s weird. And then I think [...] half a year ago I myself might have thought that’s weird. So I notice [...] something changed.” (Student 25).’ (Shiozawa et al. 2019, 6, emphasis added)</p>	<p>Study of professional identity formation in the context of a dissection course in a German medical school, involving 107 students engaging in written or oral reflections.</p>

	<p>“I need to learn a lot of coding and the real things before becoming [a software engineer]”, (Tomer and Mishra 2016, 159)</p> <p>‘It’s strange when patients call me “Doctor” though. I always correct them and tell them that I’m a medical student’, (Hatem and Halpin 2019, 3)</p> <p>“I’ve learned that being a physician requires so much more than simply recognizing the diseases and treatments. I must learn to be aware of my biases and assumptions that may impact patient care. I must develop ethical values that will not be swayed by stress or pressure. I must prioritize communication and empathy so that I am able to establish meaningful relationships with my teammates and my patients. I must learn to value my own health, through mindfulness, nutrition, and exercise, before I focus on the health of others.” (Merlo et al. 2021, 5, emphasis added)</p>	<p>Grounded theory study of PIF among 24 final-year software engineering students in India who participated in a qualitative interview.</p> <p>A narrative analysis of US medical students’ written reflections about becoming a doctor.</p> <p>Study of of 135 pre-medical students’ learning following a structured programme of shadowing experienced physicians in a US medical school.</p>
‘Aligning’	<p>‘Emma had become aware that her interventions actually led to inactive students. This was a boundary experience. She asked herself questions on how to change her behaviour and was able to take the first steps in making a shift in her tutor style from teacher-oriented to learner oriented.’ (Assen et al. 2018, 135, emphasis added)</p>	<p>Dutch study of how dialogue can support student teachers’ professional identity development with a focus on multiple ‘I positions’.</p>

‘Residents identified a change in their personal and professional identity, described as a discovery, or rediscovery, of the purpose of medicine and the identity of a physician: “Such an experience inherently redefines for an individual why they entered the medical profession in the first place ... to **remind myself that the most important job as a physician is to care for patients**” (2002/Haiti/internal medicine)’ (Sawatsky et al. 2018, 1386, emphasis added)

Study of autonomy and PIF among 23 US medical residents underpinned by social cognitive theory and deriving from semi-structured interviews.

‘Renate [...] experienced competition with another student when trying to get access to an experience that was also meaningful [...]. The fact that this colleague managed to get access, while Renate failed, made her think about herself and her way of getting things done: “Her way is much more efficient, but **I am not sure if that is the person I want to be. I think not.** So, I notice I am torn between the person I want to be and the things I want to achieve.” (First rotation)’ (Adema et al. 2019, 1570, emphasis added)

Longitudinal study of how Dutch medical students develop professional identity through building relationships with doctors, patients and fellow students.

‘The teachers argued that they would persist in the profession of teaching when school policies are against their expectation, yet they would resign and change their school [...]: “I prefer to resign. **The profession is part of our life and it should be aligned to our values. If**

Interview study of the challenges faced by 16 second language teachers in Afghanistan .

not, I will be challenged and I suffer, so I prefer to quit the school.” (Nazari et al. 2021, 9, emphasis added)

‘Tess takes responsibility for her students, but at the same time she is close to the students, because of her age. She likes to have some fun with them in the classroom and also meets students when she goes out. **She experiences difficulties regarding the role she needs to take inside and outside the school with regard to her students. She wants to have some fun with them, but is aware of her responsibilities as a teacher.**’ (Pillen et al. 2013, 248, emphasis added)

‘The learning was seen as perpetual and part of a natural progression: **“It’s a lifelong process ...** Just like with our identity who we are outside our profession. We may have a solid foundation, have our core values that we believe in, but as we practice, experience more and more problems/situations, we mold and adapt. Our clients’ experiences, and our own experiences shape us. **We learn something new every day, and though our identity may not change drastically each day, things add on or get removed and modified over time.”** (Gignac and Gazzola 2016, 309, emphasis added)

Study of the tensions encountered by 182 beginning teachers in The Netherlands during their professional identity development.

Study of PIF under conditions of change involving 14 Canadian counsellors with different lengths of service who participated in online focus groups.

Exploring

‘Someone else described the customization of their identity as a personally crafted undertaking: **“I believe**

Study of PIF under conditions of change involving 14 Canadian counsellors with different

	<p>the role I play in shaping my identity is in what I choose to focus on ... the different organizations I choose to work in ... specializing in different areas ... and then I think a big part of it is how I take my learning and my practice and piece them together. The piecing together helps me identify who I am as a counsellor.” (Gignac and Gazzola 2016, 308, emphasis added)</p> <p>‘When I view {the professional identities of} [writer, scholar, and researcher] from a functional perspective, the responses they evoke are much different than when I view them as professions, and THAT leads me to wonder why I automatically interpreted them in that way? My negative feelings are feelings about stereotypical images of the professions as opposed to feelings about the work that a writer, a scholar, or a researcher might do.’ (Lawrence 2017, 198, emphasis added)</p>	<p>lengths of service who participated in online focus groups.</p> <p>Study of the professional identity work of eleven former teachers studying for a doctorate in the US with a focus on the identities of writer, scholar and researcher.</p>
<p>‘Struggling’</p>	<p>‘In this case we again hear a female student wrestling with identity dissonance. We were struck by the change in voice in the narrative’s i-poem. The student used the personal pronoun ‘my’ in association with the mask’s portrayal of life prior to medical school: “my complexion is rosy my eyes are bright my lips turn upward in a smile my mental landscape is represented by a shining sun”.</p>	<p>Study of how mask-making can support US medical students’ professional identity formation involving eleven third-year medical students.</p>

‘While describing being in medical school, she no longer represents herself in the descriptions of the mask.

In describing her life at {institution}, she uses the definite article “the” instead of personal pronouns to refer to her physical self:

“the lips drawn together

“the eyes more plain

“the cheeks less rosy.”

‘In this linguistic transition, we heard the silenced gap that **separates the student’s personal identity (i. e., my) from her professional identity as a military medical trainee (i. e., the).**’ (Joseph et al. 2017, 103, emphasis added)

‘In a moving disclosure, one Mask student (#72) commented, “The mask is a representation of how I feel at this point in my medical training. **I feel pressure to speak positively** of medicine and my experiences (yellow/sun colors) although I **carry a lot of sadness** in my head (blue/purple). My eye has been trained to see the best in situations (gold), but I have also been **bruised by my experiences** (black eye). I have felt anger (red cheek) and embarrassment (pink cheek) but must still speak sparkling words as I go through this journey.” Researchers observed that this mask was divided into thirds, with the expressive part (the mouth) bathed in sun colors, while the mental anguish remains

Mixed methods study of how poetry, art and mask-making affect US medical students’ professional identity formation, involving a survey, qualitative student comments and assessment of the resulting artwork.

hidden. They speculated that the rosy cheeks were an outward sign of glowing wellbeing, but disguised feelings of anger and shame.’ (Shapiro et al. 2021, 610–11, emphasis added)

‘I would say the “not Knowing” [sic] leads to an inability to construct a professional identity with confidence. I am training to do **this**. I may only be allowed to do **that**, or I may not be allowed to do anything at all.’ (Gignac and Gazzola 2016, 305, emphasis added)

‘Nika {...} felt taken aback by the restrictive rules, issues by LI {language institute} authorities, in terms of composing lesson plans, and teaching methods and materials: “I used to be an innovative {English as a foreign language} teacher, but the LI took that away from me. Everything was stipulated in advance. We had no freedom in designing our plans or running our classes.”’ (Moradkhani and Ebadijalal 2021, 10, emphasis added)

‘Problems inside and outside classroom {sic} prevent you from thinking about the quality of your teaching. **My once utopic viewpoint has become a dystopic one.** All I try to do is to get my students quiet, and that’s a hard task. {...} What you face in the real classroom is

Study of PIF under conditions of change involving 14 Canadian counsellors with different lengths of service who participated in online focus groups.

Longitudinal study of the professional identity formation of three Iranian English as a Foreign Language (EFL) teachers in the face of workplace conflict, involving journals, interviews and lesson plans.

Mixed methods study of professional identity formation among 120 prospective, new and established teachers in Iran, involving a survey and interviews.

so complex and different from what you have studied in the books that you always feel helpless in doing your duty.’ (Mahmoudi-Gahrouei et al. 2016, 591, emphasis added)

‘I guess it’s difficult, ... when {as a pharmacist} you make recommendations to the doctors and they don’t choose to take it, that’s when I find it really difficult ... {...} **I ... felt like ... my hands are tied**, because he is like the main principal care provider so you can’t really undermine what he says but then again you sort of have this in the back of your mind that it is the wrong thing’ (Noble et al. 2015, 207–8, emphasis added)

A study of PIF in the transition from pharmacy student to pharmacist among 15 interns in Australia who participated in semi-structured interviews.

Table S2. Illustrative examples for the codes in the analytical category of PIW as ‘becoming’

Themes	Illustrative example	Research context
Learning professional knowledge, skills, behaviours	<p>‘Until the end of the teaching practicum, I was not good at classroom management. I did not know how to build my authority with my students. When I work as a teacher in the future, the first thing I would like to do is to establish authority in the classroom. (Samantha, emotional journal)’ (Deng et al. 2018, 449, emphasis added)</p>	<p>Study of six female Chinese student teachers’ PIF as part of a mentorship programme, focusing on the emotions reported by research participants during qualitative interviews.</p>
	<p>‘As I learn how to interact with patients, learn the science behind diseases, and understand the larger network of health care, I will further learn from those experiences’ (Kalet et al. 2017, 258, emphasis added)</p>	<p>Study of 132 medical students’ PIF underpinned by Kegan’s PIF stages and deriving from content analysis of a professional identity essay.</p>
Developing personal cum professional identity	<p>‘At the beginning of my studies, they [HP {health professional} and person] were two different things for me. And in the meantime, I can also identify well with HP and so they have now somehow grown together. I’ve noticed that I’ve adopted certain behaviours and ways of thinking that I certainly didn’t have before my studies.’ (FG3, T2)’ (Biehl et al. 2021, 11–12, emphasis added)</p>	<p>Study of PIF in 53 first-semester health promotion professionals in Switzerland participating in focus groups, informed by social identity theory.</p>
Forming professional identity	<p>‘For example, one Scholar stated, “I do, and I feel like that’s more of I guess who I am professionally, and before, I wouldn’t be confident enough to say that I was an HIV specialist, and now I can say I’m an HIV</p>	<p>Study of PIF among 50 graduates from a US specialist training programme for HIV care, with data deriving from exit interviews with students.</p>

	<p>specialist, like a new HIV specialist” (Physician Assistant)’ (Carlberg-Racich et al. 2018, 160, emphasis added)</p>	
Strengthening professional identity	<p>‘I21: “I don’t think my Ph.D. has like interrupted that at all and in fact I think it strengthened me in my identity as a physio because it’s enabled me to engage like directly with the core of the profession, which is like finding out more and problem solving and doing, and having an impact.”’ (Biehl et al. 2021, 10, emphasis added)</p> <p>‘Molly (independent contractor) described this way of thinking: “I think before I used to rely more on external validation for how I was doing as a music therapist or how I was doing as a music therapy student. So I needed that external validation from a supervisor, from a peer, or even a client. ... And that is very different now. I don’t need as much of that. {...} So that’s definitely changed as I’ve gotten more confident.’ (Byers and Meadows 2021, 16, emphasis added)</p>	<p>Study of PIF in 53 first-semester health promotion professionals in Switzerland participating in focus groups, informed by social identity theory.</p> <p>Study of PIF among 15 early career music therapists in the US participating in semi-structured online interviews.</p>
Feeling like a professional	<p>““The first time you made the decisions yourself ... I decided to do a procedure overnight that had some risks and could have gone poorly, but it was the right thing to do, and ultimately the patient did well. I felt like a doctor, I did the right thing, I made the right decision, I am confident in my clinical decision making. You feel like a doctor because you’re doing</p>	<p>Study of autonomy and PIF among 23 US medical residents underpinned by social cognitive theory and deriving from semi-structured interviews.</p>

	the right thing for them, you're making decisions that are best for them" (Interviews 2, PGY 3)' (Sawatsky et al. 2020, 619, emphasis added)	
Feeling a sense of belonging to the profession	<p>'Several students reported that having the opportunity to take part in clinical teachers' training helped them to develop a feeling of being a professional inside the institution and allowed them to enter further into the community of practice: "Clearly, I find that boundaries were being abolished as we passed from medical student to simulated resident. We can see how things happen, observing various types of clinical teachers, I found that the sense of belonging became more concrete. And most of all, by participating in this training, we enter, well, we get the feeling of becoming part of the system." (Focus group (FG) 2, line 296)' (De Grasset et al. 2018, 4, emphasis added)</p>	Constructivist study of 80 clinical teachers from different disciplines in Switzerland undertaking additional training on how to mentor medical residents. The research was underpinned by the Personality and Social Structure Perspective (PPSP) model.
Developing professional status	'Liz claimed that after doing the practicum she could see herself in an authoritative role [...]' (Izadinia 2016, 133, emphasis added)	Study of PIF in 8 Australian pre-service teachers who participated in semi-structured interviews with their mentors after a teaching practicum.

Table S3. Illustrative examples for the codes in the analytical category of PIW as ‘aligning’

Themes within ‘aligning	Illustrative example	Research context
Aligning personal interests with professional work	‘ Mark loved both theater and education. {...} he started his story with his own interests and experiences. He began by quoted Shakespeare on theater and describing his performance as an actor when he was ten years old. He included a video clip of him acting to emphasize the importance of theater in his life and identity. The rest of his story recounted a journey in which he realized similarities between teaching and acting and reconciled these two identities. ’ (Kim et al. 2021, 6, emphasis added)	Study of PIF through digital stories in a teacher education programme in the US, reporting data from two students.
Aligning own values with professional work	‘Responding to the demands of a transition period that accompanied a new counsellor job, one participant spoke about coming to terms with workplace values that were contrary to their own, “ What was really demanding is trying to assess whether my ethics fits with my job/and my job with my ethics. ”’ (Gignac and Gazzola 2016, 306, emphasis added)	Study of PIF under conditions of change involving 14 Canadian counsellors with different lengths of service who participated in online focus groups.
Aligning own behaviours with professional norms	‘I often get asked these questions, if I stick to healthy behavior in daily life, because I preach and study it. ’ (Biehl et al. 2021, 10, emphasis added)	Study of PIF in 53 first-semester health promotion professionals in Switzerland participating in focus groups, informed by social identity theory.
Aligning own behaviours with stakeholder expectations	‘The narrator described caring for a sick elderly lady in the Medical Intensive Care Unit at an early point in her career. The patient’s daughter asked, “How are my mother’s lungs doing?” Narrator {sic} hesitated and	Study of PIF narratives authored by 124 medical faculty in the US as part of a training programme focusing on humanitarian values.

mumbled, “Well, her oxygen levels are falling and the pneumonia looks worse on the chest x-ray despite the antibiotics.” “How is my mother’s liver doing?” The narrator replied, “I’m sorry but the liver shows signs of worsening steadily each day.” “And how are my mother’s kidneys?” “My voice getting quieter, unfortunately we have to put her back on dialysis today.” “At that point a light bulb went off in my head. **This patient was going to die** ... I had been focused on the little details and missed the big picture. **The patient’s daughter was looking for a signal from me.**” (Branch and Frankel 2016, 1397, emphasis added)

Aligning own expectations with differing stakeholder views

‘You start to recognise that people have completely different backgrounds, come from completely different places, and that’s not just internationally. The patient population. It can be confusing when you’re a pharmacist and trying to explain to a patient; it can be difficult understanding why they don’t maybe ... their beliefs about healthcare and stuff, but not because they’re from different part of the world or anything ... **but just being taught to recognise that everyone has a different view of the world.**’ (Bridges 2018, 4, emphasis added)

Study of PIF through groupwork among 17 first-year pharmacy students in the UK who participated in semi-structured interviews.

‘One resident expressed commitments to patient partnership and treating patients as more than their disease: “It [was] really early on in medical school [that

Study of PIF among 18 medical residents in Canada who were interviewed after participating

	I] ... realize[d] that it's so important to treat a person holistically and understand everybody has a story behind their medical illness. " (Kline et al. 2020, 1581, emphasis added)	in a development programme in which patients and their families acted as mentors.
Aligning own needs with those of stakeholders	'There were noted disruptions within the internship experience dealing with crisis interventions. {...} After several weeks {...}, he established another lesson of importance: "How important self-care is and how I need to make sure that I don't stop [self-care]" (3.06)' (Brott and Willis 2021, 4, emphasis added)	Study of PIF among graduates who completed a counselling internship in the US who completed a video blog (vlog). It was underpinned by interpretative phenomenological analysis.
Aligning own skills with new professional role	'Don stated: I was working as an engineer for several years. I was designing electrical circuits. What I am doing at the lab is almost same {sic} as what I was doing in a company. But I had to learn how to write a report academically. Writing is a challenging part here ... Yes. I think I am an engineer, and I am learning the research side of engineering. ' (Park, Chuang, and Hald 2018, 149, emphasis added)	Study of 27 Asian STEM graduates in the US deriving from interviews and observations that sought to identify key factors influencing their PIF.
Recognizing own assumptions	"Not only have I learnt so much about the pharmacy profession but I have come to know many things about myself that I was unaware of. " (Van Huyssteen and Bheekie 2015, 210–11, emphasis added)	Study of PIF among first-year pharmacy students in South Africa drawing on written assignments, group activities and reflective exercises. It was underpinned by social identity theory.

Table S4. Illustrative examples for the codes in the analytical category of PIW as ‘exploring’

Themes within ‘exploring’	Illustrative example	Research context
Exploring different specialisms or career paths	‘I would say am happy where I am because I found a different side {of pharmacy}, actually a lot more business side and doing accounts and the tax.’ (Noble et al. 2015, 299–300, emphasis added)	A study of PIF in the transition from pharmacy student to pharmacist among 15 interns in Australia who participated in semi-structured interviews.
	‘I never thought for a second that I would consider surgery and now that I have learned from my {body} donor {in a dissection course} what kind of impact surgery can have on a patient, I am genuinely considering this career path. ’ (Abrams et al. 2021, 661, emphasis added)	Study of PIF in the context of cadaveric dissection experiences among 117 US medical students completing a questionnaire that included reflective questions.
Exploring different aspects of a professional role	‘After the conference this year I realised that I love research, I really do, but what interests me the most is a bit at the margins of my field , and people now seem obsessed with these starred publications – like your academic worth is based solely on the size of the constellation you put together on your CV.’ (Boncori and Smith 2020, 280, emphasis added)	Auto-ethnographic study of identity flux and identity negotiation of a doctoral student in the UK.
	‘I am more interested in research work and studying about new concepts, so I would like to carry my work in the research field rather than doing a 9-5-job of a software professional (Respondent 14,	Grounded theory study of PIF among 24 final-year software engineering students in India who participated in a qualitative interview.

	female)’ (Tomer and Mishra 2016, 159, emphasis added)	
	‘I have become a stronger voice advocating for the profession, especially as I see the need for the work of my students. My professional identity is positively impact by my continued involvement in leadership. ’ (Woo, Storlie, and Baltrinic 2016, 287, emphasis added)	Study of PIF in 10 counsellors aspiring to leadership positions in the US using consensual qualitative research.
Exploring different approaches to one’s professional work	‘I’m settling more into how I think I want to be as a music therapist ... Definitely my values have changed {...} it’s been very different being in a psychodynamic school and being taught, “This is how it is in music therapy,” and then going to more of a cognitive behavioral internship, and then having to pick and choose where I want to be and how I want to center myself as a music therapist. ’ (Byers and Meadows 2021, 5, emphasis added)	Study of PIF among 15 early career music therapists in the US participating in semi-structured online interviews.
Foregrounding different characteristics	‘The “enthusiastic,” “energetic,” and “bubbly” character of Anna’s mentor teacher inspired her to want to gain that connection with her class: “The way I envisioned myself as a teacher has changed in the sense that I want to be more of a consistent, enthusiastic teacher every time I walk into the	Study of PIF in 8 Australian pre-service teachers who participated in semi-structured interviews with their mentors after a teaching practicum.

classroom.” Anna explained that the way her mentor “could switch from happy and enthusiastic person to ‘this is my serious mode, are you going to mess with me?’” **made Anna want to be a teacher like her mentor.**’ (Izadinia 2016, 133, emphasis added)



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