**Title**

Development of professional identity in allied health students: a scoping review.

**Keywords**

Scoping review, professional identity, professionalisation, allied health occupations, allied health students.

**Abstract**

**Aim:** Reports on the development of professional identity and socialisation in the health care professions are mainly from medicine and nursing although the body of work from other health professions is increasing. This scoping review investigates what is known about the development of professional identity of students from nine allied health professions, and what they experience when developinga professional identity.

**Methods:** Reviewers independently searched five databases, CINAHL Plus, Informit, Ovid Medline, Proquest and Scopus, using terms from text mining on six key articles known to authors or keywords; “*allied health occupation”, student, professional identity, professional socialisation, professionalisation, professional role*.

**Results:** Ninety-six articles met inclusion criteria from 3662 records. Over half the articles were published after 2010, and reported studies using qualitative methods with small numbers of participants. Study participants were mainly from the United States of America, the United Kingdom and Australia and their professions were social work, occupational therapy, and physiotherapy. There was no consensus for terminology of professional identity and related terms were used interchangeably. Theoretical frameworks varied with situated learning theory and application of standards or frameworks to meet accreditation or professional organisation requirements being most common. Students reported early introduction to their profession beneficial to developing a professional identity.

**Discussion:** Findings indicate while interest has increased, further research, including longitudinal studies, would deepen our understanding of the processes at different stages and similarities between the professions, and is needed for curriculum development, graduate employability strategies, and best preparation of students for their future practice.

**Introduction**

The World Health Organisation (WHO) has long advocated that health professionals need to be competent working collaboratively in interprofessional teams to improve outcomes for clients (World Health Organisation, 1988, 2010). In a Lancet Commissioned Review, Frenk and coauthors explain “patient management requires coordinated care across time and space, demanding unprecedented teamwork" and “professionals have to integrate the explosive growth of knowledge and technologies while grappling with expanding functions …” (Frenk et al., 2010` p. 1926). In this increasingly complex workplace, interprofessional teams are promoted to “optimize the skills of their members, share case management and provide better health-services to patients and the community” (World Health Organisation, 2010, p. 10). Capability to practice collaboratively is described as “an interprofessional process of communication and decision making that enables the separate and shared knowledge and skills of health care providers to synergistically influence patient care provided” (Oandasan & Reeves, 2005, p. 35). Recognising the interdependence between health and education, reform in professional education is recommended to produce graduates who are able to efficiently deliver health care as members of teams (Frenk et al., 2010`).

Each profession has its own professional identity (PI) and culture with values, beliefs, patterns of behavior, and attitudes being reinforced during education (Hall, 2005). The strength of PI is important as it relates to the ability to interact in collaborative practice and degree of participation in the team (Adams, Hean, Sturgis, & Macleod Clark, 2006; Hean, Clark, Adams, Humphris, & Lathlean, 2006). Predictors for strength of students’ professional identity are gender, profession, previous experience in health care, understanding of teamwork, knowledge of the profession, and cognitive flexibility (Adams et al., 2006). During formation of PI, the individual’s own culture merges with the culture of the profession (Ajjawi & Higgs, 2008) and roles, values, and attitudes of the profession are internalised (Bartlett, Lucy, Bisbee, & Conti-Becker, 2009) in a process called professional socialisation (PS). Learning to become a professional requires more than just learning skills and behaviors, it is a both a cognitive and cultural activity (Dahlgren, Richardson, & Sjostrom, 2004; du Toit, 1995; Howkins, 1999).

For new graduates, early years in the workforce are exciting, rewarding and challenging, and also a significant time for PI development (Ajjawi & Higgs, 2008; Black et al., 2010). In a small study of graduate allied health professionals transitioning from classroom to practice, the first year was characterised by constant stress affecting aspects of personal and professional life, continuous professional development and finally, adaptation (Tryssenaar & Perkins, 2001). Preparing graduates for the workforce to meet employer demands for practitioners who are work-ready with technical knowledge, professional competencies, and other work related skills is a concern for universities (M. Clarke, 2017; Smith & Pilling, 2007). Graduate employability is multifactorial and ideally brings together governments, employer groups and industry to identify critical issues, initiate strategies to enhance prospects and support graduates transitioning into the workforce (Bennett, Richardson, & MacKinnon, 2016; M. Clarke, 2017; Daniels & Brooker, 2014).

Reports on PI and PS development in health care professions are mainly from medicine and nursing with relatively newer findings from physiotherapy, occupational therapy, psychology and dietetics (Bartlett et al., 2009; Cruess, Cruess, Boudreau, Snell, & Steinert, 2014; MacLellan, Lordly, & Gingras, 2011). Although referring to the development of professional identity in dietetics, MacLellan and colleagues conclude “the wealth of material from nursing indicates dietetics has much to explore” (MacLellan et al., 2011, p. 41). They observe that the process may be similar between dietetics and nursing as the focus of the professions is different, and therefore professionalisation is likely to be qualitatively different (MacLellan et al., 2011).

A greater understanding of how students develop their PI would facilitate better preparation of students for entry to the workforce, support curriculum development, and promote professional development of educators and practitioners. This scoping review set out to establish what is known about the development of professional identity of allied health students, and their experience as they developtheir professional identity. Consistent with the purpose of undertaking a scoping review, the secondary aim is to identify gaps in the literature on formation of PI by allied heath students and provide directions for further research.

**Method**

The framework approach for conducting scoping reviews as outlined by Arksey and O’Malley (Arksey & O'Malley, 2005), with supporting commentaries by Daudt and colleagues (Daudt, Van Mossel, & Scott, 2013) and Levac and colleagues (Levac, Colquhoun, & Brien, 2010), was used to guide this scoping review, and followed the sequence: identifying the research questions, identifying relevant studies, study selection, charting or extracting the data, and collating, summarising and reporting the results. The optional stages of critical appraisal or quality assessment of studies and expert consultation were omitted (O'Brien et al., 2016). Ethical approval was not required.

***Scoping study protocol***

A protocol was developed prior to conducting the review although not registered.

***Inclusion criteria***

The term “allied health” represents a collective of health disciplines, exclusive of doctors and nurses, and tends to be used at “service delivery and policy levels” (Mason, 2013, p. 300). However, there is wide variation and no agreement on which professions are considered to be allied health (Demo, Fry, Devine, & Butler, 2015; Grimmer et al., 2014; Turnbull et al., 2009). For this scoping review, the definition that allied health professions have “a clearly articulated national entry level competency standards and assessment procedures, a defined core scope of practice, a direct patient care role and may have application to broader public health outcomes” will be used (Allied Health Professions Australia, para. 4). According to Australian Allied Health Leadership Forum, “allied health professionals are qualified to apply their skills to retain, restore or gain optimal physical, sensory, psychological, cognitive, social and cultural function of clients, groups and populations” (Australian Allied Health Leadership Forum, 2018). It is well accepted that medical, nursing or dental professionals are not included as allied health professionals, and this position is consistent internationally (National Library of Medicine; The Association of Schools of Allied Health Professions.)

“Student” means a person enrolled in a formal undergraduate or postgraduate program at college or university leading to a qualification in allied health that must be completed prior to registration or the equivalent licensing with relevant accrediting body (National Library of Medicine). A clinical training program or professional placement is a requirement of the course or program, with setting and duration varying according to the profession (Mason, 2013; McAllister & Nagarajan, 2015).

Participants were to be students from one or more of the following allied health professions:

Audiology, human nutrition and dietetics, occupational therapy, physiotherapy, podiatry, pharmacy, psychology, social work, or speech pathology.

These were selected because their roles are similar in the practice setting (Grimmer et al., 2014). Studies with students from medicine, dentistry and nursing were considered only if they included students from one of the included allied health professions. Studies needed to address both development of PI or development of a professional self or PS as the intervention or phenomena of interest, and be undertaken in a health education setting such as university classroom or professional practice placements. Primary or original research could have outcomes such as student reports of acquisition or changes in knowledge, skills, attitudes, feelings, or behaviors related to PI, professional role or professional practice; education activities with learning outcomes related to PI; development of tools and reports on measures of students’ PI; or discussion of attributes or qualities or other characteristics in PI development. Quantitative studies, studies reporting qualitative data, and studies with mixed method data, as well as expert opinion and discussion papers, published in peer-reviewed journals were suitable. The search was extended to 1960 and published in English.

***Identifying relevant studies***

To avoid duplicating work by other researchers (Tricco et al., 2016), repositories of registered protocols (Campbell Collaboration; Joanna Briggs Institute Library; Prospero) were searched, unsuccessfully.

Five databases, CINAHL Plus, Informit, Ovid Medline, Proquest and Scopus, were searched in a three-step strategy. Text-mining was undertaken by co-author (DB, Faculty of Health Science librarian) on six key articles already known to the authors: (Adams et al., 2006; Ajjawi & Higgs, 2008; Bartlett et al., 2009; Clouder, 2003; MacLellan et al., 2011; Trede, Macklin, & Bridges, 2012). This process identified relevant keywords and subject headings which were then searched in Medline and CINAHL in the title and abstract fields. Simultaneously, another reviewer (RS) independently searched the same databases using authors key words from the same articles. These were: allied health occupation, student, professional identity, professional socialisation, professionalisation and professional role. A final search using keywords and subject headings was adapted for the remaining databases, Informit, Proquest and Scopus, also conducted independently by two reviewers (RS and SF).

***Study selection***

An article was included if it was considered eligible by the two reviewers. Articles accepted by only one reviewer went to the third reviewer (GF) for a decision. Inclusion and exclusion criteria are shown in Table 1.

***Data charting***

A charting table or data extraction form to record key information was included in the protocol, trialled by the three reviewers, and refined as the review progressed. One reviewer (RS) charted the data, which was verified with another reviewer (SF) after 10% of articles were completed to ensure accuracy and completeness. The first reviewer completed the remaining articles.

***Data management***

The searches were performed directly in each of the databases and citations exported to reference management software Endnote (Thomson Reuter, 2016). The review used Rayyan (Qatar Computing Research Institute, 2016), a cloud-based application developed to expedite screening and files sharing for systematic reviews (Ouzzani, Hammady, Fedorowicz, & Elmagarmid, 2016). The titles and abstracts of references were imported into Rayyan from Endnote in RIS format, and PDF of full text articles uploaded to facilitate blind review at each stage, with results exported from Rayyan as a CSV file. An Excel spreadsheet (Microsoft Corporation, 2011) was also used to record reviewer decisions.

***Data analyses and synthesis***

Data for descriptive analysis were entered into Excel using the charting table. Qualitative analysis was conducted in NVivo for Mac (QSR International Pty Ltd, 2016). Included articles were imported in PDF format, reviewed and coded for themes. Auto coding was applied for the key words and then themes and subthemes identified in an iterative process, using the constant comparative method (Liamputtong, 2013). The final stage involved synthesis of themes into a research question focused, integrated summary.

**Results**

Database searches were conducted in May 2016 and updated in April 2017. Three thousand six hundred and sixty two records were retrieved and 96 articles met inclusion criteria and retained, shown in Figure 1, PRISMA Flow chart describing the study selection (Liberati et al., 2009). Studies were excluded if: the study focus was not relevant, the article was unavailable in electronic format, or study participants were not suitable. Following discussion between reviewers, studies on interprofessional education (IPE), including clinical education activities, were excluded as emerging literature on dual professional identities indicated that IPE articles would not address the review questions and may confound the understanding of professional identities (Joynes, 2018; Khalili, Orchard, Spence Laschinger, & Farah, 2013).

***Description of retrieved articles***

More than half (54, 56.3%) the included articles were published after 2010 using qualitative research methods (51, 53.1%), less than 50 participants (53, 55.2%), and included PI (37, 38.5%) or PS (18, 18.8%) in the objectives, shown in Table 2, Summary of retrieved articles. Few studies (21, 21.9%) used a quantitative research design and missing information such as study design or sample size was recorded as “not known”. In particular, some authors only stated whether the study was quantitative or qualitative and the method of data collection. The most frequent student professions were social work (26, 27.0%), occupational therapy (23, 23.9%), and physiotherapy (19, 19.8%). A small number of studies were multi-professional (6, 6.3%) reporting students from two or more professions working separately, and some studies (13, 13.5%) included other participants such as graduates, clinicians and practitioners, clinical and faculty educators. Less than 10% of articles were published in an allied health journal with the trend towards discipline specific education and professional practice journals (Table 3, Name and frequency of journals). Full descriptive table format of the results is available from the authors on request.

***Findings from the retrieved articles***

The terms professional identity, professional socialisation, professionalisation, and professionalism, professional behavior and even professional role, are inter-related concepts. Sometimes the terms were used interchangeably or assumed an understanding, and of the 96 articles in this review, less than two thirds (61, 63.5%) either defined or described the terms used.

Only 24 (25%) articles defined or described PI, and despite the lack of consistency, values, attitudes and beliefs were core aspects of the definitions and descriptions. Tenarticles (Ashby, 2016; Binyamin, 2017; Boehm et al., 2015; C. Clarke, Martin, Sadlo, & de-Visser, 2014; Lahav & Yalon-Chamovitz, 2017; Levy, 2014; Mylrea, Gupta, & Glass, 2015; Noble, O’Brien, et al., 2014; Scholar, McLaughlin, McCaughan, & Coleman, 2014; Shlomo, Levy, & Itzhaky, 2012) cited Adams, Hean, Sturgis & Clark (2006, p. 56) definition of PI, that it is the “attitudes, values, knowledge, beliefs and skills that are shared with others within a professional group and relates to the professional role being undertaken by the individual”, summarised as “the sense of being a professional” (Paterson, Higgs, Wilcox, & Villeneuve, 2002, p. 6). Student views of PI differed with interpretations being around “in relation to desired traits” or “a process in which each individual comes to have a sense of themselves” (Wiles, 2013, p. 854). More authors (27, 28.1%) defined or described PS, or the process of developing PI, rather than the concept of development, for example (Loseke & Cahill, 1986; MacLellan et al., 2011; O'Loughlin, Dal Bello-Haas, & Milidonis, 2005), Although similar and linked, professional socialisation is different to development of professional identity (Noble, Coombes, Shaw, Nissen, & Clavarino, 2014) and described as “the process by which people selectively acquire the values and attitudes, the interests, skills and knowledge - in short, the culture - current in groups of which they are, or seek to become, a member ”, Merton, Reader, & Kendall, 1957, p. 283, cited in (Clouder, 2003, p. 213). Other authors (10 or 10.4%) defined professionalism and professional behavior, for example (Lerkiatbundit, 2006; Robinson, Tanchuk, & Sullivan, 2012; Santasier & Plack, 2007). Professionalism is “specific knowledge, attitudes, and values - all manifested by professional behaviours” (Robinson et al., 2012, p. 276) while professional behaviors are “complex and evolving” (Grace & Trede, 2013, p. 793), and deﬁned as “behaving in a manner to potentially achieve optimal outcomes in professional tasks and interactions” (Jee, Schafheutle, & Noyce, 2017, p. 976).

These findings on the concepts surrounding PI are similar to Trede and colleagues (Trede et al., 2012, p. 374) who observed the term ‘professional’ applied to a “variety of different contexts” rather than a definition. Noble and colleagues also found no agreed PI definition, except that it is “seen as the result of the interaction between self and context” (Noble, O’Brien, et al., 2014, p. 377).

Less than two thirds of articles (59, 61.5%) addressed any theoretical framework with some authors providing a framework and no overview of their terms, and vice versa. The theoretical framework most frequently referred to was ‘situated learning in a community of practice’ developed by Lave and Wenger, where “professional identities are understood to be constructed through an evolutionary and iterative process, resulting in an individual developing a sense of a professional self” cited in (Noble, O’Brien, et al., 2014, p. 377). This was applied in 17 (17.8%) articles (Binyamin, 2017; Boehm et al., 2015; Bonsaksen, Grana, Celo, Ellingham, & Myraunet, 2013; Clouder, 2003; Davis, 2006; Hayward & Li, 2014; Jee et al., 2017; Lindquist, Engardt, Garnham, Poland, & Richardson, 2006a, 2006b; Mylrea et al., 2015; Noble, Coombes, Nissen, Shaw, & Clavarino, 2015; Noble, Coombes, et al., 2014; Noble, O’Brien, et al., 2014; Osteen, 2011; Skøien, Vågstøl, & Raaheim, 2009; Trede et al., 2012; Wiles, 2013), with ‘community of practice’ being raised in the discussion or findings by many others. The framework can be summarised as “participation in social relationships and peripheral activities in the community of practice, in which novices become acquainted with the tasks, vocabulary and the organizing principles of the community” (Binyamin, 2017, p. 4).

The second most prominent framework was the application of guidelines by a professional organisation, often attributable to regulation and accreditation requirements, in 16 articles (16.7%) (Anderson & Irwin, 2013; Ashby, 2016; Crandell, Wieg, & Brosky, 2013; Grace & Trede, 2013; Hayward & Li, 2014; Knightbridge, 2014; Lindsey, 2005; Miller, 2010, 2013; Mylrea et al., 2015; Osteen, 2011; Rutter & Duncan, 2010; Scholar et al., 2014; Turpin, Rodger, & Hall, 2012; Wiles, 2013; Wise & Yuen, 2013), from the professions of social work (6), pharmacy (4) and physiotherapy (4) and occupational therapy (2).

Student experiences were addressed in 74 studies (77.0%) although of these, only 30 (40.5%) related to PI. A range of student experiences was reported, most often concerning the whole course or program (36, 48.6%), or a component (28, 37.8), and less frequently (10, 13.5%) about student perceptions and values, shown in Table 2. Commitment to engage in their own learning by students was determined to be essential in PI development (Trede et al., 2012), with reflection (Bartlett et al., 2009; Greenfield et al., 2015), self-authorship (Johnson & Chauvin, 2016) and agency (Clouder, 2003) potentially beneficial strategies. Professional self-confidence affected students’ clinical decision-making, development of competency, and professional identity, and improved with experience (Greenfield et al., 2015; Holland, Middleton, & Uys, 2012; Swanepoel, Tweedie, & Maher, 2016; Tryssenaar & Perkins, 2001). Ownership of their role in development of PI was acknowledged by students (Davis, 2006), contrasting with several authors who considered lecturers and clinical educators should lead the process and give support to the student (Paterson et al., 2002; Taylor & Harding, 2007).

Eight articles (8.3%) aimed to influence PI development via the curriculum (Ashby, 2016; Canavan, 2009; Hayward & Li, 2014; Johnson & Chauvin, 2016; Noble et al., 2015; Noble, Coombes, et al., 2014; Noble, O’Brien, et al., 2014; Taylor & Harding, 2007) or curriculum review (Boehm et al., 2015; Ikiugu & Rosso, 2003). Miller identified elements of an implicit and explicit curriculum, linking it to PS that occurs at the “essential intersection of classroom and field” (Miller, 2013, p. 383). Students considered practice education the most significant course factor to influence PI development and felt conflicted when there were discrepancies or dissonance between the course and what occurred in practice (Ashby, 2016; Davis, 2006). Ashby (2016) investigated students from five countries, finding professional education, PS and curriculum had the greatest influence on PI formation. Responsibility to lay foundations for PI development throughout the curriculum is firmly placed with educators by many authors (Bartlett et al., 2009; Paterson et al., 2002; Richardson, Lindquist, Engardt, & Aitman, 2002; Trede et al., 2012; Tsoumas & Pelletier, 2007). Knowing about the profession is a predictor for PI strength (Adams et al., 2006), however this was a gap in students’ knowledge shown across pharmacy (Taylor & Harding, 2007), occupational therapy (Turpin et al., 2012), social work (Canavan, 2009), and dietetics (MacLellan et al., 2011). Preparing students for the realities of practice was examined by ten authors (10.4%) (Bartlett et al., 2009; Canavan, 2009; Davis, 2008; MacLellan et al., 2011; Noble et al., 2015; Noble, Coombes, et al., 2014; Noble, O’Brien, et al., 2014; Shuval & Adler, 1979; Swanepoel et al., 2016; Tryssenaar & Perkins, 2001), with authentic real world experiences being significant for formation of PI (Ashby, 2016; Gazzola, De Stefano, Audet, & Theriault, 2011; Mylrea et al., 2015; Trede et al., 2012).

Student learning takes place and social identities are developed by participating in a community of practice according to situated learning theory (Osteen, 2011; Skøien et al., 2009). In a community of practice “mutual engagement, joint enterprise and shared repertoire” are necessary to sustain the community (Davis, 2006, p. 3), with each dimension contributing to student learning. Students perceived interactions in the professional community of practice vital to their learning (Davis, 2006), consistent with other researchers’ finding student learning in the practice setting is shaped by the quality of experiences (Holland et al., 2012; Skøien et al., 2009), especially the relationship with supervisors (Levy, 2014), and general inclusiveness (Davis, 2006). The community of practice played a fundamental role in reinforcing professional values and PI development for students on fieldwork (Davis, 2006; Paterson et al., 2002), and resonance between their personal and professional values was important to students (Burford, Morrow, Rothwell, Carter, & Illing, 2014; Gazzola et al., 2011; Osteen, 2011; Paterson et al., 2002) and the profession (Barretti, 2007). A key finding was that PI development is delayed if introduction to the practice setting doesn’t occur until late into the course (MacLellan et al., 2011; Taylor & Harding, 2007), with practice education bridging “theory-based learning at university and practice settings” (Ashby, 2016, p. 234).

**Discussion**

The aim of this scoping review was to establish what is known about development of PI, what students experience and identify gaps in the literature. Although terms varied, authors focus on formation of PI and PS, referring to the process of development, was frequently investigated from an academic or discipline perspective rather than students’ experience, while others evaluated professionalism and professional behaviours as an indirect measure. Trede offered a possible explanation for the variation in understanding of identity - it is quite simply “difficult to define” (Trede et al., 2012, p. 380), suggesting this is the reason many articles lack depth when discussing PI. Without a consistent interpretation of PI as the basis, theoretical frameworks and other ensuing arguments inevitably take a varied stance, as demonstrated in the range of focus for articles retrieved for this review.

The framework most commonly adopted by authors was the ‘community of practice’ by Lave and Wenger who proposed learning takes place in social relationships through informal sharing of information, not just acquisition of knowledge (Li et al., 2009). Also known as ‘situated learning theory’, this work advises learning should take place in a setting the same as where the knowledge will be used (Li et al., 2009). Work by Ranmuthugala and colleagues investigated communities of practice in the health sector (Ranmuthugala et al., 2011) but allied health student experiences are across several settings. Participants in the community of practice are considered “stakeholders” and students will engage in various ways and depth with multiple stakeholders in the “landscape of practice” (Jackson, 2017, p. 925), including professional organisations, academics and curricula, community groups, student societies, employers, student support, and careers services. A small number of studies retrieved in this review (13, 13.5%) involved non-student participants - graduates, clinical and education supervisors, other faculty and university staff and, much less commonly, service users. However there is a gap in the literature that integrates these stakeholders for allied health students - professional organisations, and student and career services, suggested by Jackson. Understanding the role and contribution in the development of PI of a broader range of stakeholders would support strategies to enhance student engagement and work-readiness (Daniels & Brooker, 2014; Jollands et al., 2015).

Cruess and colleagues challenge the traditional notion that the aim of teaching professionalism is to ensure acquisition of professional behavior, and consider the implicit purpose has always been to help students develop their professional identities (Cruess et al., 2014). With curricula in mind, Trede and colleagues asked universities to “prepare graduates for the world of work” (Trede et al., 2012, p. 379) and Clouder urged academics to consider what is taught and assessed in preparing students for practice, to reinforce emphasis (Clouder, 2003). Graduate employability as a key to relevance for universities and preparing graduates for the workforce was explored by Jackson who proposed the contemporary version of employability and work-readiness is construction of a professional identity, with students’ maturation starting at “pre-professional identity” (Jackson, 2017, p. 926). Bennett and Jolland in separate reports on graduate employability, acknowledging the complexity issues, suggest many graduates are not as prepared for the workforce as employers require (Bennett et al., 2016; Jollands et al., 2015). With these reports in mind, further research on the strength of professional identity of allied health students and how that relates to graduate employability is warranted.

The protective effect of a strong PI was thought to equip students for future practice in complex health settings (Lindquist et al., 2006b; Mylrea et al., 2015), and concerns about a weak PI were discussed by many (Boehm et al., 2015; Canavan, 2009; Davis, 2006; Ikiugu & Rosso, 2003; Lindquist et al., 2006b; Loseke & Cahill, 1986; Miller, 2010; Noble, O’Brien, et al., 2014). Trede argues “universities need to claim their role in PI development” (Trede et al., 2012, p. 379) while Adams, taking this further, is interested in student progression through a course and into careers, and questions how PI might “impact practice and, ultimately on patient care” (Adams et al., 2006, p. 65). We found few articles capable of addressing this - onestudyusingpurposive sampling included alumni (Miller, 2013) as participants, and seven studies with undergraduate enrolments were longitudinal (Clouder, 2003; Gould, 1993; Jee et al., 2017; Lahav & Yalon-Chamovitz, 2017; Lindquist et al., 2006a; Pullen Sansfaçon & Crête, 2016; Tryssenaar & Perkins, 2001) with two of these following graduates into the workforce (Lindquist et al., 2006a; Tryssenaar & Perkins, 2001). Frenk and colleagues consider redesigning health education to meet 21st century health care needs would incorporate a “new professionalism”, and “promote quality, embrace teamwork, uphold a strong service ethic, and be centred around the interests of patients and populations” (Frenk et al., 2010, p 1946). Accreditation frameworks and regulating curriculum are seen as the means to bring about reform and reshape the health care workforce (Holmboe & Batalden, 2015; Wilkes, Cassel, & Klau, 2018), represented in a proportion of the retrieved articles, although the extent or rate of reform occurring in the allied health education was not clear. More specifically, further research clarifying influence of curriculum reform and professional identity would inform universities and ultimately graduate employability.

Paucity of information was universally expressed as the reason for conducting the research by authors, along with calls to resolve terminology and further research to conceptualise professional identity, the processes and pedagogy. In part, this is due to the studies themselves - many with a small number of participants and conducted over a short period of time. Reliance on convenience samples with volunteers, employing a qualitative research design, and not being able to generalise findings to other settings or professions were also common. Our findings indicate while interest has increased, the area lacks longitudinal research on the experience by students’ prior to and after graduation for a better understanding of development at different stages, and large-scale studies to identify variation between professions and settings. Greater participation and integration of findings from other stakeholders in the community of practice such as student career services, professional organisations and employers would support better preparation of graduates for the workforce.

**Limitations**

The purpose and focus of this review has been on the development of professional identity by allied health students, with studies excluded if students were from nursing, medicine or dental as a single profession. While the body of work from these professions and lessons for allied health are acknowledged, we believe there is sufficient difference in professional roles to warrant specific attention on students enrolled programs for allied health professions. The selection of allied health professions was limited to nine and the number of databases to five. Researchers from other allied health professions may be publishing research in this area or publishing in journals not in the selected databases. Similarly, only peer-reviewed articles were included, and conference proceedings and grey literature may have provided further articles for consideration. Research on interprofessional education was excluded from this review to maintain emphasis on individual professional identity development, and minimise influence of dual or multiple identities, and this may have excluded some potentially relevant articles. The reviewers only screened articles available electronically and in English, but it is thought the final number reviewed (96) was sufficient to address the research questions. Some professions were under represented which seems most likely to be due to scarcity of the research, rather than issues identifying published articles.

**Conclusions**

This scoping review found terminology around professional identity without a consistent definition and interchangeable use of inter-related terms. Theoretical frameworks used to explore PI varied however the most commonly adopted were situated learning theory and standards or frameworks to meet requirements of accreditation or professional organisations, with education reforms beginning to emerge through this mechanism. Findings of the review showed early introduction of students to the profession and community of practice are beneficial to PI formation, and this is enhanced when students are given opportunities throughout the curriculum to reflect and articulate their experiences. Consolidating terminology and further research using longitudinal studies, especially following students into the field and employment, and multi professions would deepen our understanding of different stages and highlight any similarities between the professions, enhance curriculum development to best prepare students for their future practice.

**Acknowledgments**

The authors would like to acknowledge the contribution of an Australian Government Research Training Program Scholarship in supporting this research.

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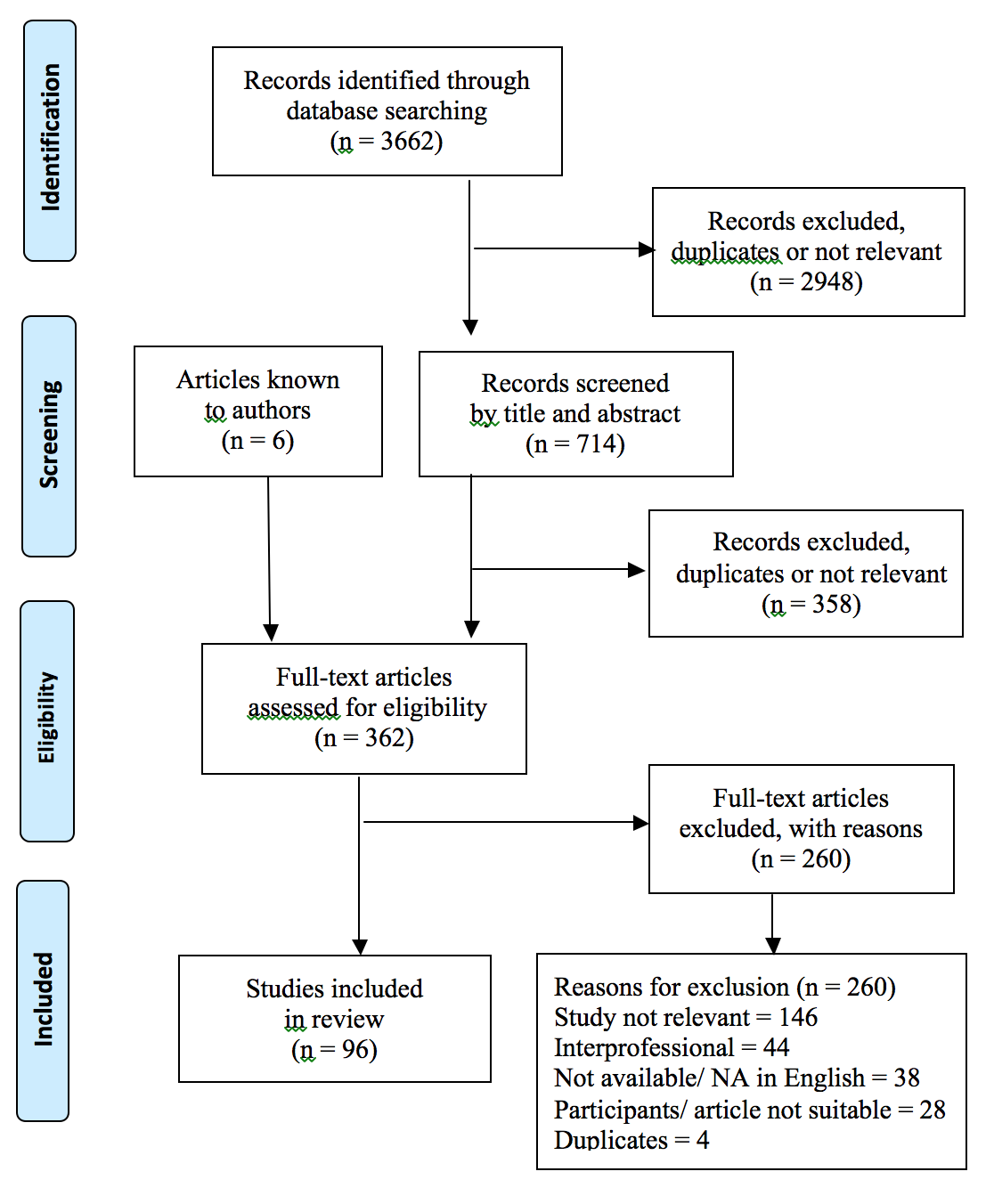
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**Figure 1.** PRISMA Flow chart describing the study selection.



From: Liberati, A., et al. (2009) The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of Internal Medicine. 51*(4). W65-W94. doi 10.7326/0003-4819-151-4-200908180-00136

**Table 1.** Inclusion and exclusion criteria.

|  |  |  |
| --- | --- | --- |
| *Criterion* | *Inclusion* | *Exclusion* |
| Time period | 1960 onwards | nil |
| Language | Published in English | Article not available in English |
| Type of article | Original research article published in peer reviewed journal | Articles not reporting original research such as PhD theses, reports, book chapters, newspaper articles |
| Study focus | Development of professional identity; or development of professional self; or professional socialisation | Interprofessional education such as studies that reported on interprofessional education activities (IPE) or collaborative practice activities that engaged students from two or more professions. This also included articles reporting on conceptual aspects of IPE |
| Setting | Health education such as university classroom  Health care such as professional practice placements | Setting not specified |
| Geographical place of study | International | nil |
| Population and sample | Students from:  Audiology, human nutrition and dietetics, occupational therapy, physiotherapy, podiatry, pharmacy, psychology, social work, or speech pathology  Allied health students, profession not specified | Studies that reported on students from medicine, dentistry and nursing as a single discipline  Studies reporting on practitioners’ or lecturers’ own experience of professional identity |

**Table 2.** Summary of retrieved articles (n=96).

Year of publication

|  |  |
| --- | --- |
| *No* | *Year range* |
| 54 | 2017-2011 |
| 34 | 2010-2001 |
| 8 | 2000-1971 |

Research design

|  |  |
| --- | --- |
| *No* | *Methodology* |
| *51* | *Qualitative* |
| 14 | Phenomenology |
| 12 | Not known |
| 4 | Interpretative |
| 4 | Case study |
| 3 | Content analysis |
| 8 | Ethnography (2), Grounded theory (2), Multi case study (2),  Narrative (2) |
| 6 | Consensual qualitative research (1), Delphi technique (1),  Discourse (1), Exploratory (1), Framework analysis (1),  Template analysis (1) |
| *21* | *Quantitative* |
| 8 | Correlational |
| 7 | Quasi-experimental |
| 2 | Not known |
| 4 | Cohort (1), Cross section (1), Experimental (1), Exploratory (1) |
| *12* | *Mixed methods* |
| *12* | *Other* |
| 9 | Literature review |
| 2 | Opinion |
| 1 | Time geographic |

Sample size

|  |  |
| --- | --- |
| *No* | *Number of participants* |
| 53 | <50 |
| 13 | 50-99 |
| 9 | 100-299 |
| 9 | ≥300 |
| 11 | Not relevant |
| 1 | Not known |

Country of participants

Single country (90 articles)

|  |  |
| --- | --- |
| *No* | *Country* |
| 32 | USA |
| 14 | Australia, UK |
| 11 | Canada, Israel |
| 7 | Other: Ireland (2), Norway (2), Hong Kong (1), South Africa (1), Thailand (1) |
| 1 | Not known |

Multi country\* (6 articles)

|  |  |
| --- | --- |
| *No* | *No of countries* |
| 1 | *5 countries:* Australia, Canada, Ireland, UK and USA |
| 1 | *3 countries:* Norway, Denmark and Sweden |
| 4 | *2 countries:* UK and Sweden (2), UK and Australia (1), USA and Scotland (1) |

\*Students from two or more countries working separately

Profession of participants

Single profession (90 articles)

|  |  |
| --- | --- |
| *No* | *Profession* |
| 26 | Social Work |
| 23 | Occupational therapy |
| 19 | Physiotherapy |
| 13 | Pharmacy |
| 7 | Dietetics |
| 1 | Psychology |
| 1 | Not relevant |

Multi profession\* (6 articles)

|  |  |
| --- | --- |
| *No* | *No of professions* |
| 2 | *4 professions:* Medicine, Nursing, Dental and Pharmacy |
| 1 | *3 professions:* Occupational therapy, Podiatry and Paramedic |
| 3 | *2 professions:* Occupational therapy and Physiotherapy (2), Occupational therapy and Dietetics (1) |

\*Students from two or more professions working separately

Type of student experience (74 articles)

|  |  |
| --- | --- |
| *No* | *Student experience* |
| *36* | *Whole of course or program* |
| *28* | *Component of the course or program* |
| 10 | Non traditional placements |
| 8 | Clinical experience |
| 5 | Service learning |
| 4 | Module |
| 1 | Community of practice |
| *10* | *Student views:* perception (8), expectation (1), motivation & values (1) |

Focus of the study

|  |  |
| --- | --- |
| *No* | *Focus* |
| *96* | *Objectives* |
| 37 | Professional identity (27), Identity (10) |
| 18 | Professional socialisation (17), Socialisation (1) |
| 7 | Professionalism (7) |
| 5 | Professional values (5) |
| 5 | Professional behavior/s (4), Professional behaviours and values (1) |
| 18 | Other: Placement design (6), Confidence/ professional (2), Reflection (2), Role model/ s (2), Community of practice (1), Personal growth (1), Student readiness (1) |
| 6 | Other: not related to research questions (6) |
| *75* | *Title or keywords* |
| 27 | Professional identity (22), Identity (4), Personal and professional identities (1) |
| 24 | Professional socialisation (16), Socialisation (4), Professionalisation (3), Formal socialisation (1) |
| 8 | Professionalism (8) |
| 3 | Professional behavior/s (3) |
| 7 | Other: Role model/s (2), Personal growth (1), Professional confidence (1), Professional development (1), Professional formation (1), Student readiness (1) |
| 2 | Other: difficult to separate: Confidence and professional identity (1), Identity and professional socialisation (1) |
| 4 | Other: not related to research questions (4) |
| *21* | *Abstract only* |
| 7 | Professional identity (6), Identity (1) |
| 7 | Professional socialisation (4), Formal socialisation (1), Professionalisation (1), Socialisation (1) |
| 3 | Other: Professional development (2), Professional growth (1) |
| 1 | Other: difficult to separate: Professional socialisation and identity (1) |
| 3 | Other: not related to research questions (3) |

**Table 3.** Name of journal and frequency of articles in included in the review (n=96).

|  |  |
| --- | --- |
| *No* | *Name of Journal* |
| 9 | Social Work Education |
| 8 | Journal of Physical Therapy Education |
| 6 | American Journal of Pharmaceutical Education, British Journal of Occupational Therapy |
| 5 | Canadian Journal of Dietetic Practice and Research |
| 4 | Australian Occupational Therapy Journal, Journal of Social Work Education |
| 3 | Journal of Allied Health, Journal of Teaching in Social Work |
| 2 | Clinical Supervisor, International Journal of Pharmacy Practice, Medical Education, Medical Teacher, Nutrition and Dietetics, Occupational Therapy International, Pharmacy Practice, Physiotherapy Theory and Practice, Studies in Higher Education (9) |
| 1 | Advances in Health Science Education, Canadian Journal of Occupational Therapy, Counseling Psychology Quarterly, Currents in Pharmacy Teaching and Learning, Focus on Health Professional Education: A Multi-Disciplinary Journal, International Social Work, Health and Social Care in the Community, Internet Journal of Allied Health Sciences and Practice, Journal of Education for Social Work, Journal of Health and Social Behavior, Journal of Human Behaviour in the Environment, Journal of Medical Education Journal of Occupational Science, Journal of Pharmacy Teaching, Journal of Practice Teaching and Learning, Journal of Social Service Research, Journal of Social Work, Learning in Health and Social Care, Occupational Therapy Journal of Research, Pharmacy Education, Physical Therapy, Physiotherapy Canada, Physiotherapy Research International, Scandinavian Journal of Occupational Therapy, Social Science & Medicine, Social Science and Medicine. Medical Psychology and Medical Sociology, South African Journal of Occupational Therapy, Symbolic Interaction, The Journal of Mental Health Training Education and Practice, Work. (29) |