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Elements of a quality pre-service teacher mentor: A literature review

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HIGHLIGHTS

- Mentors play a critical role in preparing teachers.
- A set of standards which describe the elements of a quality mentor are lacking.
- A quality mentor should develop a professional knowledge in mentoring.
- A quality mentor should support the pre-service teacher to nurture a teacher-identity.
- A quality mentor should relate learning to teacher professional standards.

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ABSTRACT

This study reports on a review of contemporary literature which focuses on elements of a quality pre-service teacher mentor. For this purpose, seventy peer-reviewed publications were reviewed and analysed. A typology consisting of 53 indicators and seven dimensions was developed based on the findings. Our study contributes to the knowledge on the quality mentoring of pre-service teachers. It also provides the authors with the groundwork for developing a set of standards that describe the key elements of a quality mentor of pre-service teachers.

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1. Introduction

Across the globe, mentoring is used in a wide range of school contexts for a variety of purposes, being viewed as a key professional learning tool from initial teacher education (ITE) to senior leadership development (Burley & Pomphrey, 2011). In fact, mentoring has become so pervasive that Sundli (2007) declared, over a decade ago, that it has become a global mantra within teacher education.

At the same time, it is universally recognised that professional experience is a critically important part of any ITE program (Allen, Singh, & Rowan, 2019; Darling-Hammond, 2017; El Kadri & Roth, 2015; Mena, Hennissen, & Loughran, 2017). Internationally, across most jurisdictions, there is a statutory requirement that a substantial part of a pre-service teacher's training takes place in schools (Burley & Pomphrey, 2011). For example, in New South Wales (NSW), Australia, where our university is sited, the relevant authority stipulates that students undertaking an undergraduate or post-graduate education degree must complete a minimum of 80 days and 60 days professional experience respectively in a school (NSW Education Standards Authority, 2017). It is further specified that an experienced teacher be identified to work alongside the pre-service teacher (PST) in a mentoring capacity, with the national body, the Australian Institute for Teaching and School Leadership (AITSL), identifying a "high quality supervising teacher … (a) key component of effective professional experience" (Le Cornu, 2015a, p. 6). Other countries have similar requirements. In Finland, for instance, professional experience comprises about 15–25 percent of a PST's overall preparation time (Sahlberg, 2011) while in Singapore it varies from a total of 14–22 weeks, dependent on the program a PST undertakes, (NIE, n.d.) and in England from 24 to 32 weeks (European Commission, n.d.).

Recent reports, both in Australia and internationally, emphasize the critical role of mentoring in preparing highly qualified teachers (Darling-Hammond et al., 2017; Schleicher, 2011). When a PST undertakes professional experience in a school and first engages in teaching practice, a good mentor and mentoring partnership is absolutely crucial, often determining the difference between success and failure (Ellis & Osborne, 2015; Izadinia, 2015). By providing PSTs with quality mentoring, the supervising teacher (ST) helps build the capability and resilience aspiring teachers require to effectively transition into the profession.

While educational authorities in Australia, namely AITSL and the NSW Educational Standards Authority, explicitly describe the roles and responsibilities of a supervising teacher in policy documents, only AITSL offers an account of the key characteristics of effective supervising teachers. However, the description is broad. What appears to be lacking is a comprehensive set of standards which describe in detail the elements of a quality mentor. And this appears to be the case, not just locally, but globally, as well.

Banville (2002), for instance, conducted a wide-ranging review on the role of supervising teachers (i.e. mentors) in the USA and concluded that "there are neither clear descriptions of their role nor any standards for their functioning or preparation" (p.346). Sundli (2007) and Garvey, Stokes, & Megginson (2009), writing more recently, also argue that conceptions of what constitutes a quality mentor remain confused. Furthermore, the role of the teacher mentor can be complex, often with competing role expectations (Grimmett, Forgasz, Williams, & White, 2018; Hastings, 2008), and in recent years, has been reconceptualised (El Kadri & Roth, 2015; Grimmett et al., 2018; Grudnoff, Haigh & Mackisack, 2017).

Extensive research has been carried out on the mentoring of PSTs (Aspfors & Fransson, 2015). However, a comprehensive review of the most current literature has not been undertaken. The specific objective of this study was to complete a review of the contemporary literature focussing on the notion of a quality mentor of PSTs, the aim being to present a more comprehensive and less fragmented overview of the international body of extant knowledge. This study aims to highlight the important knowledge and skills a quality mentor must possess.

The findings could eventually be used to inform policies related to the way STs are trained. Also, the indicators and dimensions could be used to provide a common language across schools to fully support PSTs. Ultimately, though, the authors intend to use the indicators and dimensions that emerge in the review as a construct to develop a set of standards that describe a quality mentor of PSTs. To our knowledge, there currently does not exist any such standards.

The practice at our university, and which we assume, is common among other ITE providers, is to collect detailed data from our PSTs about their experience on professional experience, including feedback about the quality of mentoring they received. In our instance, data is collected via online surveys with a series of both quantitative and qualitative questions. Currently, we do not provide PSTs with detailed descriptors or key performance indicators to help them arrive at an assessment. Similarly, only very broad parameters are given when PSTs nominate a mentor for the Outstanding Supervising Teacher Award which is presented annually at our institution.

As professional learning researchers we see the need to develop a set of standards, that is, a set of established norms or requirements, that clearly and comprehensively describe the key elements of quality mentoring and a quality mentor. These might then be used by PSTs when providing feedback around the quality of mentoring they receive during professional experience. Furthermore, these standards for mentors could perhaps be applied beyond our specific context in Australia to a broad range of educational settings across the globe.

More importantly, we envisage that these standards for mentors could be used by mentors themselves (i.e. STs in schools) to guide practice and act as a self-assessment tool to identify areas for improvement and professional learning needs. Similar to the concept of professional standards for teachers (e.g. the Australian Professional Standards for Teachers), professional standards for mentors are needed in order to articulate what mentors are expected to know and be able to do. By developing standards based on the existing literature, we aim to address the needs of a diverse array of adopters including central education bureaus, teacher accrediting agencies, ITE authorities, university liaisons, PSTs, and ultimately, the STs themselves.

2. A good mentor: conceptual change

The notion of what constitutes a good mentor has changed

throughout time and place, the term first entering the English language in the mid 18th century with its origins in Greek mythology (Webster, 2006). The mythical Mentōr, described in the Odyssey, was the trusted adviser and counsellor appointed to look after, guard and nurture young Telemachus when his father, King Odysseus, was away at war. Hence, the word 'mentor' came to mean 'wise advisor' and was associated with someone who might be a role model, provide help, or act as a guide, advisor or counsellor. Furthermore, a mentor had significant wisdom and would share this knowledge over a period of time with a younger or less experienced colleague. While a mentor was traditionally a more senior person, this classical definition has given way to conceptual change over time.

As Heikkinen, Jokinen and Tynjälä, (2012) describe, mentoring in recent years has become associated more with collaboration, collegiality and interaction. It should not involve one-way guidance where the mentor holds power in a top-down relationship and merely transfers knowledge or administers advice. Rather mentoring should involve conversation, discussion and dialogue, where the mentor engages in a reciprocal exchange of ideas and joint construction of knowledge with the mentee. Mentoring, thereby, closely resembles the co-construction model of learning where new knowledge is constructed through collaboration and social interaction (Burley & Pomphrey, 2011). By bringing together and explicitly sharing a range of different viewpoints, perspectives and ideas, both mentor and mentee create new knowledge and meaning together (Livingston & Shiach, 2010). This is particularly the case in initial teacher education where professional experience has tended to move from a traditional orientation based on apprenticeship models to a reflective orientation, then finally, to learning communities with a focus on reciprocal learning relationships (Keogh, Dole, & Hudson, 2006; Le Cornu, 2010; Le Cornu & Ewing, 2008).

More recent definitions of mentoring thereby suggest a reciprocal relationship where both mentor and mentee benefit and learn. However, Mena et al. (2017) assert that many mentors of PSTs, in practice, remain 'directive' in approach. Also, the usage of the term 'mentoring' is continuously broadening and blurring (Heikkinen, Jokinen & Tynjälä, 2012). Thus, mentoring might best be viewed as a contested practice (Aspfors & Fransson, 2015), grounded on a variety of theoretical approaches, which can be enacted across a diversity of contexts (Dominguez & Hager, 2013).

As might be expected, a number of literature reviews which identify the features of optimal mentoring relationships and a quality mentor have been conducted previously. However, these tend to be limited, either because they are somewhat dated and/or restricted in scope. For example, Jacobi (1991), Beck and Kosnik (2002), Banville (2002), and Glenn (2006) all completed their reviews over a decade ago. Then Le Cornu's work (2015a), which is more recent and informs AITSL policy, only considered three authors (namely Bradbury & Koballa, 2008; Hammel & Jaasko-Fisher, 2011; Sim, 2011), when identifying the key characteristics of effective STs, while Aspfors and Fransson (2015) specifically focus on the mentoring of newly qualified teachers and purposely exclude the mentoring of PSTs. Hence, we strongly feel, that there is a need to conduct a review of the literature on the topic which is up-to-date, comprehensive and methodical.

While we concur with Aspfors and Fransson (2015), Mullen (2012, pp. 7–23) and others, in the belief that there is no one definition of mentoring, our review sought to capture current notions of what constitutes a quality mentor. The aim of establishing a comprehensive list of indicators and dimensions is to clearly articulate what knowledge and skills are needed for effective mentoring of PSTs - as articulated in the contemporary literature around the topic.

The overarching question that guided this review was: What are the elements of a quality mentor of pre-service teachers as described in the current research literature?

3. Method

Determining it to be the most appropriate model for addressing the research question, we adopted an interpretive paradigm and a hermeneutic interest, as described by Habermas (cited in Cohen, Mannion & Morrison, 2011), for this study, since when reviewing the research literature, we wished to interpret each author's notion of what a quality mentor might be. The researchers (co-authors of this article) moved iteratively between interpretations of parts of the text and interpretations of the whole text to gain an emerging understanding of each author's perspectives and views.

Our goal of reviewing the contemporary literature on the mentoring of PSTs (also known as 'trainee teachers' or 'mentees') was to identify the elements that constitute a quality pre-service teacher mentor. However, we adopted a broad view, and in addition to the literature on the mentoring of PSTs, also included in our review publications focussing on the mentoring of beginning or early career teachers where the notions discussed might be relevant to our research focus. The selection and analysis of data involved a highly iterative approach which is detailed below.

After some deliberation, the authors chose to characterize this study as a "literature review" rather than a "systematic review". We note that the term, "systematic review", is somewhat contentious and that "a standard or consensus definition … does not exist" (Martinic, Pieper, Glatt, & Puljak, 2019, Para 1). This study is "systematic" in that it addresses a particular question of importance to the field. It has a clearly stated set of objectives and eligibility criteria for the studies reviewed. The literature has been analysed and synthesized in a methodical, logical, and transparent manner. There is a systematic presentation, and synthesis, of the findings of all the studies included in the review and the implications that emerged are well-grounded in the examined literature. The above satisfies Alexander's (2020) definition of a "systematic review". On the other hand, we purposely did not focus on evidence, attempt to assess the validity, or judge the quality, of the findings of the studies we included in the review, as Kennedy (2007) and others insist in a "systematic review". This was to avoid the possibly of limiting the range of themes that might emerge through the analysis of data by only reviewing those studies which met some determined evidence of quality. Instead, our intent was to capture the full range of ideas and themes articulated in the scholarly literature.

3.1. The literature search

A search of the literature was conducted using the data bases Proquest Education and A+ Education: Australian Index Education Plus. A combination of the following key terms was initially used: "mentor" OR "supervising teacher" AND "pre-service teacher" OR "professional experience". The search was later expanded to include related terms such as: "student teaching", "student teacher", "mentee", "beginning teaching", "early career teacher", and "practicum". We restricted the search to journal articles, chapters, and books, written in English, that had been peer-reviewed. Work from other sources, such as unpublished theses and dissertations, was not included in the search. DeVellis (2016) advocates that both theoretical and empirical papers are helpful in establishing indicators of any construct, so after some deliberation, it was decided to include both types of work so as to capture a broad range of ideas. The time span was limited from 2009 to 2019, i.e. research published over the last ten years, to capture

Reference	Quotation / Extract / Description	Summary	Indicator	Dimension
Ellis & Loughland (2017)	The strong support in research and practice for formative assessment in the classroom has not always translated to feedback given on PE to PSTs. The findings suggest that STs need to be trained in giving constructive 'Where to next?' comments to PSTs.	STs need to be trained in giving constructive feedback	Receive training in giving constructive feedback	Developing a disposition & professional knowledge in mentoring
Ellis & Loughland (2017)	It is a requirement that all PSTs undertaking PE are formally assessed against the Standards. However, findings suggest that STs could do with more training in using the Standards as assessment criteria.	STs must provide quality feedback which relate to the Standards	Provide regular, critical and actionable feedback related to practice	Facilitating PSTs' Learning

Fig. 1. Illustration of how coded data was organised in a shared data base.

contemporary views and concepts of what a quality mentor of pre-service teachers might look like. We remained cognizant that the literature we chose to review would inevitably make reference to earlier work around the topic. However, we did not view this as problematic as our review was conceived as a synthesis of the research. Consequently, we coded the main findings of each study we reviewed to arrive at an overview of current thinking.

The search of the literature and analysis of data were conducted simultaneously until there was "theoretical saturation" (Birks & Mills, 2015; Guest, Bunce, & Johnson, 2006), i.e. no new information or themes related to the research question were observed. While the review might not be exhaustive, we felt that it was comprehensive and methodical enough to present a sound overview of contemporary notions of what constitutes a quality mentor of pre-service teachers, as argued in the field.

3.2. The selection of articles

The above search generated, in total, almost two hundred publications. The titles and abstracts of these publications were scrutinised to determine if the work was relevant to our research question. Those publications which identified one or more optimal features of a pre-service teacher mentor and/or mentoring relationship involving a pre-service or early career teacher, were deemed suitable for selection. Each of the abstracts considered was read separately by two of the researchers (co-authors of this article). Ideas were then exchanged between the two researchers to reach a consensus on whether the publication was suitable for review. Publications deemed suitable were then targeted to be read in full.

Ultimately, each of the three researchers was responsible for reading the full text, and analysing, 25 different publications. However, during the process, a small number of publications were eliminated from the review as a reading of the complete text found the focus of the work not to be relevant to our research question. Ultimately, 70 studies meeting the necessary criteria, were selected, read and included in the analysis of data.

3.3. Analysis of the articles

Initially, each of the three researchers worked independently, inductively analysing the publications they read in full. We borrowed from grounded theory, rather than thematic analysis, wishing theory generation to be emergent, that is "emerge from, rather than exist before, the data" (Cohen, Manion, & Morrison, 2011, p. 598). Strauss and Corbin (1994) advocate this methodology for developing theory that is grounded in data systematically gathered and analysed. Open coding (Ezzy, 2013) was used to label the different concepts that emerged in the analysis of the literature. The emergent theory was then carefully reflected on.

All three researchers convened on a regular basis to share, discuss and deliberate on the emergent categories (indicators) and themes (dimensions). New categories were then created, while others were collapsed, once consensus was reached amongst the research team. Such engagement acted to reduce research bias (Noble & Smith, 2015). As the coding progressed and themes emerged, the data analysis became more organised and coherent, until eventually, all three researchers agreed the process had arrived at the "theoretical saturation phase" (Birks & Mills, 2015; Cohen, Mannion & Morrison, 2011; Guest et al., 2006). Fig. 1 illustrates how the coded data was organised in a shared data base.

To check for consistency in interpretation during the process of analysing the data, each researcher analysed three randomly-selected publications which had previously been analysed by another member of the team. The clarity in terms of thought processes that was demonstrated established reliability between the three researchers (Noble & Smith, 2015). We can argue then, with some confidence, that the set of indicators and dimensions developed during the analysis of the data represent a sound interpretation of the perspectives, views and concepts presented in the literature. We will now present and describe, in some detail below, the set of indicators and dimensions that emerged through the analysis of data.

4. Results

In this section we summarise the results in tables and explain these with examples from the publications reviewed. A total of fifty-three different elements or indicators emerged in the analysis of data. Each of these indicators were then grouped under one of seven major themes or dimensions which are summarised in Appendix 1 and discussed below.

4.1. Domain 1: collaborating with the university

As can be seen in Table 1, several of the publications reviewed advocate the importance of fostering collegial relationships between STs and university lecturers (Nguyen, 2017; Stenberg, Rajala, & Hilppo, 2016). Underscoring this notion, Yuan and Lee (2016) remark that the teacher education literature has long emphasised a collaborative relationship between university and school in preparing future teachers.

A number of authors also believe that STs and universities or ITE providers should share a clear vision of what good teaching entails (Grudnoff, 2011; Norman, 2011; Trevethan, 2017). This is important if the PST's professional experience in a school is to align with the

Table 1
Domain 1: Collaborating with the university.

Indicator	Brief description of the indicator	Study
Develop a collaborative relationship with the university	It is important that a collaborative relationship exists between the university & school in preparing future teachers	Nguyen (2017); Stenberg et al. (2016); Yuan and Lee (2016)
Develop a dialogic interaction with university academics/ lecturers & the PST	The PST, ST & university-based teacher educator should work together in dialogic interaction	Talbot et al. (2018)
Develop a shared view of good teaching with university academics	STs & ITE providers should share a clear vision of what good teaching entails	Grudnoff (2011); Norman (2011); Trevethan (2017)
Develop a shared vision of the responsibilities of the mentor role with the university	There needs to be a shared understanding of the purpose of PE & the roles of the participants across the PE community	Trevethan (2017)
Integrate on-campus elements of the teacher education program with professional experience	The placement, scheduling, & staffing of PE should integrate with on-campus elements of the teacher education program	Dillon (2017)

knowledge gained on campus. Other authors argue that a quality mentor should collaborate with the university to develop a shared understanding of the different roles participants play during professional experience, so as to avoid any conflicting expectations (Talbot, Denny, & Henderson, 2018), then work towards better integration of these roles (Dillon, 2017).

4.2. Domain 2: developing a disposition & professional knowledge in mentoring

What is apparent from Table 2 is that some authors within the field (Ambrosetti & Dekkers, 2010) believe that those STs who are intrinsically motivated to take on the role as mentor will form a more positive relationship with PSTs and be more committed and effective. Furthermore, other authors argue that a quality PST mentor must maintain a positive attitude and always demonstrate an enthusiasm and passion for the role; with evidence suggesting that a mentor's perception and mindset significantly impacts teacher learning (Grudnoff, 2011; Helgevold, Næsheim-Bjørkvik, & Østrem, 2015).

The table further reveals a very strong support in the literature (e.g. Dillon, 2017; Izadinia, 2016; Mena, García, Clarke, & Barkatsas, 2016; Wexler, 2019) for STs undertaking formalised learning as a mentor. Wexler (2019) notes it is wrong to assume that an experienced teacher will necessarily make a quality mentor. And those experienced teachers who offer their services as PST mentors commonly have little experience or training in the role (Talbot et al., 2018). Izadinia (2016) is critical of the scant attention paid to developing and implementing mentor preparation programs and recommends comprehensive mentoring programs be developed and offered by all teacher education programs while (Ellis and Loughland (2017)) advocate that STs be specifically trained in giving constructive feedback if they are to perform as quality mentors.

From the data it is also apparent that many authors (e.g. Bullock, 2017; Grimmett et al., 2018; Izadinia, 2015; (Nguyen & Hudson, 2012) argue the need for STs to have a clear understanding of the responsibilities of the role as mentor. Allen and Wright (2014) claim that PSTs reported that both STs and university lecturers acting as mentors often lack a clear understanding of their roles. The mentors consequently failed to support the PSTs in fulfilling their university requirements. Ambrosetti and Dekkers (2010) add, that beyond understanding their roles as a PST mentor, STs must then be able to perform those mentoring functions.

Another result emerging from the data was that a quality PST mentor needs to possess strong teaching skills and subject knowledge (Ambrosetti, 2014; Izadinia, 2015) and be willing to share such knowledge and competency with the PST. One author added that the ideal mentor is someone who has both teaching and mentoring experience (Izadinia, 2015).

Another argument prevalent in the literature (e.g. Clarke, Triggs, & Nielsen, 2014; Dillon, 2017; Gallo-Fox & Scantlebury, 2016; Korhonen, Heikkinen, Kiviniemi, & Tynjälä, 2017) is the need for STs to develop and adopt a pedagogy of practicum learning and development. While PST mentors play the role of teacher educator (Butler & Cuenca, 2012), there continues to be a need to focus on developing a pedagogy of practicum learning and development so that STs can help the PSTs learn from their teaching experience (Dillon, 2017). In one case, the author thought it important that STs employ different mentoring styles to elicit different types of learning from the PST (Mena et al., 2016). It was further suggested, in another work, that a quality mentor will not only reflect on their work as a classroom teacher but on their work as a mentor teacher as well (Gallo-Fox & Scantlebury, 2016).

4.3. Domain 3: establishing an effective relationship with PSTs

As Table 3 illustrates, a number of authors believe that a quality mentor must be able to connect to the PST at a personal level (e.g. Izadinia, 2017; Nguyen & Parr, 2018; Payne, 2018) and create a setting that will foster and nurture a collegial relationship. Mena et al. (2017), for instance, emphasize how the mentor relationship is dependent on the interactions that occur between the mentor and mentee, and that the relational component of the relationship centres on the ST nurturing the PST, while Nolan (2017) adds that an effective mentoring relationship incorporates respectful, responsive, reciprocal and reflective elements. Many authors also argue that a quality mentor needs to establish a professional relationship where the PST feels comfortable to ask questions and share observations (e.g. Allen & Wright, 2014; Ambrosetti, Knight, & Dekkers, 2014; Mena et al., 2016; Uusimaki, 2013).

It is evident from the data that a large number of authors (e.g. Helgevold et al., 2015; Korhonen et al., 2017; McGraw & Davis, 2017; Mena et al., 2017; Payne, 2018) further believe it essential that the ST develop a collaborative relationship with the PST based on reciprocity. McGraw and Davis (2017), for example, argue that an interconnected relationship based on reciprocity will always produce the most effective outcome in any teaching context. Moreover, other authors (e.g. Bullock, 2017; Gao & Benson, 2012; Graves, 2010) insist that the ST be cognisant of power relationships. Yuan and Lee (2014, 2016), for instance, warn that unequal power relationships leave the PST vulnerable to a wide array of negative emotions. A quality mentor, therefore, will provide the PST with equal power and an appropriate amount of autonomy. PSTs should be a key 'partner' and 'stakeholder' who share an open and democratic relationship with their mentors, the two authors argue.

It is also apparent, from the data, that a large number of authors believe good interpersonal relationships can be built if the ST engages in frequent, genuine conversations with the PST (e.g. Izadinia, 2015, 2016, 2017; Le Cornu, 2015b; Mena et al., 2016; Nguyen, 2017; Sheridan & Young, 2017; Young, Cavanagh, & Moloney, 2018).

Table 2
Domain 2: Developing a disposition & professional knowledge in mentoring.

Indicator	Brief description of the indicator	Study
Demonstrate an enthusiasm & passion for the mentoring role	STs should willingly engage in the mentoring relationship & demonstrate a positive attitude toward mentoring	Grudnoff (2011); Helgevold et al. (2015)
Develop a pedagogy of professional experience learning	STs need to focus on developing a pedagogy of practicum learning & development	Butler and Cuenca (2012); Clarke et al. (2014); Dillon (2017); Gallo-Fox and Scantlebury (2016); Korhonen et al. (2017)
Employ different mentoring styles to elicit different types of learning from the PST	STs should employ different mentoring styles to elicit different types of learning	Mena et al. (2016)
Formally train & undertake professional development as a mentor	STs should undergo formalised learning as a mentor	Ambrosetti et al. (2014); Dillon (2017); Izadinia (2016); Mena et al. (2016); Talbot et al. (2018); Wexler (2019)
Intrinsically motivated to take on the role of a mentor	STs who are intrinsically motivated to take on the role of mentor will form a more positive relationship with PSTs	Ambrosetti and Dekkers (2010); Izadinia (2015)
Possess experience as a teacher & mentor	The ideal ST is someone who has both teaching & mentoring experience	Izadinia (2015)
Possess strong academic & professional knowledge	STs need to possess strong teaching skills & subject knowledge then be willing to share such knowledge & competency	Ambrosetti (2014); Izadinia (2015)
Receive training in giving constructive feedback	STs need to be trained in giving constructive feedback	Ellis & Loughland (2017)
Understand the responsibilities of the mentor	STs must have a clear understanding of the responsibilities of the role as mentor	Allen and Wright (2014); Ambrosetti and Dekkers (2010); Bullock (2017); Grimmett et al. (2018); Izadinia (2015); Nguyen & Hudson (2012)

Table 3
Domain 3: Establishing an effective relationship with PSTs.

Indicator	Brief description of the indicator	Study
Connect to the PST at a personal level	STs must be able to connect to the PST at a personal level & create a setting that will foster & nurture a collegial relationship	Izadinia (2017); Mena et al. (2017); Nguyen & Parr (2018); Payne (2018)
Develop a relationship based on reciprocity	STs must foster a collaborative relationship with the PST based on reciprocity through frequent communicative exchanges	Ambrosetti and Dekkers (2010); Clarke et al. (2014); Helgevold et al. (2015); Korhonen et al. (2017); McGraw and Davis (2017); Mena, Hennissen & Loughran. (2017); Nguyen & Hudson (2012); Payne (2018)
Engage in genuine conversations to nurture a good interpersonal relationship	STs should have good interpersonal & communication skills, engage in open dialogue with the PST, & foster genuine conversations	Campbell and Lott (2010); Izadinia (2015); Izadinia (2016); Izadinia (2017); Le Cornu (2015b); Mena et al. (2016); Nguyen (2017); Sheridan and Young (2017); Young et al. (2018)
Engage in open dialogue with PSTs to discuss their expectations, wants & needs	STs should engage in open dialogue & reflective practice with the PST to communicate expectations & identify challenges, issues, concerns & success	Ambrosetti (2014); Ambrosetti and Dekkers (2010); Ambrosetti et al. (2014); Campbell and Lott (2010); Danyluk (2013); Grimmett et al. (2018); Izadinia (2015); Mena et al. (2017); Payne (2018); Sweeney and Nielsen (2018)
Engage in open dialogue with PSTs to gain their perspective & share their ideas about the mentoring process	STs should have open dialogue with the PST to gain a shared understanding about the purpose of PE & the teacher education program in general	Grimmett et al. (2018); Izadinia (2015); Norman (2011)
Establish a professional relationship with the PST	STs should establish a professional relationship with the PST where the PST feels comfortable to ask questions & share observations	Allen and Wright (2014); Ambrosetti et al. (2014); Gao and Benson (2012); Mena et al. (2016); Nguyen & Hudson (2012); Uusimaki (2013)
Incorporate respectful, responsive, reciprocal & reflective elements into the mentoring relationship	STs should incorporate respectful, responsive, reciprocal & reflective elements into the mentoring relationship	Nolan (2017)
Provide the PST with equal power & appropriate autonomy	STs should be aware of power relationships & provide the PST with an appropriate amount of autonomy	Bullock (2017); Gao and Benson (2012); Graves (2010); Yuan and Lee (2014); Yuan and Lee (2016)
Understand & appreciate that learning to teach is a complex phenomenon	STs need to be empathetic to the PST by understanding & appreciating that learning to teach is a complex phenomenon	Bullock (2017); Yuan and Lee (2016).
Use good questioning skills to foster genuine conversation	STs need good questioning & listening skills to facilitate open & genuine dialogue	Sheridan and Young (2017); Grudnoff (2011)

Theses authors argue that a quality mentor must possess good interpersonal and communication skills, engage in open dialogue with the PST, and foster honest, frank and open conversation. Sheridan and Young (2017), for example, argue that genuine conversations play an important role in building mutual trust; and that mutual engagement, joint enterprise, and shared repertoire are important enablers in establishing a quality mentoring relationship.

Also significant is the number of authors (e.g. Ambrosetti et al., 2014; Grimmett et al., 2018; Mena et al., 2017; Payne, 2018; Sweeney & Nielsen, 2018) who believe that STs should engage in open dialogue with the PST to communicate expectations as well as discuss any challenges, issues, concerns, and successes the PST might have. Izadinia (2015) emphasizes the need for STs to engage in open dialogue with their ST prior to professional experience to discuss expectations, wants and needs, while Ambrosetti (2014)

found that clear, explicit expectations and ongoing communication are essential in nurturing a positive mentoring relationship. Izadinia (2015) further suggests that a quality mentor, in order to get feedback and improve, will encourage the PST, through egalitarian conversation, to share ideas about the mentoring process.

Other authors advocate a quality mentor: 1) possess good questioning and listening skills in order to facilitate open and genuine dialogue (Grudnoff, 2011; Sheridan & Young, 2017), and; 2) empathize with the PST through understanding and appreciating that learning to teach is a complex phenomenon (Bullock, 2017) which is messy and challenging with a lot of emotional ups and downs (Yuan & Lee, 2016).

4.4. Domain 4: facilitating PST's learning

What stands out in Table 4 is the proliferation of authors who feel that a quality mentor should engage in dialogic interaction with the PST in a shared experience of meaning construction (e.g. Grimmett et al., 2018; Maddamsetti, 2018; Nguyen & Parr, 2018; Nielsen et al., 2017; Payne, 2018; Sweeney & Nielsen, 2018; Talbot et al., 2018). Mentoring, these authors argue, should be enacted as a dialogic practice whereby the ST and PST examine their beliefs about teaching and learning, then jointly construct understandings and new images of practice. Other authors (Ambrosetti et al., 2014; Butler & Cuenca, 2012; Graves, 2010; Vass, 2017) further assert that mentoring should be a reciprocal process where both the ST and PST learn from one another.

Another significant finding was that a quality mentor should encourage the PST to be inquiry-oriented, critical, reflexive and reflective (e.g. Grimmett et al., 2018; Korhonen et al., 2017; McGraw & Davis, 2017; Mena et al., 2017; Wexler, 2019). Exemplifying this idea, Tiainen, Korkeamäki, and Dreher (2018) maintain that becoming a reflective practitioner is a long process, thereby, PSTs should learn how to be reflective early in their studies, not only in

Table 4
Domain 4: Facilitating PST's learning.

Indicator	Brief description of the indicator	Study
Employ tools that help the PST to think, question, analyse & problem-solve	STs should provide PSTs with practical tools & methods on how to engage in reflective practice to identify challenges, issues, concerns & success	Bullock (2012); Cavanagh and Garvey (2012); Clarke and Sheridan (2017); Danyluk (2013); Douglas, Chapin, and Nolan (2016); Geerdink, Boei, Willemse, Kools, and Van Vlokhoven (2016); Nguyen & Hudson (2012); Nguyen & Parr (2018); Sweeney and Nielsen (2018); Young et al. (2018); Yuan and Lee (2014)
Encourage ethical informed action for the public good	STs should encourage the PST to always engage in honest & ethically informed action	Burridge et al. (2016); Izadinia (2015)
Encourage PSTs to be inquiry-oriented, critical, reflexive & reflective	STs should foster an inquiry stance by providing the PST with space to engage in critical inquiry, examine their own beliefs about teaching & learning, & construct new images of practice	Burridge et al. (2016); Cavanagh and Garvey (2012); Clarke et al. (2014); Grimmett et al. (2018); Helgevold et al. (2015); Korhonen et al. (2017); McGraw and Davis (2017); Mena et al. (2017); Nguyen and Hudson (2012); Tiainen et al. (2018); Wexler (2019)
Encourage PSTs to engage in theory-practice reflection	STs should guide PSTs to examine & analyse academic- & practitioner-generated knowledge related to particular aspects of teaching	Grimmett et al. (2018); Payne (2018); Stenberg et al. (2016); Zeichner (2009)
Encourage PSTs to use metaphors to identify their needs & wants	STs should encourage PSTs to make use of metaphors to help gain insight into their thinking & professional development	Izadinia (2017)
Engage in a dialogic interaction with the PST in a shared experience of meaning construction	The ST & PST should engage in a dialogic practice where both participants are equals in a shared experience of meaning construction	Ambrosetti (2014); Ambrosetti et al. (2014); Averill, Drake, Anderson, and Anthony (2016); Butler and Cuenca (2012); Gao and Benson (2012); Grimmett et al. (2018); Kochan (2013); Maddamsetti (2018); McDonough (2014); Nguyen & Hudson (2012); Nguyen & Parr (2018); Nielsen et al. (2017); Orland-Barak (2014); Payne. (2018); Rakicioglu-Soylemez and Eroz-Tuga (2014); Rigelman and Ruben (2012); Sweeney and Nielsen (2018); Talbot et al. (2018); Yuan and Lee (2014)
Engage in reciprocal learning with the PST	Mentoring should be a reciprocal process where both the ST & PST learn from one another	Ambrosetti et al. (2014); Butler and Cuenca (2012); Graves (2010); Vass (2017)
Facilitate PSTs learning	STs should provide a range of opportunities for the PST to explore & learn in real practice	Anderson and Stillman (2011); Butler and Cuenca (2012); Grudnoff (2011); Mena et al. (2016); Mena et al. (2017); Orland-Barak (2014); Payne (2018); Wexler (2019); Yuan and Lee (2014)
Optimise the strengths of the PST by responding to their existing knowledge, experience & learning style	STs should be responsive to the learning strengths & needs of PSTs from diverse linguistic, cultural, religious & socioeconomic backgrounds	Butler and Cuenca (2012); Graves (2010); Nguyen (2017); Nielsen et al. (2017)
Provide regular, critical & actionable feedback related to practice	STs should provide PSTs with regular, timely, critical & actionable feedback which relates to practice & the Professional Standards for Teachers	Ambrosetti et al. (2014); Bullock (2017); Clarke et al. (2014); Douglas et al. (2016); Ellis & Loughland (2017); Izadinia (2015); Izadinia (2016); Korhonen et al. (2017); Agudo and de Dios (2016); McGraw and Davis (2017); Nguyen & Hudson (2012); Nolan (2017);Payne (2018); Phillipson, Cooper, and Phillipson (2015); Rakicioglu-Soylemez and Eroz-Tuga (2014); Smith (2010)
Provide teaching advice to the PST	STs should act as an instructional coach by engaging in co-planning with the PST, sharing ideas, suggesting strategies, guiding & instructing	Ambrosetti et al. (2014); Davis and Fantozzi (2016); Mena et al. (2016); Mena et al. (2017); Nguyen & Parr (2018); Nielsen et al. (2017); Orland-Barak (2014); Payne (2018); Wexler (2019); Yuan and Lee (2014)
Provide tools for PSTs to self-assess & set goals	STs should provide strategies & tools so that the PST can self-assess their progress & development	Campbell and Lott (2010); Kindall et al. (2017); Mena et al. (2016); Nguyen & Hudson (2012); Young et al. (2018); Yuan and Lee (2014)

theory on campus, but also in practice during professional experience. A quality mentor, therefore, will help prepare the PST to become a reflective practitioner. Many authors also suggest that a quality mentor will provide the PST with practical tools and methods on how to engage in such reflective practice (e.g. Clarke & Sheridan, 2017; Nguyen & Parr, 2018; Sweeney & Nielsen, 2018; Young et al., 2018).

A further observation of note to emerge from the data was that a quality mentor should provide the PST with regular, timely, critical and actionable feedback which relates to practice; and additionally, in the Australian context, the Professional Standards for Teachers (e.g.; Ellis & Loughland, 2017; Korhonen et al., 2017; Agudo & de Dios, 2016; McGraw & Davis, 2017; Nolan, 2017; Payne, 2018). Providing quality feedback is one of the main roles of a mentor and an essential aspect of professional experience, claims Izidiana (2015, 2016), and the feedback given should be ongoing and constructive to help PSTs evaluate and adjust their teaching practice. Many authors also state that a quality mentor should provide teaching advice to the PST through engaging in co-planning, sharing ideas, suggesting strategies, guiding and instructing (e.g. Mena et al., 2017; Nielsen et al., 2017; Payne, 2018; Nguyen & Parr, 2018; Wexler, 2019). Furthermore, a lot of authors claim that a PST should be provided a range of opportunities to explore and learn in real practice (e.g. Mena et al., 2016; Mena et al., 2017; Orland-Barak, 2014; Payne, 2018; Wexler, 2019).

The data further indicated that a quality mentor should provide strategies and tools so that the PST can self-assess their progress and set goals (e.g. Kindall, Crowe, & Elsass, 2017; Mena et al., 2016; Young et al., 2018) while a smaller number of the publications reviewed suggested that a quality mentor will encourage the PST to engage in theory-practice reflection (e.g. Grimmett et al., 2018; Payne, 2018; Stenberg et al., 2016) and ethical informed action for the public good (Burridge, Hooley, & Neal, 2016; Izadinia, 2015). A unique view was that a quality mentor should encourage a PST to use metaphors to identify his or her learning needs (Izadinia, 2015).

4.5. Domain 5: modelling effective teaching & making connections between theory & practice

Table 5 reveals considerable support in the scholarly literature for two notions: first, that a quality mentor should role-model practice and effective learning and teaching strategies; and second, that a quality mentor possess a good knowledge of teaching and learning theory, and be able to make connections between theory and practice (e.g. Clarke & Sheridan, 2017; Izadinia, 2015; Nielsen et al., 2017; Payne, 2018; Yuan & Lee, 2014). For example, it is argued it is imperative that PSTs have access to role models (Nolan, 2017). Hence, a quality mentor will model tasks, actions, interactions and processes around the complexities of teaching (Nguyen & Hudson, 2012) and demonstrate an enthusiasm and passion for teaching (Izadinia, 2016; Mena et al., 2017). It is also reasoned that PSTs need to link theory with practice (Young et al., 2018). Thereby, a quality mentor should be able to make connections between theory and practice using the appropriate theoretical language (Stenberg et al., 2016) to help bridge the extant theory-practice gap (Dillon, 2017; Trevethan, 2017).

There were some suggestions in the literature that a quality mentor will provide quality feedback which: 1) relates to the teacher professional standards (Clarke et al., 2014; Loughland & Ellis, 2016; Payne, 2018), and; 2) integrates theory (Christophersen, Elstad, Solhaug, & Turmo, 2016; Orland-Barak, 2014; Payne, 2018). In two unique cases, the authors thought that a quality mentor should: 1) model diversity and inclusion by providing opportunities for the PST to observe how he or she works with students and parents of diverse backgrounds (Kindall et al., 2017), and; 2) be responsive to the needs of students from different sexual orientations (Wright, 2016).

4.6. Domain 6: providing direction & support

Table 6 indicates that a quality mentor can provide a PST with

Table 5
Domain 5: Modelling effective teaching & making connections between theory & practice.

Indicator	Brief description of the indicator	Study
Adopt a critical, reflexive & reflective disposition	STs should adopt a critical stance towards traditional knowledge & convention to avoid social reproduction	McGraw and Davis (2017)
Demonstrate a knowledge & understanding of theory & make connections between theory & practice to help bridge the theory/ practice gap	STs should have close dialogue with university lecturers, be able to make connections between theory & practice using the appropriate theoretical language, & support PSTs to link theory with practice	Allen and Wright (2014); Cavanagh and Garvey (2012); Dillon (2017); Graves (2010); McDonough (2014); Mena et al. (2017); Nguyen & Hudson (2012); Nielsen et al. (2017); Orland-Barak (2014); Payne (2018); Stenberg et al. (2016); Trevethan (2017); Young et al. (2018)
Demonstrate a knowledge & understanding of theory & integrate theory in their feedback	A ST's theoretical skills & integration of knowledge play a vital role in the development of a PST so it is important that STs integrate theory in their feedback to PSTs	Christophersen et al. (2016); Orland-Barak (2014); Payne (2018)
Demonstrate an enthusiasm & passion for the job of teaching	STs should be highly motivated, enthusiastic & passionate about their job	Izadinia (2016); Mena et al. (2017)
Model diversity & inclusion	STs should provide opportunities for the PST to observe how he or she works with students & parents of diverse backgrounds	Kindall et al. (2017)
Relate learning to the Teacher Professional Standards	STs must provide quality feedback which relate to the Professional Standards for Teachers	Clarke et al. (2014); Loughland and Ellis (2016); Payne (2018)
Responsive to the needs of students from different sexual orientations	STs need to be responsive to, & support, PSTs of different sexual orientations	Wright (2016)
Role-model practice	STs should provide insights to the complexities of teaching by modelling good practice & effective learning & teaching strategies	Ambrosetti and Dekkers (2010); Anderson and Stillman (2011); Butler and Cuenca (2012); Clarke et al. (2014); Clarke and Sheridan (2017); Graves (2010); Izadinia (2015); Koc (2011); Nguyen & Hudson (2012); Nielsen et al. (2017); Nolan (2017); Norman (2011); Payne (2018); Yuan and Lee (2014); Zeichner (2009)
Self-evaluate & reflect	STs should adopt an enquiry-based approach towards their own teaching & be both reflexive & reflective	Izadinia, M. (2015); Nguyen & Hudson (2012)

Table 6
Domain 6: Providing direction & support.

Indicator	Brief description of the indicator	Study
Provide direction & support	STs need to provide support, feedback & direction to PSTs & nurture a good interpersonal relationship	Allen and Wright (2014); Ambrosetti and Dekkers (2010); Butler and Cuenca (2012); Douglas et al. (2016); Grudnoff (2011); Izadinia (2017); Mena et al. (2017); Nguyen & Hudson (2012); Nguyen & Parr (2018); Payne (2018); Wexler (2019)
Provide emotional & psychological support	STs should create & maintain a welcoming socio-professional context for the PST & provide emotional & psychological support as the PST experiences success & failure	Butler and Cuenca (2012); Christophersen et al. (2016); Davis and Fantozzi (2016); Izadinia (2015); Izadinia (2016); Mena et al. (2016); Mena et al. (2017); Nguyen & Hudson (2012); Nguyen & Parr (2018); Payne (2018); Rakicioglu-Soylemez and Eroz-Tuga (2014); Rigelman and Ruben (2012)
Provide practical & technical support	It is important that STs make resources available & provide good technical support during PE if the PST's learning is to be effective	Ambrosetti and Dekkers (2010); Gao and Benson (2012); Izadinia (2015); Reynolds et al. (2016)
Show empathy & provide emotional support	STs need to recognize the importance of the affective domain in PSTs' learning & development, be empathetic to the PST's struggles through being caring, supportive & nurturing, shield the PST from unpleasant situations & defend their actions	Clarke and Sheridan (2017); Gao and Benson (2012); Mena et al. (2017); Nguyen & Hudson (2012); Nguyen & Parr (2018); Rakicioglu-Soylemez and Eroz-Tuga (2014); Yuan and Lee (2016)

direction and support in various ways. Perhaps first and foremost, it is important that a quality mentor show empathy (e.g. Clarke & Sheridan, 2017; Mena et al., 2017; Nguyen & Parr, 2018. Elaborating, Yuan and Lee (2016) stress how the affective domain plays an equally important role as cognitive orientation in equipping PSTs with teaching knowledge and skills. A quality mentor, therefore, will be cognizant of the challenges and emotional ups and downs that a PST is likely to experience.

Concurring with this notion, many authors consequently believe it important that an ST create and maintain a welcoming socio-professional context for the PST and provide ongoing emotional and psychological support (e.g. Christophersen et al., 2016; Mena et al., 2016; Mena et al., 2017; Nguyen & Parr, 2018. Professional experience can be the most stressful part of an ITE program (Izadinia, 2016) and PSTs are in particular need of emotional support as they face perceived failures (Christophersen et al., 2016). The PST expects the mentor to support them emotionally (Payne, 2018) and such emotional support should involve warm, supportive, face-to-face conversations (Davis & Fantozzi, 2016).

In addition to emotional support, there were some suggestions in the literature (e.g. Ambrosetti & Dekkers, 2010; Gao & Benson, 2012; Izadinia, 2015) that a quality mentor should also provide practical and technical support if the PST's learning is to be effective. One surprising, but significant finding, was that success on professional experience is determined by the level of mentor support a PST receives rather than the number of hours he or she spends on placement (Reynolds, Howley, Southgate, & Brown, 2016).

4.7. Domain 7: using a progressive mindset & supporting PSTs to nurture a teacher-identify

The data presented in Table 7 suggests that a quality mentor should adopt a progressive mindset and be open to new ideas concerning curricula, pedagogic and assessment practices (e.g. Clarke et al., 2014; Crasborn, Hennissen, Brouwer, Korthagen, & Bergen, 2011). For instance, Bullock (2017) is critical of the many STs who adopt a regressive approach and supervise PSTs as they themselves had been supervised. Vass (2017) is similarly disapproving of STs who encourage limited and limiting curricula, pedagogic and assessment practices, or communicate resistance to alternative ideas.

Many in the literature also state that a quality mentor should support the PST to develop a teacher identity, their own teaching style, and feelings of competence, well-being and success (e.g. Bullock, 2017; Nguyen, 2017; Nolan, 2017; Sheridan & Young, 2017; Yuan & Lee, 2016). It is claimed that an ST can significantly help a PST in the process of socialization into the profession (Izadinia, 2016) and in the development of a professional disposition; that is, the attitudes, values, and beliefs an educator displays in their

Table 7
Domain 7: Using a progressive mindset & supporting PSTs to nurture a teacher-identify.

Indicator	Brief description of the indicator	Study
Adaptable, flexible, & responsive to the needs of individual PSTs	Teaching is a dynamic practice that is never predictable or routine, therefore both PSTs & STs need to be adaptable, flexible & responsive	Clarke and Sheridan (2017)
Adopt an inclusive mindset & be responsive to the needs of students from diverse linguistic, cultural, religious & socioeconomic backgrounds	STs should be inclusive & responsive to the learning strengths & needs of students from diverse linguistic, cultural, religious & socioeconomic backgrounds & provide opportunities for PSTs to explore various approaches/ methods of teaching	Maddamsetti (2018); Vass (2017)
Adopt an open-minded & progressive mindset	STs should be open to new ideas concerning curricula, pedagogic & assessment practices by adopting a progressive rather than conservative mindset	Bullock (2017); Clarke et al. (2014); Crasborn et al. (2011); Vass (2017)
Support PSTs to nurture a teacher-identity, a teaching style of their own & feelings of competence, well-being & success	STs should support the PST to develop a teacher identity, their own teaching style, & feelings of competence, well-being & success.	Bullock (2017); Izadinia (2015); Kindall et al. (2017); Nguyen (2017); Nolan (2017); Sheridan and Young (2017); Yuan and Lee (2016)

interaction with the broader school community (Kindall et al., 2017).

Two authors further suggest that a quality mentor should be inclusive and responsive to the learning strengths and needs of students from diverse backgrounds and provide opportunities for a PST to explore various approaches and methods of teaching. A quality mentor should value cultural responsiveness (Vass, 2017), specifically in the case of international PSTs where they might hold different perspectives and experiences on teaching and learning (Maddamsetti, 2018).

5. Conclusion

The aim of this study was to conduct a review of the contemporary literature to identify elements of a quality mentor of pre-service teachers. The typology of indicators and dimensions we propose, based on the findings, is presented in Annex 1. The main findings were that a quality PST mentor should: collaborate with the university; develop a disposition and professional knowledge in mentoring; establish an effective relationship with the PST; facilitate the PST's learning; model effective teaching and make connections between theory and practice; provide direction and support, and; adopt a progressive mindset and support the PST to nurture a teacher-identity.

The above findings tend to concur with those researchers who claim that contemporary notions of mentoring involve: collaboration, collegiality and interaction (Heikkinen, Jokinen & Tynjälä, 2012); a reciprocal exchange of ideas (Burley & Pomphrey, 2011), and; the joint creation of new knowledge and meaning (Livingston & Shiach, 2010). We found scant support in the contemporary literature for more traditional notions of a mentor, i.e. an older, more experienced colleague who imparts his or her wisdom to a younger mentee (Heikkinen, Jokinen & Tynjälä, 2012). At most, it was suggested that a quality mentor have both teaching and mentoring experience (e.g. Izadinia, 2015), tempered by the assertion that an experienced teacher does not always make a quality mentor (e.g. Wexler, 2019). Emergent ideas, perhaps supporting the claim the term 'mentor' is constantly evolving (Heikkinen, Jokinen & Tynjälä, 2012), include the belief that a quality mentor: supports PSTs to nurture a teacher-identity; models diversity and inclusion, and; relates learning to teacher professional standards.

Our findings have a number of implications for both policy and mentoring practice. The results, for example, imply that universities and other ITE providers need to continue to work with schools and teachers to forge: more collaborative and dialogic relationships; a shared view of good teaching, and; a shared vision of each participant's roles and responsibilities during professional experience. The findings also suggest that the theory taught on-campus in ITE programs could perhaps be better integrated with professional experience in schools.

Another finding emerging from this study was that STs should undertake professional development and formally train as a mentor, especially in the provision of feedback. Some jurisdictions, such as Israel, do provide an in-service professional development program for mentors (Orland-Barak, 2006; Schatz-Oppenheimer, 2017). Mentor development courses, coordinated by the Ministry of Education, are offered in ITE programs throughout the country. But many other jurisdictions, including countries with well-established mentoring programs, such as New Zealand, Scotland and Japan, do not offer mandatory or systematised mentor education programs (Aspfors & Fransson, 2015). Typically, STs are not sufficiently prepared to mentor PSTs (Clarke et al., 2014). Any training that is provided, either by professional consultants or through professional learning courses offered by universities, tends to focus on administrative procedure rather than the process of mentoring (Aspfors & Fransson, 2015).

The typology we propose offers a wide-ranging list of what a quality PST mentor, functioning in the 21st century, is expected to know and be able to do, and as such, could perhaps be used to guide universities and ITE providers in the design or revision of in-service courses offered to STs, or as a benchmark if STs are to be accredited as PST mentors. It might also act to alleviate certain tensions that do arise between different stakeholders involved in professional experience by providing a common language and expectations. Additionally, it could be used by STs themselves to guide practice and as a self-assessment tool. Furthermore, universities might use the typology as a scaffold when PSTs are asked to provide feedback on the mentoring they received during professional experience. However, we do caution that the typology we developed, in its current form, remains tentative. As described below, further work is needed to develop a more rigorous, theoretically-informed and empirically-driven framework.

One limitation of this study is that it does not present a complete or exhaustive review of the literature. Obviously, such an undertaking would be onerous, and perhaps, in the end, no more illuminative. As outlined earlier, we do feel that the review presents a substantial overview of the different themes that occur in the contemporary literature, although it might not be absolute. Despite our efforts, it is possible that one or more idiosyncratic idea might not have been captured. Furthermore, we acknowledge that mentoring is a contested practice which can be based on a variety of theoretical approaches and performed across a range of contexts (Aspfors & Fransson, 2015; Dominguez & Hager, 2013; Mullen, 2012, pp. 7–23). Therefore, another limitation is that different sets of quality indicators may be needed, dependent on the situation and setting.

Additionally, due to its aim and scope, this study does not investigate the potential for conflict that might arise between the quality indicators that emerged in the analysis. For example, while it might be desirable for all the stakeholders involved in professional experience, such as academics, STs and PSTs, to have a shared view of good teaching, such consensus might not be easily reached. An analysis and discussion of the potential for conflict between different quality indicators, and how such conflicts or problems might be resolved, presents an area for further research.

A fourth limitation of our study is that the typology, as currently presented, remains theoretical. Suggestions for further study, then, would include gathering data from those in the field; experts, PST mentors, and in particular, PSTs. This could then be triangulated with the findings from this literature review to determine if the ideas resonate or conflict and to develop a more broadly-informed theoretical framework. Rasch and factor analysis could then be employed in the development of an empirically-driven framework for mentoring. The authors of this paper are currently engaged in such work.

And where different settings and situations necessitate unique mentoring knowledge and skills, beyond those identified in our typology, then pilot-testing will need to occur in each of these specific contexts before such knowledge and skills can be incorporated into an alternative set of standards.

Declaration of competing interest

The authors have no competing interests to declare.

Annex 1

List of Dimensions and Indicators.

Dimension	Indicator
Collaborating with the university	Develop a collaborative relationship with the university
	Develop a dialogic interaction with university academics/lecturers & the PST
	Develop a shared view of good teaching with university academics
	Develop a shared vision of the responsibilities of the mentor role with the university
	Integrate on-campus elements of the teacher education program with professional experience
Developing a disposition & professional knowledge in mentoring	Demonstrate an enthusiasm & passion for the mentoring role
	Develop a pedagogy of professional experience learning
	Employ different mentoring styles to elicit different types of learning from the PST
	Formally train & undertake professional development as a mentor
	Intrinsically motivated to take on the role of a mentor
	Possess experience as a teacher & mentor
	Possess strong academic & professional knowledge
	Receive training in giving constructive feedback
	Understand the responsibilities of the mentor
Establishing an effective relationship with PSTs	Connect to the PST at a personal level
	Develop a relationship based on reciprocity
	Engage in genuine conversations to nurture a good interpersonal relationship
	Engage in open dialogue with PSTs to discuss their expectations, wants & needs
	Engage in open dialogue with PSTs to gain their perspective & share their ideas about the mentoring process
	Establish a professional relationship with the PST
	Incorporate respectful, responsive, reciprocal & reflective elements into the mentoring relationship
	Provide the PST with equal power & appropriate autonomy
	Understand & appreciate that learning to teach is a complex phenomenon
	Use good questioning skills to foster genuine conversation
Facilitating PST's learning	Employ tools that help the PST to think, question, analyse & problem-solve
	Encourage ethical informed action for the public good
	Encourage PSTs to be inquiry-oriented, critical, reflexive & reflective
	Encourage PSTs to engage in theory-practice reflection
	Encourage PSTs to use metaphors to identify their needs & wants
	Engage in a dialogic interaction with the PST in a shared experience of meaning construction
	Engage in reciprocal learning with the PST
	Facilitate PSTs learning
	Optimise the strengths of the PST by responding to their existing knowledge, experience & learning style
	Provide regular, critical & actionable feedback related to practice
	Provide teaching advice to the PST
	Provide tools for PSTs to self-assess & set goals
Modelling effective teaching & making connections between theory & practice	Adopt a critical, reflexive & reflective disposition
	Demonstrate a knowledge & understanding of theory & make connections between theory & practice to help bridge the theory/practice gap
	Demonstrate a knowledge & understanding of theory & integrate theory in their feedback
	Demonstrate an enthusiasm & passion for the job of teaching
	Model diversity & inclusion
	Relate learning to the Teacher Professional Standards
	Responsive to the needs of students from different sexual orientations
	Role-model practice
	Self-evaluate & reflect
Providing direction & support	Provide direction & support
	Provide emotional & psychological support
	Provide practical & technical support
	Show empathy & provide emotional support
Using a progressive mindset & supporting PSTs to nurture a teacher-identify	Adaptable, flexible, & responsive to the needs of individual PSTs
	Adopt an inclusive mindset & be responsive to the needs of students from diverse linguistic, cultural, religious & socioeconomic backgrounds
	Adopt an open-minded & progressive mindset
	Support PSTs to nurture a teacher-identity, a teaching style of their own & feelings of competence, well-being & success

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