

ARTICLE

Key Components That Contribute To Professional Identity Development In Internships For Singapore's Tertiary Institutions: A Systematic Review

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ABSTRACT

Background: A critical outcome of work-readiness programmes such as internships is the development of professional identity, which relates to one's professional self-concept based on attributes, beliefs, values, motives, and experiences. The lack of professional identity development during internships might result the leakage of trained students from the respective industries they trained for. **Objective:** The aim of this study is to conduct a systematic review of the literature on professional identity formation in the context of internships in order to provide guidance on how internship programmes can be better implemented in Singapore. **Methodology:** A comprehensive search of electronic databases was conducted in accordance with the PRISMA Statement to identify papers related to professional identity development, internship programmes, and the roles of academic institutions and companies. **Results:** Of the 58 articles identified, 46.6% ($n = 27$) focused on the perception of professional socialisation, 41.4% ($n = 24$) investigated the roles of mentoring, 29.3% ($n = 17$) examined internship experiences, and 25.9% ($n = 15$) studied reflection as a practice for professional development. Further analysis of the interaction of these four components yielded a more focused set of five components that contribute to developing professional identity in the context of an internship programme. These components are: reflection, mentoring, professional socialisation, self-efficacy and goal orientation, and critical thinking. **Conclusion:** This paper generalises principles and processes into new insights for developing professional identity, and a framework is proposed as a guide to implement professional identity development. Our findings can be used by future research studies to validate workplace learning frameworks as well as explore models for training coaches and mentors in the workplace.

Keywords: Professional identity, enhanced internship, workplace learning, pre-employment training, lifelong learning, SkillsFuture

INTRODUCTION

Professional identity development in internships

A critical outcome of work-readiness programmes such as internships is the development of professional identity (Mather, Cummings, & Nichols, 2016), which relates to one's professional self-concept based on attributes, beliefs, values, motives, and experiences (Dutton, Roberts, & Bednar, 2010; Ibarra, 1999; Schein, 1978). Professional identity can also be understood as a cognitive mechanism whereby individuals assign meaning to themselves that shapes their work attitudes, emotions, and behaviour (Siebert & Siebert, 2005). One's professional identity can serve as an organising framework for an individual's self-concept (Hughes, 1958; Stryker, 1987) and psychological well-being (Tajfel & Turner, 1979). In addition, professional identity provides behavioural guidance in the workplace (Ibarra, 1999) and affects moral decision-making (Leavitt, Reynolds, Barnes, Schilpzand, & Hannah, 2012), performance output, and career success (Arthur, Hall & Lawrence, 1989). Thus, professional identity influences how individuals claim purpose, self-worth, and meaning for themselves, and explains how they contribute to society. It is how much an individual identifies with an established profession, i.e., one which has an accepted body of knowledge, code of ethics, and commitment to professional ideas driven by a publicly-accepted professional organisation (Martens, 2012).

While professional identity is a significant feature, it often remains a hidden outcome of work-based learning programmes, where its development is taken for granted and regarded as a natural phenomenon where learning is assumed to have taken place through 'osmosis' (Trede, Macklin, & Bridges, 2011). Given that workers who develop a strong professional identity are more likely to be successful and stay longer in a profession (Moorhead, 2019; Shim, Hwang, & Lee, 2009), it is therefore crucial that professional identity development be an intentional internship outcome to enable a better workplace transition from pre-employment training (PET). At the same time, outcomes must be measurable. Clearly, more attention is needed in the design of work-based learning programmes to develop professional identity rather than leave it to chance (Trede, 2012).

Singapore's challenge and the future of skills

According to Singapore's National Population and Talent Division, the long-term resident workforce is expected to slow down as the labour pool shrinks (Population.sg, 2018). Therefore, it is critical that students who train to work in an industry do emerge as being equipped with the capacity to contribute to the target industry they are trained to enter. In reality, some students who enter tertiary education do not get into courses of their choice. While this is a challenge, it is also an opportunity to build professional identity so that these students will be more likely to stay in the industry; tertiary-level internships are one platform that can be leveraged to accomplish this.

Internships have long been a part of higher education in Singapore and in 2015, Enhanced Internships were introduced as part of Singapore's national SkillsFuture movement to better integrate education, training, and career development (Ministry of Education [Singapore], 2015). These Enhanced Internships will be extended to all Institutes of Technical Education (ITEs) and polytechnic courses by 2020. To deepen students' learning and ease the transition into their future work roles, Enhanced Internships include clear learning outcomes, mentorship, and extended durations. The development of professional identity to stem the leakage of students who are not going into careers they were trained for complements the objectives of Enhanced Internships and SkillsFuture (Ministry of Education [Singapore], 2015; Ministry of Finance (Singapore), 2015; SkillsFuture, 2015). For this reason, it is important to study the components in internship programmes that contribute to the formation of students' professional identities. The aims of this study were to examine

research on professional identity development in the context of internships as well as provide guidance for the further development of enhanced internship programmes.

METHODOLOGY

The search and reporting format were conducted using PRISMA, an evidence-based approach for systematic reviews (Moher, Liberati, Tetzlaff, & Altman, 2009). The PRISMA model was chosen as it is a well-established basis for reporting of systematic reviews and meta-analysis. The PRISMA model (Figure 1) provides transparency in the process of selecting papers for a systematic review.

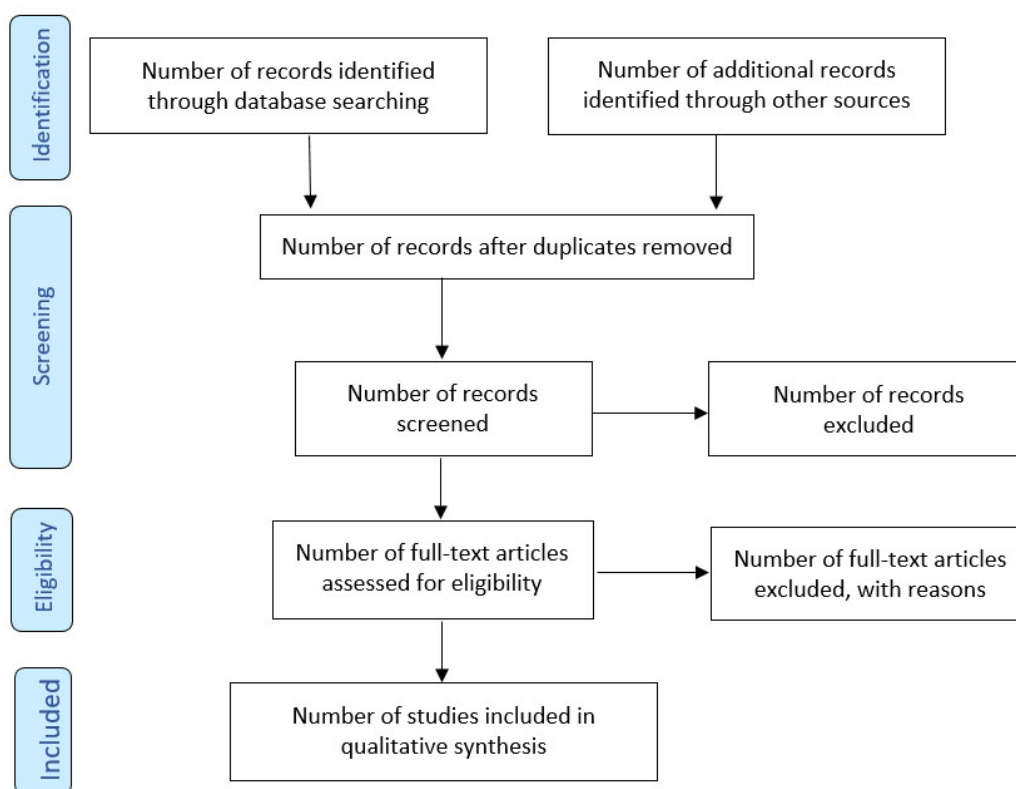


Figure 1. The PRISMA model for reporting systematic reviews and meta-analysis

Using this comprehensive review process, our goal was to address the research questions by identifying relevant studies, evaluating them to synthesise key components, and integrating these findings to studies on human identity development.

The research questions for this study were:

1. What, in the literature, are the **components of internship programmes** that develop professional identity?
2. How could these components be **implemented**, according to the literature, for students, workplace, and academic supervisors?

Search strategy

Search and reporting strategies were activated in accordance with the PRISMA statement (Moher *et al.*, 2009). Six electronic databases (Proquest, EBSCO, PubMed [Central], Medline [OVID], JAEOL and JEE) were searched to identify publications concerning the key elements that develop professional identity within workplaces. A detailed literature search identified articles published in English between June 2008 and June 2018. An additional manual search of reference lists was undertaken to identify studies not captured in the electronic database searches. The following groups of keywords were used in searching relevant articles:

1. “Professional Identity” and “Workplace Learning”
2. “Professional Identity” and “Internship”
3. “Professional Identity” and “Elements” and “Attributes”

Selection of studies

Two reviewers (the second and third authors of this paper) performed the search of the electronic database independently and screened the relevant studies based on titles and abstracts. The second process of screening and evaluation of the selected articles were performed by the first and fourth authors using the inclusion and exclusion criteria (listed in the following section) for full review. Any inconsistencies, disagreements, or discussions were carried out until all four authors reached a consensus.

Inclusion and exclusion criteria

In order to be included in this systematic review, the literature had to meet two out of the three criteria:

1. Explore the definition and components of professional identity
2. Investigate the components of internship programmes that develop professional identity
3. Examine the role of students, workplace supervisors, or academic supervisors in professional identity development

Studies were excluded based on the following criteria:

1. Studies' samples that involved non-school internship programmes, such as on-the-job (OJT) training programmes, as these had weak links to curriculum
2. Domain-specific studies in which it would be difficult to generalise principles that were transferable across contexts

Components of professional identity development

In the context of this study, 10 main components were identified based on its characteristics related to the roles of students, work supervisors, and companies. The 10 components were: reflection, mentoring, professional socialisation, goal orientation, self-efficacy, critical thinking, commitment to profession, internship experience, perception of profession, and work environments.

Data extraction and management

The full text review of the articles were tabulated according to source, author, objectives, participants and sample size, evaluation methodology, and conclusion. Each article was then categorised based on: 1) those that examined what builds professional identity only, 2) those that examined how internship programmes were structured, and 3) those that studied both. While the keyword search found articles that mentioned both “professional identity” and “internships,” many were focused on internship programmes but “professional identity” was only mentioned in passing. Thus, the three themes above were selected to clearly differentiate the context for analysis. Subsequently, a conclusion was written for each article based on key components that contributed to building professional identity. Out of the 10 components, five were further identified by considering both qualitative and quantitative aspects of professional identity development (Table 1).

Table 1
Components of Professional Identity

Component	Number of papers with clear definition of component	Number of papers that examined component in relation to professional identity development	Remarks
Reflection	12	15	Selected as component and discussed in detail.
Mentoring	12	24	
Professional Socialisation	6	27	
Goal Orientation	2	2	Selected as component. Group together with Self-Efficacy as they are closely linked. Perceived self-efficacy determines goal orientation and how long one will persist to achieve a goal. (Holland <i>et al.</i> , 2012)
Self-efficacy	6	6	Selected as component. Grouped with Goal Orientation.
Critical Thinking	3	0	Selected as component. The 3 reports that defined critical thinking but did not elaborate on how it contributes to professional identity formation. However, reflective thinking is related to critical thinking, especially when one challenges assumptions and ability to change perspective is key to building professional identity. (Idzadinia, 2014; O'Reilly <i>et al.</i> , 2015)
Commitment to Profession	3	3	Not selected as component. Ideas mainly related to Professional Socialisation and Self-Efficacy. The level of support and ability to do the work are key to building commitment and professional identity (Zhao & Zhang, 2017)
Internship Experience	7	17	Not selected as component. Ideas mainly linked to Professional Socialisation. Shared experiences, camaraderie and conflicts are important in identity formation and skill-building (Ackerman <i>et al.</i> , 2008; Biden <i>et al.</i> , 2016)
Perception of Profession	2	2	Not selected as component. Ideas mainly linked to Self-efficacy, Professional Socialisation. (Lasson <i>et al.</i> , 2016; Sweitzer, 2016)
Work Environment	3	6	Not selected as component. Ideas mainly linked to Mentoring. Role-modelling and a sense of belonging are crucial for professional identity formation. (Holland <i>et al.</i> , 2012; Sabatino <i>et al.</i> , 2015)

RESULTS

The chart in Figure 2 shows the summary of the search strategy and how information was processed across multiple phases of data screening based on the PRISMA model (Moher *et al.*, 2009). A total of 217 out of 8373 studies were selected based on titles and abstracts. A second screening yielded a smaller number of 105 articles based on the inclusion criteria.

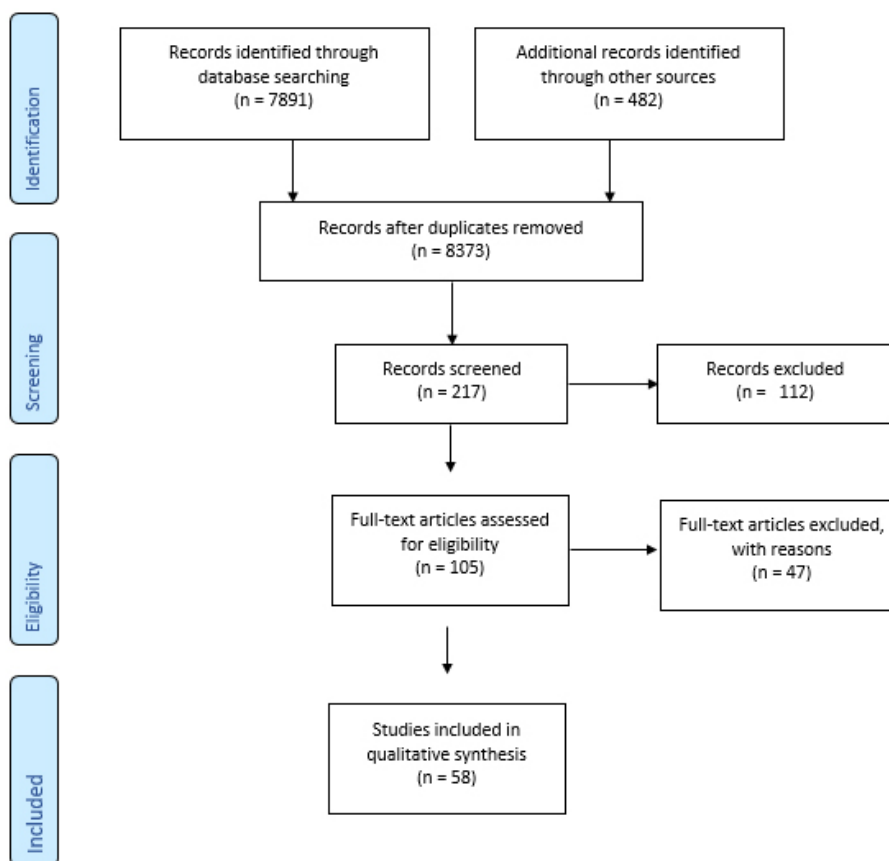


Figure 2. Summary of the search strategy and selection process based on included and excluded studies

Information was extracted for each article were, specifically: author and year, objectives of the paper, sample size, methodology, what builds professional identity, how internships are structured, and which papers examined internship structure related to professional identity. The summaries that conclude the relevant findings for each article are in [Appendix 1](#).

The 10 components that build professional identity related to internships were tagged to articles that examine each component and these are provided in Appendix 2. Of the 58 studies, 46.6% ($n = 27$) focused on the perception of professional socialisation, 41.4% ($n = 24$) investigated the roles of mentoring, 29.3% ($n = 17$) examined the internship experiences and 25.9% ($n = 15$) studied reflection as a practice for professional development. Interestingly, none of the studies was found to examine the critical thinking component of professional identity development. Limited studies were found in other components such as goal orientation (3.4%), self-efficacy (10.3%), perception of profession (3.4%), commitment to profession (5.2%) and work environment (10.3%).

DISCUSSION

The primary aim of this systematic review study was to examine studies on professional identity development in the context of internships in order to identify components and explore models to implement internship programmes that focus on professional identity development. From the review of existing studies, perception of socialisation, mentoring, internship experience and reflection were the four main components of professional identity development that received much attention. An analysis of how these components interact with each other yielded a more focused set of five components that contribute to developing professional identity in the context of an internship programme. These are: reflection, mentoring, professional socialisation, self-efficacy and goal orientation, and critical thinking.

Component 1: Reflection

Studies in our systematic review explored how reflection contributes to professional identity development. Research shows that reflection contributes to building knowledge, cognition, confidence, and personal and professional identity (Izadinia, 2013; Sutherland, Howard & Markauskaite, 2010) as well as professional maturity (Gustafsson & Fagerberg, 2004) and feelings of professionalism (Mann, Gordon, & MacLeod, 2009). The idea of constructive reflection (Thanaraj, 2017) considers reflection as a critical process in developing professional identity by making intentional the process of anchoring new concepts to previous learning as well as challenging current assumptions and encouraging new perspectives (Miller, Balmer, Hermann, Graham, & Charon, 2014; Samaras, 2002; Williams & Power, 2010). This results in positive changes in self-appraisal, the ability to consolidate theory and practice, and professional behaviour (O'Reilly & Milner, 2015).

Traditionally, the motivation behind reflective thinking is to help solve problems. However, the practice of reflection is more significant when it is used to build professional identity and continued enhancement of professional practice (Gidman, 2013; Paliadelis & Wood, 2016) by helping to define one's professional self in terms of values and beliefs (Hong & Choi, 2011; Langley & Brown, 2010; Luehmann 2007; Tracey, Hutchison, & Grzebyk, 2014). These findings are supported by other studies on the topic of professionalisation. In the context of the sports coaching industry, Martens (2012) writes that the internalisation of a professional body of knowledge and ethical practices is key to the development of the profession as well as professionals. Thus, the purpose of reflection in an internship programme must help achieve professional development outcomes that lead to a greater professionalisation in that industry.

The literature reviewed also led us to examine three types of reflection: reflection-in-action, reflection-on-action, and reflection-for-action. When a person reflects "in action", the reflection takes place in the process of the action and the immediate feedback is acted on to continue or adjust the action. On the other hand, when a person reflects "on action", they do so after the fact where the event is recalled, reconstructed, analysed, and interpreted (Schon, 1983). New knowledge concepts are thus developed through reflection on what was done well, what could have been done better, and what other knowledge could have been applied (Bolten, 2005; Burns & Bulman, 2000). While reflection-in-action is more active in nature, reflection-on-action is more useful in integrating professional development into curriculum as "it enables potentially wide views on professional behaviour to be explored and related to the institutional values in the safety of a group" (Clandinin & Cave, 2008; O'Sullivan, van Mook & Wass, 2012). The third type of reflection, reflection-for-action, is also considered relevant to building professional identity as it helps learners consider how to improve professional performance and practices for similar future or hypothetical events. Thus, learners are

able to effectively apply learning from past experiences when considering future actions (Tracey *et al.*, 2014).

For reflection to achieve its learning outcomes, the reflective narrative should be multi-dimensional and include emotional, technical, and moral aspects (Callens & Elan, 2015). Work by Knez (2016) supports this multi-dimensional notion as it proposes a model of professional identity that includes two psychological elements, namely, emotion represented by a sense of belonging, and cognition, represented by the ability to merge theory and practice. In addition, Wenger (1998) reminds us that for reflection to facilitate learning and identity construction, it should not be done in isolation. Rather, it must involve coming together to challenge assumptions and practices in a constructive manner (Samaras, 2002; Williams & Power, 2010). In other words, the actionable insights gained from reflection must relate to self, others and practice (Boud, Keogh, & Walker, 1985; Jarvis, 1992; Mezirow, 1981). In the internship context, trusted relationships and a safe environment are critical to help build reflective practice in interns (Trede, 2012) and reflection, in turn, helps build professional socialisation and identity (Stockhausen, 2005). Last, learners must perceive and value reflection as important to the learning process in order for it to be effective, otherwise the benefits may not develop or have a negative impact on learning (Mann *et al.*, 2009; Sandvik, Eriksson, & Hilli, 2014).

Personal development goes hand in hand with professional development as better people make better professionals. This is supported by studies showing that reflection promotes personal growth (Ackerman, Graham, Schmidt, Stern, & Miller, 2008) and the development of personal identity that, in turn, promotes the development of professional identity. Therefore, for students in internship programmes—who are in the midst of forming their personal and professional identities—reflection becomes a powerful enabling tool. For example, medical students that reflected on the uniquely high demands required of them in attending seminars and relentless routines felt a sense of “isolation” from other professions and began to identify more exclusively with being medical professionals (Miller, Balmer, Hermann, Graham, & Charon, 2014). Therefore, the opportunity to contemplate and reflect on what sets a profession apart from other professions should be part of the process of forming one's professional identity.

Several aspects are apparent regarding the role of reflection in building professional identity. First, the building of self-concept and personal identity must be part of the process. Second, reflection must be an intentional part of the professional development process. Third, the process must be multi-dimensional and include defining one's professional self in terms of values and beliefs as well as feelings and technical aspects. Fourth, the focus should be on reflection-on-action, which is thinking about what prior knowledge could have been applied, what was done well and what could be done better (which enables reflection-for-action). Fifth, reflection should include a social element, where professional practice and attitudes are co-created.

Component 2: Mentoring

Mentoring as part of a school internship can be defined in the context of a professional relationship, where a more experienced mentor acts as a guide or role model to help a student intern achieve professional and personal growth by providing interns knowledge, advice, challenge, and support (Karel & Stead, 2011; Moss, Gibson, & Dollarhide, 2014). The role modelling provided by mentors is crucial to professional identity development and an untapped teaching strategy (Hendelman & Byszewski, 2014) that not only helps mentees reduce stress while building competence (Mazerolle Eason, Clines, & Pitney, 2015) but also helps them integrate theory into practice (Jokelainen, Jamookeeah, Tossavainen, & Turunen, 2013; Petrilla, Fireman, Fitzpatrick, Hodas, & Taussig, 2015) and enjoy better career outcomes (Sweitzer, 2008). This mentoring relationship must be built on mutual trust as this is what encourages deeper self-reflection, professional

growth, and receptivity to feedback (Petrilla, Fireman, Fitzpatrick, Hodas, & Taussig, 2015). While an attitude of genuine care is crucial for effective mentoring, mentors also need to have strong professional competence and interpersonal skills (Baglin & Rugg, 2010; Sabatino, Rocco, Stievano, & Alvaro, 2015).

However, the lack of a mentoring system, or poor mentoring can have a negative impact on mentees as well as the overall productivity and professional culture of an organisation. Studies also show that the breakdown of a mentoring system can result in de-motivation, anxiety, and less career satisfaction (Hinton, 2015; Pfund, Byars-Winston, Branchaw, Hurtado, & Eagan, 2016). Mentoring also has a positive impact on the mentor in terms of fulfilment through knowledge and skill sharing, enhanced leadership skills, and increased self-awareness and productivity (Pfund *et al.*, 2016). This “collaboration” between the mentor and mentee supports the professional socialisation process, where the sharing and demonstration of professional values and standards helps establish a strong professional culture (Kay, 2015; Sweitzer, 2008).

The studies reviewed on mentorship point to several critical factors in relation to professional identity development. First, mentoring must be positioned as a professional relationship based on mutual trust as well as genuine care and concern for a mentee's professional growth. Second, it is important to consider that while intentional mentoring can enhance productivity, motivation, competency, and career satisfaction for both mentors and mentees, the reverse can hold true, i.e., having a broken mentoring system can have the opposite effect. Third, mentoring supports professional socialisation that is critical to help interns work towards joining the professional ranks of a profession through the sharing and exposure to social norms, values, and standards of behaviour held by a profession.

Component 3: Professional socialisation

Professional socialisation can be described as a sense of belonging to a professional community and being accepted as one of the group. It is a strong determinant of professional identity formation during pre-employment training. Students should be encouraged to ask questions, share their interests, concerns, and experiences with a professional community, and take part in special work projects (Karel *et al.*, 2011). In this way, professional socialisation can facilitate professional growth, innovation, pride, confidence, and a sense of belonging that internalises the values, beliefs, and attitudes of a profession (Kay, 2015; Rossi & Lisa hunter, 2011). The work environment also plays a part in professional socialisation and students must be able to observe role models so they can internalise observed professional behaviours (Sabatino *et al.*, 2015). Conversely, professional socialisation can also have an adverse effect. If negative values are shared and demonstrated, students can feel disillusioned about what a profession represents (Higgins, Spencer, & Kane, 2010; Levett-Jones, Lathlean, Higgins, & McMillan, 2009). Therefore, the work experience must reflect a profession's philosophy in terms of its beliefs, attitudes, and values as students will seek to learn, develop, and adapt to conform to these behavioural norms (Dinmohammadi, Peyrovi, & Mehrdad, 2013).

Studies show that relating to multiple stakeholders in an authentic work environment where students can establish relationships with peers, partners and clients should be a part the professional socialisation process to help build professional identity. (Leong & Crossman, 2015). Thus, professional socialisation can be supported through field placements that offer practice-based learning and authentic workplace experiences (Hinton, 2015; Hoffman & Berg, 2014; Petrilla *et al.*, 2015) that link classroom theory to real-world practice (Baglin & Rugg, 2010). Assuming student interns can do the tasks, they should be empowered to perform in a professional role so they can have the chance to be accepted and evaluated positively by established members in the industry (Izadinia, 2014) or by clients or other stakeholders. Building professional identity should also involve giving interns professional responsibility and empowering them to make decisions as these provide a sense of validation and being valued as part of a team (Bradbury-Jones, Sambrook, & Irvine,

2007). For example, for a medical student, professional identity becomes stronger when patients treat them as a doctor (Weaver, Peters, Koch, & Wilson, 2011). In addition, professional identity can also be enhanced by giving occupational titles as these show an organisation's trust in interns, which helps them become committed to tasks and appreciate how they fit into the bigger picture (Sweitzer, 2008). However, professional identity formation will be affected if interns do not feel welcomed or accepted as co-workers and if their work is not acknowledged and no feedback is given (Veltri, 2015). Thus, the goal must be to give opportunities to interact with peers and contribute to the industry by being exposed to the professional ecosystem by, for example, joining professional bodies (Gazzola, De Stefano, Audet, & Theriault, 2011).

Social exclusivity is another aspect that contributes to a sense of professional identity. For example, the social isolation of medical students in terms of physical location and course structure created a strong sense of shared identity and unity (Weaver *et al.*, 2011). Identity formation and skill building are significantly enhanced when students reflect together on interesting shared experiences while being immersed in a profession's culture as part of an internship placement (Birden, Barker, & Wilson, 2016). Similar to the established team development concepts proposed by Tuckman (1965), the professional identity formation in a team will also have its needed share of high points, low points, and conflicts as students build confidence, striving to balance professional and personal lives, create connections with stakeholders, manage expectations, and regulate their own emotions (Ackerman *et al.*, 2008). The social element is important in building professional identity. In order to build trusted professional relationships, an environment that includes collaborative work activities as well as social activities must be present as learning "involves the whole person" (Lave & Wenger, 1991).

Finally, one of the desired outcomes of professional socialisation and strengthening a sense of belonging is getting interns to practice in the profession they are trained for so the training invested leads to positive contributions to the industry. Being able to identify with a profession is a key predictor of retention to a profession, as work commitment is a key construct of the relationship between the individual and a profession as well as its values (Clements, Kinman, Leggetter, Teoh, & Guppy, 2016). It is important to note that in order for individuals to be committed to a profession—to the extent of being unwilling to change professions—they must have an emotional or psychological connection to that profession (Lamote & Engels, 2010; Zhao & Zhang, 2017). This affective link to the profession must be made early. In the context of trainee teachers, it was found that commitment to the profession during pre-service training was a reliable indicator of entering and staying in the teaching service (Rots, Aelterman, Vlerick, & Vermeulen, 2010). The determinants of such an early-stage commitment were primarily due to the support of mentors and other teachers in that professional community as well as professional efficacy in being able to do the job well (Zhao & Zhang, 2017).

Our analysis shows several key factors that relate to professional socialisation as a key ingredient in developing professional identity. First, it is important to aim to foster a sense of belonging by giving interns responsibility in a professional role so they have opportunities to be evaluated, validated, and appreciated by members in the industry. Second, students should take on authentic work roles using a practice-based learning approach that includes the inherent complexities that arise in a real work environment. Third, interns should engage with multiple stakeholders. Fourth, it is valuable to build a sense of social exclusivity by using the placement as a platform to allow interns to establish a shared identity as they reflect on common experiences and struggles at work. Fifth, it is important to create platforms to discuss the meaningfulness of the profession to build a psychological link to the values of a profession as this will help retain interns in the profession.

Component 4: Self-efficacy and goal orientation

Self-efficacy can be defined as the perception of self-confidence in being able to perform a task to one's own expectation under the prevailing challenges and conditions (Baglin & Rugg, 2010; Holland, Middleton, & Uys, 2012; Mat Nor, Yusoff, & Ismail, 2017). Studies show that self-efficacy has a significant impact not only on learning and skill acquisition but also perseverance, job satisfaction, motivation, and job performance (Bandura, 1986; Choi, Price & Vinokur, 2003; Gist & Mitchell, 1992; Judge & Bono, 2001). In the context of internships, legitimate work experiences, affective feedback and others' belief in an intern are what mediates feelings of confidence and self-efficacy (Hoy & Spero, 2005; Smith, Tallentire, Cameron, & Wood, 2013; Woolfolk, 2001) and these, in turn, build capabilities that can be recognised that leads to further opportunities (Birden *et al.*, 2016). This acceptance and approval of the role played by an intern increases self-efficacy through the process of professional socialisation (Izadinia, 2014).

However, studies show that while self-efficacy can increase at the start of an internship programme, it may fall when learners see the gap between their perceived and actual capabilities (Erdem & Demiral 2007; Lamote *et al.*, 2010). Nevertheless, this gap, if managed well, can represent a zone of proximal development (ZPD) that can be used as an opportunity for effective professional development with a mentor (Vygotsky, 1978).

There is a strong coupling between self-efficacy and goal orientation. Goal orientation describes why individuals strive to achieve specific outcomes and how they define those outcomes as well as how they embrace or avoid difficulty. If the goal is to maximise an individual's own abilities, then studies show that those with more self-efficacy tend to pick more challenging goals, are more task-oriented, and are more confident in their capabilities (Bandura, 1986). Two main goal orientations are defined by Carol Dweck in her well-established research on growth mindsets (Dweck, 2008). In any situation where learners try to achieve a goal, they can be more focused on mastering a task (task or task mastery orientation) or doing better than others (performance or ego orientation). Whether an individual chooses to define the goal as to achieve mastery or beat others, this choice will affect the way that learner approaches tasks and reacts to feedback (Elliot & Dweck, 1988). However, this choice can be affected by how safe the environment is, and where mistakes are punished or embraced as part of the learning process. To support a learning orientation in student interns, there needs to be opportunities created to practice and improve skills in a safe environment that moderates task difficulty in order to increase confidence (Holland *et al.*, 2012).

Thus, self-efficacy and goal orientation are key determinants that contribute to professional identity development. Research shows that learners who are ego-focused tend to fear tough competition, lose confidence, and struggle to build a strong professional identity. As such, they do not do well in that profession despite being certain about their professional aspirations (de Lasson, Just, Stegeager, & Malling, 2016). Likewise, the opposite effect would hold true for task-oriented learners. Task orientation can be encouraged by redefining goals as task mastery instead of comparison with others. These goals can be planned using the "SMART" framework at the start of an internship programme (Welch, Spooner, Tanzer, & Dintzner, 2017) with the aim to be more reflective rather than evaluative at the end of the programme, so that students focus on what they will do differently moving forward. Thus, self-efficacy or the belief in one's own competency leads to a focus on task mastery, where a learner is intrinsically motivated to learn for the goal of self-improvement.

Three aspects are apparent in terms of how self-efficacy and goal orientation are related to internships and professional identity. First, creating a safe environment of learning and task mastery rather than competition will more likely lead to a professional culture where interns take ownership of their own learning, embrace

challenging problems, and strive for excellent job performance. Second, the growth of self-efficacy must be built on progressive successes and feedback for improvement based on real work experience. Third, to push the envelope for an individual's self-efficacy, an experienced mentor should be available to guide learners through challenging tasks that are just beyond their own abilities.

Component 5: Critical thinking

Critical thinking is defined as the ability to analyse a problem in order to make objective judgements and involves the application of prior learning to current context (Pintrich, Smith, Garcia, & McKeachie, 1991). It is the metacognitive ability to ask critical questions, to test assumptions and evidence in order to facilitate decision-making, consider new perspectives, and explore possible alternative solutions (Miller *et al.*, 2014). This metacognitive skill of understanding one's own thought processes—what kind of professional one is now and what kind of professional one wants to be like in the future—can effectively contribute to professional identity formation (Crueess, Crueess, Boudreau, Snell, & Steinert, 2015).

While the development of critical thinking helps develop professional behaviour and identity, it is the practice of reflection and learning from solving challenges as a group that yields the best outcomes. Machin and Pearson (2014) explored action learning sets (ALS) in nurse training programmes and discovered that while students in the workplace were uncomfortable with action learning sets, they felt it enabled them to think more critically. An action learning set is a small group of 5-7 people that meet willingly to solve problems and learn from solving them. It is a group learning approach that is less dependent on experts with answers, and more focused on learners helping each other to take action to solve problems and learn from the process. According to Revans (1998, p. 74), "There is no learning without action and no (sober and deliberate) action without learning." Another aspect of critical thinking is the ability to challenge current assumptions, evaluate experiences, and change perspectives (Idzadinia, 2014; O'Reilly *et al.*, 2015).

In summary, critical thinking is a valued asset in any profession and there is a clear link between metacognitive critical thinking and professional identity development. Several important factors can be derived from the studies reviewed. First, there is a strong link between the development of critical thinking as a skill and the practice of reflection. Second, the concept of action learning—where there is no hierarchy within a problem-solving team and everyone is committed to action—is crucial to progress critical thinking. Third, similar to the analogy of iron sharpening iron, professional socialisation is key to sharpening the problem-solving skills that will help interns grow their professional identity.

Implementing internship programmes that develop professional identity

Mylrea, Gupta, and Glass (2017) proposed that motivational principles at the core of Self-Determination Theory (SDT)—competence, relatedness, and autonomy—have the potential to facilitate professional identity development by helping interns to "*think, act, and feel*" like a professional in a specific industry. By mapping the five identified components that help professional identity development to the SDT model for practice-based pedagogical curriculum based on human identity development proposed by Mylrea *et al.* (2017), we can create a model to implement internship programmes that aim to develop professional identity. The presence of these five components create an environment for motivation and professional identity formation in the workplace. Table 2 shows the link between SDT and the components of professional identity development.

Table 2

The components of professional identity development (PID) aligned to the components of Self-Determination Theory (SDT)

SDT Component	PID Component	Description
Think (Competence)	Reflection	Metacognitive process of analysing and making judgements about past happenings and creating meaning from them.
	Critical thinking	Ability to question, suggest alternatives, and be creative.
Act (Autonomy)	Self-efficacy and goal orientation	Self-confidence and competence in performing tasks; intrinsic motivation to learn and achieve task mastery in safe environment that also enables hands-on work experience in a multidisciplinary setting.
Feel (Relatedness)	Professional socialisation	Sense of belonging and significance for one’s position in the larger society through interaction with stakeholders.
	Mentoring	Mutually beneficial relationship where a mentor helps a mentee’s professional and personal growth.

We can further develop a method for designing internship programmes that help form professional identity by looking at a model for professional identity development of new counsellors proposed by Gibson, Dollarhide, and Moss (2010). That model—presented as a multi-dimensional cube—proposes that three transformational tasks must happen for professional identity to develop, and that this transformation is a process that happens through experience over a period of time.

Table 3 presents three phases of transformation over time for each of three transformational tasks—modified from work done by Gibson *et al.* (2010)—applied to student internship programmes:

1. Definition of professional role and responsibility
2. Responsibility for professional growth
3. Systematic thinking transformation

Table 3.

The transformational tasks and phases over time for professional identity development in an internship programme

Transformational Tasks	Phase 1	Phase 2	Phase 3
Definition of Professional Role and Responsibility (Professional Identity evolves from the individual’s definition of the work of the profession.)	Students adopts given/expert/authority definition of profession, roles and responsibilities as their own.	Students question given definitions by evaluating its relevance to personal experiences and understanding.	Students creates a personalised understanding of definition of profession and their roles and responsibilities.
Examples	Students are in the “Jug and Mug” (transmissive) learning phase. Textbook/ Lecturer /Supervisor definitions are not questioned.	Students start to discriminate between personal experiences vs. what they have been taught—and attempt to integrate them.	Students demonstrate the ability to create personalised definitions influenced by their experiences and understanding.
Responsibility for Personal Growth (Professional Identity emerges as a result of one’s training experiences.)	Students have strong reliance on external authorities to provide learning experiences and materials.	Students see the role of external authorities as to provide assistance and direct them to relevant resources—rather than providing the resources.	Students identify own learning needs and proactively seek out resources that would help them grow as professionals.
Examples	Students focus on coursework content and reading list provided.	Students ask to be directed to relevant resources. They are “consciously incompetent” and can identify their own gaps in knowledge and experience.	Students join as members of professional organisations as well as seek out industry conferences to attend.
Systematic Thinking Transformation (Professional Identity as relative to the professional community.)	Students define their professional identities based on individual skills and qualities.	Students become aware of the presence and impact of their professional contribution.	Students can identify the different systems linked to each other as part of the work of the profession.
Examples	Students are focused on qualifications, certifications, licences, and job titles.	Students are able to see the impact of their contributions to the industry ecosystem, including clients, partners, professional bodies, etc.	Students are aware of the interactions between the school, industry players, professional bodies, and clients or customers.

The multiple dimensions of the transformational process that happens over time in each phase is more clearly shown in the cube in Figure 3. This framework can be used to implement internship programmes that facilitate transformational task progression as well as create a motivational environment that facilitates professional identity development. For each phase in each of the transformational tasks, there is a progressive building of professional identity. In the first transformational task, the work environment must help interns evolve their definition of what the role and responsibility in a profession is. Initially, those roles and responsibilities will be defined and validated by external parties, like supervisors and mentors. By phase three, the definition of the profession gets more internalised and self-validation takes over. The second transformational task is responsibility for personal growth. Similarly, for individuals to build professional identity, they will start out relying more on being taught and eventually take ownership of driving their own learning and personal growth. The third transformation task is systematic thinking. This describes how an interns’ locus of thinking will progressively expand from linking one’s professional identity to individual

skills, credentials and values, towards how their role contributes to the ecosystem represented by a profession and its community.

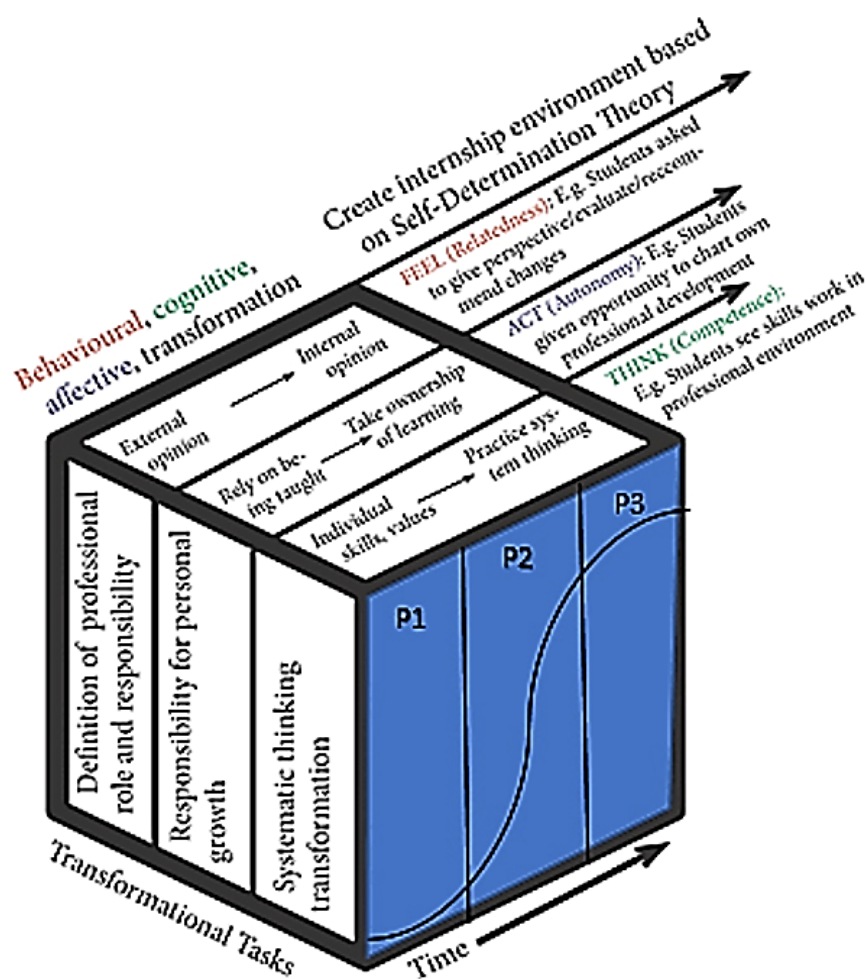


Figure 3. Framework for aligning transformational tasks and phases in professional identity development in an internship programme

Based on this systematic review, an internship programme that seeks to build professional identity can be designed based on this framework. In such programmes, interns are more likely to develop a professional identity as they will feel that they can contribute to a bigger community, act willingly to drive their own professional development, and think and believe that they have the competence to take on and overcome challenging tasks.

In the context of implementing an internship programme, the cognitive, behavioural, and affective transformation that help interns think, act, and feel like professionals must take into account how the components of professional identity development interact with each other (Table 4). They cannot be applied or built in isolation as human and profession identity development is a holistic process.

Table 4

Key components that drive professional identity development and how they interact with each other

	Reflection	Mentoring	Professional Socialisation	Self Efficacy and Goal Orientation	Critical Thinking
Critical Thinking	Critical thinking skills are best developed through reflective practice.	Mentors must role-model critical thinking that considers the context of a problem.	Improve critical thinking with less hierarchy and groupthink swayed towards a manager’s preference.	Critical thinking enhances task mastery by generalising future problem-solving strategies.	Analyse multiple aspects of a problem and make objective judgements based on past, present and future contexts.
Self Efficacy and Goal Orientation	Give time to reflect on what was done well (increase self-efficacy) and what can be done better (goal orientation).	Provide challenges that is just beyond a learner’s ability but that can be done with support from a mentor.	Build self-efficacy by engaging with stakeholders and work tasks focused on skill mastery rather than beating others.	Enhance self-efficacy by increasing autonomy for professional development and giving feedback on progressive improvement.	
Professional Socialisation	Reflecting with others is a key part of professional socialisation as it creates a shared sense of value, meaning and exclusivity.	Create a sense of belonging through professional socialisation as mentors and others validate and give feedback on student contributions.	Let students link theory to practice in a complex real work environment that engages multiple stakeholders.		
Mentoring	Mentors must guide and role model reflective practice for personal and professional growth.	Mentoring relationships result in professional growth for both mentors and mentees.			
Reflection	Reflection must be intentional, valued and include cognitive, affective and practical aspects.				

Thus, the key components must be applied broadly as a concert of components that will achieve the transformational tasks represented in the cube model in Figure 3. For example, time and space must be allowed for reflective practice as individuals as well as in a team, where an intern’s reflections work and values can be validated by others. This must be intentional and may initially be a routine, but with role-modelling from mentors and other members, this practice will get more internalised. In turn, this will build

problem-solving and critical thinking skills that boost self-efficacy and self-directed seeking of increasingly challenging task goals. If we see this in terms how it might look like in an internship programme, it could include meaningful reflections on real work challenges, where mentors and other members can recognise and validate contributions and give feedback and encouragement. This can be done on an online conversation platform where interns can feel safer, and have more time to reflect and build on the learnings and reflections of their peers and mentors. In any mentor-mentee or supervisor-subordinate relationship, such a simple initiative can build a sense of belonging and professional socialisation regardless of context, industry or discipline, as long as an authentic and challenging professional work task is the starting point.

CONCLUSION AND FUTURE RESEARCH

In this systematic review, we aimed to examine existing studies related to the development of professional identity in pre-employment training of student interns. This resulted in the synthesis of five promising components that contribute to professional identity development: reflection, mentoring, professional socialisation, self-efficacy and goal orientation, and critical thinking. While we tried to describe discrete components, identity development is holistic in nature. Thus, we have proposed a matrix to show how professional identity development stems from the interaction between these components within the domains of thinking, acting, and feeling. These findings can be used as a starting point for more research and operational models, leading to intentional design for professional identity formation and to monitor and measure student learning outcomes, regardless of whether that student is an intern in pre-employment training (PET) or an existing employee in continuing education and training (CET).

One promising area for development relates to training mentors in workplaces. While a workplace learning programme for interns might include all the components of professional identity development, the one component that would enable and accelerate the process at the workplace would be the mentor who takes on the role of teacher, facilitator, and coach with specific intentions in their practice. Given that positive mentoring relationships can help build a workplace culture of productivity, efficiency, and professionalism, it is therefore worth looking at what can be done to train mentors at work to focus their leadership and facilitation skills in the context of the findings in this study. This will provide guidance for institutions seeking to enhance their internship programmes in partnership with employers and mentors at the workplace to improve student learning outcomes, students' academic persistence and retention in the professions for which students are trained for. Future studies can implement and assess how well the framework builds professional identity during internships, and longitudinal studies can go further to explore if such intentional programmes can increase students' retention rates in the industries they were trained for.

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REFERENCES

Research studies marked with an “*” are part of the 58 articles directly referenced in this systematic review.

- *Ackerman, A., Graham, M., Schmidt, H., Stern, D., & Miller, S. (2009). Critical events in the lives of interns. *Journal of General Internal Medicine*, 24(1), 27-32. <http://dx.doi.org/10.1007/s11606-008-0769-8>
- Arthur, M.B., Hall, D.T. & Lawrence, B.S. (1989). *Handbook of Career Theory*. New York: Cambridge University Press.
- Bada, S. O. (2015). Constructivism learning theory: A paradigm for teaching and learning. *IOSR Journal of Research & Method in Education*, 5(6), 66-70. Retrieved from <https://www.iosrjournals.org/iosr-jrme/papers/Vol-5%20Issue-6/Version-1/I05616670.pdf>.
- *Baglin, M. R., & Rugg, S. (2010). Student nurses' experiences of community-based practice placement learning: A qualitative exploration. *Nurse Education in Practice*, 10(3), 144-152. <http://dx.doi.org/10.1016/j.nepr.2009.05.008>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- *Birden, H., Barker, J., & Wilson, I. (2016). Effectiveness of a rural longitudinal integrated clerkship in preparing medical students for internship. *Medical Teacher*, 38(9), 946-956. <http://dx.doi.org/10.3109/0142159X.2015.1114594>
- Bolten, G., & Delderfield, R. (2005). *Reflective Practice: Writing and Professional Development*. London: SAGE Publications.
- Boud, D., Keogh, R., & Walker, D. (Eds.) (1985). *Reflection: Turning experience into learning*. London: Kogan Page.
- Bradbury-Jones, C., Sambrook, S., & Irvine, F. (2007). The meaning of empowerment for nursing students: A critical incident study. *Journal of Advanced Nursing*, 59(4), 342-351. <http://dx.doi.org/10.1111/j.1365-2648.2007.04331.x>
- Burns, S. & Bulman, C. (2000). *Reflective Practice in Nursing: The Growth of the Professional Practitioner*. 2nd Edition, Blackwell, Oxford.
- Callens, J. C., & Elen, J. (2015). Does a structured methodology support pre-service teachers more to reflect critically than an unstructured? *Reflective Practice*, 16(5), 609-622. <http://dx.doi.org/10.1080/14623943.2015.1064383>
- Choi, J.N., Price, R. H., & Vinokur, A. D., (2003). Self-efficacy changes in groups: Effects of diversity, leadership, and group climate. *Journal of Organizational Behavior*, 24(4), 357-372. <http://dx.doi.org/10.1002/job.195>
- *Clandinin, D. J., & Cave, M. (2008). Creating pedagogical spaces for developing doctor professional identity. *Medical Education*, 42(8), 765-770. <http://dx.doi.org/10.1111/j.1365-2923.2008.03098.x>
- *Clements, A. J., Kinman, G., Leggetter, S., Teoh, K., & Guppy, A. (2016). Exploring commitment, professional identity, and support for student nurses. *Nurse Education in Practice*, 16(1), 20-26. <http://dx.doi.org/10.1016/j.nepr.2015.06.001>
- *Cruess, R., Cruess, S., Boudreau, J., Snell, L., & Steinert, Y. (2015). A schematic representation of the professional identity formation and socialization of medical students and residents: A guide for medical educators. *Academic Medicine*, 90(6), 718-725. <http://dx.doi.org/10.1097/ACM.0000000000000700>
- *de Lasson, L., Just, E., Stegeager, N., & Malling, B. (2016). Professional identity formation in the transition from medical school to working life: A qualitative study of group-coaching courses for junior doctors. *BMC Medical Education*, 16(1), 165. <http://dx.doi.org/10.1186/s12909-016-0684-3>
- Dinmohammadi M., Peyrovi H., Mehrdad N. (2013). Concept analysis of professional socialisation in nursing. *Nursing Forum*, 48, 1, 26- 34. <https://doi.org/10.1111/nuf.12006>

- Dutton, J. E., Roberts, L. M. & Bednar, J. S. (2010). Pathways for positive identity construction at work: Four types of positive identity and the building of social resources. *Academy of Management Review*, 35, 265-293. <https://doi.org/10.5465/AMR.2010.48463334>
- Dweck, C. (2008). *Mindset: The new psychology of success*. Random House Digital, Inc.
- Elliott, E. S., & Dweck, C. S. (1988). Goals. *Journal of Personality and Social Psychology*, 54(1), 5-12. <http://dx.doi.org/10.1037/0022-3514.54.1.5>
- Erdem, E., & Demirel, O. (2007). Teacher self-efficacy belief. *Social Behavior and Personality*, 35(5), 573–86. <https://doi.org/10.2224/sbp.2007.35.5.573>
- Farrell, T. S. C. (2011). 'Keeping SCORE': Reflective practice through classroom observations. *RELC Journal*, 42(3), 265-272. <http://dx.doi.org/10.1177/0033688211419396>
- *Gazzola, N., De Stefano, J., Audet, C., & Theriault, A. (2011). Professional identity among counselling psychology doctoral students: A qualitative investigation. *Counselling Psychology Quarterly*, 24(4), 257-275. <http://dx.doi.org/10.1080/09515070.2011.630572>
- *Gibson, D. M., Dollarhide, C. T., & Moss, J. M. (2010). Professional identity development: A grounded theory of transformational tasks of new counselors. *Counselor Education & Supervision*, 50, 21-38. <https://doi.org/10.1002/j.1556-6978.2010.tb00106.x>
- Gidman, J. (2013). Listening to stories: Valuing knowledge from patient experience. *Nurse Education in Practice*, 13(3), 192-196. <http://dx.doi.org/10.1016/j.nepr.2012.09.006>
- Gist, M. E., & Mitchell, T. B. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, 17(2), 183-211. <http://dx.doi.org/10.5465/AMR.1992.4279530>
- Gustafsson, C., & Fagerberg, I. (2004). Reflection, the way to professional development? *Journal of Clinical Nursing*, 13(3), 271-280. <http://dx.doi.org/10.1046/j.1365-2702.2003.00880.x>
- Hendelman, W., & Byszewski, A. (2014). Formation of medical student professional identity: Categorizing lapses of professionalism, and the learning environment. *BMC Medical Education*, 14(1), 139. <http://dx.doi.org/10.1186/1472-6920-14-139>
- Higgins, G., Spencer, R. L, Kane, R. (2010) A systematic review of the experiences and perceptions of the newly qualified nurse in the UK. *Nurse Education Today*. 30(6), 499- 508. <https://doi.org/10.1016/j.nedt.2009.10.017>
- *Hinton, J. (2015). An exploration of operating department practice students' experiences of placement support during their first perioperative clinical placement. *Nurse Education in Practice*, 16(1), 242-250. <http://dx.doi.org/10.1016/j.nepr.2015.09.005>
- *Hoffmann, K., & Berg, S. (2014). "You can't learn it in school": Field experiences and their contributions to education and professional identity. *Canadian Journal of Information and Library Science*, 38(3), 220. <https://doi.org/10.1353/ils.2014.0015>
- *Holland, K., Middleton, L., & Uys, L. (2012). Professional confidence: A concept analysis. *Scandinavian Journal of Occupational Therapy*, 19(2), 214-224. <http://dx.doi.org/10.3109/11038128.2011.583939>
- Hong Y., & Choi I. (2011). Three dimensions of reflective thinking in solving design problems: A conceptual model. *Educational Technology Research and Development*, 59(5), 687-710. <http://dx.doi.org/10.1007/s11423-011-9202-9>
- Hoy, A.W., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education*, 21(4), 343–56. <https://doi.org/10.1016/j.tate.2005.01.007>
- Hughes, E. (1958). *Men and Their Work*. New York: Free Press.
- Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, 44(4), 764–791. <http://dx.doi.org/10.2307/2667055>

- *Izadinia, M. (2013). A review of research on student teachers' professional identity. *British Educational Research Journal*, 39(4), 694-713. <http://dx.doi.org/10.1080/01411926.2012.679614>
- *Izadinia, M. (2014). Teacher educators' identity: A review of literature. *European Journal of Teacher Education*, 37(4), 426-441. <http://dx.doi.org/10.1080/02619768.2014.947025>
- Jarvis, P. 1992. *Paradoxes of learning: On becoming an individual in society*. San Francisco: Jossey-Bass.
- *Jokelainen, M., Jamookeeah, D., Tossavainen, K., & Turunen, H. (2013). Finnish and british mentors' conceptions of facilitating nursing students' placement learning and professional development. *Nurse Education in Practice*, 13(1), 61-67. <http://dx.doi.org/10.1016/j.nepr.2012.07.008>
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits-self-esteem, generalized self-efficacy, locus of control, and emotional stability-with job satisfaction and job performance. *Journal of Applied Psychology*, 86(1), 80-92. <http://dx.doi/10.1037/0021-9010.86.1.80>
- *Karel, M. J., & Stead, C. D. (2011). Mentoring geropsychologists-in-training during internship and postdoctoral fellowship years. *Educational Gerontology*, 37(5), 388-408. <http://dx.doi.org/10.1080/03601277.2011.553560>
- *Kay, N. (2015). How mentors can influence the values, behaviours and attitudes of nursing staff through positive professional socialisation. *Nursing Management*, 22(8), 33-38. <http://dx.doi.org/10.7748/nm.22.8.33.s28>
- *Knez, I. (2016). Toward a model of work-related self: A narrative review. *Frontiers in Psychology*, 7, 331. <http://dx.doi.org/10.3389/fpsyg.2016.00331>
- *Lamote, C., & Engels, N. (2010). The development of student teachers' professional identity. *European Journal of Teacher Education*, 33(1), 3-18. <http://dx.doi.org/10.1080/02619760903457735>
- Langley, M. E., & Brown, S. T. (2010). Perceptions of the use of reflective learning journals in online graduate nursing education. *Nursing Education Perspectives*, 31(1), 12-17. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/20397474>.
- Lave, J., & Wenger, E., 1991. *Situated Learning: Legitimate Peripheral Participation*. New York: Cambridge University Press.
- Leavitt, K., Reynolds, S.J., Barnes, C.M., Schilpzand, P. & Hannah, S.T. (2012). Different hats, different obligations, plural occupational identities, and situated moral judgment. *Academy of Management Journal*, 55(6), 1316-1333. <https://doi.org/10.5465/amj.2010.1023>
- Leong, Y. M. J., & Crossman, J. (2015). New nurse transition: Success through aligning multiple identities. *Journal of Health Organization and Management*, 29(7), 1098-1114. <http://dx.doi.org/10.1108/JHOM-02-2014-0038>
- Levett-Jones, T., Lathlean, J., Higgins, I., & McMillan, M. (2009). Staff - student relationships and their impact on nursing students' belongingness and learning. *Journal of Advanced Nursing*, 65(2), 316-324. <http://dx.doi.org/10.1111/j.1365-2648.2008.04865.x>
- Luehmann, A. L. (2007). Identity development as a lens to science teacher preparation. *Science Education*, 91(5), 822-839. <http://dx.doi.org/10.1002/sce.20209>
- *Machin, A. I., & Pearson, P. (2014). Action learning sets in a nursing and midwifery practice learning context: A realistic evaluation. *Nurse Education in Practice*, 14(4), 410-416. <http://dx.doi.org/10.1016/j.nepr.2014.01.007>
- Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Sciences Education : Theory and Practice*, 14(4), 595-621. <http://dx.doi.org/10.1007/s10459-007-9090-2>
- Martens, R. (2012). *Successful coaching* (4. ed.). Champaign, IL: Human Kinetics.
- *Mat Nor, M. Z., Yusoff, M. S. B., & Ismail, M. A. (2017). The patterns of professional identity development among medical graduates of a SPICES curriculum. *Education in Medicine Journal*, 9(4), 51-61. <http://dx.doi.org/10.21315/eimj2017.9.4.6>

- *Mazerolle, S. M., Eason, C. M., Clines, S., & Pitney, W. A. (2015). The professional socialization of the graduate assistant athletic trainer. *Journal of Athletic Training*, 50(5), 532-541. <http://dx.doi.org/10.4085/1062-6050-50.1.03>
- Mezirow, J. (1981). A critical theory of adult learning and education. *Adult Education Quarterly*, 32(1), 3-24. <https://doi.org/10.1177%2F074171368103200101>
- *Miller, E., Balmer, D., Hermann, N., Graham, G., & Charon, R. (2014). Sounding narrative medicine: Studying students' professional identity development at columbia university college of physicians and surgeons. *Academic Medicine*, 89(2), 335-342. <http://dx.doi.org/10.1097/ACM.0000000000000098>
- Ministry of Education (Singapore). (2015). *Ministry of Education Budget 2015, Education in SkillsFuture, Announcements*. Retrieved from <https://www.moe.gov.sg/microsites/budget2015/education-in-skillsfuture/>.
- Ministry of Finance (Singapore). (2015). Budget Speech by Tharman Shanmugaratnam, Deputy Prime Minister, Minister for Finance and Chairman of the SkillsFuture Council - Section C: Developing Our People. Retrieved from http://www.singaporebudget.gov.sg/budget_2015/pc.aspx.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. <http://dx.doi.org/10.1371/journal.pmed.1000097>
- Moorhead, B. (2019). Sustaining professional identity during the initial post-qualification period: Implications for retention strategies. *International Social Work*, 2087281983670. <http://dx.doi.org/10.1177/0020872819836703>
- *Moss, J. M., Gibson, D. M., & Dollarhide, C. T. (2014). Professional identity development: A grounded theory of transformational tasks of counselors. *Journal of Counseling & Development*, 92(1), 3-12. <http://dx.doi.org/10.1002/j.1556-6676.2014.00124.x>
- *Mylrea, M. F., Sen Gupta, T., & Glass, B. D. (2017). Developing professional identity in undergraduate pharmacy students: A role for self-determination theory. *Pharmacy (Basel, Switzerland)*, 5(2), 16. <http://dx.doi.org/10.3390/pharmacy5020016>
- *O'Reilly, S. L., & Milner, J. (2015). Transitions in reflective practice: Exploring student development and preferred methods of engagement. *Nutrition & Dietetics*, 72(2), 150-155. <http://dx.doi.org/10.1111/1747-0080.12134>
- *O'Sullivan, H., van Mook, W., Fewtrell, R., & Wass, V. (2012). Integrating professionalism into the curriculum: AMEE guide no. 61. *Medical Teacher*, 34(2), e6-e77. <http://dx.doi.org/10.3109/0142159X.2012.655610>
- *Paliadelis, P., & Wood, P. (2016). Learning from clinical placement experience: Analysing nursing students' final reflections in a digital storytelling activity. *Nurse Education in Practice*, 20, 39-44. <http://dx.doi.org/10.1016/j.nepr.2016.06.005>
- *Petrila, A., Fireman, O., Fitzpatrick, L. S., Hodas, R. W., & Taussig, H. N. (2015). Student satisfaction with an innovative internship. *Journal of Social Work Education*, 51(1), 121-135. <http://dx.doi.org/10.1080/10437797.2015.977175>
- *Pfund, C., Byars-Winston, A., Branchaw, J., Hurtado, S., & Eagan, K. (2016). Defining attributes and metrics of effective research mentoring relationships. *AIDS and Behavior*, 20(S2), 238-248. <http://dx.doi.org/10.1007/s10461-016-1384-z>
- Pintrich, P. R., Smith, D. A., Garcia, T., & McKeachie, W. J. (1991). *A manual for The use of the motivated strategies for learning questionnaire(MSLQ)*. Ann Arbor, MI: University of Michigan.
- Population.sg (2018, April 23). *Is Singapore facing a population time bomb?* Retrieved from <https://www.population.sg/articles/is-singapore-facing-a-population-time-bomb>.
- Revans, R. W. (1998). *The ABC of Action Learning* (pp. 74). London: Lemos and Paine.
- *Rossi, A. J., & Iisahunter. (2013). Professional spaces for pre-service teachers: Sites of reality, imagination and resistance. *Educational Review*, 65(2), 123-139. <http://dx.doi.org/10.1080/00131911.2011.648170>

- Rots, I., Aelterman, A., Vlerick, P., and Vermeulen, K. (2007). Teacher education, graduates' teaching commitment and entrance into the teaching profession. *Teach. Teach. Educ.* 23, 543–556. <http://dx.doi.org/10.1016/j.tate.2007.01.012>
- *Sabatino, L., Rocco, G., Stievano, A., & Alvaro, R. (2015). Perceptions of Italian student nurses of the concept of professional respect during their clinical practice learning experience. *Nurse Education in Practice*, 15(4), 314–320. <http://dx.doi.org/10.1016/j.nepr.2014.09.002>
- Samaras, Anastasia P. 2002. *Self-study for Teacher Educators: Crafting a Pedagogy for Educational Change*. New York: Peter Lang.
- *Sandvik, A., Eriksson, K., & Hilli, Y. (2014). Becoming a caring nurse—A Nordic study on students' learning and development in clinical education. *Nurse Education in Practice*, 14(3), 286–292. <http://dx.doi.org/10.1016/j.nepr.2013.11.001>
- Schein, E.H. (1978). *Career dynamics: Matching individual and organizational needs*. Reading, MA: Addison-Wesley.
- Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.
- Shim, W. S., Hwang, M. J., & Lee, J. (2009). Professional identity, job satisfaction, and retention of licensed social workers in Korea. *Asia Pacific Journal of Social Work and Development*, 19(1), 82–95. <http://dx.doi.org/10.1080/21650993.2009.9756055>
- Siebert, D. C. & Siebert, C. F. (2005). The caregiver role identity scale: A validation study. *Research on Social Work Practice*, 15(3), 204–212. <https://doi.org/10.1177/1049731504272779>
- SkillsFuture. (2015). *Enhanced Internships: Enhance internships to strengthen students' learning at the workplace*. Retrieved from <http://www.skillsfuture.sg/factsheet.html/enhanced-internships.html>.
- *Smith, S. E., Tallentire, V. R., Cameron, H. S., & Wood, S. M. (2013). The effects of contributing to patient care on medical students' workplace learning. *Medical Education*, 47(12), 1184–1196. <http://dx.doi.org/10.1111/medu.12217>
- Stockhausen, L.J., 2005. Learning to become a nurse: students' reflections on their clinical experiences. *Austr. J. Adv. Nurs.* 22(3), 8–14. Retrieved from <http://www.ajan.com.au/Vol22/Vol22.3-1.pdf>.
- Stryker, S. (1987). *The Interplay of Affect and Identity: Exploring the Relationships of Social Structure, Social Interaction, Self, and Emotion*. Chicago, IL: American Sociological Association.
- Sutherland, L., Howard, S., & Markauskaite, L. (2010). Professional identity creation: Examining the development of beginning preservice teachers' understanding of their work as teachers. *Teaching and Teacher Education*, 26(3), 455–465. <http://dx.doi.org/10.1016/j.tate.2009.06.006>
- *Sweitzer, V. L. (2008). Networking to develop a professional identity: A look at the first-semester experience of doctoral students in business. *New Directions for Teaching and Learning*, 2008(113), 43–56. <http://dx.doi.org/10.1002/tl.307>
- Tajfel, H. & Turner, J.C. (1979). An integrative theory of intergroup conflict. In W.G. Austin and S. Worchel (Eds), *The Social Psychology of Intergroup Relations*. 33–45. Monterey, CA: Brooks/Cole.
- Thanaraj, A. (2017). *Constructive reflection: Getting the best out of reflective learning*. International Educative Research Foundation and Publisher.
- *Tracey M. W., Hutchinson A., & Grzebyk T. Q. (2014). Instructional designers as reflective practitioners: Developing professional identity through reflection. *Educational Technology Research and Development*, 62(3), 315–334. <http://dx.doi.org/10.1007/s11423-014-9334-9>
- Trede, F. (2012). Role of work-integrated learning in developing professionalism and professional identity. *Asia-Pacific Journal of Cooperative Education*, 13(3), 159–167. Retrieved from https://www.ijwil.org/files/APJCE_13_3_159_167.pdf.

- Trede, F., Macklin, R., & Bridges, D. (2011). Professional identity development: A literature review. *Studies in Higher Education*, 1-20, iFirst Article. <https://doi.org/10.1080/03075079.2010.521237>
- Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, 63(6), 384. Retrieved from <https://search.proquest.com/docview/1296858746>.
- *Veltri, L. M. (2015). Obstetrical staff nurses experiences of clinical learning. *Nurse Education in Practice*, 15(1), 44-51. <http://dx.doi.org/10.1016/j.nepr.2014.10.006>
- Vygotsky, L. S. (1978). "Interaction between learning and development" in M. Cole, V. John-Steiner & E. Souberman (Eds.), *Mind In Society: The Development of Higher Psychology Processes* (pp.79-91). Cambridge, M.A.: Harvard University Press.
- *Weaver, R., Peters, K., Koch, J., & Wilson, I. (2011). 'Part of the team': Professional identity and social exclusivity in medical students. *Medical Education*, 45(12), 1220-1229. <http://dx.doi.org/10.1111/j.1365-2923.2011.04046.x>
- *Welch, B., Spooner, J. J., Tanzer, K., & Dintzner, M. R. (2017). Design and implementation of a professional development course series. *American Journal of Pharmaceutical Education*, 81(10), 6394-99.
- Wenger, E. (1998). *Communities of practice*. Cambridge u.a: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511803932>
- Williams, J., & Power, K. (2010). Examining teacher educator practice and identity through core reflection. *Studying Teacher Education* 6(2), 115–130. <https://doi.org/10.1080/17425964.2010.495888>
- Woolfolk, A.E. (2001). *Educational psychology*. Boston: Allyn and Bacon.
- *Zhao, H., & Zhang, X. (2017). The influence of field teaching practice on pre-service teachers' professional identity: A mixed methods study. *Frontiers in Psychology*, 8, 1264. <http://dx.doi.org/10.3389/fpsyg.2017.01264>

APPENDIX 1. SUMMARY OF KEY FINDINGS FROM EACH INCLUDED ARTICLE THAT EXAMINES THE COMPONENTS OF PROFESSIONAL IDENTITY FORMATION RELATED TO INTERNSHIP PROGRAMMES.

APPENDIX 2. THE 10 COMPONENTS OF PROFESSIONAL IDENTITY DEVELOPMENT AND TAGGED TO EACH ARTICLE THAT EXAMINED THAT COMPONENT. ■

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