

**School of Occupational Therapy, Social Work and  
Speech Pathology**

**A longitudinal study on the development of professional  
identity by dietitians in Australia**

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**This thesis is presented for the Degree of  
Doctor of Philosophy  
of  
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## Author's Declaration

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

Robynne Snell 17<sup>th</sup> September 2021



## Abstract

Health professionals, including dietitians, need a strong professional identity (PI) to function effectively in health care teams, and work collaboratively to deliver high-quality, client-focused services. Very little is known about the PI of dietitians in Australia and the extent of their collaborative practice (CP) with colleagues.

This study investigates the development of PI and CP in a cohort of Australian dietitians. The objectives were to establish what influences the PI and how CP is incorporated into the PI of early career dietitians. Theoretical constructs were Social Identity Theory, the Contact Hypothesis and Communities of Practice.

The research applied a mixed methods study design, longitudinal at four timepoints, with participants completing online surveys as students and graduates. The PI survey measured belonging to the profession, and the University of West England Interprofessional Questionnaire (UWE IQ) measured intergroup attitudes towards collaboration. Semi-structured interviews explored teamwork and belonging to the profession.

Of 61 participants, 12 completed data at three or four timepoints. Quantitative data were analysed using non-parametric statistical tests and thematic analysis was used for qualitative data. Results were merged to develop domains and examine convergence and divergence.

The trend showed progression of PI over the career stages. Initially, the student PI was dominant, but with exposure to the profession through employment, the salient identity shifted to dietitian PI. Graduates formed dual identities with a dietitian PI and a weaker CP identity and incorporated clients and CP into the dietitian PI. However, they fell short of seeing clients as members of the health care team, essential for interprofessional CP. The role as nutrition expert potentially affected collaborative client-centred care and was detrimental to the CP identity.

Findings will inform dietetic education to enhance graduate employability and provide direction for the professional community supporting early career graduates. Recommendations include articulation of PI in the curriculum, early exposure to the professional community, and greater opportunities for CP with health professional student colleagues, and clients.

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## Dedication

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## List of Acronyms

ADC	Australian Dietetics Council
AHP	Allied health professional
AHPRA	Australian Health Practitioner Regulation Agency
APD	Accredited Practising Dietitian
COAG	Council of Australian Government
CAIPE	Centre for the Advancement of Interprofessional Education
CP	Collaborative practice
CPD	Continuing professional development
DA and	Dietitians of Australia
DAA	Dietitians Association of Australia  In April 2020, the Dietitians Association of Australia changed its name to Dietitians of Australia. The major part of this research was completed and documents retrieved before the change in name, therefore the original documents and name has been left unchanged for consistency.
DCC	Dietetics Credentialing Council
EBP	Evidence-based practice
HDI	Human Development Index
HWA	Health Workforce Australia

ICDA	International Confederation of Dietetic Associations
IP	Interprofessional
IPE	Interprofessional education
IPP	Interprofessional practice
NASRHP	National Alliance of Self Regulating Health Professions
NRAS	National Registration and Accreditation Scheme
NCS	National Competency Standards
PI	Professional identity
PS	Professional socialisation
UWE IQ	University of West England Interprofessional Questionnaire
WHO	World Health Organisation
WIL	Work integrated learning

## Glossary of terms

Collaborative practice (CP)	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
Dietetics practice	The application of nutrition and dietetics knowledge
Interprofessional education (IPE)	Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes
Professional identity (PI)	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

## Chapter 1                  Introduction

This chapter provides an overview of the research undertaken. The background, theoretical underpinnings, context of the research, and research problem frame the aims and research questions for the thesis, and are presented in this chapter. The significance of the research is discussed, and the chapter concludes by describing the organisation of the thesis.

The research investigates the longitudinal development of Australian dietitians' professional identity (PI) and the influencing factors. It is concerned with how dietitians practice collaboratively with colleagues in day-to-day service delivery.

### 1.1              Background to the research

#### 1.1.1            What is professional identity, and why is it important to understand for dietitians?

There is a large body of literature on formation of PI from the professions of medicine and nursing, and interest by allied health professionals is increasing (Boehm et al., 2015; Cruess et al., 2014; Cruess et al., 2019; Hayward et al., 2013; Lordly & MacLellan, 2012; MacLellan et al., 2011; Noble, Coombes, et al., 2014; Pullen Sansfaçon, 2016). However, the roles of allied health professionals, including dietitians, are different to those of nurses and doctors and, by extension, professional socialisation (MacLellan et al., 2011), and the influences on PI are likely to be too.

Every profession has its own PI with a unique set of values, attitudes, knowledge, and behaviours that determine “ways of being and relating in professional contexts” (Goldie, 2012, p. e641) In the formation of their PI, the individual merges their personal identity with that of the profession they are wanting to enter in a process of professional socialisation, with a degree of autonomy or selectivity in the process (Clouder, 2003; Goldie, 2012).

The strength of an individual's PI is important because it influences their ability to collaborate in the team (Adams et al., 2006; Hean et al., 2006). Other reasons the strength of the PI matters include sustaining professionalism, mental health, workforce retention, job satisfaction (Rees et al., 2019), and preparing for the dynamic nature of future professional practice (Mylrea, 2015; Noble, Coombes, et al., 2014; Trede et al., 2012).

Health care students acquire a PI before they enter their course which is stronger for some professions than others, and this is reinforced during education. The predictors for strength include gender, the profession, previous experience in health and social care settings, understanding of teamwork, and knowledge of their profession (Adams et al., 2006). Exposure to the profession during practice education intensifies the PI as the individual internalises the role and assumes increasing professional responsibility.

Becoming competent as a health professional is complex. Learning the requisite knowledge and skills and demonstrating the attributes essential to the profession, the entry level practitioner needs to work independently and autonomously, function effectively in a team, only occasionally consulting with more experienced colleagues while maintaining high standards of practice (Ash et al., 2011; Black et al., 2010; Lindquist et al., 2006b).

However, entry to practice is a time of challenge and significant change for the graduate. The experience for students in the transition from the classroom to the first year of practice for health professional graduates is exciting and stressful (Barradell et al., 2018; Hayward et al., 2013; Morgan, Campbell, Sargeant, et al., 2019; Rees et al., 2019; Tryssenaar & Perkins, 2001).

Placements and the early years of practice are transformative for the PI, with both positive and negative influences arising from placement experiences, the attitude of supervisors, the health care environment, and the profession itself (Cruess et al., 2019; MacLellan et al., 2011; Monrouxe, 2010).

1.1.2           What do we know about professional identity in dietetics, and where are the gaps?

Two Canadian studies using qualitative methodology have reported specifically on the development of PI by dietitians (Atkins & Gingras, 2009; Lordly & MacLellan, 2012). The first study (Atkins & Gingras, 2009) found shifts in dietetic students' relationships with food, their bodies, the body of nutrition knowledge, and family and friends. A key feature for dietetics students as they adjusted from their former self was to become more embodied with and characteristic of their discipline (Liquori, 2001). The second study reported students transformed their identity to meet internship requirements (Lordly & MacLellan, 2012), rather than focus on becoming a dietitian. Both studies found a high level of competitiveness between peers to gain an internship, but differences in culture and context influenced the response and effect on the PI.

These two studies on PI were conducted with student dietitians. Several predictors of PI were not raised; previous work experience in the health care setting, learning in teams, and understanding team relationships were absent (Adams et al., 2006).

Studies reporting the Australian students' experience of PI are scarce. The scholarship in dietetic education is growing (Morgan, Kelly, et al., 2019; Williams, 2016), and findings related to PI are an indirect or a secondary outcome of the research. Little is known about the influences on the PI for dietitians, and how influences might differ with career progression.

### 1.1.3 Why do we need to know about collaborative practice?

The World Health Organisation (WHO) (World Health Organisation, 1988, 2010) has called for health professionals to be competent at working collaboratively in interprofessional (IP) teams to improve outcomes for clients. In a Lancet Commission review Frenk et al., (Frenk et al., 2010), present a similar view that health care is becoming increasingly complex and teamwork is required for delivery of services, advocating for a “new professionalism” that focuses on patients and populations. They argue that in the dynamic health care environment, it is essential for future health professional graduates to be able to work effectively in interprofessional teams.

In Australia, this position is supported by Health Workforce Australia, with the Australian Health Practitioner Regulation Agency (AHPRA) and the Council of Australian Government’s (COAG) Health Council proposing for interprofessional education (IPE) to be a prequalification requirement of health professional students (Health Workforce Australia, 2011; Woods, 2017).

However, traditional education as a single profession can reinforce the professional culture, language and values, and stereotypes of other professions to become established barriers between health care team members (Hall, 2005; Thistlethwaite, 2012). Stereotypes of other health professions can hinder collaboration in teamwork, and the intention of engaging students in IPE early in their course of study is to reduce these barriers.

1.1.4           What do we know about collaborative practice by dietitians, and where are the gaps?

Looking at the DAA competency framework requirement for dietitians to practice collaboratively, elements identifying CP capabilities such as reflective practice with peers, establishing relationships, and specific performance criteria for client-centred care are present (DAA, 2010). A key task in a dietitian's role is to "develop[s] sustainable collaborative relationships and networks" with peers, mentors, professionals, organisations, and multi-disciplinary teams" (See Appendix B.1.1. DAA 2009 Entry Level Competency Standards, p. 12).

Following the 2014 review of National Competency Standards, the requirement for dietitians to work collaboratively in IP teams became more defined (Palermo et al., 2016). The standards include a domain and work role titled "collaborates with clients and stakeholders", with the key task of "collaborating within and across teams" that include clients, peers, colleagues and stakeholders (Dietitians Australia, 2020f, p. 8).

While the DAA competency standards indicate there is an expectation for dietitians to practice collaboratively, it is unknown to what extent they do this in their daily work. IPE has been introduced in health education at some universities, including dietetics students (Evans et al., 2016; Thistlethwaite et al., 2019), and the effect on CP by dietitians has not been established.

1.2           Theoretical underpinnings for the research

A range of theoretical underpinnings support research in health profession education, IPE, and collaborative practice (CP), the choice depending on the application (Hean et al., 2009; Reeves & Hean, 2013).

Situated Learning in a Community of Practice proposes that learning is a social process and individuals learn by informal sharing of knowledge and participating in social relationships in a community, to become familiar with the expectations. Applied to the health care setting, a PI develops through exposure and increasing participation in the professional community of practice, and the individual learns the attitudes, values and behaviours of the profession (Cruess et al., 2019; Goldie, 2012; Plack, 2006).

Hean and Dickinson (Hean & Dickinson, 2005) believe the theoretical framework outlined in the Contact Hypothesis is a useful tool for understanding behaviour in teams. The premise is that through IP contact, prejudice against other disciplines can be reduced and stereotypes improved (Pettigrew, 1998).

Another theory considered to apply to the development of PI and IP practice is Social Identity Theory (Thistlethwaite, 2012). The theory is about how the individual sees themselves in relation to the group, which in this research could be either the professional community or an IP health care team. As a result of learning in single discipline clusters or silos, ingroup alliances are fostered, with the ingroup having its own language, communication patterns and perceptions of others (Hall, 2005; Orchard et al., 2005).

Social Identity Theory has sub-theories which address the notion of multiple or dual identities. For this research, the dual identities would be student and dietitian identities, and dietitian and CP identities. Identity salience is introduced as a sub-theory to the Social Identity Theory to appreciate the circumstances that might invoke a particular dual identity (Burford, 2012; Trepte & Loy, 2017).

These theories are likely to be complementary rather than competing, with one model more relevant than another at different stages of PI development (Hean & Dickinson, 2005).

### 1.3 Defining the terms

Researchers in health education use various similar terms about PI, and they are often used interchangeably (Trede et al., 2012). Professional identity and professional socialisation (PS) are related but different. In the development of a PI, an individual undergoes the adoption of values, attitudes and beliefs of the profession in the process of professional socialisation, with some selectivity by the individual. Professionalism is the specific knowledge, attitudes and values of the profession which are demonstrated through professional behaviours. Professionalism is complex and evolving, and highly dependent on the context or setting (Dart et al., 2019; Grace & Trede, 2013).

There is conceptual overlap between CP and interprofessional capability, and other terms such as teamwork. Bringing these together for a consistent understanding, the individual health care professional practices collaboratively with peers, mentors, professionals, organisations, and works in teams with other health professionals to provide client-centred care. The role of the client in the team and shared decision making are recurring elements in the terms (D'Amour et al., 2005; Khalili et al., 2019; Orchard et al., 2005).

### 1.4 Aim and objectives

The overall aim of this research was to investigate how dietitians develop their professional identity.

Specific objectives were to identify the influences on development of profession by early career dietitians, and the factors that determine whether CP is incorporated into their professional identity. The research can be reframed as two perspectives of the same phenomenon.

### 1.5 Research questions

#### 1.5.1 Quantitative strand

What influences contribute to the development of professional identity (PI) of graduate dietitians?

### 1.5.2 Qualitative strand

How is collaborative practice (CP) incorporated into professional identity (PI) early career dietitians?

### 1.6 Significance of the work

Research on the formation of PI is most commonly from the academic perspective and less frequently from the viewpoint of students or practitioners (Snell et al., 2020). This research pursues an understanding of the influences at different career stages for dietitians to gain insight into the experiences, from student status to early career practitioners. By studying these influences and the changes over time, adverse factors may be identified and targeted.

Scholarly work in dietetics education in Australia is emerging, and this research makes a significant new contribution to the literature regarding development of PI by early career dietitians. The study methodology to view the PI longitudinally using mixed methods research is unique. Dietitians' competency standards show the expectation is to practice collaboratively; however, it is unknown if this capability is incorporated into the PI of new graduates.

A deeper understanding of influences on the PI can inform curriculum development by dietetics educators, facilitate better preparation of students for practice as a dietitian, and enhance workforce readiness and employability of graduates. Dietetics graduates who possess the skills for CP on entry to the workforce will participate more effectively in teamwork with other health professionals in client-centred, high quality health care.

### 1.7 Organisation of the thesis

This thesis is divided into seven chapters, each made up of several major sections.

Chapter 1 is the Introduction, and provides background and context for the study, and outlines the problem being addressed by the research.

Chapter 2, is the Literature Review and positions the work in the literature for dietetics on the influences on PI and developing CP, while Chapter 3 details the Methodology. The study method and study design are described - the mixed methods approach, quantitative tools and qualitative enquiry. The analyses of the two types of data are discussed in separate sections of the Methodology chapter.

Results and findings of the analysis are reported in Chapter 4. This chapter separately reports qualitative and quantitative findings concerning changes in the PI and perceptions of CP for participants in the progression from student status to early career practitioners. The Results Chapter 4 is closely linked with Chapter 5, where the Integration of the two strands is presented longitudinally for the joint displays by time and for individuals. Strengths and limitations of the research are addressed in the final section of Chapter 5.

Chapter 6 is the Discussion chapter, and the results and findings are explored in relationship to the theories of development of PI and CP, and the literature. The discussion primarily draws on the literature for the profession of dietetics, although moves to health professions more generally when this is not available.

Finally, Conclusions and recommendations, and directions for further research are provided in Chapter 7.

The Literature Review chapter positions the work in the literature on developing professional identity (PI) for dietitians, and how early career graduates' practice collaboratively. Professional standards are explored in this chapter to understand the expectations of new graduates; universities use the competency standards to guide the curriculum and assessment for competency to practice (Dietitians Australia, 2020f).

## 2.1 Health care professionals and the future workforce

### 2.1.1 The new health care professional

The World Health Organisation (WHO) has called for an integrated and interprofessional health care service to meet challenges of health service delivery into the future. In this increasingly complex workplace, interprofessional teams are needed 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).*

In a Lancet Commission Review, Frenk and colleagues advocated for redesigning health education to meet 21st century health care needs that 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). Recognising the interdependence of education and health, reforms were needed to produce graduates capable of meeting the challenges of the future workforce that can only be achieved through transformative learning. The instructional reforms and recommendations supported interprofessional education to "break[s] down professional silos while enhancing collaborative and non-hierarchical relationships in effective teams (Frenk et al., 2010, p. 1924).

The focus on transforming health care through interprofessional education (IPE) and collaborative practice (CP) with the aim of improving care and meeting the shifting needs of an ageing population has been reinforced many times in the intervening years (Forman, 2014; Green, 2014; Khalili et al., 2019; Olson, 2014; Thistlethwaite et al., 2019). The ‘quadruple aim’, as it has become known as, is acknowledged as having the potential for:

*Improving the quality of the patient’s health care experience, improving the health of communities and populations, reducing the cost of health care delivery, and improving the work experience of service providers (Khalili et al., 2019, p. 8).*

In Australia, reviews of health care systems highlight the need for a new model of health care delivery to address similar limitations, and structural and systemic flaws (Bennett, 2009, 2013; Mason, 2013; National Health and Hospitals Reform Commission, 2009) and reform the allied health workforce (Australian Health Care Reform Alliance, 2017; Naccarella, 2015; Philip, 2015). In 2011, Health Workforce Australia (HWA) called for extensive workforce reform across the health and education sectors to “develop an adaptable health workforce – equipped with the requisite competencies and support that provides team-based and collaborative models of care” (Health Workforce Australia, 2011, p. 18)

More recently, in 2019, Thistlethwaite, Dunston and Yassine reported on the state of workforce planning, health care models and need for interprofessional education (IPE) in Australia (Thistlethwaite et al., 2019). The inability of the health care system to provide universal health care in its current traditional configuration, the finding of many reviews, showed new approaches are required. Drivers for the change were shifting demographics, challenges from increasing incidence of chronic and complex conditions, and institutional and geographic barriers to delivery of services. Among those particularly affected by the “unresponsive health system” included Indigenous Australians, people living in rural and remote communities, refugees and other groups with poor access to health services (Thistlethwaite et al., 2019, p. 362).

The many challenges necessitate sustained changes; however, there was optimism enabled by “a political focus on health reform” (Thistlethwaite et al., 2019, p. 362) and the context becoming more receptive to IPE (Dunston et al., 2020; Dunston et al., 2019).

## 2.2 Professional identity, interprofessional education, and collaborative practice by health professionals

### 2.2.1 Interprofessional education and collaborative practice

There are several terms which appear to be similar and warrant a definition.

Interprofessional education, as defined by WHO:

*Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes. Once students understand how to work interprofessionally, they are ready to enter the workplace as a member of the collaborative practice team (World Health Organisation, 2010, p. 10).*

Collaboration in health care teams is:

*The process by which interdependent professionals are structuring a collective action towards patients' care needs D'Amour, 1997, cited in (San Martín-Rodríguez et al., 2009, p. 133).*

Collaborative practice 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).*

While these definitions and terms are slightly different, they are related by the recurring theme of health professionals interacting and collaborating to improve health outcomes and delivering high quality, client-centred care. In a review of health care collaboration, two determinants of successful team dynamics were found: interactional factors and relationships in the team, and systemic factors such as the environment in the organisation (San Martín-Rodríguez et al., 2009).

Continuing to investigate collaboration, a case study approach was applied to better understand the processes in Quebec's health services (D'Amour et al., 2005) and develop conceptual tools and typology for health care professionals to improve collaboration in their teams. The collaborative model consisted of four dimensions: internalisation, shared goals and vision, governance, and formalisation, and how relationships between the dimensions influenced each other, supporting the findings reported by other researchers (D'Amour et al., 2005; San Martín-Rodríguez et al., 2009).

At around the same time, in 2008, a concept analysis of teamwork was published addressing the lack of agreement on the definition of teamwork for health care, recognising its importance in patient care and service delivery (Xyrichis & Ream, 2008). The search produced literature from a wide range of settings; human resource management, organisational behaviour, education, as well as health care. Concept analysis identifies differentiating features between similar concepts, and the distinguishing attributes between teamwork and collaboration were reported as "concerted effort, interdependent collaboration, and shared decision-making" (Xyrichis & Ream, 2008, p. 239).

The definition of teamwork in health care offered was:

*A dynamic process involving two or more health professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care. This is accomplished through interdependent collaboration, open communication and shared decision-making. This in turn generates value-added patient, organizational and staff outcomes" (Xyrichis & Ream, 2008, p. 238).*

Ten years later in 2017, an editorial titled “Teamwork on the rocks” put forward reasons for why interprofessional collaborative teams in health care have been unable to show significant improvements in health outcomes (Dow et al., 2017). Looking at electronic health records of 100 cancer patients for electronic team collaboration, it was normal for around 120 health care professionals to interact in a complex network caring for each patient, and the “teams are typically large, heterogeneous and dynamic” (Dow et al., 2017, p. 677). Networking was identified as a new, additional concept for interprofessional practice, with the authors calling for networking to be included as a new competency (Dow et al., 2017).

Returning to their earlier work, prominent IPE researchers Reeves, Xyrichis and Zwarenstein (Reeves et al., 2018) reviewed the six elements of a team outlined in their previously published work (S. Reeves et al., 2010). Defining elements of a team were “shared identity, clear roles/ tasks/goals, interdependence of members, integration of work, and shared responsibility...and ‘team tasks’ contributed to impact the effectiveness of different teams in different clinical settings to provide well-coordinated and safe care” (Reeves et al., 2018, p. 1). Their analysis of the literature in 2010 found many forms of teams and typologies, and an incomplete understanding of the differences within interprofessional practice for teamwork, collaboration, coordination, and networks (Reeves et al., 2018`).

By 2018, after validation of the 2010 model with empirical studies, the four domains of the framework for collaborative competence remained, and incorporated additional areas of interprofessional practice as subcategories (Reeves et al., 2018). The revised typology was now able to distinguish between the types of teamwork for interprofessional interventions (Xyrichis et al., 2018).

The conceptual difference between the different forms of teamwork and CP was the closeness or intensity of the relationship across the six dimensions of “shared commitment, shared team identity, clear goals, clear team roles and responsibilities, interdependence between team members, and integration between work practice” (Xyrichis et al., 2018, p. 423).

However, the traditional idea of teamwork “does not do justice to the complexity of modern health care delivery” (Thistlethwaite, 2012, p. 61). In practice, the collaborative process involves negotiation, either between professionals or between institutions (D'Amour et al., 2005; San Martín-Rodríguez et al., 2009). To effectively participate in the team, the health professional needs to be able to “efface themselves and their egocentric educational background” (Smith & Pilling, 2007, p. 266), and accept blurring of the practice boundaries to focus on the client's needs (Clarke & Wilcockson, 2002; Hall, 2005; Thistlethwaite, 2012).

Frameworks and concepts associated with CP are a “complex, voluntary and dynamic process involving several skills” (D'Amour et al., 2005, p. 126). The determinants and processes of CP are often combined for definitions and frameworks, which has added to the complexity of understanding CP. The authors of a 2005 review described the interactional dynamic of CP between professionals as “sharing, partnership, interdependency and power” (D'Amour et al., 2005, p. 126), which they believed was as important as the context.

The purpose of collaborating was inseparable from serving identifiable client needs. Although the position of the client was difficult to accommodate in some of the concepts examined, the focus was always on the client, independent of how the team functioned. The authors claimed overall there was “poor conceptualization of the role of the patient/client/family in the collaborative process” (D'Amour et al., 2005, p. 126). The client or patient’s perspective was missing in the definitions of collaboration, as were conditions for resolving this in the collaborative process.

## 2.2.2 Professional identity of health professionals

The Literature Review chapter is preceded by a scoping review on the development of PI by allied health students (Snell et al., 2020). The most frequently used definition of PI for allied health professionals identified in a recent scoping review (Snell et al., 2020) was 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” (Adams et al., 2006, p. 56), summarised as “the sense of being a professional” (Paterson et al., 2002, p. 6). The terms professional identity, professional socialisation, professionalisation, professionalism and professional behaviour are interrelated concepts (Trede et al., 2012).

The strength of PI for a health professional matters as it relates to the ability to interact in CP and degree of participation in the team; a strong PI enhances contribution to the team (Adams et al., 2006; Hean & Dickinson, 2005; Michalec et al., 2017). A strong PI is thought to equip students for future practice in complex health settings (Lindquist et al., 2006a; Mylrea, 2015), and concerns about a weak PI for graduates are about the consequences for poor workforce retention, burnout, and decreased job satisfaction (Boehm et al., 2015; Ikiugu & Rosso, 2003; Lindquist et al., 2006a; Miller, 2010). Predictors for the strength of PI are gender, profession, previous experience in a health and social care environment, understanding of team work, knowledge of the profession and cognitive flexibility (Adams et al., 2006).

In the development of PI, the individual's awareness of the process is associated with their understanding the meaning of practice and community within a specific profession (Clouder, 2003; Dahlgren, 2004), and they "seek to integrate their various statuses and roles, as well as their diverse experiences, into a coherent image of self" (Jarvis-Selinger et al., 2012, p. 1186).

Formation of PI is "an adaptive, developmental process that happens simultaneously at two levels", that is, it involves both the individual and the collective level (Jarvis-Selinger et al., 2012, p. 1185). For the individual, it is a complex and interactive psychological development (Chandran et al., 2019), internalising the professional role, values, attitudes and goals of the profession (Goldenberg, 1993). The PI is the intersection of individual identity and "defined or presumed attributes, beliefs, values, motives, and experiences" of the profession (Leedham-Green et al., 2020, p. 4).

When referring to the PI occurring at the individual level (Leedham-Green et al., 2020), many authors use professional socialisation (PS) or the *process* of developing a PI, rather than the *concept* of development (Trede et al., 2012). Although similar and linked, Merton and colleagues defined socialisation 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 and Kendall cited in (Clouder, 2003, p. 213). Investigation of PS and the extent of autonomy for an individual in the structured professional environment as a group of allied health professional students, found students were aware of "learning to play the game" in the placement setting (Clouder, 2003, p. 217), and this involved "some degree of individual agency" (Clouder, 2003, p. 220).

The influence of role models and mentors can be seen at the individual level through providing explicit and tacit experiences for observation and reflection (Chandran et al., 2019). The provisional identity is adjusted and negotiated through experimentation and feedback (Goldie, 2012). The student gradually becomes habituated to this identity, and the PI "becomes an integral part of who they are" (Leedham-Green et al., 2020, p.9)

The formation of PI as a transformation is offered by other authors, who suggest a deeper form of learning (Jarvis-Selinger et al., 2012; Leedham-Green et al., 2020). The transformation of PI is seen as an acculturation process during which the individual internalises the values, norms and symbols of the profession (du Toit, 1995), and adopts their behaviour and concept of self to such an extent that the identity is replaced by a new one (Jarvis-Selinger et al., 2012). Sometimes the terms enculturation and acculturation are used interchangeably, and warrants clarifying the differences. Differentiating between the terms, acculturation refers to the adoption of the new culture, whereas enculturation is adapting without having to convert to the culture (Tuttas, 2011).

The transformation of PI is based on the individual experiencing a perceptual shift, much like the threshold concept, transitioning from one identity to another (Meyer & Land, 2005). When letting go one identity before the new has been integrated, the individual inhabits an uncomfortable in-between space, and may need support “as the knowledge they need to progress might be outside their previous understanding of their world” (Leedham-Green et al., 2020, p. 10). The shift of identity from student to practitioner involves a fundamental change in perception and language that was not possible beforehand, and cannot be reversed (Leedham-Green et al., 2020).

At the collective level, forming a PI involves appropriately socialising into the professional role that will allow participation in the community (Chandran et al., 2019). The link between PI and behaviour is that the “expectations of society are often explicitly referred to in the codes of practice of its governing body” (Leedham-Green et al., 2020, p. 4), and codes of practice and conduct provide the framework for values and behaviour demanded for the PI. They are an important public recognition of PI in social and organisational terms. In this way, the aspiring health professional is guided into the expectations of the profession as they develop their PI.

Professionalism and professional behaviour refer to similar but different concepts than professional identity, each influencing the other (Leedham-Green et al., 2020), with professionalism being taught and assessed instead of PI (Cruess et al., 2014; Mylrea, 2015). Professionalism is “specific knowledge, attitudes, and values - all manifested by professional behaviours” (Robinson et al., 2012, p. 276) while professional behaviours are “a complex and evolving concept” (Grace & Trede, 2013, p. 793) defined as “behaving in a manner to potentially achieve optimal outcomes in professional tasks and interactions” (Jee, 2017, p. 976). However, this view of professionalism is expanding to include a “strong focus on professional autonomy, reflective practice, communication, professional relationships, commitment to continuing professional development, and accountability to society and the profession” (Grace & Trede, 2013, p. 793).

In medical education, Cruess and colleagues (2014) contend the purpose of teaching professionalism has probably always been formation of a PI. Pinpointing the subtle differences, the process of professional socialisation is the adoption of values by the individual. It requires playing elements of the role until they merge with their existing identity to become internalised as a PI. In contrast, professionalism relies on understanding the social contract of being a [medical] practitioner and consistently demonstrating the expected behaviours. In short, the shift in interpretation of professionalism to PI is based on “being” rather than “doing” (Cruess et al., 2014, p. 1450).

For health care professional students, the formal process of developing a PI begins at university and intensifies with exposure to the profession and practice during placements, practicums and fieldwork, and continues following graduation and entry to the workforce (Ajjawi & Higgs, 2008; Brown, 2012; Goldenberg, 1993). While students will acquire varying levels of PI before their training has begun, the construction of a PI is stimulated by exposure to critical experiences and moments of crises (Adams et al., 2006; du Toit, 1995; Jarvis-Selinger et al., 2012). Qualitatively exploring experiences, learning and development by promising physical therapists in the first year of practice, in particular themes relating to their PI (Black et al., 2010), the significance of identity work for new graduates was being able to practice with autonomy in their professional roles. A conceptual framework of potential influences on the development of PI of early career health professionals was advanced.

Four themes emerged: the novice was influenced by the clinical environment and the practice community; learning was experiential and through social interactions, and directed towards themselves; confidence grew by developing their communication skills and receiving positive feedback; and the learner engaged in the PI transformation and role transitions (Black et al., 2010).

These findings support the contention that development of a PI is related to participants being integrated into the community of practice (Chandran et al., 2019; Leedham-Green et al., 2020). Black and colleagues propose that the identity is constructed through the relationship between the self and social interactions. They describe this, citing Lave and Wenger, as the “crafting of identities” (Black et al., 2010, p. 1769), observing “there is a reciprocity inherent in the identify formation process: who you are becoming shapes what you know or come to know, and what you know shapes who and what you are becoming” (Black et al., 2010, p. 1769).

Trede and colleagues (Trede et al., 2012) after reviewing the higher education literature on the development of PI, maintain that PI needs to be fluid and flexible, and enable the graduate to engage and adapt to changes over the course of their career.

### 2.2.3 Theoretical basis of professional identity and interprofessional education

#### 2.2.3.1 Social Identity Theory and identity salience

Claims have been made the medical education research community needs to give further attention to theory, and input from the social sciences could be beneficial (Burford, 2012). A social identity approach from social psychology was introduced as being potentially important.

Social Identity Theory by Tajfel (1982) is concerned with group processes, and “provides an account of group behaviour at all levels, from the formation of social groups to the biases and prejudices that emerge between them” (Tajfel, 1982, p.144). An individual’s social identity relies on their group memberships, contrasting with personal identity which is independent of group memberships (Trepte & Loy, 2017). Both identities can exist at the same time, and interaction between them will determine behaviour in any particular situation, depending on importance for the social or personal identity (Kreindler et al., 2012).

Self Categorisation Theory by Turner builds on Social Identity Theory and is the process of assimilating into the ingroup or self-categorisation and requires cognitively adopting features of the ingroup (Turner, 1975). The transformation includes absorbing the normative behaviour, stereotyping, ingroup attitudes, and influence of the group. There is depersonalisation of the self, which is accompanied by a change in self-concept (Hogg & Terry, 2000; Turner, 1975).

How a particular identity becomes activated or ‘invoked’ is known as identity salience. The salient identity is a behavioural response to the context (Brenner et al., 2014) and is the result of accessibility and fit to the situation (Stets & Burke, 2000). Accessibility is referring to the availability of the social identity, and fit is about the match of the identity to the context (Burford, 2012). Fit can be either normative when the identity is similar to the particular group stereotype, or comparative when the stereotype is not as defined and differences between the ingroup and outgroup are not as clear (Burford, 2012). In the “fit x accessibility hypothesis”, both factors must be present in the context for salience to occur (Oakes et al., 1991, p. 126).

Social Identity Theory provides the theoretical basis for professional identities identifying with a professional group, and proposes that attitudes by members of one group about another are influenced by the power and status of their social identity (Adams et al., 2006; Tajfel, 1982). People compare the group they belong to and identify with, and when that identity is salient, the “focus more on the shared attributes uniting group members than on the personal characteristics differentiating them” (Kreindler et al., 2012, p. 349).

Social Categorisation Theory, derived from the earlier Social Identity Theory, based on the idea that individuals gain their definition of self from group memberships, was considered relevant to IPE by Hearn and Dickinson (Hearn & Dickinson, 2005): “Social identity is the identification of self in terms of one’s social group (ingroup) as compared to another group (outgroup)” (Hearn & Dickinson, 2005, p. 482). In IPE, the profession is the primary social group, and alliances develop from learning as a single profession, with the ingroup having its own language, communication patterns and perceptions of others. Other health professionals who are not part of the ingroup and regarded as the outgroup, are not afforded the same level of trust, creating potential for conflict (Orchard et al., 2005).

### 2.2.3.2

#### The Contact Hypothesis

In the past, the consensus of evidence for how teams learn to work collaboratively was underdeveloped (Freeth et al., 2002; Hean & Dickinson, 2005) with little research published on the process of learning to practice collaboratively (Orchard et al., 2005). The use of theory was not a high priority for researchers in the IPE field and was considered potentially confusing for educational practitioners, leading many to resist theoretical approaches and focus on service delivery (Hean et al., 2009; Reeves & Hean, 2013).

By 2013, acceptance of the use of theory had become more widespread, to the extent that there was an abundance of theories in the IPE domain (Reeves & Hean, 2013). Theories supporting the improvement of IPE learning processes were mainly from education and psychology although influence from the field of sociology was beginning to emerge (Barr, 2012; Reeves & Hean, 2013). Not as well known or appreciated was input from organisational and systems theories that highlighted interactions within organisations can affect collaboration (Suter et al., 2013).

Medical educators, Hean and Dickinson (2005), believe the theoretical framework outlined in the Contact Hypothesis, also known as the Intergroup Contact Theory, is a useful model for understanding IPE (Hean & Dickinson, 2005). The theory, originally proposed by Allport in 1954 and updated in 1979, is that the best way to reduce prejudice and hostility between groups is to bring them together (Allport, 1958), and that providing a particular set of conditions can promote a change in attitudes and stereotypes (Hean & Dickinson, 2005).

The theory proposed by Allport 1979 was reworked by Pettigrew in 1998, with empirical research found to support the hypothesis (Pettigrew, 1998). Further development of the theory was that bias is reduced when there is potential for friendship, and the influence of friendships can have positive effects across the groups (Pettigrew, 1998).

Hean and Dickson (Hean & Dickinson, 2005) applied the same conditions proposed by Allport to IPE, that the presence of equal status for participants, common goals, positive expectations, cooperation, and institutional support are thought to reduce stereotyping and prejudice against other disciplines. Significant limitations of the theory are a selection bias as prejudiced people will avoid intergroup contact, and that the theory does not address how changes in attitude take place, merely the contact conditions (Hean & Dickinson, 2005; Pettigrew, 1998).

In 2011, Pettigrew reviewed advances on the Contact Hypothesis in a meta-analysis of more than 500 studies (Pettigrew et al., 2011). The original conditions first proposed by Allport in 1954 were confirmed to be optimal to promote the reduction in prejudices, although their presence was not as stringent as previously thought. There were other positive outcomes for intergroup contact. A key finding was the importance of cross-group friendships, and that the positive effects extend, although less strongly, to the broader outgroup. Indirect contact is sufficient to reduce prejudice against the outgroup, such as through the media or a friend of a friend. The explanation was that friendships involve many of the conditions for positive contact such as cooperation, common goals, equal status and self-disclosure. Threatening and non-voluntary experiences, not surprisingly, reinforced negative views.

Support for the Contact Hypothesis Theory and a reduction in stereotyping was found in a large cohort of health professional students who took part in an IPE program (Michalec et al., 2017). The students enjoyed the informal socialising and getting to know each other as people throughout program, which impacted their views of other health professions significantly. The effect of personalisation appeared to shift the focus and promote interaction with members of the outgroup (Michalec et al., 2017), and it is the mechanism for breaking down stereotypes.

The study suggests the group identities shifted from an ‘us’ and ‘them’ to a ‘we’ perspective and became a shared identity, such as ‘student’ or ‘practitioner’, with mutual goals. The important feature was that the original health profession group identity was not renounced, and the approach endorsed dual identities (Michalec et al., 2017).

The interaction between the Contact Hypothesis theory and Social Categorisation theory may be complementary rather than they are competing, with each model being more relevant at different stages of development (Hean & Dickinson, 2005). Social Identity Theory may provide a framework for understanding the interaction between group behaviours at both micro and macro levels, including power structures, values, the strength of identification, and context (Kreindler et al., 2012).

#### 2.2.3.3                  The Community of Practice theory

Situated learning in a Community of Practice by Lave and Wenger is a theoretical framework frequently applied to the development of PI (Snell et al., 2020). It proposes that “professional identities are understood to be constructed through an evolutionary and iterative process, resulting in an individual developing a sense of a professional self” (Noble, O’Brien, et al., 2014, p. 377). Student learning takes place, and social identities are developed by participating in a community of practice (Osteen, 2011; Skøien, 2009).

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). Based on learning not just being the acquisition of knowledge, it occurs through peripheral participation and being socialised into the practice, and forming an identity within the practice community (Ranmuthugala et al., 2011, p. 2). In the community of practice “mutual engagement, joint enterprise and shared repertoire” are necessary to sustain the community (Davis, 2006, p. 3), each dimension contributing to student learning.

Depending on who is using the term, a community of practice can be “a conceptual lens to examine the situated social construction of meaning” (Cox, 2016, p. 527), through to being “a virtual community or informal group sponsored by an organization to facilitate knowledge sharing or learning” (Cox, 2016, p. 527).

In a review of four seminal works on communities of practice, author Cox (2005), suggested that ambiguity about whether the stance is academic or managerial leads to confusion about the concept. The three early works shared a common epistemological position on the community of practice, and authors most often cite these articles, and the fourth redefined communities and practice (Cox, 2016).

The first title reviewed was ‘Situated learning: legitimate peripheral participation’ by Lave and Wenger, and promotes “new learning as a continuous, active, engaged, situated and identity-forming process” cited in (Cox, 2016, p. 528). The second title was, ‘Organisational learning and communities of practice: toward a unified view of working, learning and innovation’ by Brown and Duguid, which takes the work into an organisational setting and proposes an understanding of new learning as being about informal groups forming to improvise solutions to problems (Cox, 2016). The third work reviewed by Cox was ‘Communities of practice: learning, meaning and identity’ by Wenger, and this addresses social identity and trajectories of participation. It also identifies membership to multiple, different communities as a potential cause for tension by individuals. The fourth work critiqued, Cox suggested was from a management perspective, with a community of practice being small informal groups in large multinational companies whose function is focused on problem solving, and is less relevant to this research.

In 2016, Jackson (Jackson, 2016) investigated identity formation, communities of practice and student employability. Participants in the community of practice were considered “stakeholders”, and students engaged in various ways and depth with multiple stakeholders in the “landscape of practice” including professional organisations, academic staff and curricula, community groups, student societies, employers and university student support and careers services (Jackson, 2016, p. 925). The student PI is influenced by experiences with multiple stakeholders in the community of practice, and participants transform into employable professionals, ready to enter the workforce.

### 2.3 Learning to be a health professional

#### 2.3.1 Preparation for practice

##### 2.3.1.1 Curriculum

The role, or even responsibility, of educators is to ensure the curriculum provides technical skills, theoretical knowledge and an understanding of the profession (Trede et al., 2012). Curriculum shaping the development of PI is recognised occurring via the classroom, practice setting, policy, and teaching and learning practices (Ashby et al., 2016; Trede et al., 2012).

The consistent position is that PI needs to be specifically addressed in the curriculum rather than left to implicit learning or chance (Cruess et al., 2014; Grace & Trede, 2013; Trede, 2012; Trede et al., 2012), although students tend to regard the classroom curriculum as less influential on their PI than placement experiences (Ashby et al., 2016). The placement setting offers real world learning and role models from placement or clinical educators, and intra and interprofessional health care practitioners.

Learning the profession's values is a "subtle process and unfolds largely unspoken" (Hall, 2005, p. 191) and it is more difficult to influence the informal and hidden curriculum where these are often experienced and absorbed (Goldie, 2012; Varpio et al., 2014). The hidden curriculum in medical education has come to mean the invisible parts of teaching and learning, usually with negative connotations and the learning may be unconscious (Cruess et al., 2014; Lawrence et al., 2018). Operating at the institutional level, it encompasses anything not in the formal curriculum and includes the organisational culture, attitudes and unintentional messages transmitted to students (Lawrence et al., 2018), such as the professional behaviour of role models, positive or negative (Brown et al., 2020).

The most common goal of IPE is cultivation of teamwork skills and the debate has, for a long time, been about the timing of introduction to IPE (Adams et al., 2006; Khalili et al., 2019; Thistlethwaite, 2012). The main issue surrounding timing relates to PI; in the early stages of their program health professional students do not know enough about the role of their profession to collaborate in teamwork (Price et al., 2021) and, as they progress they form stereotypes and prejudices against other health professions (Foster & Macleod Clark, 2015; Michalec et al., 2017).

There is strong evidence that students enter university with a pre-existing PI and stereotypes of their chosen profession as well as that of others (Adams et al., 2006; Price et al., 2019; Thistlethwaite, 2012). These stereotypes of other health professions can hinder participation in collaboration and teamwork, especially if is associated with conflict and tension (Adams et al., 2006; Hall, 2005; Price et al., 2019). Education as a single profession reinforces the professional culture, language, value system, and approach to problem-solving, and invisible obstacles between members of the health care team (Hall, 2005). The intention of engaging students in IPE early in their course of study is to reduce or prevent reinforcing stereotyping and barriers in the professional culture before they become established.

### 2.3.1.2 Professional placements

The practice setting, or placements, is where the explicit and implicit curriculum merge, and this setting has the greatest impact on PI for students (Ashby et al., 2016; Miller, 2013; Mylrea, 2015; Trede et al., 2012). Formation of PI can be delayed if introduction to the practice setting does not occur until late into the course or program (MacLellan et al., 2011; McCall et al., 2009; Taylor, 2007). Knowledge of the profession is a predictor for strength of PI, and students who have early exposure to the profession comprehend their future role sooner, and are able to integrate this into their novice PI.

Authentic learning experiences are those that provide students with opportunities to join and work in their professional community (Patrick et al., 2008). Workplace learning and experience in professional roles prepares students for their future with:

*Not only disciplinary knowledge and technical skills but also intelligence about how to work in a team, communicate with others, learn tacit ways of working through observations and socializing into workplace cultures (Trede, 2012, p.159).*

Work-integrated learning or WIL is described as “experiential learning, cooperative education and work-based learning, [is] the interweaving of practical work experience with classroom learning” (Jackson, 2017, p. 835). Using the term “practice-based learning”, the aim is to promote the application of theory into practice in a workplace setting with authentic learning experiences, and for the student to learn in and about practice through participation in a community of practice (Thistlethwaite, 2013, p. 15). Succinctly stated, “A health professional student cannot fully understand the complexity of the working health care environment until immersed within it” (Thistlethwaite, 2013, p. 17).

A large scale scoping review of WIL in Australia conducted in 2008 reported findings from thirty-five universities and almost 600 participants (Patrick et al., 2008). The project aimed to map the growth in WIL activity, and identify issues and ways to enhance the student experience. For the project, WIL was an “umbrella term used for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum” (Patrick et al., 2008, p. v). WIL can cover a variety of activities such as projects, fieldwork and simulation; however, placements are the most common form of WIL for health professional students in Australia (Universities Australia, 2019).

A clinical training program or professional placement is a requirement of allied health professional education in Australia, with variations in setting and duration according to the profession (Brown et al., 2016; Mason, 2013). Importance is placed on the off campus learning experiences of WIL, also called placements, practice education, fieldwork, or clinical experiences, to prepare graduates with skills and capabilities for the workforce (Brown et al., 2016; Jackson, 2017; Nagarajan & McAllister, 2015). Typically, students will undertake multiple placements, learning to integrate and apply knowledge from the classroom, and building competency from one placement to the next (Patrick et al., 2008).

In Australia and internationally, there are concerns about shortages of high quality placements for clinical and allied health students, resulting from the interaction of many complex issues (O'Brien et al., 2017; Rodger et al., 2008; Universities Australia, 2019; Woods, 2017). Interest is moving to increase the uptake of other less resource-intensive forms of WIL for allied health students to connect with their field of practice for authentic learning experiences, and lessen the load on the setting (Ashby et al., 2016; Evans et al., 2016; Swanepoel et al., 2016).

Role emerging placements, service learning, splitting to part-time placements over several sites, distance supervision, simulations, and on campus health clinics are some of the types of practice education under consideration (Brown et al., 2016). Health professional accreditation authorities have been encouraged to support innovation in education and training, particularly the use of technology and use of simulation-based education and training (Woods, 2017).

Preparing health care professionals requires more than advancing their discipline-specific knowledge and skills (Bartlett et al., 2009; Goldie, 2012; Monrouxe, 2010). The expectations of graduates are for high standards of practice, efficient delivery of services, teamwork skills, and ability to work without supervision (Lindquist et al., 2010). Work-ready is a term used to describe “graduates with a combination of content knowledge and employability skills, such as communication, team work and problem solving, which enables effective professional practice” (Patrick et al., 2008, p. iv).

### 2.3.2 Transition into the workforce

Graduates entering the profession must apply practice knowledge and skills beyond theoretical knowledge learned at university, and implement newly acquired competencies (Higgs et al., 2004). They need to have developed professional behaviour, flexible clinical decision-making skills and the ability to engage in reflective practice, as well as understand the influence of context or knowing what is relevant to the profession (Dahlgren et al., 2004). Learning to become a professional is both a cognitive and cultural learning process, and it is challenging for students to identify and make sense of the meaning of knowledge gained the clinical setting (Dahlgren et al., 2004).

Developmental change and learning are facilitated through social encounters, dynamic interactions with individual health professionals and their environment (Black et al., 2010). Critical elements in the development of expertise are experiential learning and self-reflection on the acquisition of expertise (Black et al., 2010; Lindquist et al., 2010). The health professional needs to be able to think and perform at the same time; they need it have the ability to think on their feet and apply experience to new situations (Schön, 1987).

As an individual, the practitioner must actively reflect on their competence and depend on social learning and feedback from reliable others to judge actions and decisions (Regehr & Eva, 2006). Self-directed learning, critical thinking, reflective practice, adaptability and flexibility are skills highlighted for lifelong learning (Barr, 2002; Lindquist et al., 2010; Smith & Pilling, 2007). Participation in their own development in the practice environment during this critical transition time facilitates graduates successful transition to the workforce (Johnsson & Hager, 2008; Smith & Pilling, 2007).

It is known that entry to practice is a time of immense change for the graduate (Lindquist et al., 2006b; Thomas & Beauchamp, 2011) and the first year of practice involves constant stress and professional development (Tryssenaar & Perkins, 2001). Loss of naiveté and idealism, and becoming less caring while learning to cope in new roles are reported among new graduates (Mackintosh, 2006).

### 2.3.2.1 Graduate employability

It is important for universities that graduates entering the workforce are able to meet employer demands for work-ready practitioners with technical knowledge, professional competencies and other work-related skills (Clarke, 2017; Smith & Pilling, 2007). Following policy changes that made higher education more accessible for more students, measurable outcomes were needed by government policymakers to assess the return on investment, and graduate employability has become an indicator. The expectation is for graduates to “exit their studies in work-ready mode and with demonstrable levels of employability” (Clarke, 2017, p. 1).

For the graduate, employability does not ensure employment. The introduction of tuition fees and students as consumers has increased pressure for this outcome; however, success is affected by strength of the economy and oversupply of graduates as well as other individual factors such as personality (Clarke, 2017; Kinash et al., 2015). While employers need technical and discipline specific knowledge and skills, they consistently place a high value on “transferable qualities, or ‘soft skills’ such as professionalism, self and time management, reliability, creativity, self-confidence and the ability to work in a team” (Clarke, 2017, p. 1).

Gaps and mismatch between their knowledge and skills for their future role and employers’ expectations have been identified as further barriers for the graduate seeking employment (O’Brien et al., 2017; Tomlinson, 2012). A scoping review by Australian researchers investigated the variety of professional skills required for effective practice by new health professional graduates using the terms “generic skills” or “non-technical skills” (Gibson & Molloy, 2012, p. 72).

The findings support the importance of graduates having these skills, however they were not being displayed, raising concerns that graduates were “under-prepared for the complex and changing work environment” (Gibson & Molloy, 2012, p. 82). The authors acknowledge that these skills may have been taught at the university level, but the issue identified was lack of support and assessment during placement education to reinforce the desirability and scaffold learning. The basis for this is “learners require further assistance in the contextualisation and development of these competencies during and after their education” (Gibson & Molloy, 2012, p. 81), and the authors called for “links between universities and health care facilities need to be strengthened to assist clinicians in their teaching of these skills” (Gibson & Molloy, 2012, p. 82),

Similar results have been reported from employers of graduate health professionals, and the gaps appear to be related to skills needed for working within the health care system rather than clinical or technical skills (Woods, 2017). An investigation of self-reported gaps and work readiness of early career health professional employees of the Department of Health in Western Australia, identified cross-profession skill gaps that could be addressed with IPE rather than discipline specific issues (Merga, 2016). Recent graduates from multiple health professions consistently reported heavy caseload and poor time management, lack of clinical administration skills, conflict management and stress management, and reality shock impacted performance in their new role (Merga, 2016).

Ideally, enhancing graduate employability would engage governments, employer groups and industry to identify critical issues and support graduates transitioning into the workforce (Bennett et al., 2016; Clarke, 2017; Daniels & Brooker, 2014).

## 2.4 The profession of dietetics

### 2.4.1 International

The earliest understanding of diet was about lifestyle and the relationships between physical health, wellbeing, spiritual health and environment (Capra, 2012). In a narrative review of the published literature of leaders in the profession of dietetics, it was thought the profession is older than medicine, although not in the restricted form it is interpreted as now.

The beginning of the discipline is thought to be early nineteenth century, influenced by new knowledge from empirical scientists, physiologists, biochemists, and physicians (Cannon, 2005). The twentieth century brought discoveries in nutrition science and, with a focus in economic growth in the United Kingdom and Western Europe, major improvements in population health as a resulting of better nutrition.

The influence of nutrition on health policy declined in the later part of the twentieth century although interest is rising again from greater awareness of the role of food and nutrition in chronic disease, environmental sustainability, and concern about climate change (Cannon, 2005; Capra, 2012).

Despite evolution of the profession, some themes have not changed over time, and consistent patterns are identified as “the breadth of dietetics, the need for evolving curricula, the need for business acumen, the need for diversity and, in more recent times, the ability to work with interdisciplinary teams” (Capra, 2012, p. 181).

In many parts of the world, the profession is still emerging (Capra, 2012). An international study on professional recognition for dietetics in 2001 developed a Human Development Index (HDI) which profiled life expectancy, education, and income for all countries, finding the profession was more established in high HDI countries (Calabro et al., 2001).

Clinical dietetics was the most common area of practice, followed by food service, and competencies in clinical and community nutrition and professional practice were rated as most important in high HDI countries (Calabro et al., 2001). Countries with significantly large professional dietetics associations were the United States, Japan, Germany, and Colombia; however, African countries such as Lesotho and Gambia had very small numbers of dietitians for the professional association (Calabro et al., 2001). The disparity between high HDI and low HDI countries continued using a variety of measures, with “some economically developing countries [were] trying to establish nutrition councils, and other countries did not have basic national nutrition policies (Calabro et al., 2001, p. 598).

The International Confederation of Dietetic Associations (ICDA), founded in 1950, claims membership by national dietetics associations from 50 countries, and recognition as the international organisation for dietetics professionals representing over 200,000 dietitian-nutritionists worldwide (International Confederation of Dietetic Associations, 2020). The ICDA defined a dietitian-nutritionists as:

*A professional who applies the science of food and nutrition to promote health, prevent and treat disease to optimise the health of individuals, groups, communities and populations (International Confederation of Dietetic Associations, 2014).*

Every four years, ICDA surveys its member organisations on the education and work of dietitian-nutritionists in their country (International Confederation of Dietetic Associations, 2020). Reporting on practice trends in 2016 compared to 2012, ICDA observed as well as traditional hospital-based work, dietitian-nutritionists were working in a wider range of settings, and their ways of working had shifted (International Confederation of Dietetic Associations, 2016). Follow up on these new ways of working was undertaken, finding the five practice areas with the greatest increase were entrepreneurship/private practice, public health, academia, research and clinical practice in primary (International Confederation of Dietetic Associations, 2019).

#### 2.4.2 Australia

##### 2.4.2.1 Role of the dietitian and practice of dietetics

In Australia, the purpose of the profession is defined as:

*The profession of dietetics contributes to the promotion of health and the prevention and treatment of illness by optimising the nutrition of populations, communities and individuals. Dietitians have a defined and recognisable body of knowledge and utilise scientific principles and methods in the study of nutrition and dietetics, applying these results to influence the wider environment affecting food intake and eating behaviour. The scope of dietetic practice is such that dietitians may work in a variety of settings and have a variety of work functions. Ratified by the DAA Board June 2013 – Revised June 2015 (Dietitians Australia, 2020g).*

A distinction is made between dietitians and nutritionists in Australia, unlike the term dietitian-nutritionists used by ICDA. All dietitians are nutritionists and have studied nutrition science. DAA described the difference, as in addition to the background studies in human nutrition, a dietitian also has “substantial theory and supervised and assessed professional practice in clinical nutrition, medical nutrition therapy and food service management” (Dietitians Australia, 2020g, para. 3).

#### 2.4.3 Competency standards and competence

Competency-based education has become a prominent approach to medical education worldwide, including Australia, aiming to prepare safe and effective health professionals for the workforce (Frank et al., 2010; Gibson & Molloy, 2012; Holmboe & Batalden, 2015; Jarvis-Selinger et al., 2012; Palermo, 2015). Benefits of the competency movement that started in the 1960s and 1970s include:

*A focus on outcomes, presented as observable competencies; greater workplace relevance through the capacity to define curricula that better prepare students for entry to the workforce; potential to eliminate time-based decisions on the readiness for this entry; assessments framed as judgements of competence; improved skills recognition; and improved articulation and credit transfer between institutions (Jolly, 2012, p. 347).*

Australian researchers in dietetics education and competencies, Ash and Phillips (Ash & Phillips, 2000) cite Gonczi, Hager and Oliver to define a competent professional as “one who has the attributes necessary for job performance to the appropriate standards, where attributes relate to the acquisition of the underlying knowledge, skills and attitudes required for this performance” (Ash & Phillips, 2000, p. 147).

The authors confirm the notion of being competent means satisfying particular minimum standards and attributes for the work role, although the profession has been cautioned to avoid viewing this as minimum standards of ‘competence’ and to strive for ‘excellence’ (Palermo, 2015, p. 99). To clarify the terminology, “competency is the ‘skill’ and ‘competence’ is an attribute of a person” (Khan & Ramachandran, 2012, p. 926).

The elements of knowledge, skills and attitudes accepted as essential to the profession are grouped and categorised to become competency standards, and when combined as a whole, used for education and assessment (Ash & Phillips, 2000). Ash and Phillips (Ash & Phillips, 2000) adopt the view of competence as an integration of competency standards (Gonczi, 2013) rather than a collection of discrete, measurable tasks (Jarvis-Selinger et al., 2012).

Competence is dependent on the context and student learning needs to occur over a variety of experiences and workplaces, and to be assessed in the workplace (Ash & Phillips, 2000; ten Cate et al., 2010). In the clinical context, competence includes meta-cognition and refers to the “ability to make satisfactory and effective decisions or to perform a skill in a specific setting or situation” (Khan & Ramachandran, 2012, p. 921) or “decisions [that] are dependent on the environment in which the problem is situated” (Palermo, 2015, p. 98).

Ultimately, taking a competency-based approach to medical education “is directly linked to better care for individuals and society” (ten Cate et al., 2010, p. 669).

Competency-based education and the formation of PI are not opposing positions; they may be seen as linked and complementary (Jarvis-Selinger et al., 2012). In the early stages of adopting a new identity, student practice is focused on the external expectations of the role and competencies. With progression by the student through the program and integration of competencies, practice becomes more holistic and entails constructing a PI as a practitioner (Jarvis-Selinger et al., 2012).

#### 2.4.4 Competency standards for dietitians

The Competency Standards for Dietitians are at the centre of the accreditation process for university programs and influence the dietetics curriculum and PI through this mechanism. The National Competency Standards (NCS) for Entry-Level Dietitians in Australia were first published in 1993, and describe the professional expectations of a graduate dietitian for entry to the workforce and identify current and future roles and tasks of dietitians.

Reviews have been conducted in 1998, 2005, and 2009, and 2014. A consultation with stakeholders followed in 2015 to plan for transition of the standards into practice (Palermo et al., 2016). An iterative multiple methods approach was used to develop the competency standards with input from stakeholders including universities, dietitians, and the broader public (Palermo et al., 2016).

Qualitative investigation found that the major functions of dietitians included “Being a professional, influencing the nutritional health of individuals, groups, communities, and populations through evidence-based nutrition practice, and working collaboratively in teams” (Palermo et al., 2016, p. 134). The authors reflected that the methodology highlights ways the profession is evolving.

The new NCS in 2015 incorporated more focus on attributes of professionalism and working across teams, consistent with other health professions and demonstrate their importance in safe and effective practice (Ash et al., 2019; Palermo et al., 2016). The structure is different from the 2009 version, and although they identify the major work roles of dietitians, the settings are no longer specified.

There has been significant growth in the number of accredited dietetics programs, with large numbers of newly graduated dietitians entering the workforce and needing to look beyond traditional roles in hospitals, with private practice and the food industry as emerging areas of practice (Health Workforce Australia, 2014). This trend is reflected in the revised competency standards with a greater emphasis on client centredness, marketing skills, and advocating for the role of the dietitian (Palermo et al., 2016).

The DAA National Competency Standards for 2009 and 2015 are shown in Appendix B.

#### 2.4.4.1 Context for competency development

Development of professional competency is a critical aspect of the course for final year dietetics students who need to complete a total of 20 weeks of full-time placement in the three domains of practice - individual case management, food service management, and community and public health nutrition (See Appendix B.). The domains refer to groups of competency standards, consisting of elements and performance criteria, and enabling assessment of performance.

The 2015 review of competency standards removed the strict requirements of specific placement settings in support of practice becoming more integrated and the emphasis on being a generalist practitioner (Ash et al., 2019; Palermo et al., 2016). The duration of time for placements remain defined however, with the assertion there is little evidence for specifying the length of the placements (Ash et al., 2019), a view shared by other authors from health profession education (Brown et al., 2016).

In 2009, one of the earliest reports in Australian dietetics education dietetics students, found the placement experience profoundly affected the career direction of graduates (McCall et al., 2009). For some students, placements provided better knowledge of the different areas of work and confirmed their career path. After completing the placements in the final year, other students realised that they no longer wanted to continue into the profession. Positive relationships with placement supervisors and more constructive learning environments often led to a stronger interest to work in that field (McCall et al., 2009).

More than five years later, in 2015, investigators conducted semi-structured interviews with 26 dietetics graduates about their clinical placement experience to better understand their competency development (Maher et al., 2015). The key finding was that it is an accumulative process of “social, technical and cognitive development” with multiple environmental influences (Maher et al., 2015, p. 160). Confidence-damaging experiences impacted negatively on competency development, with supervisor attributes, placement site dynamics and social climate being key factors. Confidence levels and competency development, both fundamental for the PI, grew in parallel.

The environmental influences identified at placement sites (Maher et al., 2015) are an example of the clinical teaching context (Bates & Ellaway, 2016). From a conceptual scoping review of context in the medical education literature, context is defined as “a dynamic and ever-changing system that emerges from underlying patterns of patients, locations, practice, education and society, and from the unpredictable interactions between these patterns” (Bates & Ellaway, 2016, p. 814). Context can be viewed as a mechanism that shapes the education outcome, affecting different types of learning outcomes to varying degrees. The level of dependence between context and outcomes, or contextual dependence, between individual attitudes and context was high, and “context seemed to be a particularly important mechanism for influencing learner attitudes, beliefs and identities” (Bates & Ellaway, 2016, p. 812).

Similarly, in dietetics education, the environmental context of placements will significantly influence students' learning, attitudes and identities, including PI.

#### 2.4.4.2 Accreditation of dietetics programs

Regulation ensures individual health care practitioners are trained and qualified to meet professional standards, registered to practice, and that knowledge and skills are maintained throughout their working life (Browne, 2020). In Australia, it is the role of the Australian Health Practitioner Regulation Agency (AHPRA) to provide policy advice to the boards on professional standards, registration, notifications, compliance, and accreditation (Australian Health Practitioner Regulation Agency, 2020).

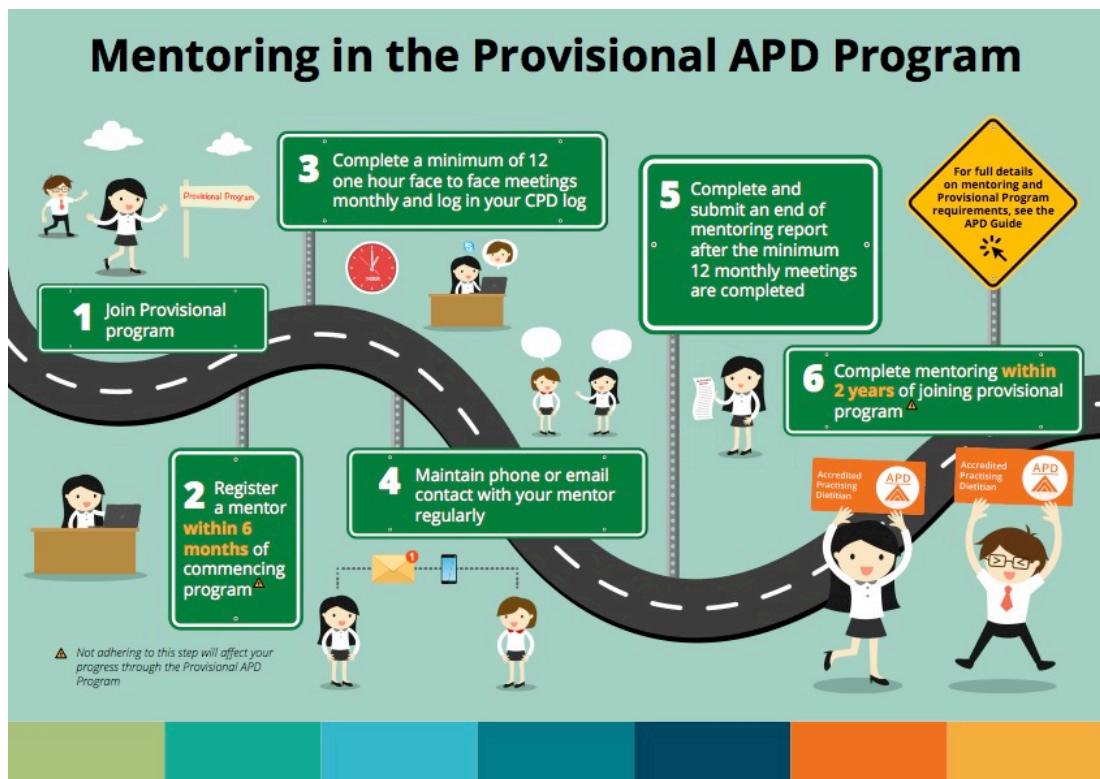
DAA is a self-regulated profession and does not fall under the Australian National Registration and Accreditation Scheme, administered by the AHPRA, which oversees 15 National Boards (Australian Health Practitioner Regulation Agency, 2020). DAA is a member the National Alliance of Self Regulating Professions (NASRHP) (National Alliance of Self Regulating Health Professions, 2017) which aims to facilitate national consistency in quality and support for self-regulating health professionals and satisfy national and jurisdictional regulatory requirements. In this way, DAA is able to assure the public that its members are "properly monitored and accountable for their practice" (Browne, 2020, p. 3).

The functions of maintaining professional standards and accreditation for DAA are across two independent councils of DAA, the Dietetics Credentialing Council (DCC) and the Australian Dietetics Council (ADC), respectively (Dietitians Australia, 2020e). Accreditation of university dietetic programs is the responsibility of ADC and mandates that university dietetic programs evaluate students against the DAA NCS. A graduate of an accredited dietetics program is eligible to become a DAA member and to join the Accredited Practising Dietitian Program (APD) (Dietitians Australia, 2020a).

The requirement for accreditation as the basis for the APD credential has enabled formal recognition of the dietetics profession by the Australian Government, Medicare, the Department of Veterans Affairs and most private health funds (Dietitians Australia, 2020b). There is an alternate process for entry to the APD program by overseas-qualified dietitians.

The Accredited Practising Dietitian (APD) program and credential is managed by DCC. The APD must maintain the program standards, including commitment to ongoing continuing professional development, recency of practice, and the code of professional conduct and statement of ethical practice, consistent with the requirements for AHPRA registered health professionals (Dietitians Australia, 2020b).

The first year of the APD program is as a provisional APD which involves the formal support by a full APD as a mentor for at least 52 weeks, with the requirements outlined in the infographic Figure 2.1 (Dietitians Association of Australia, 2016).



**Figure 2.1 Infographic of mentoring for provisional APD program**

Note. From (Dietitians Association of Australia, 2016).

Exploration of changes in the competency standards and education framework have influenced dietetic practice in Australia since 1990, was recently reported by prominent dietetics educators , Ash, Palermo and Gallegos (Ash et al., 2019),. Returning to original interviews from 1991, 1998, and 2007, a guided discussion in 2014, and the Accreditation Manuals/Standards, a narrative of practice over time was constructed. They identified four themes where changes in the competency standards have occurred:

*Communicating for better care; scientific enquiry for effective practice; critical thinking and evidence-based practice and; professionalism remained core to dietetic practice over time, but leadership, advocacy, business management and entrepreneurial skills have emerged more strongly as the scope of practice has diversified (Ash et al., 2019, p. 44).*

Acknowledging a three-way partnership between the profession, educators and accrediting bodies, the conclusion was that the accreditation policy and competency standards have maintained the quality of dietetic practice in Australia, but they also “have the potential to constrain innovation” (Ash et al., 2019, p. 45). These comments mirror findings from a review of six allied health degree programs (McAllister, 2015) that meeting allied health accreditation requirements may be hindering universities. Despite many strengths, there were missed opportunities, particularly for placements. The role of accreditation to motivate innovation has been debated in health professions education, with opinions ranging from “not believe it is the accreditor’s job to innovate” through to “it is the role of accreditation not to block or hinder innovation”, with overall support for flexibility (National Academies of Sciences Engineering & Medicine, 2017, p. 27).

#### 2.4.4.3 Dietetics workforce

Robust data for the Australian allied health workforce is limited (Naccarella, 2015), but the profile for dietetics is reportedly similar to that of other health professions - relatively young and predominantly female (Brown et al., 2006; Health Workforce Australia, 2014; Morgan, Kelly, et al., 2019).

The predicted membership to DAA was 85% of eligible dietitians in 2006 (Capra, 2012), however, it is likely to be higher following the introduction of Medicare-funded rebates for allied health services in 2009 that requires the credential of Accredited Practising Dietitian (APD) (Mitchell et al., 2012). Limited data exist for more current workforce information, and DAA does not release details of its membership, noting that AHPRA has the data collection function for registered professions (Morgan, Kelly, et al., 2019). The dietetics workforce and the education sector have experienced significant growth, estimated to be 10% annually (Health Workforce Australia, 2014; Morgan, Kelly, et al., 2019), and in 2018, the DAA Annual Report showed more than 7,000 members (Dietitians Australia, 2020c).

#### 2.4.4.4 Why choose a career in dietetics?

The reasons for choosing to apply for entry into a dietetics program and the career aspirations were qualitatively explored by Australian researchers (Hughes & Desbrow, 2005). The most common motivation to apply for admission was a long-term interest in nutrition, health and helping people, often inspired by their own experience with a dietitian or another family member. Applicants had ambitions of working with professional autonomy in a clinical position, private practice (particularly in sports nutrition) or mixed practice settings. They had little awareness of other practice areas such as public health and food service (Hughes & Desbrow, 2005).

Interest in nutrition and healthy eating, and health and wellbeing among dietetics students is remarkably consistent in international studies (Atkins & Gingras, 2009; Lordly & MacLellan, 2012).

In Canada, in-depth interviews were conducted with first and fourth year students to investigate the motivation for their decision to apply for entry to the dietetics program (Lordly & MacLellan, 2012). A high level of general knowledge in health, a desire to help people, and interest in food or nutrition were common, and family influences continued as factors in their decision.

Similar to the findings by Australian researchers, Canadian students had only vague knowledge of the role of a dietitian. During their studies, students spoke of reservations about dietetics as a career choice (Lordly, 2013), citing competitiveness and uncertainty of gaining an internship as their major concerns. As students' knowledge of the profession grew, so did their apprehension about salary and employment opportunities, and respect and status of the profession also became more prominent (Lordly, 2013).

These studies show applicants to dietetics programs have a high interest in the subject area but low awareness of the professional practice in dietetics. The implication is that students enter the dietetics course with a PI built on an idealised version of the profession and are likely to experience a reality shock when introduced to the practice setting.

## 2.5 Professional identity and collaborative practice in dietetics

### 2.5.1 Professional identity

There are a small number of published studies reporting research on PI and related topics for dietitians, with a proportion of these from Australian researchers.

Canadian researchers, conducted a qualitative systematic review from 1960 onwards in the nursing literature to understand professional socialisation and associated challenges for the dietetics profession (MacLellan et al., 2011). They observed while there was much for dietetics to learn from the large body of work from nursing, the similarities in developing a PI between dietetics and nursing are unknown. The roles are dissimilar, and the focus of dietetics on "food, bodies and eating" is different from nursing; therefore, professional socialisation is likely to be qualitatively different (MacLellan et al., 2011, p. 41). Preceptors were found to have a strong influence on individual's professional development which could be either positive or negative, and shaped students' feeling respected, belonging to the profession, and transition into the workforce (MacLellan et al., 2011).

Other Canadian researchers explored nutrition students' experience of their education and the influence on students' PI (Atkins & Gingras, 2009), identifying a loss or change in their relationships with food and self. The shortage of internships after course completion heightened competitiveness between students and pressure to conform to self-imposed expectations of healthy eating patterns. The key finding related to PI was the position of food in their experiences between entering and finishing the program, which has not been apparent in other discourses (Atkins & Gingras, 2009).

Preparedness for entry to the workforce of Australian dietetics graduates has been investigated. A literature review described the journey to becoming a dietitian as transformative, with many ups and downs along the way (Morgan, Campbell, & Reidlinger, 2019). The university preparation for many of the graduates was a positive experience, although they were under-prepared for diverse opportunities in emerging areas of practice. The authors concluded the study was unique in bringing the graduates' voice to health workforce preparation (Morgan, Campbell, & Reidlinger, 2019).

The impact of participation in a university clinic on dietetic students' confidence was explored qualitatively in focus groups in another Australian study (Swanepoel et al., 2016). The purpose of the clinic was to provide an environment for students to practice their skills before placements and identify with their professional community. The real-world work experience was overwhelmingly positive for students, and they valued the authentic nature of the clinic compared to simulations with peers. The experience helped confirm their career choice, and practising the skills of their profession was thought to develop confidence and contribute to PI (Swanepoel et al., 2016).

The absence of a global definition of professionalism for nutrition and dietetics was the purpose of conducting a systematic literature review by Australian dietetics researcher Dart and colleagues, with a particular interest in competency standards (Dart et al., 2019). Thematic analysis was undertaken on the articles retrieved and findings were synthesised to develop a conceptual model. Professionalism was conceptualised as “a dietitian’s approach to practice, interpersonal communication and relationships, and personal attributes (qualities and values), all of which are underpinned by a commitment to lifelong personal and professional development” (Dart et al., 2019, p. 968).

Presented as a broad multidimensional view, this approach is in keeping with the contemporary view that professionalism has multiple levels - individual, interpersonal and institutional/societal (Hodges et al., 2011). The link between assessment of professionalism, competency standards and PI is the intention to be a first step in the conversation between education and the workplace, and “support[s] progress toward shared understandings - building trust between the public and the profession” (Dart et al., 2019, p. 969).

## 2.5.2 Interprofessional education and collaborative practice

### 2.5.2.1 Role of accreditation standards

Accreditation frameworks and curriculum regulation are used to reform and reshape the health care workforce (Holmboe & Batalden, 2015; Thistlethwaite et al., 2019). In Australia this role is the responsibility of AHPRA as the administering body for the National Registration and Accreditation Scheme (NRAS) (Australian Health Practitioner Regulation Agency, 2020); although, as it has been previously noted, DAA is a self-regulated profession.

In 2017, recommendations were made to NRAS by the Australian Health Ministers for a “cross-professional approach to the inclusion of interprofessional education as a mandatory requirement in all accreditation standards” and for the implementation plan to be developed (Thistlethwaite et al., 2019, p. 366). The report titled ‘Independent Review of Accreditation Systems within the National Registration and Accreditation Scheme for health professions’ released late 2017, notes all accreditation standards specify that IPL and IPP are included in study programs for registered health professionals, and recommended use of agreed terms and requirements for practice between the professions (Woods, 2017).

The Curriculum Renewal Studies Program examined and reported on IPE activities and curricula in Australia between 2009-2015 (Dunston et al., 2019). They found standards and outcomes for IPE were not consistently incorporated into health profession accreditation frameworks. While much had been accomplished in IPE in that time period, a national approach was needed to “shift[ing] the status of IPE from discretionary to required” and resolve variation in the degree of development of IPE between programs (Dunston et al., 2019, p. 228).

In addition, a range of national structures, systems, and processes were absent and needed to be established and incorporated into a workplan to support the IPE health workforce policies (Dunston et al., 2019). The concern was reinforced in the final report of the project which focused on the systemic barriers to implementing IPE, and a workplan proposed to sustain and strengthen the established work.

The debate for IPE in Australia has begun to look at who has overall responsibility and governance, with IPE sitting between education institutions and health services, and how that influences IPE for students in the practice setting (Moran et al., 2020; O’Keefe et al., 2020; Steketee & O’Keefe, 2020).

## 2.5.2.2 National competency standards for dietitians

The National Competency Standards (NCS) for dietitians in Australia describe the professional expectations of a graduate dietitian for entry to the workforce and identify the major work roles of dietitians (Palermo et al., 2016). The DAA 2009 Entry Level Competency Standards stipulated dietitians must collaborate with clients or carers, and other members of the health care team, and stakeholders in community and public health and food service settings (Appendix B.1.1). The domain for work role titled “Professionalism, advocacy, innovation and leadership” incorporates a key task to “develop[s] sustainable collaborative relationships and networks” with peers, mentors, professionals, organisations, and *multi-disciplinary teams* (italics added) (See Appendix B.1.1. p. 12).

The 2015 review of DAA national competency standards identified the need for dietitians to work collaboratively in interprofessional teams (Palermo et al., 2016). Using a multiple methods approach with focus groups, Delphi survey and extensive consultation with stakeholders, employers, new graduates, and education experts, the review achieved consensus for the major work roles and key tasks and standards (Palermo et al., 2016). The dietitians’ role as a Collaborator was one of four themes identified in focus groups by the review:

*Dietitians develop and maintain effective working relationships with multiple stakeholders. They must work effectively with multiple different inter-professional teams across sectors. They also build the capacity of others to improve nutrition and use client centred and community development principles to change individual behaviour or address community nutrition needs (Palermo et al., 2016, p. 135).*

This theme developed into a domain and work role titled “Collaborates with clients and stakeholders”, with the key task of “collaborating within and across teams” in the National Competency Standards 2015 (Dietitians Australia, 2020f, p. 8) that includes clients, peers, colleagues and stakeholders. The supporting definition for collaborate was given as: “the process of working with others, including demonstration of active listening, teamwork, negotiation and sharing” (Dietitians Australia, 2020f, p. 8).

Collaborating in teamwork is the competency standard, although interprofessional practice (IPP) was not specified. Instead, IPP was introduced as evidence for assessing entry-level collaboration and directed to a framework with threshold learning outcomes suitable for graduates from any professional entry-level health care degree (O’Keefe, 2015).

Thus, aligning practice standards for CP by dietitians with those by other entry-level health care graduates positions the implementation of IPE, and support for IPP and CP with health professionals covered by the National Registration and Accreditation Scheme (NRAS) and AHPRA (Australian Health Practitioner Regulation Agency, 2020).

## 2.6 Professional identity and collaborative practice for dietitians – what is known and not known

Most of the research on the development of PI has been undertaken in the professions of medicine and nursing (MacLellan et al., 2011; Rees et al., 2019). Research with allied health professionals is emerging in the literature from the disciplines of pharmacy, physiotherapy, occupational therapy, and social work is increasing (Boehm et al., 2015; Hayward et al., 2013; Mylrea, 2015; Noble et al., 2015; Pullen Sansfaçon, 2016; Wiles, 2013). This evidence is most commonly from the academic perspective such as curriculum review, and less frequently from the viewpoint of students or practitioners (Snell et al., 2020).

Several Canadian studies have explicitly looked at PI of dietitians (Atkins & Gingras, 2009; Lordly & MacLellan, 2012), but two key predictors of PI are not discussed - previous experience of working and learning in teams and understanding team relationships (Adams et al., 2006). Dietetics education research in Australia has also increased (Morgan, Kelly, et al., 2019). However, the focus of the research has been on professionalism, professional socialisation and preparedness rather than PI itself, with findings related to the development of PI as an indirect or a secondary outcome of the research.

The transition into practice is challenging for health professionals, and identifying areas in which they need support is important for workforce retention and job satisfaction. The role and influence of the dietetics community on the PI of an early career dietitian is not known, although the literature from other health professions suggests it is substantial.

In dietetics, the role of the APD mentor is professionally significant for graduates, particularly in the first year of practice. When the experience is positive, it may help towards reducing “transition shock” on entry to the workforce (Duchscher, 2009). It is not known whether students engage with other stakeholders in the broader community of practice, such as student career services, professional organisations and potential employers that could support their preparation for the workforce. The area lacks longitudinal research on the experience by students through to graduates.

The Dietitians Association of Australia influences the PI of emerging dietitians through the accreditation framework and competency standards. The NCS defines dietitians' current and future practice, the established values and attitudes, patterns of behaviour and professionalism, and the placement program introduces the student to the role of being a dietitian. The NCS are implemented via the curriculum for the university dietetics program, and students also experience the informal and hidden curriculum. The extent of these influences on the dietitian PI is not known.

There is an expectation for CP by dietitians in the NCS (Dietitians Australia, 2020f), which is aligned with that for graduates from other health care professionals through NRAS and AHPRA. The need for CP and IPP skills is linked with the future health workforce and is supported by a strong PI. The extent to which dietitians practice collaboratively with health professional colleagues is not known.

A greater understanding of the influences on PI at different stages will allow for better workforce preparation (Snell et al., 2020). By understanding the influences at different career stages, adverse factors may be identified. Dietetics graduates with a strong PI and the skills for CP on entry to the workforce will participate more effectively in teamwork with other health professionals in delivering high quality client-centred health care. Graduate employability and workforce readiness may be enhanced with a strong PI and CP skills.

In the following chapter, Chapter 3 Methodology, the study method chosen to undertake the research and best suited to address the research questions is discussed, along with the rationale for these decisions. The ontology and epistemology for the research and researcher position are addressed, and recruitment, data collection flow, ethical considerations and data analysis methods are also covered.

## Chapter 3

## Methodology

This chapter presents the study method and design, and explains selections and decisions based on the research questions, ontology and epistemology, and researcher position. The mixed methods approach is considered in detail, and selection of quantitative tools, qualitative enquiry and analyses are discussed in separate sections. The chapter concludes with a overview of the methodology, and a brief introduction to the integration of the two types of data.

### 3.1 Study method

The research investigated the longitudinal development of professional identity (PI) by Australian dietitians, and factors that might be influences, such as placement experiences, attitude of supervisors, health care environment and the profession itself. It is concerned with understanding the extent to which dietitians practice collaboratively with colleagues in day-to-day practice.

Specifically, the objectives were to identify what influences the professional identity of early career dietitians, and whether CP is incorporated into their professional identity.

Accordingly, the research questions were:

- Quantitative strand: What influences contribute to the development of professional identity (PI) of graduate dietitians?
- Qualitative strand: How is collaborative practice (CP) incorporated into professional identity (PI) of

A mixed methods approach was employed to address the research questions by enabling triangulation of two types of data.

### 3.1.1              Ontology, epistemology and paradigms

Ontology is about our view of reality and epistemology is concerned with how knowledge is acquired, and together they inform our theoretical perspective and decisions about research (Crotty, 1998). Developing the concept of a paradigm as a worldview of beliefs is widely attributed to Kuhn (1962) in his book 'The Structure of Scientific Revolutions' (Morgan, 2007). It was proposed the different worldviews and fundamental differences in definitions of reality and methodology held by scientists meant they were unable to communicate with each other (Mertens, 2012). Social scientists Guba and Lincoln adapted Kuhn's concept by incorporating ethics and epistemology, for paradigms to become "assumptions related to ethics, reality (ontology) and epistemology" cited in (Mertens, 2012, p. 255).

The four elements of research - epistemology, theoretical perspective, methodology and methods, are interdependent and rely on each other (Crotty, 1998). Guba and Lincoln (1994) believe the paradigm informs and guides the research approach, which depends on the researcher's ontological, epistemological and methodological position (Guba. & Lincoln., 1994). The sequence for decision making on the research design and paradigm is determined by the researcher, and Crotty (1998) suggests it can begin with any of the four elements (Crotty, 1998), while some believe it starts with the ontology (Mertens, 2012).

It used to be thought that researchers followed either a positivist quantitative or constructivist qualitative approach, each with specific ontological and epistemological assumptions but it's now understood there are three or four paradigms (Mertens & Hesse-Biber, 2012). The distinction being that quantitative and qualitative refers to types of data and methods rather than the philosophical paradigms related to research methodology should be noted (Biesta, 2015).

The positivist paradigm adopts scientific principles, believing knowledge and truth are objective and reality is external to the individual, in contrast with the constructivist paradigm that reality is based on interpretation by the individual and is subjective, and knowledge is gained by personal experience (Feilzer, 2010). Positioned in the continuum between the potentially incompatible paradigms and philosophies of positivism and constructivism, mixed methods research offers an alternative worldview (Creswell & Plano-Clark, 2007; Flick, 2017; Johnson & Onwuegbuzie, 2004; Shannon-Baker, 2016), with two types of data “not contradictory, but complementary” (Tavakol & Sandars, 2014a, p. 746).

Recognition of mixed methods research has evolved through scholarly debate by a community of interdisciplinary champions (Anguera et al., 2018; Small, 2011; Uprichard & Dawney, 2019) although a few researchers remain skeptical about the method (Denzin, 2008; Small, 2011) and others continue to support myths and fallacies about the method (Flick, 2017). Divergent views, discourses, and plurality are characteristic of mixed methods research, and debate is welcomed as the means to continuing development of the approach (Christ, 2013; Freshwater, 2016; Shannon-Baker, 2016).

One of the contemporary discussions concerns which paradigms are compatible with a mixed methods approach (Mertens, 2012). Mertens lists three: dialectical pluralism, pragmatist paradigm, and the transformative paradigm, each following different sets of philosophical assumptions. Shannon-Baker (2016) initially acknowledges variation in the understanding of whether the concept is a stance, paradigm, approach or perspective, and presents four stances; adding critical realism to the same three as Mertens (Shannon-Baker, 2016).

Pragmatism as a paradigm does not directly address the issues of truth and reality, but accepts the possibility of singular and multiple realities with layers of subjective and objective elements, and “allows the researcher to be free of mental and practical constraints imposed by the forced choice” between the two paradigms (Feilzer, 2010, p. 8). The pragmatist framework is based on the view that no single method is better than another but the choice needs to fit the research question (Feilzer, 2010; Shannon-Baker, 2016), while avoiding an “overly simplistic application” (Mertens & Hesse-Biber, 2012, p. 256).

In an editorial titled ‘Differing perspectives on mixed methods research’, Creswell and Tashakkori offer four approaches to describing the research process, observing “these are not mutually exclusive” (Creswell & Tashakkori, 2007, p. 303). The authors demonstrate how in each perspective the researcher’s attention is focused on either the method, methodology, paradigm, or practice, and it is this focus that guides the research strategy rather than a philosophical position.

The research undertaken for this project takes a pragmatist approach. It is conceptualised with a perspective focused on method in order to address the research questions. The approach as described by Creswell and Tashakkori (Creswell & Plano-Clark, 2007), concentrates on the processes and outcomes from using two types of data with two related research questions; one designed to collect numbers for quantitative data, and the other to collect words as qualitative data. Pragmatism is seen as a “clean approach, untangled with philosophy and paradigms” (Creswell & Tashakkori, 2007, p. 304).

### 3.1.2 Mixed methods research

The research is a mixed method study with each component designed to answer the research questions, and the rationale for the decision is outlined in the following section.

Mixed methods research has many definitions (Johnson & Onwuegbuzie, 2007), and is defined here as “research that involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon” (Leech & Onwuegbuzie, 2009, p. 267). The principle for choosing mixed methods is that by looking at the same issue through both quantitative and qualitative lenses, each approach is able to highlight different aspects and when combined or integrated, generates a greater understanding of the issue than a single method by “extending the scope and depth” (Fielding, 2012, p. 128).

The basis of triangulation is “that all methods have inherent biases and limitations”, and by using two methods with different biases to assess the same phenomenon, the results substantiate each other (Greene et al., 1989, p. 256). Rather than results of one method validating the other, the biases of each method balance and complement the other (Woolley, 2009). Flick has investigated myths and triangulation, and advises it is a comprehensive framework used as a “source of *extra knowledge* about the issue in question” (Flick, 2017, p. 53) and each perspective builds on the other in synergy. Triangulation can have several meanings, depending on the author’s world view (O’Cathain et al., 2010; Varpio et al., 2017). Corroboration of findings between the two types of data is one possible interpretation, and the other more often used in mixed methods research is “to describe a process of studying a problem using different methods to gain a more complete picture” (O’Cathain et al., 2010, p. 1). In this research, the intent or purpose for choosing a mixed methods approach is for triangulation of the data, and that convergence of the quantitative and qualitative data will provide new understandings and perspectives on development of PI by dietitians (Greene et al., 1989).

Johnson and colleagues believe mixed methods is “an approach to knowledge that attempts to consider multiple viewpoints” (Johnson & Onwuegbuzie, 2007, p. 113). Woolley proposes the mixed methods research approach is best for addressing “what and how or what and why” questions (Woolley, 2009, p.8), and quantitative and qualitative approaches are directed toward different parts of the research question (Creswell & Plano-Clark, 2018). Separating the overall research question – ‘how do dietitians develop their PI?’, into paradigm specific approaches and questions become: ‘*What influences contribute to the development of PI of graduates?*’, and ‘*How is CP incorporated into PI and practice of early career dietitians?*’

Surveys measure the longitudinal development of PI. This is determined using a validated tool, to show by way of measurements, the degree to which the process of formation of PI is occurring. The PI tool is shown in Appendix C.3.2. The progression of participants’ PI is quantified at four timepoints as they gain more experience, and become socialised to the profession. However, survey data is limited in its representation of PI and the constraints are determined by the dimensions and psychometric properties of the PI tool, and participants’ interpretation or understanding of the questions being asked. Similar constraints to these described for PI, also apply to use of the University of West England Interprofessional Questionnaire (UWE IQ) instrument, shown in Appendix C.3.3, as a measure of participants’ attitudes to CP and its various dimensions.

Quantitative survey methods alone are not able to accomplish this. By asking participants questions about influences on their practice in a semi-structured format at the same points in time and exposure to the profession as the survey, the qualitative data provides additional substance and context to the formation of PI and CP. The qualitative strand explores different aspects in the development of PI to find out how these changes occur. It is explicitly concerned with exploring the way in which participants’ experiences positively and negatively contribute to development of PI over time, and the factors influencing capability for CP. The semi-structured interview guide is shown in Appendix C.4.2

In mixed methods research, integration or the point where mixing of the two types of data occurs has been an epistemological barrier because the two paradigms are seen as irreconcilable or integration of the two data types may not be done properly (Bazeley, 2009; Bryman, 2006). Ideally, according to Yin integration occurs at all five levels in a single study - the research questions, units of analysis or reference points, sampling, data collection and analysis strategies, and certainly at least two levels (Yin, 2006). A summary table of the method map for this study, Table 3.1, shows the five levels applied to the research, and how they relate to each other.

**Table 3.1 Summary of method map for the mixed methods convergent model.**

<b>Overall research question</b>	How do dietitians develop their professional identity?	
<b>Specific questions</b>	What influences socialisation to the profession by early career dietitians?	What factors determine whether capability for collaborative practice is incorporated into the professional identity of dietitians?
<b>Level of integration for method</b>	Quantitative strand	Qualitative strand
<b>1. Research questions</b>	What influences contribute to the development of professional identity (PI) of graduates	How is collaborative practice (CP) incorporated into professional identity (PI) and professional practice of early career dietitians
<b>2. Units of analysis</b>	Two stages of career as a dietitian and four timepoints <ul style="list-style-type: none"> <li>• Student: pre and post placement</li> <li>• Graduate: one and two years after course completion</li> </ul>	Same units of analysis
<b>3. Sample for study</b>	Recruitment from universities, professional organisation and Facebook® group  All participants invited at each timepoint	Same sample  All participants invited at each timepoint
<b>4. Instrumentation and data collection methods</b>	Online toolkit with a tailored survey and two validated survey tools: Professional Identity (PI) and University of West England Interprofessional Questionnaire (UWE IQ)	Semi-structured interviews
<b>5. Analytic strategies</b>	PI and UWE IQ surveys at each timepoint  Tailored survey collects information:  <i>Students: pre and post placement</i> <ul style="list-style-type: none"> <li>• Demographic factors, previous health and social care experience, and opportunities for IPE activities</li> </ul> <i>Graduates: one and two years after course completion</i> <ul style="list-style-type: none"> <li>• Engagement in the practice community including APD status, opportunities for IPE activities, and type and amount of work - paid and voluntary</li> </ul>	Small group and individual interviews at each timepoint  Conducted face-to-face or by telephone, collects:  <i>Students: pre and post placement</i> <ul style="list-style-type: none"> <li>• Views, myths and fallacies about placements, actual experiences, role of the dietitian and members of the healthcare team, belonging to the profession</li> </ul> <i>Graduates: one and two years after course completion</i> <ul style="list-style-type: none"> <li>• Expectations, entry into the real-world of practice, experiences getting a job and being in the role, supports, and working in the healthcare team, belonging to the profession</li> </ul>
	<i>Convergent model</i> <ul style="list-style-type: none"> <li>• Exploratory, parallel, with equal weighting for quantitative and qualitative strands</li> <li>• Merge results from quantitative measures with longitudinal qualitative analysis</li> <li>• Examine convergence and divergence, form domains, meta-analysis</li> </ul> Joint display: Integrated table relating PI and UWE IQ scale scores and themes by timepoint Joint display: Integrated table relating PI and UWE IQ scale scores and themes for individuals	

### 3.2 Study design

Bryman takes the view many strategies are available to “genuinely integrate” methods (Bryman, 2006, p. 8) and other authors support the quantitative and qualitative strands or components being linked throughout a study although the research processes are not necessarily being integrated (Bazeley, 2009; Woolley, 2009).

This mixed method study applies a convergent parallel design through linking of the method across five levels, with the point of data integration occurring after the analysis of results, each independent from the other (Yin, 2006).

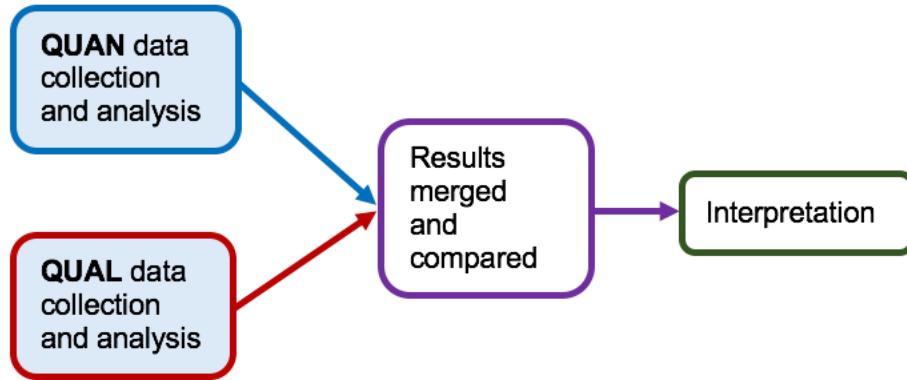
The method map for the mixed methods convergent model is shown in Appendix C.1.

#### 3.2.1 Convergent model

Many variations in the names of this model include descriptors such as parallel, triangulation, concurrent and convergent, and in this research, it is referred as the Convergent model, shown as a diagram in Figure 3.1.

The Convergent model allows for simultaneous collection of qualitative and quantitative data from the same inquiry (Greene et al., 1989). The results of the two strands are integrated by “merging analyses and interpretation to develop more holistic and comprehensive conclusions” (Plano Clark, 2019, p. 108).

In this study, the decision was made to collect quantitative and qualitative data concurrently rather than in sequence which allows equal weighting to be given to both types of data (Creswell & Plano-Clark, 2018). Each type of data was directed towards a different but related question, and this method allowed the qualitative and quantitative findings to be compared against each other to identify areas of convergence and dissonance (Creswell & Plano-Clark, 2018).



**Figure 3.1** Convergent model.

Note. From (Creswell & Plano-Clark, 2018, Figure 3.3a, p. 66).

### 3.2.1.1 Prospective fully longitudinal convergent model

This research collected both types of data at each of the four timepoints, and accordingly is fully longitudinal (Plano Clark et al., 2014; Van Ness et al., 2011). Figure 3.2 shows flow of the method with the time points and design dimensions identified in the convergent model. The four time points for data collection are: T1 is pre placement, T2 is post placement, T3 is one year after course completion and T4 is two years after course completion.

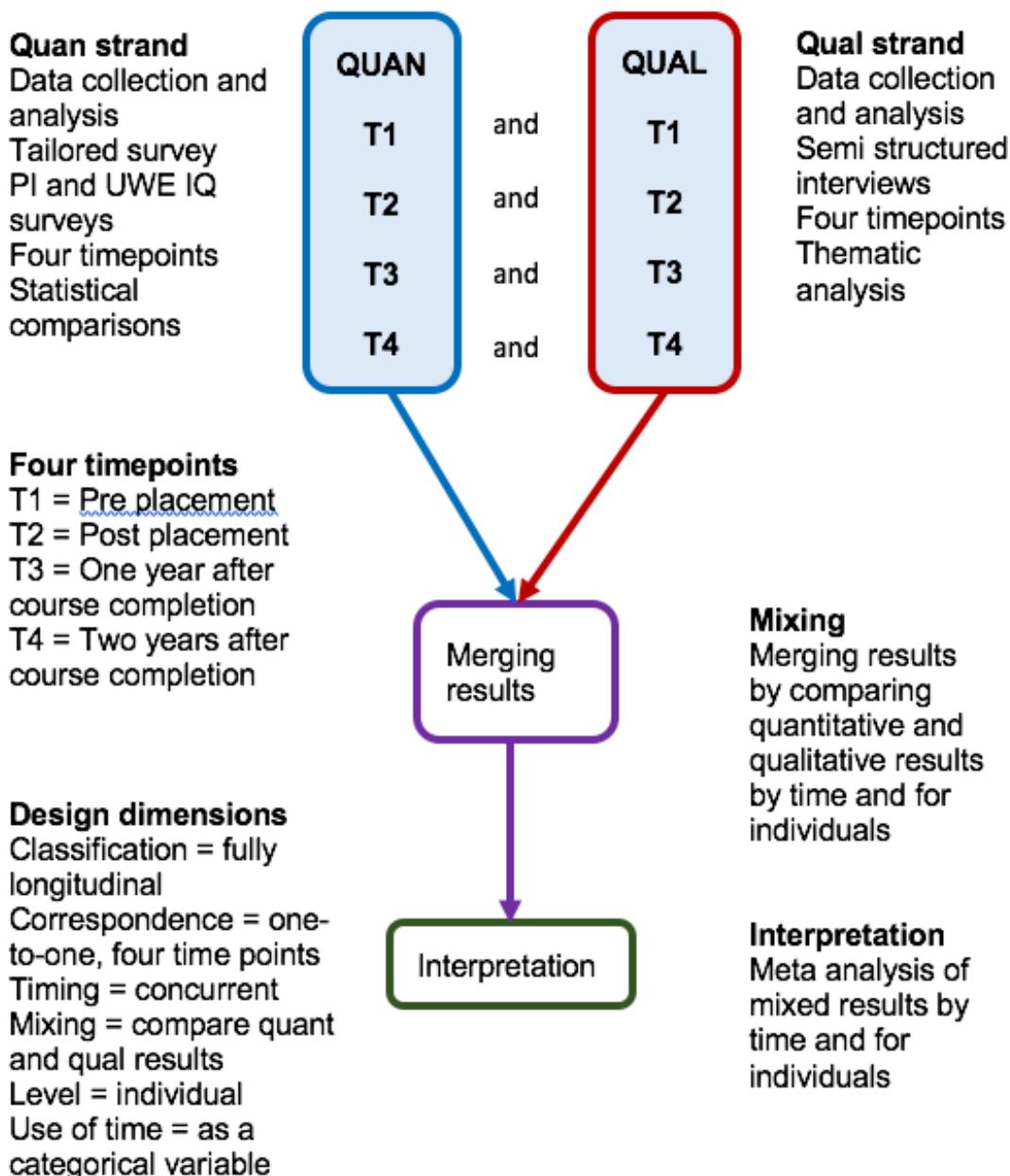


Figure 3.2 Flow of the method in a longitudinal convergent model.

Note. Adapted from (Plano Clark et al., 2014, Figure 4, p. 308).

### 3.3 Study group

#### 3.3.1 Study sampling

As a mixed method concurrent study design, the sampling strategy needed to accommodate the quantitative and qualitative strands of the research and convergence of results (Creswell & Plano-Clark, 2018; Onwuegbuzie & Leech, 2007; Teddlie & Yu, 2007).

Recruiting for the quantitative and qualitative phases was independent of the other. After giving consent, all participants were asked consistently at each timepoint and in separate email invitations, to do the online survey and an interview. Participants could choose to do the survey or interview or both, at any timepoint. The initial sampling technique for the study was a non-probability convenience sampling, with volunteers recruited Australia-wide from dietetics courses and graduates from two other sources.

A second sampling of participants for the qualitative phase used purposive criterion to identify people with interviews at three or four timepoints from all those who took part in interviews. Longitudinal and cross sectional semantic thematic analysis was applied to this selection of transcripts for three or four timepoints from the ten participants. The remaining archived interviews were available for further purposive sampling and analysis if there was insufficient information power in the sample and/or outlier sampling was required to verify themes. These interviews were not required.

#### 3.3.2 Power calculation

Prior to starting data collection, a power analysis calculation was completed to determine the confidence of avoiding Type I and Type II errors. The null hypothesis was: no change in scores for PI/UWE IQ between pre and post placement, post placement and one-year graduate, and one year-graduate and two-year graduate. The scale scores are essentially the same for PI and each of the four UWE IQ scales; nine questions with a 5-point Likert scale and the range of scores 9-45.

The potential eligible population was 190 from the sites that agreed to participate, and with an estimated response rate of 50%, there would be 95 participants in the sample. Tests are two-tailed, significance level is 0.05, and confidence level is 95%. Based on a sample of 95 participants and identifying 10% change in score, the statistical power is 83%.

### 3.3.3 Validity, legitimation and rigour of data

In research, the term rigour is often used to describe quality although they are not precisely the same, with rigour being an aspect of quality (O'Cathain, 2010). Methodological quality is related to trustworthiness of a study, that is whether the results can be trusted (Hong & Pluye, 2018). The components of the research, conclusions and application can fall somewhere on the continuum of low to high quality (Harrison et al., 2020; Onwuegbuzie & Johnson, 2006). Wisdom and colleagues (2012) advise that rigour is involved in both decisions made by the researcher in conducting the research, and transparency in reporting the logic for all the research components (Wisdom et al., 2012).

Some authors addressing rigour in mixed methods research advise each strand maintains quality criteria to minimises threats to validity according its own approach (Bryman, 2007; Harrison et al., 2020; Onwuegbuzie & Johnson, 2006), while others believe mixed methods research has sufficient unique features to warrant different criteria (Brown et al., 2015; Fàbregues & Molina-Azorin, 2017; O'Cathain, 2010). Further support for the latter is that "inferences are drawn from the whole mixed methods study - meta-inferences - not simply from each component" (O'Cathain, 2010, p. 6).

Language is highlighted as an issue in the discussion of quality in mixed methods research because existing terms are often associated with a particular research method, and using expressions associated with one methodology could alienate researchers aligned with the other (O'Cathain, 2010). For example, Onwuegbuzie and Johnson (2006), state the preferred term for quality is "legitimation" rather than validity because it is more inclusive for qualitative researchers (Onwuegbuzie & Johnson, 2006). Dellinger and Leech assert definitions of validity are evolving, particularly for mixed methods research (Dellinger & Leech, 2007).

Several frameworks have been developed for assessing the quality of mixed methods research (Dellinger & Leech, 2007; Wisdom et al., 2012). However, that a "one size fits all" for criteria is not possible is clear, with the mixed methods paradigm and choice of design imposing specific quality criteria (O'Cathain et al., 2010). Ihantola and Kihn (2011) proposed "three perspectives can be unified to form an even more comprehensive perspective of the internal validity and reliability threats of mixed methods studies" (Ivantola & Kihn, 2011, p. 51).

Work by Teddlie and Tashakkori (2003) was seen as a bridge between the qualitative and quantitative approaches (Ivantola & Kihn, 2011), and they are credited for introducing the concept "*inference quality*, which is a combination of design quality (methodological rigour) and interpretive rigour (authenticity of conclusions from the study)" (O'Cathain et al., 2010, p. 7). The legitimization framework put forward by Onwuegbuzie and Johnson (2006) is similar but differs in that the authors see legitimization as a process rather than an outcome or fixed attribute such as inference (Onwuegbuzie & Johnson, 2006). These two approaches outlined, combined with addressing validity for the individual strands, were the three components of the model for validity proposed by Ihantola and Kihn.

Dellinger and Leech 2007 suggested the view of validity in mixed methods research being more than “goodness,” quality, or credibility”, and the purpose of the research and needs to be accommodated for it to be meaningful (Dellinger & Leech, 2007, p. 329). Their validity framework focuses on the ability of data to support the inferences, and they describe construct validation as a “continuous process of negotiation of meaning” (Dellinger & Leech, 2007, p. 329).

In this research, conventions for each methodology of data collection and analysis were applied with the available resources and timeframe (Harrison et al., 2020). A summary of factors supporting validity of each component follows:

### 3.3.3.1 Quantitative strand

Traditionally quantitative validity uses terms of internal and external validity or generalisability, and reliability (Dellinger & Leech, 2007).

Quantitative measures of PI and CP were reviewed and both instruments, the PI and UWE IQ, were validated tools previously used longitudinally with health professional students and practitioners, and therefore suitable for use in this research. The PI tool inadvertently omitted the last of the nine questions, which had a loading factor of 0.554, noting this reduces validity of the tool.

Sampling for the quantitative data collection was non-probability and participation bias is acknowledged, which will influence generalisability. Statistical analysis used nonparametric measures as the data was skewed and sample size was small, affecting reliability.

### 3.3.3.2 Qualitative strand

Traditional elements of validation for qualitative research include credibility, authenticity, transferability, and dependability (Dellinger & Leech, 2007).

The interview guide used throughout was developed based on review of the literature, discussion with colleagues, and the researcher's experience to ensure dependability. The guide was piloted with a small group of health professional students for credibility. The guide was used consistently over the timepoints with only minor changes between student and graduate stages.

The researcher position and background were documented prior to starting the interviews, identifying known potential biases for bracketing. Notes were taken during the interviews, a reflexivity journal maintained, debriefing with supervisors, and member checking were employed, enhancing credibility of the data.

The interviews were recorded and transcribed although not verified for accuracy with another researcher which would have enhanced credibility. Thematic analysis of transcripts was inductive and semantic, based on the data. The coding and themes were developed by the researcher and reviewed with supervisors and health professional colleagues, confirming they were recognisable by others for credibility.

The sample for qualitative analysis was a purposive sample from all participants who completed interviews over the four timepoints, selecting those who completed three or more interviews, and transferability of their experience to other early career dietitians may be affected. However, coding saturation was reached in the sample, and supports dependability of the findings.

### 3.3.3.3 Mixed methods and integration

Design suitability, legitimization of integration, and interpretive consistency are elements for mixed methods validity (Dellinger & Leech, 2007).

The researcher applied a pragmatist approach. The purpose of choosing a mixed method study design was to look at the development of PI from different perspectives and triangulate the data types. Integration of the data was undertaken after independent analysis of the qualitative and quantitative strands, consistent with a convergent study design.

Data sources and meta-analysis were established, and joint displays constructed by time and for individuals. Integration facilitated addressing the research questions and promoted corroboration of the qualitative findings by the quantitative data. Two trajectories of career progression were identified from the meta-analysis and greater depth of understanding about the development of PI and CP by participants achieved from the integration. Convergence and divergence of the data were explored with explanation of divergent inferences sought from the research context and extant literature.

### 3.3.4 Recruiting from universities

Participants were recruited from accredited dietetics courses from different states Australia-wide, shown in Table 3.2. The recruiting was purposeful to be four year undergraduate Nutrition and Dietetic courses from each state with the exception of Curtin university. The students from Curtin University completed four years of study made up of a one year Postgraduate Diploma in Dietetics as a separate enrolment following the Nutrition undergraduate program.

The rationale for this selection of courses was to recruit participants from across Australia with similar preparation for dietetics practice through a four year nutrition and dietetics course. In contrast, students who complete postgraduate Masters courses in Nutrition and Dietetics will enter their course with a broader health science background, and potentially different professional background.

#### 3.3.4.1 Curtin University

Students were recruited from the Curtin dietetics course class of 2013 before the beginning of professional placements, and finished participation as graduates in 2016.

### 3.3.4.2 Other universities

Data collection with graduates recruited as students from three universities began in 2014 and was completed in 2017. Student participants were recruited from Flinders University, La Trobe University and University of Wollongong while three universities, Charles Sturt University, Queensland University of Technology and University of Sunshine Coast, failed to recruit participants despite strong support from Program and Course Coordinators.

**Table 3.2 University and State of recruitment in 2013 and 2014.**

<b>University</b>	<b>State</b>	<b>Course</b>	<b>Estimated number of students</b>
Curtin University	Western Australia	Postgraduate Diploma in Dietetics Prerequisite is Bachelor of Science (Nutrition)	25
Flinders University	South Australia	Bachelor of Nutrition and Dietetics	30
University of Wollongong	New South Wales	Bachelor of Nutrition and Dietetics	30
Charles Sturt University	New South Wales	Bachelor of Health Science (Nutrition and Dietetics)	25
La Trobe University	Victoria	Bachelor of Nutrition and Dietetics	35
Queensland University of Technology	Queensland	Bachelor of Health Sciences (Nutrition and Dietetics)	30
University of Sunshine Coast	Queensland	Bachelor of Nutrition and Dietetics	20

### 3.3.5 Recruiting from Dietitians Association of Australia

The Dietitians Association of Australia (DAA) is the largest professional association for dietitians in Australia. Recruiting from DAA was to target a graduated cohort in the workforce up to two years after course completion. Permission was given for a recruiting notice of 50 words to be listed twice in the weekly electronic newsletter sent to all members, at two weeks apart. The notice was posted as 'Approved but not supported by DAA' in mid 2015. In 2016, the newsletter had been discontinued and the notice was posted in the online Interest Group for Emerging Dietitians accompanied by the same official approval statement. Both recruitments resulted in recruiting dietitians at mixed timepoints of post placement, one year, and two years after graduation. Participants were contacted for follow up in 2016 and 2017.

The number of members of DAA at the time of recruiting for this search is not precise - the DAA 2016 Annual Report listed 6 269 financial members for 2015 and 593 members in the Interest Group for Emerging Dietitians. DAA was not able to provide the any further details on the composition of membership, such as breakdown on the number of years' experience as a dietitian, or number of years of membership. Knowing how many members of DAA were two years or less post graduation would assist with determining eligibility to participate and the response rate.

### 3.3.6 Recruiting from Facebook® group for Australian emerging dietitians

The third source for recruitment was a Facebook® group called Network of Emerging Australian Dietitians which allows members to share issues in common and help each other. This is a closed group with membership only by approval from moderators to student and early career dietitians, and includes both DAA and non-DAA members. The recruitment notice was listed on behalf of the researcher by the group moderator in mid 2015 and 2016. Dietitians interested in participating contacted the researcher and an Information Sheet and Consent Form were provided.

At the time when the recruitment notice was placed in 2015, the Facebook® group showed 1 290 members, although further demographic information on membership, such as number of years after graduation, for members was not available.

### 3.3.7 Selecting the quantitative tools

Tools for this research were selected after considering several factors: ability to address the research questions and suitability for the setting (Valentine et al., 2015); the tools needed to be validated for use longitudinally with allied health students and graduates or practitioners, acceptable psychometric properties (Cowin et al., 2013) and ease of use and length for low respondent burden (Valentine et al., 2015). These considerations are presented in the following discussion and a summary of tools to measure PI, interprofessional education (IPE), and CP is shown in Appendix C.2.

### 3.3.8 Quantitative measures of professional identity

As part of a larger longitudinal project measuring the PI of 10 professions of health and social care students, Adams and colleagues suggested the “potential role of PI in IPE (was) unresolved” (Adams et al., 2006, p. 55). For the project, Adams and coauthors validated a group identification scale, adapted from a tool measuring intergroup difference developed by Brown earlier in 1998 (Brown et al., 1986). The tool was later used to measure PI in nursing students by Worthington in 2013, who referred to the tool as the ‘9-item Macleod Clark Professional Identity Scale (MCPIS-9)’ (Worthington et al., 2012, p. 188) because the validation studies were published by Macleod Clark (Macleod Clark. et al., 2005).

Overall, the feature distinguishing this tool from others considered, and led to selection for this research, was the alignment for the concept of PI. The authors developed the definition of PI (Adams et al., 2006) used in this research, which is also widely used by other authors (Snell et al., 2020).

A different approach was taken by Crossley and Vivekananda-Schmidt to develop a tool measuring PI (Crossley & Vivekananda-Schmidt, 2009). The 'Professional Self Identity Questionnaire' (PSIQ) instrument was developed by starting with content analysis of professional standards documents for medicine, nursing, physiotherapy, and social care. Nine common themes were identified: "teamworking, communication, patient or client assessment, cultural awareness, ethical awareness, using patient or client records, dealing with emergencies, reflective practice and teaching" (Crossley & Vivekananda-Schmidt, 2009, p. e604), and these became role statements on a continuum of practice scale from student to qualified practitioner.

When completing the survey, respondents selected where they considered themselves to be on the scale when involved in the role or activities.

Professional identity was not pre-defined but determined by the respondents' subjective interpretation, as they applied it to themselves (Crossley & Vivekananda-Schmidt, 2009). Evidence of validity was found with the large cohort of student doctors, and students with the most prior experience in health or social care and a positive attitude to qualifying had the highest scores for PI (Crossley & Vivekananda-Schmidt, 2009).

Psychometric properties of five tools commonly used for measuring PI were examined by Cowin and colleagues in 2013, comparing the results from a sample of first and third-year nursing students (Cowin et al., 2013).

Robustness of all five measures was a concern and authors were not able to choose one tool over others to measure PI. They reported performance by three of the tools was different on their sample to the original published results (Cowin et al., 2013). Combined with poor consistency of results among the tools, they questioned whether the current theory on the measurement of PI was capturing all of its dimensions (Cowin et al., 2013), adding support for using a mixed methods approach in this research.

### 3.3.9 Quantitative measures of collaborative practice

In 2012, a comprehensive inventory of 128 quantitative tools relevant to evaluating IPE and CP was developed from instruments identified by a systematic review by the Canadian Interprofessional Health Collaborative (CIHC) to help with selection of the most appropriate tool (Canadian Interprofessional Health Collaborative, 2012). All of the tools had different strengths and were suited to different contexts. Tools were not assessed for quality, psychometric factors, or use in different settings (Canadian Interprofessional Health Collaborative, 2012).

Preceding the CIHC review by two years, Thannhauser et al., critiqued the validity and reliability of 23 instruments to evaluate IPE initiatives, finding poor psychometric development in most (Thannhauser et al., 2010). Many of the tools were used only once and developed for a limited range of health professionals, and very few designed for use with practitioners (Thannhauser et al., 2010).

Thirty-three survey instruments for assessing IPE were reviewed by Gillan and colleagues at about the same time, and a major limitation was that few instruments were capable of assessing higher level changes such as behaviour or organisational changes, relying on self-reports (Gillan et al., 2011). They considered objective assessment of outcomes at higher levels likely to be specific to the setting and that generalisability to other environments may not be possible, concluding the “infeasibility of a single gold standard instrument” (Gillan et al., 2011, p. e468).

Specific to assessing teamwork in health care, 39 survey tools were reviewed by Valentine, who commented on the lack of evidence for psychometric validity, but proposed that suitable tools were available (Valentine et al., 2015). Items within the tools evaluated a variety of dimensions of teamwork across a range of teams and settings, finding “communication, coordination, respect, and use of members expertise” to be recurring measures (Valentine et al., 2015, p. e21).

In 2015, Oates and Davidson updated the CIHC review, identifying 13 new instruments from 2012 onwards (Oates & Davidson, 2015). Nine tools of these were designed to measure outcomes of IPE, and critically appraising their properties, the authors reported the “psychometric integrity of these instruments is limited” (Oates & Davidson, 2015, p. 386).

When deciding which tool to employ, the recommendation was there should be conceptual consistency between the survey, research context, and the research question (Valentine et al., 2015). The focus of the UWE IQ instrument is on CP attitudes and perceptions rather than the participant's functioning in teams or teamwork for many other tools. For this reason, the UWE IQ tool was selected as being the most appropriate and included that it was suitable to use with both students and graduates.

### 3.3.10 Toolkit for appraisal of professional identity and collaborative practice

A “toolkit with both standardised and tailored items” was recommended by Gillan and colleagues, as there is no single gold standard tool (Gillan et al., 2011, p. e461).

For this research, a toolkit was assembled consisting of a tailored survey with questions on demographic background and information relevant to PI, and opportunities and experiences for IPE that had been available as a student; and two validated tools - one to determine interprofessional attitudes and the other PI. All components of the survey were in multiple choice format with the tailored survey preceding the PI and UWE IQ surveys, and these are provided in Appendix C.3.

The tools were used longitudinally – the PI questionnaire and the UWE IQ remained the same throughout the study with only minor changes in language from student to graduate versions.

### 3.3.10.1 Professional identity survey tool

The PI survey tool includes nine statements about feelings of belonging to their chosen profession, and asks participants to respond using a 5-point Likert scale from strongly agree (1) to strongly disagree (5) to generate a score with a maximum of 45 (Adams et al., 2006). The result is a group identification score or a measure of the degree to which the participant identifies as belonging to the profession.

### 3.3.10.2 University of West England Interprofessional Questionnaire

The UWE IQ instrument evaluates interprofessional attitudes using self-reported data on knowledge, skills and attitudes toward IPE and CP, and generates a score using Likert scales (Pollard et al., 2004). It has previously been used longitudinally with allied health students and graduates (Pollard & Miers, 2008) and therefore is suitable for this research, which included final year dietetics students participating for two years after completing their course. Like many IPE tools, responses are self-reported (Valentine et al., 2015).

Four scales are assessed - communication and teamwork, interprofessional learning, interprofessional interaction, and interprofessional relationships, asking 35 questions for participants to select whether they strongly agree (1) through to strongly disagree (5) with statements (Pollard et al., 2004). Scale scores are categorised as positive, neutral and negative self-assessment of attitudes and skills (Pollard et al., 2005; Pollard et al., 2004; Pollard et al., 2006), and the range of scores with categories of attitudes are shown in Table 3.3.

Scores from 9-20, 21-25, and 26-36 are considered to indicate respectively positive, neutral and negative self-assessment of communication and teamwork skills. For the Interprofessional learning and Interprofessional interaction scales, scores from 9-22, 23-31, and 32-45 suggest positive, neutral and negative attitudes towards interprofessional learning and perceptions of interprofessional interaction. The Interprofessional relationships scale from 8-20, 21-27, and 28-40 are for positive, neutral and negative attitudes towards the respondent's own interprofessional relationships. A decrease in scores from pre to post-test suggests a more positive attitude, and improvement (Pollard et al., 2004).

**Table 3.3 Range of scores for categories of attitudes for University of West England Interprofessional Questionnaire.**

Range of scores	Category
<b>Communication &amp; Teamwork</b>	
Measures self-assessment of own skills	
9-20	Positive
21-25	Neutral
26-36	Negative
<b>Interprofessional Learning</b>	
Measures attitudes towards IP learning	
9-22	Positive
23-31	Neutral
32-45	Negative
<b>Interprofessional interaction</b>	
Measures attitudes towards IP interaction	
9-22	Positive
23-31	Neutral
32-45	Negative
<b>Interprofessional Relationships</b>	
Measures attitudes towards own IP relationships	
8-20	Positive
21-27	Neutral
28-40	Negative

Pollard and colleagues used the UWE IQ survey tool with health and social care students (Pollard et al., 2004) on entry to their course, however they omitted the interprofessional relationship scale in the questionnaire for the first-year students. The reason given was that students would not have had sufficient experience as they started their course to be able to assess IP relationships. The scale was included in the questionnaire used by students in the second and third year of study, and likewise, it was included in this study because the students were in the final year of their course.

### 3.3.10.3 Tailored survey

The survey developed for the toolkit asked student participants for their demographic background; engagement in IPE as a student (such as whether they had any opportunity to learn with, from and about other health or social care professions), and what they were from 12 possible activities; and questions related to predictors of PI such as previous experience working in the health or social care sector. The questions in the tailored survey are shown in Appendix C.3.1.

Graduate participants were asked about the amount of paid and unpaid work as a dietitian they had done after finishing their course, and if they had joined the Accredited Practising Dietitian (APD) program, to evaluate influences from their practice community. A definition of working as a dietitian from Dietitians Australia (Dietitians Australia, 2020d) was provided to outline the scope of professional activities:

*Dietetic practice includes using professional knowledge in both clinical and non-clinical relationships with patients or clients, communities and populations and can be working in management, administration, education, research, advisory, program development and implementation, regulatory or policy development, food service, food security, food supply, sustainability and any other roles that impact on safe, effective delivery of services in the profession and/or using professional skills. In other words, it means **any** work you have done, in **any** setting, using knowledge and professional skills you gained from doing the course.*

### 3.3.11 Qualitative data for professional identity and collaborative practice

Questions for the interviews for students and graduates drew on findings from the literature such as developing clinical reasoning, confidence and communication skills, influence of the clinical environment and a sense of belonging to the profession (Black et al., 2010; Brown, 2012; Levett-Jones, 2007; Mackintosh, 2006; Smith & Pilling, 2007) and the researcher's knowledge of the placement experience. The questions were reviewed by lecturers in the dietetics program at Curtin University and piloted with a group of health promotion students for clarity before use. No changes were made.

Before and after placements, students explored expectations and compared them with their experiences, myths and fallacies about placements, roles taken by the dietitian and members of the health care team, how they saw themselves being able to fulfill these roles, and what it meant to belong to the profession. The interview guides for students and graduates are provided in Appendix C.4.2.

Interviews conducted with graduates asked similar questions to those asked of the students and, as their experience progressed, whether real world experience in the role of dietitian had matched expectations, their employment opportunities, influences on their practice, what changes had occurred and future plans, and what it meant to belong to the profession.

When conducting longitudinal studies, recommendations are for interview questions to progress through three categories to identify the changes in context and behaviour that occur over time and how the changes relate to each other (Grossoehme & Lipstein, 2016; Saldaña, 2002). Table 3.4 (Grossoehme & Lipstein, 2016, p.3) describes the purpose of the categories and the interview guide was mapped against these categories, providing the rationale for the questions, shown in full in C.4.1.

**Table 3.4 Categories of interview questions.**

<b>Framing questions</b>
Situate the context of the data in which the data have arisen. Typical framing questions include describing how data collected at each timepoint relates to data from the other timepoints e.g., defining changes in context, or when changes occur
<b>Descriptive questions</b>
Intended to guide the interpretive phase of data analysis. Answers to these questions describe behaviour in a particular environment
<b>Interpretive questions</b>
Lead to descriptions of the behaviour of interest within its context of relationships. These may include how changes in the behaviour relate to one another; mediators and barriers to the behaviour, or the data's consistency with current practices

### 3.3.12 Participation rate

It is difficult to determine the participation rate from the efforts to recruit volunteers. Recruiting from universities, the estimated number of students is based on information provided early in the academic year however enrolments may have changed during the year. Course Coordinators were responsible for promoting participation and circulating the recruitment flyer (see Appendix A.3.1) to students, however, it was not possible to be sure all eligible students received the information. There were also similar limitations when recruiting from DAA and the Facebook® group for emerging dietitians, and it cannot be confirmed whether emails, newsletters, and postings reached all eligible contacts.

### 3.4 Ethical considerations

All data collection and storage complied with the Australian Code for the Responsible Conduct with specific considerations outlined below (National Health and Medical Research Council. et al., 2007 Updated 2018).

### 3.4.1 Applications for ethics approval

An application for ethics approval was made to the Human Research Ethics Committee at Curtin University prior to starting data collection. The project was deemed to be in the high risk category, as the researcher had been a member of staff in the Dietetics program and may have been known to the students. The information sheet, shown in Appendix A.3.2, outlined the purpose of the study, risks and benefits, explained participation was voluntary and could be withdrawn at any time, assured privacy and confidentiality and that no individual would be identifiable in any published work was made explicit. The consent form, shown in Appendix A.3.3 , asked permission to allow contact after graduation for further participation on three occasions (post placement, at one year, and two years after graduation), and contact details were requested (two email addresses and a mobile phone number).

Following ethics approval being granted by Curtin University (Approval number HR 56/2013, shown in Appendix A.1 and Amendments in Appendix A.1.1), application for reciprocal ethics approval was made to other universities where potential participating students were enrolled. This was gained or waived by the six other universities - Charles Sturt University (CSU), Flinders University, La Trobe University, Queensland University of Technology (QUT), University of Sunshine Coast (USC) and University of Wollongong (UOW). The ethics approvals by other universities are shown in Appendix A.2.

Approval was sought from the Chief Executive Officer of DAA to recruit participants from the membership, specifically recent graduates up to two years post graduation. The application to DAA was accompanied by relevant documentation - copies of survey tools and semi-structured interview questions, Curtin University Human Research Ethics Approval, and participant information sheet and consent form.

### 3.4.2 Measures taken to protect privacy and confidentiality

An identifier code was used for each participant to match time series for quantitative surveys and interviews. First names were used during group and individual interviews. The importance of confidentiality of the discussions was raised in the introduction to the face-to-face and telephone interviews. De-identifying names of colleagues, names of places including home town or suburb, work organisations and other unique features that may identify an individual was done with all transcripts, and returned to the participant to confirm they were satisfied with the document.

All data shared with supervisors was de-identified and in aggregated form so that individuals could not be identified. Likewise, data used for publication will be in aggregated form and individuals will not be identifiable. Names of people, places, organisations and any other potentially identifying features have been removed from quotations.

### 3.4.3 Measures taken to reduce attrition

Multiple strategies were employed collectively to maximise recruitment and limit attrition, as this has been shown to enhance retention rate (Robinson et al., 2015). They included:

- Several options for contact information were requested on the consent form - two email addresses and a mobile phone number. Participants were encouraged to notify if there were any changes in contact details.
- Draw for \$50 iTunes voucher which could be used for digital music or movies.
- To minimise respondent burden, the survey could be completed on a mobile phone and simple demographic data was collected only once.

- The decision to conduct groups either face to face or by telephone at the pre placement timepoint was based on ease of access for students. It became obvious after recruiting for the post placement telephone group, that work commitments would require these to be done with individuals to achieve maximum participation.
- Interviews were done when it was convenient for the participant with maximum flexibility and availability, and at no cost.
- Time commitment for the telephone interview was estimated to be about one hour and this was managed accordingly. Often, participants did interviews during the working day between other work tasks, while on a lunch break, or before or after work, and time management of the interview was appropriate. As the hour approached, participants were asked whether they were able to continue with the interview.
- Participants were reminded at each data collection of their timepoint in the study, and when they would be contacted again.
- Appreciation for participation and ongoing support for the research was expressed often, such as at the start and finish of the interview, invitation to do for surveys, and an auto generated email on completion of the survey.

#### 3.4.4 Storage of data

Digital data collected or generated during the course of the research was stored on a password-protected laptop accessed only by the researcher. Backup of data was made to a password protected university repository and external hard drive weekly or more frequently to provide daily backups for one month and weekly backups for all previous months.

Only a very small volume of physical data was generated by the research and this was stored by the researcher in a locked filing cabinet in the researcher's home office. Documents were scanned and stored as digital data as above.

After the research is completed, primary and other research data such as analyses will be destroyed according to Curtin University policy which states a minimum of seven years after completion of the research or publication, whichever is later.

### 3.5 Data collection

#### 3.5.1 Flow of data collection

Quantitative and qualitative data were gathered from student and graduate dietitians over four timepoints in their career. Data for quantitative and qualitative strands were collected separately, close together in time, and analysed independently. Figure 3.3 shows flow of data collection, progression of recruitment and follow up over the four timepoints.

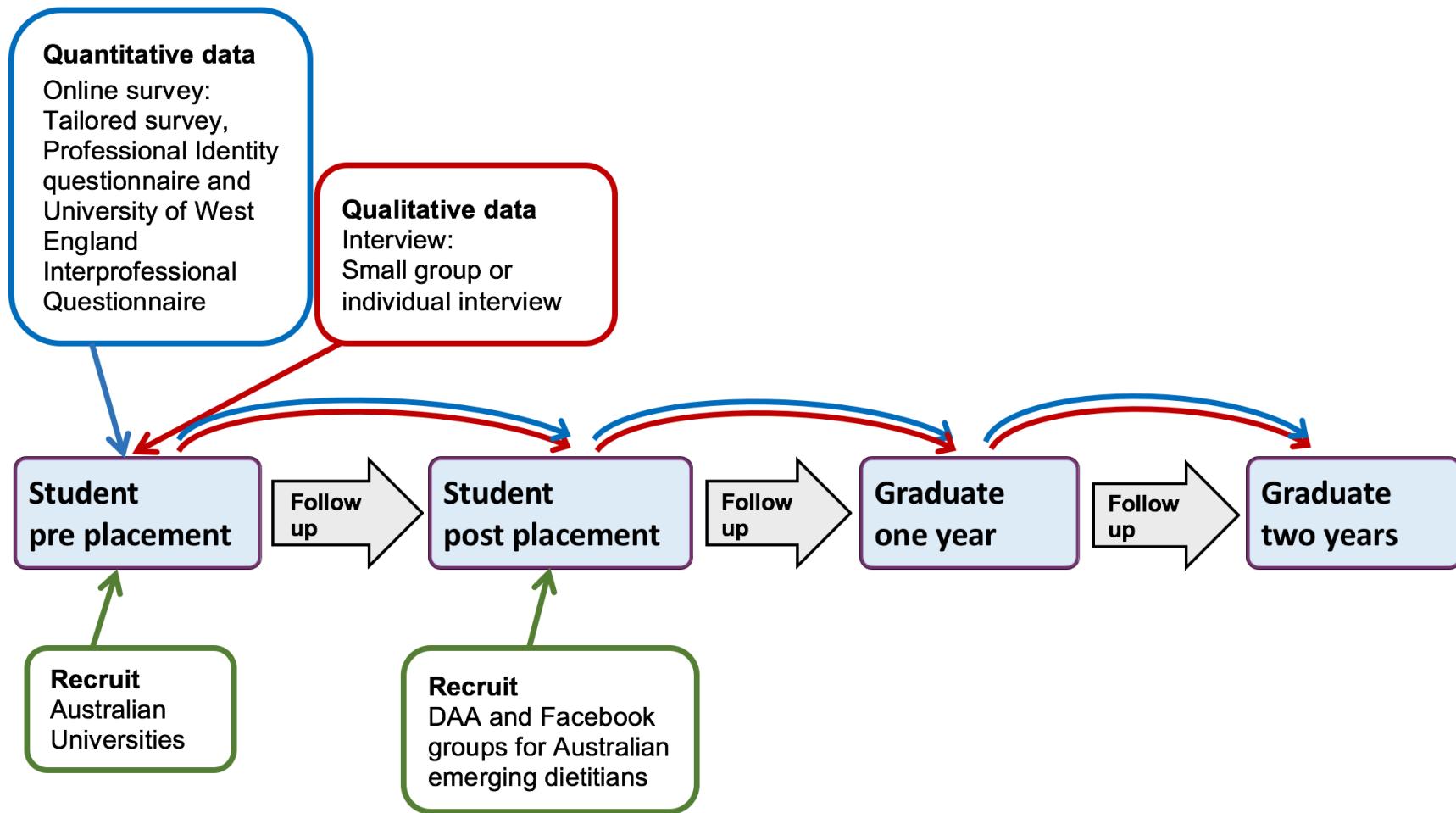
#### 3.5.2 Quantitative data

Data were collected longitudinally and the online questionnaire repeated for each timepoint – pre and post placement, and at one and two years after graduation.

Participants had previously given consent that they could be contacted after completing their course. At each timepoint, general invitations were sent by email to all participants notifying them they would receive a link to the survey. A system generated link to the survey to click on to proceed and two follow up reminders at about two-weekly intervals were delivered to individuals as an email through the Qualtrics online survey software (Qualtrics XM, 2020).

The tailored survey and two survey tools were combined into one online questionnaire with three sections, with the time taken to complete the total questionnaire estimated to be approximately ten minutes. The layout was optimised for use with a mobile phone, for example, responses for a multiple choice question was viewed on a single screen rather than wrapping over several screens.

A copy of the toolkit comprising the tailored survey and two survey tools is in Appendix C.3.



### **Figure 3.3 Data collection flow.**

### 3.5.3 Qualitative data

Data were collected longitudinally and participant interviews conducted for each timepoint – pre and post placement, and at one and two years after graduation.

After receiving informed consent, invitation emails were sent to each participant for the qualitative phase and, if accepted, the exchange continued, and arrangements made for best time to do an interview, either as an individual or small group. Face-to-face groups with up to five participants were conducted onsite at Curtin University before and after the placements by an independent facilitator not known to the participants. At La Trobe University, a group was conducted onsite by the researcher and for the University of Wollongong, this was done by teleconference before and after the placements. These both took about one hour.

Participants had previously given consent that they could be contacted after completing their course. Approximately one and two years after course completion, graduates were contacted and invited to participate in a telephone interview. Telephone interviews were necessary as participants were located across Australia, and used methodology described by Ross and colleagues (Ross et al., 2006) with a teleconference information sheet explaining how to dial in and guidelines for troubleshooting any problems provided several days before the interview. The guide is shown in Appendix C.4.3. A small number of telephone group interviews were carried out early in the project with students at the pre and post placement timepoints, however, after graduation it was more convenient for participants to do individual telephone interviews at a time of their choice.

Audio teleconferencing was hosted and recorded by Australian-based company Redback Conferencing (Redback Connect, 2020), ensuring a secure connection and high-quality recording. A reservation was made for a specific time and a unique dial in code generated for landlines as a free call or the connection was made out to mobile phone users to avoid cost being incurred by participants. A very small number ( $n=3$ ) of interviews were conducted between two mobile phones and a recording application - TapeACall (TapeACall, 2020) used but this method was avoided due to poor quality recording and unstable connection.

The researcher transcribed four of the digital audio files verbatim and an Australian-based transcription service, Outscribe Transcription (Outscribe Australian Transcription Services, 2020), was used for the remaining transcripts. These outsourced transcripts were reviewed by the researcher thoroughly against their audio file, with corrections made and potentially identifying information removed, for example names of towns, hospitals and people.

The researcher took notes during the interviews and also completed reflective notes after the interview. For one interview, the researcher's interview notes had to be used rather than the transcript due to failure to record. A copy of the semi-structured interview question guide is provided in Appendix C.4.2.

### 3.5.3.1 Bracketing

In qualitative methodology, the researcher is seen as the “instrument for analysis”, and unintentionally their assumptions and preconceptions will transfer into the project, and potentially influence all stages of the research (Tufford & Newman, 2012, p. 81). The intention of bracketing is to identify the researcher's suppositions that could influence the investigation to counter their effect, although complete bracketing is impossible (Ahern, 1999; Gearing, 2004). It is by reflecting, identifying, and putting their own opinions, ideas and feelings aside, that researchers are more able to “observe experience from the lens of the participants who have lived the experience” (Tavakol & Sandars, 2014b, p. 838).

In this research, bracketing was applied to values, judgements, and personal experiences rather than context or knowledge of the setting - the researcher introduced herself to participants as a dietitian who was familiar with the hospital and university settings. Examples of the way this knowledge was used was to help participants relax with small talk and prompts when clarifying responses.

Sharing their own transcript with participants, doing reflective notes after the interviews, regular debriefing discussion meetings with supervisors, recording decisions and reasons, and keeping a reflexive journal contributed to bracketing by the researcher to enhance validity in the qualitative strand (Fischer, 2009; Tufford & Newman, 2012). The reflective diary notes included the researcher addressing “what was new or different”, “what was she trying to tell me”, and “what was happening for me” about the interview while the experience was still fresh, and aspects reviewed in the debrief with supervisors. An example of the diary notes is shown in Appendix C.4.4.

Overall, a variety of different techniques were used for bracketing throughout the stages of this research and the consistent purpose was to become aware and acknowledge bias, and monitor the influence (Ahern, 1999; Creswell & Miller, 2000).

### 3.5.4 Schedule for data collection

Data collection began mid 2013 with students at Curtin University and was completed in December 2017 for all sites; the last interviews being with dietitians recruited through the DAA and Facebook groups. Timing of longitudinal data collection needed to be flexible to maximise participation and an example of the timing for data collection schedule for the four timepoints for Curtin University Class of 2013 is shown in

**Table 3.5.**

**Table 3.5 Data collection using Curtin University as an example.**

<b>Year</b>	<b>Month</b>	<b>Stage</b>	<b>Timepoint for data collection</b>
2013	June	Student	Pre placement
2013	July		Placements begin
2013/14	Dec 2013 – Jan 2014	Student	Post placement Placements finish but impractical to follow up in the holiday period. Follow up continues into 2014
2014/15	Dec 2014 – Jan 2015	Graduate	One year Follow up continues into early 2015
2015/16	Dec 2015 – Jan 2016	Graduate	Two years Follow up continues into early 2016

### 3.6 Data analysis

A unique identifier code was used for each individual throughout the research with the addition of labels according to the recruitment source, timepoint and type of data collection – survey or interview. The identifier code facilitated tracking participation by individuals and enabled analysis of temporal changes.

#### 3.6.1 Survey data for the quantitative strand

Survey responses were exported from the Qualtrics software in csv format in groups labelled with the recruitment source and each of the four timepoints. These were entered into a Microsoft Excel spreadsheet in wide format with one row for each participant and a separate column for each of the four timepoints and other variables in preparation for the longitudinal analysis. IBM SPSS version 25 for Mac was used for statistical analysis (Field, 2017; IBM Corporation, 2019). Data files were created from the spreadsheets, with data type set and the variables and values labelled.

### 3.6.1.1 Missing values

Longitudinal missing user values were from participants either not responding or not being eligible to complete that timepoint. The reason for missing data in the no response values can bias the data, and for this research could have been from any of the following categories (Coster et al., 2008; Kang, 2013):

- not missing at random (NMAR) such as if the participant left the workforce and the reason is related to PI such as workforce retention,
- missing at random (MAR) may have occurred when the participant was available but did not participate for a reason unrelated to the study, such as data collection occurred when they were in a busy period at work,
- missing completely at random (NMCAR) and no response was from attrition with no further participation, with the reason unknown.

It was not possible to verify the type of missingness and participants were not excluded if they failed to complete a survey at any timepoint. Not eligible responses only occurred when a participant joined late and was more experienced than the timepoint. Missing values were entered as no response or not eligible for demographic variables, and excluded from statistical tests.

### 3.6.1.2 Statistical tests

Descriptive statistics and univariate analysis including frequencies were performed for demographic and other categorical variables, and tests of normality for the continuous variables such as scale scores; bivariate analysis for association between variables, and longitudinal analysis of the repeated measures at the four timepoints. The significance level p value was set at 0.05.

Demographic data met the assumption of independent observations within each group and one sample Chi squared tests were used when there were no expected frequencies below five, or Fischer's exact test if any were less than five. If the variable was dichotomous, a one sample binomial test was used.

For responses to scale scores, the PI and UWE IQ, results for the four timepoints were not independent. Histograms, boxplots, P-P plots, Q-Q plots, skewness and kurtosis, and Shapiro-Wilks test were done to determine use of parametric or nonparametric tests for PI and UWE IQ scores. The decision was made to use nonparametric tests because the sample size was small listwise, and the Shapiro-Wilks values were consistent but the skewness and kurtosis values were not, therefore normal distribution could not be assumed.

For the PI scale, nonparametric sign Wilcoxon test was used assess the change in scores over the four timepoints. The nonparametric sign Wilcoxon test was also used to examine differences after scales of UWE IQ scores were ranked into categories for positive, neutral or negative attitudes.

To determine association between demographic variables, Kendall's Tau-b correlation test was used for small sample sizes and ordinal data, Chi squared for categorical variables, and McNemar's test used if the variables were dichotomous. A selection of variables relevant to the research questions are reported. The PI and UWE IQ scores were not able to meet the assumptions of normal distribution and a linear relationship required for Pearson's correlation, and Kendall's Tau-b was used. A scatterplot showed the relationship was nonlinear. Friedman's test was used to determine difference in the scores over the time series (Field, 2016).

### 3.6.2 Interview transcripts for the qualitative strand

The audiofiles of interviews were transcribed verbatim and shared with the participant for validity and consent, confirming they were comfortable with the content, and particularly all aspects related to privacy and confidentiality.

Transcripts were imported into NVivo 12 for Mac as Word documents labelled with the participant's identifier code (ID) and timepoint when the interview was conducted (QSR International Pty Ltd, 2019). Text spoken by each participant and the interviewer was identified within the transcript in preparation for the longitudinal analysis.

### 3.6.2.1 Group and individual interviews

Before placements started, small group interviews with students were held with between two to five participants either face-to-face on their university campus or by telephone. After placements, one group was conducted on campus, and the remainder of the data collection at this timepoint was conducted as telephone interviews with one or two participants. Graduates from different universities were not mixed and the same semi-structured guides were used for both for group and individual interviews. Great care was taken when transcribing to identify individuals speaking in these small groups.

Individual telephone interviews were most convenient for participants after course completion, and this method was used at the one and two years timepoints, with the exception of one telephone interview held at one year after course completion with two participants.

Focus groups rely on group dynamics and interaction to encourage debate for the researcher to gain an understanding of the issues, contrasting with an interview which seeks to understand an individual's perspective by asking questions (Liamputong, 2013). In this research, the purpose was to gather many different views and experiences, and it was not necessary to reach agreement. This was explained to participants when introducing the research, and that there were no right or wrong answers. Participants were encouraged at the conclusion of the session to get in touch with the researcher by email or electronic messaging if they had not been able to express their view. For these reasons, the term 'group interview' has been used rather than 'focus group'.

### 3.6.2.2 Telephone interviews

The majority of interviews were done by telephone as this was most practical for participants, cost effective, and produced high quality audio files for transcribing (Cachia & Millward, 2011). Prior to the interview, dial in instructions and telephone etiquette guide were provided to help those unfamiliar with the process (Ross et al., 2006).

At the start of the interview, participants were reminded that nodding or shaking their head, facial expressions and other forms of nonverbal communication would not be seen, and they should “feel free to do whatever it takes to make their point clearly”. The interview strategy included probing to encourage more expansive responses, asking for clarification, verbal acknowledgements, and summarising to confirm the interpretation was correct (Irvine et al., 2013). Nonverbal strategies used by the participant to manage the pace or direction of the interview such as the tone of voice, laughter and pauses for time to think were monitored closely to build rapport and maintain the flow of conversation (Muntanyola Saura & Romero Balsas, 2014).

### 3.6.3 Thematic analysis

Thematic analysis was the method chosen for analysis of the group and individual interview transcripts because it is flexible, suitable for a variety of theoretical approaches, and not governed by epistemology (Braun & Clarke, 2006; Clarke & Braun, 2017). It is defined as “a method for identifying, analyzing, and interpreting patterns of meaning ('themes') within qualitative data” (Clarke & Braun, 2017, p. 297).

Guided by the research question, the aim of thematic analysis is to uncover or illuminate the most meaningful elements of the data, not attempting to summarise all aspects (Clarke & Braun, 2017). The intention for choosing this method was to gain an understanding of the participants' experiences over time, by comparing and contrasting influences on development of their PI and factors affecting their CP at different stages of their career. This research followed the six phases of thematic analysis outlined by Braun and Clarke (Braun & Clarke, 2006) shown in Table 3.6, and a longitudinal qualitative approach with two cycles of coding as described by Saldaña, and Grossoehme & Lipstein (Grossoehme & Lipstein, 2016; Saldaña, 2002).

**Table 3.6 Phases of thematic analysis.**

<b>Phases of thematic analysis</b>	<b>Description of the process</b>
1. Familiarizing yourself with your data	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

### 3.6.3.1 Coding and themes

The focus of the first cycle of coding for the ten participants who had taken part in three or more of the timepoints was on the individual, as trajectory analysis to take advantage of prospective nature of their experiences over time rather than cross sectional analysis (Grossoehme & Lipstein, 2016; Hermanowicz, 2013; Saldaña, 2002).

Semantic, inductive, and open coding was done initially in chronological order of the timepoints for each participant or within a case, for example participant #1 at pre placement, followed by post placement, and for then one year and two years after course completion, and this sequence repeated with participant #2. The coding or pieces of coded text, captured concepts and explanations in the words spoken by participants, and the length of coding varied from several words for a phrase through to being as long as a paragraph.

Sections of text often had multiple codes while other areas of transcript were left uncoded; and this pattern is typical of coding in thematic analysis (Braun & Clarke, 2006). Descriptions and definitions for codes were developed and modified as coding progressed. Codes were used consistently when they were referring to the same concept, such as expectations or motivation, regardless of the timepoint it was being used.

The second step in coding for individuals was by time, with all participants being at the same timepoint or across case, for example all at pre placement, post placement, one year and two years. This was to ensure any similarities that might have occurred at the same timepoint for participants had not been missed, and codes within each timepoint in the data set were being applied consistently.

The final step in this cycle of coding was text matching to address any synonyms and phrases with similar meaning that might have been missed. These were much shorter pieces of text, often just a word, for example patient and client. This represents completion of phases 1 and 2 in Table 3.6.

New codes were added and descriptions of codes modified as the coding progressed. Memos were written to keep track of the changes and annotations to record ideas. The codes were sorted and grouped to develop overarching subthemes and then preliminary themes developed. In the first iteration, these were similar to domains related to the semi-structured questions, and the themes and hierarchy of subthemes modified as analysis progressed. Identifying and aggregating recurring codes to form subthemes and develop themes as “patterns of shared meaning underpinned or united by a core concept” (Braun & Clarke, 2019a, p. 593).

The themes and subthemes, codes, pieces of text, descriptions and definitions were discussed and revised with supervisors and two allied health professional colleagues as analysis progressed, as validation their interpretation would be recognisable to others (Nowell et al., 2017). This represents completion of phases 3 and level 1 of phase 4, shown in Table 3.6. The codes, descriptions and definitions are shown in Appendix D.1.1, and Appendix D.1.2 shows codes and examples of text.

### 3.6.3.2 Saturation and information power

The process of coding was iterative with new codes being added and changed as needed to identify patterns of concepts, followed by recoding pieces of text and splitting codes. The coding was “saturated” in the 24 transcripts for the ten participants and four timepoints, meaning new codes were not added, descriptions and definitions were not altered, and there was no further splitting or lumping of codes (Saldaña, 2012).

Instructions for qualitative analysis recommend that coding is continued until saturation is reached (Saunders et al., 2018) however the process is not well described, and it is difficult to know when it is achieved (Guest et al., 2006; O'Reilly & Parker, 2013). Morse defines the process of saturation as “the building of rich data within the process of inquiry, by attending to scope and replication, hence, in turn, building the theoretical aspects of inquiry” (Morse, 2015, p. 588). That is, the phenomenon is thoroughly examined. However, aspects not seen as relevant may be put aside, to the point where several participants descriptions are similar, and theory can be developed.

Quantifying the number of interviews required to reach data saturation and estimating the sample size for recruitment, or confirming adequacy after interviews are completed has been raised by many authors (Blaikie, 2018; Francis et al., 2010; Fugard & Potts, 2015; Guest et al., 2020; Hennink et al., 2017; Lowe et al., 2018; Sim et al., 2018). Guest in 2006, using thematic analysis and a systematic approach to document the development of coding over 60 interviews, found data saturation was reached at 12 interviews (Guest et al., 2006), however, the fundamentals were present earlier at six interviews. The authors were cautious to avoid claiming six-to-twelve interviews would be adequate for all qualitative research, such as those with different methodology, a less homogenous sample or a more general inquiry.

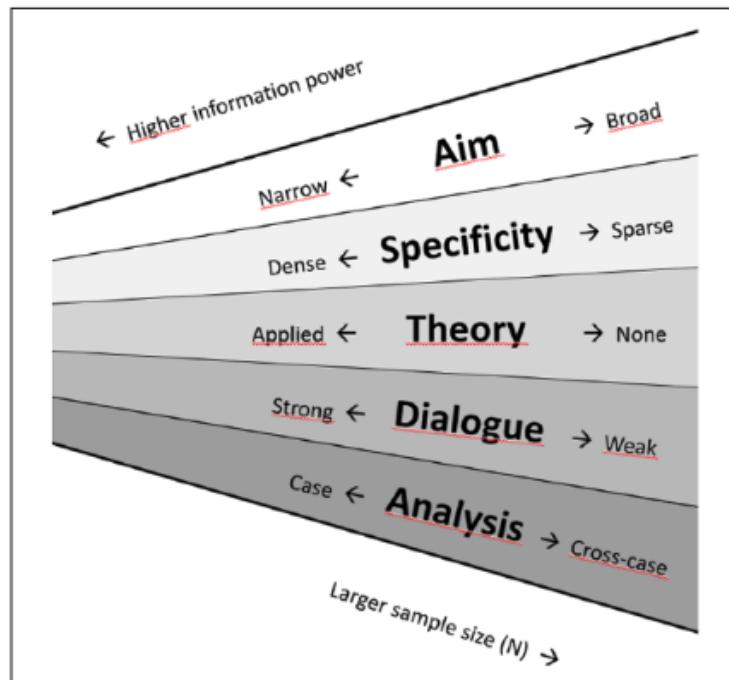
Later, Fugard and Potts in 2015 developed a tool to estimate sample size for qualitative studies looking at patterns across participants, such as those using thematic analysis, content analysis and framework analysis (Fugard & Potts, 2015). The tool requires knowing the prevalence of the theme in the population, the desired number of instances of the theme and the power of the study. They acknowledge the tool has limits, and the purpose is to help with planning decisions such as when a sample size is needed in a grant application (Fugard & Potts, 2015).

Building on the early work by Guest (Guest et al., 2006) in a study comparing the number of interviews to reach code saturation and meaning saturation, Hennink, Kaiser and Marconi found the range of thematic issues could be identified in nine interviews, by then they had “heard it all” and coding saturation was reached (Hennink et al., 2017, p. 605). Meaning saturation and to fully “understand it all” (Hennink et al., 2017, p. 605) had wide variation and some codes, typically high prevalence codes, reached this in a small number of interviews, sometimes in nine or less. Other codes, often low prevalence codes, needed more data and more interviews to pick up on all of the dimensions of the phenomenon and reach saturation, some taking as many as 24 interviews (Hennink et al., 2017). The authors concluded multiple factors or parameters could influence saturation, and they urged researchers to discuss how saturation was met, or not.

Claims that features of the study design, sample and data, and role of the researcher affect data saturation (Fusch & Ness, 2015) and calls for greater transparency is consistent (Malterud et al., 2016; O'Reilly & Parker, 2013). However, because there is a myriad of study designs and saturation for one design is not sufficient for another, Fusch and Ness concluded "there is no *one-size-fits-all* method to reach saturation" (Fusch & Ness, 2015, p. 1413).

Braun and Clarke (2019), exponents of thematic analysis approach used in this research, take exception to the practice being advanced by some authors (Fugard & Potts, 2015; Fusch & Ness, 2015; Guest et al., 2020; Lowe et al., 2018) to quantify the number of interviews to reach saturation. Saturation, they describe as information redundancy with variations for "code-, data- or thematic saturation" (Braun & Clarke, 2019b, p. 1), and challenge saturation as the gold standard for determining the conclusion of the analysis. The basis for their criticism is that themes are not inherent in the data, waiting to emerge or be discovered, and in their reflexive thematic analysis, themes are never completely finalised as there is always more that could be explored. Reaching saturation in the reflexive thematic analysis is seen as "interpretative judgement related to the purpose and goals of the analysis" (Braun & Clarke, 2019b, p. 10).

Rather than data saturation, Braun and Clarke are more comfortable with the concept of "information power" proposed by Malterud et al 2016, that is "the larger information power the sample holds, the lower  $N$  is needed, and vice versa" (Malterud et al., 2016, p. 1754). The model holds that dimensions of five items impact on saturation and sample size: study aim, sample specificity, use of established theory, quality of dialogue, and analysis strategy (Malterud et al., 2016, p. 1754), see Figure 3.4.



**Figure 3.4 Items and dimensions of information power.**

*Note.* From (Malterud et al., 2016, Figure 1, p. 1754).

Malterud and colleagues advise the focus should be on the contribution to new knowledge according to the aim of the study, and “sample adequacy, data quality, and variability of relevant events are often more important than the number of participants” (Malterud et al., 2016, p. 1759).

For this research, the aim is to identify the change in PI and CP for participants as they progress from student to graduate. The sample was purposive and selected for longitudinal participation at three or more timepoints, with a structured approach to identify the changes that had occurred; for example, the interview guide was very similar for each interview and timepoint. Inductive semantic coding was applied, and codes and themes kept consistent between timepoints to allow variations in experience to be observed.

Investigating change in PI and CP, both complex and multifactorial phenomenon, is likely to require a large sample size to allow the spectrum of individual variations to be seen. Likewise, the specificity or potentially diverse experiences of participants and the purposive recruitment strategy based on longitudinal participation may lead to a larger sample size being needed (Malterud et al., 2016`).

Theoretical perspectives on formation of PI and CP for this study is well developed, based on work for other allied health professionals, however the knowledge base for dietetics is limited, and a small sample size will yield new information. High quality dialogue between researcher and participants supports information power, and combined with the researcher's background knowledge of the setting, supports a small number of participants being required. The analysis is primarily looking for changes within cases and this requires a low number of interviews for information power as a first investigation of PI in dietetics students in Australia (Malterud et al., 2016`). Overall, the sample size of ten longitudinal participants is believed to be sufficient to address the research questions.

### 3.6.3.3 Longitudinal analysis

Qualitative longitudinal research is considered an orientation rather than a methodology, "founded on constructs of time and change and characterized by its iterative nature" (McCoy, 2017, p. 444). Changes over time were mapped longitudinally according to the method described by Saldaña 2002 and the practical application for trajectory analysis detailed by Grossoehme & Lipstein, 2006, and Hermanowicz 2013 (Grossoehme & Lipstein, 2016; Hermanowicz, 2013; Saldaña, 2002). Change was established by interrogation of the data using sequential matrixes (Grossoehme & Lipstein, 2016) and posing questions about what was different or had changed between timepoints (Saldaña, 2002).

The first matrix mapped how the data changed within the groups of themes, subthemes and codes. This matrix has themes on the Y axis and time on the X axis, with the individual being the primary unit of analysis. The second matrix continued with themes, subthemes and codes on the Y axis, and individuals on the X axis to identify what had changed for the individual and the unit of analysis was time (Grossoehme & Lipstein, 2016). Sample matrix are shown in Figure 3.5.

**Table 2 Sample family matrix**

Themes	Time 1	Time 2	Time 3
Theme A (example: family stress)	Lots of stress about health <i>#1</i> <i>#3</i> <i>#4</i>	Feeling stressed about treatment decision <i>#1</i> <i>Feeling stressed about treatment decision #3</i>	<i>Less stressed now that decision is made #1</i> <i>#3</i> <i>#4</i>
Theme B (example: concerns about side effects)	<i>Worried how treatment will impact growth #2</i>	No concerns about side effects <i>Concerned about child's growth #2</i>	No concerns about side effects <i>Less worried about side effects since #2 child is improving</i>
Theme C	Idea from mother <i>#1</i> Idea from father <i>#2</i>	<i>Idea from father #2</i> <i>#3</i>	Idea from mother <i>#1</i> <i>#4</i>
Theme D	Idea from mother <i>#2</i> Idea from father <i>#3</i>	<i>Idea from father #1</i> <i>#3</i>	Idea from mother Idea from father <i>nil</i>

Plain font indicates mother; italics indicates father

# = ID of the individual participant

**Table 3 Sample longitudinal analysis matrix**

Themes	Individual #1	Individual #2	Individual #3
Theme A (example: change in family stress over time)	Change from stress about health to stress about treatment <i>#1T1</i> <i>Moved towards less stress after treatment started #1T2</i>	Idea from mother <i>Idea from father #2T1</i> <i>#2T2</i> <i>#3T1</i>	Idea from mother <i>Idea from father #3T2</i>
Theme B (example: change in concerns about side effects over time)	Never developed any concerns <i>#1T1</i> <i>Worried about growth that diminishes as child improves #1T2</i>	Idea from mother <i>Idea from father #2T2</i> <i>nil</i> <i>#3T1</i>	Idea from mother <i>Idea from father #3T2</i>
Theme C	Idea from mother <i>#1T4</i>	Idea from mother <i>nil</i> <i>#3T3</i>	Idea from mother <i>Idea from father #2T2</i> <i>#3T3</i>
Theme D	Idea from mother <i>#1T3</i> <i>#1T4</i>	Idea from mother <i>Idea from father #2T4</i> <i>#3T4</i>	Idea from mother <i>Idea from father #3T4</i>

Plain font indicates mother; italics indicates father

T1 = pre placement, T2 = post placement, T3 = one year, T4 = two years timepoints

**Figure 3.5 Sample individual and longitudinal analysis matrix.**

*Note.* Adapted from (Grossoehme & Lipstein, 2016, Tables 2 and 3, p. 4).

Based on the method described by Saldaña (Saldaña, 2002), questions put to the data were:

1. What increases or emerges through time?
2. What is cumulative through time?
3. What kinds of surges occur through time?
4. What decreases or ceases through time?

5. What remains constant or consistent through time?
6. What is idiosyncratic through time?
7. What is missing through time?
8. Which changes interrelate through time?
9. What are participant or conceptual rhythms through time?
10. What is the characterization of across time experience, and how do characterizations differ by sub-groups of the sample? (Hermanowicz, 2016, p. 507).

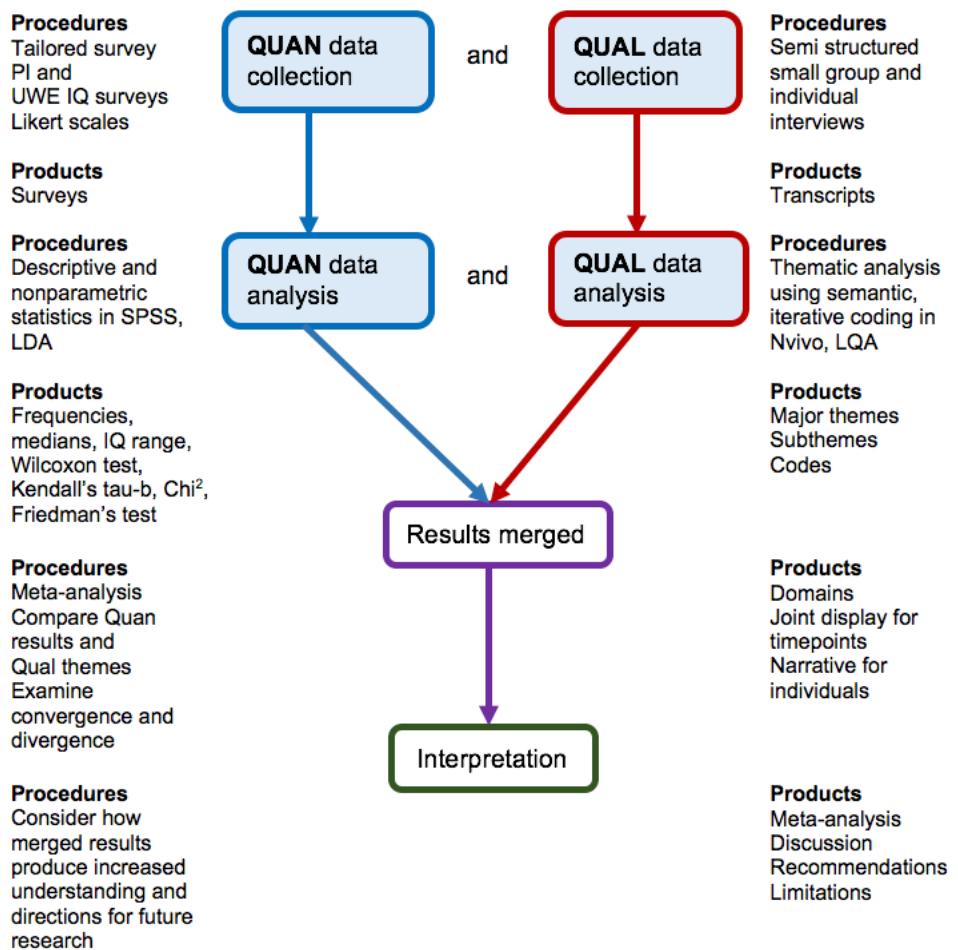
This framework provided the background for the longitudinal qualitative analysis and was fundamental to understanding changes over time. A theme matrix was developed and a comparison of coding was made for each timepoint. The presence or absence of codes, importance and prominence of coding under subthemes was identified at the timepoints, allowing shifts to be seen. The transcripts were interrogated for meaning and interpretation against the coding and subthemes, to appreciate what changes had occurred against this framework of questions.

Longitudinal analysis of change for individuals followed, using a similar method to map change within themes. The codes under the thematic groups were mapped for each individual, rather than by time. Changes in themes and codes were compared for each individual over the timepoints, and also between individuals. A matrix of the change for each theme for individuals was developed, a sample matrix is shown in Figure 3.5. This completed the level 2 of phase 4 and level 5 in Table 3.6.

#### 3.6.4 Integration of data for mixed methods

Mixing of data or integration of the quantitative and qualitative results was not undertaken until analysis of both strands had been completed, as defined for implementing the convergent mixed method model (Creswell & Plano-Clark, 2018), with details of the implementation procedures and products shown in diagram format in Figure 3.6.

The point of integration is where the two methods meet and merging refers to the “procedures that interrelate quantitative data and results with qualitative data and results” (Plano Clark, 2019, p. 110). This represents Level 6 of Table 3.6, and findings are reported in Chapter 6, Discussion.



**Figure 3.6 Procedures and products of data collection, analysis and integration implemented for the convergent model.**

Note. Adapted from (Creswell & Plano-Clark, 2018, Figure 3.4, p. 93).

This chapter on Methodology has outlined the study design, data collection and analysis, detailing the mixed methods approach taken in the research.

In Chapter 4 Results which follows, the results for the two data types are reported separately. Although the two strands had equal weighting in the convergent model, quantitative results are presented first and qualitative findings.

## Chapter 4

## Results

This chapter separately reports qualitative and quantitative findings of changes in the professional identity (PI) and perceptions of collaborative practice (CP) for participants in the progression from student status to early career practitioners.

Chapter 4 Results is closely linked with Chapter 5, where the integration of the two strands is presented longitudinally for the joint displays by time and for individuals.

The strengths and limitations of the research are addressed in Chapter 5.

This study investigates the progressive development and influences on PI from student to graduate as they enter the profession in the early years of practice as a dietitian, and factors that determine whether or not capability for CP is incorporated into the PI of dietitians. The study design is a mixed methods convergent parallel design conducted longitudinally.

Participants were recruited from three sources: final year students from accredited dietetics programs in Australia - Curtin University, Flinders University, La Trobe University, and University of Wollongong; and early career graduates from the Dietitians Association of Australia (DAA); and a Facebook® group called Network of Emerging Australian Dietitians.

Quantitative and qualitative data were gathered at the four timepoints from students and graduates. Student development stages were pre and post placement, and graduate stages were one and two years after course completion. Data for the quantitative and qualitative strands of each timepoint were collected and analysed separately.

### 4.1 Study objectives

The overall objective was to investigate the development of PI by dietitians, and the study objective can be separated and viewed as objectives directed towards the quantitative or qualitative strands.

#### 4.1.1 Objectives for the quantitative strand

- To measure changes in the scores for PI of dietitians starting as students through to early career practitioner status.

- To evaluate the adoption of CP into the PI of dietitians.

#### 4.1.2 Objectives for the qualitative strand

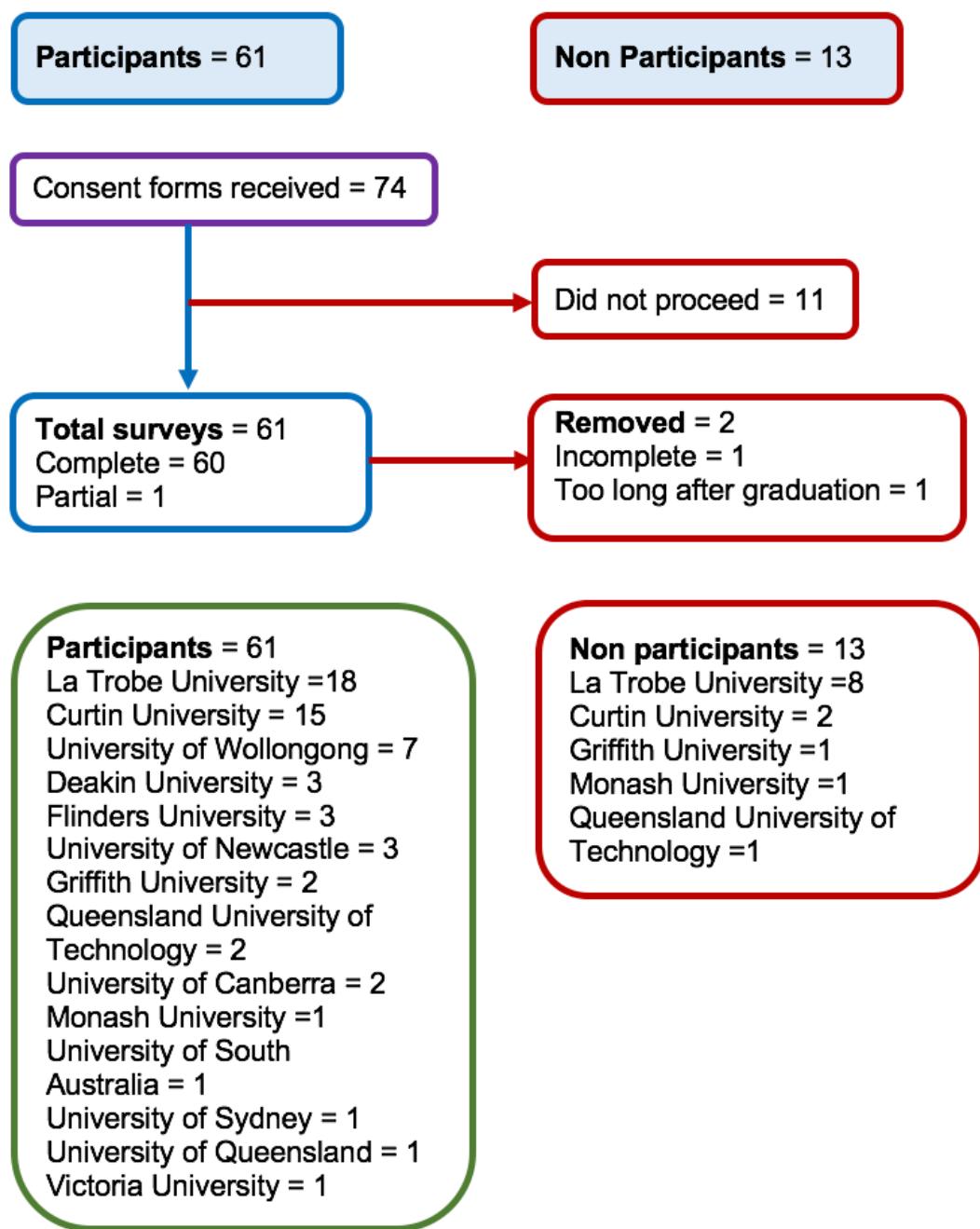
- To investigate development of PI from final year student through the first two years of practice as a dietitian.
- To determine the factors influencing the development of CP capability by dietitians.

### 4.2 Participants

Seventy-four consent forms were received, with 11 individuals not proceeding in the study after giving consent and survey results were removed for two participants; one participant was ineligible (too long after graduation) and one survey was incomplete. A total of 61 participants completed surveys were retained, including one survey that was partly completed with sufficient finished to be included in some data analysis. See Figure 4.1 for flow of recruiting participants.

#### 4.2.1 Information on non-participants

The majority of non-participants were recruited as students at pre or post placement timepoints; only two individuals recruited from DAA did not proceed. Universities attended by the non-participants were La Trobe (n=8), Curtin (n=2), Griffith (n=1), Monash (n=1), Queensland University of Technology (n=1).



**Figure 4.1 Recruiting flow for participants.**

#### 4.2.2 Participation by recruiting source

Almost two thirds of participants ( $n=39$ , 63.9%) were recruited from universities as shown in Table 4.1 rather than DAA or Facebook.

**Table 4.1 Sources for recruiting of participants.**

<b>Source</b>	<b>Frequency N=61</b>	<b>Percent</b>
University	39	63.9
DAA	19	31.1
Facebook	3	4.9
Total	61	100

#### 4.2.3      Participation by timepoint

Table 4.2 shows the frequency of participation at each timepoint for survey and group or individual interview. The number of survey participants at the pre placement timepoint was 17 and post placement 31; at one year after course completion 31 while two years there were 28. For the group or individual interviews, the number participating at the pre placement timepoint was 11, and at post placement 22; and at one year after course completion there were 22 participants and at two years 25.

**Table 4.2 Frequency of participation by timepoint.**

Timepoint Participation	Frequency N=61	Percent	Timepoint Participation	Frequency N=61	Percent
<b>Pre placement</b>					
Survey					Group/individual interview
Yes	17	27.9	Yes	11	18.0
No	4	6.6	No	10	16.4
NE	40	65.6	NE	40	65.6
<b>Post placement</b>					
Survey					Group/individual interview
Yes	31	50.8	Yes	22	36.1
No	15	24.6	No	24	39.3
NE	15	24.6	NE	15	24.6
<b>One year</b>					
Survey					Group/individual interview
Yes	31*	50.8	Yes	22	36.1
No	22	36.1	No	31	50.8
NE	8	13.1	NE	8	13.1
<b>Two years</b>					
Survey					Group/individual interview
Yes	28	47.5	Yes	25	41.0
No	27	42.6	No	30	49.2
NE	6	9.8	NE	6	9.8

Key: Yes = participated at this stage, No = no response

NE = not eligible to participate at this stage, \* includes one partial completion

A flow diagram showing the source and time of recruiting, type of data collected, and the number of participants at each timepoint is shown Figure 4.2.

#### 4.2.4 Participation by number of surveys and interviews

Participants were invited to complete surveys and/ or interviews at each of the four timepoints, with a total of eight opportunities for engagement in the research. shows that participation in a single survey and single group or individual interview were common, with a small number of people doing three or more of each. Only 10% of respondents completed all the surveys and 13% all interviews. Almost 70% of participants completed up to three occasions of data collection, shown in Table 4.4.

**Table 4.3 Participation in surveys and interviews.**

<b>Participation</b>	<b>Frequency</b>	<b>Percent</b>
<b>N=61</b>		
<b>Surveys</b>		
0	3	4.9
1	27	44.3
2	19	31.1
3	6	9.8
4	6	9.8
<b>Group/individual interviews</b>		
0	20	32.8
1	20	32.8
2	11	18.0
3	2	3.3
4	8	13.1

**Table 4.4 Frequency of occasions of data collection.**

<b>Occasions of data collection</b>	<b>Frequency</b>	<b>Percent</b>
<b>N=61</b>		
1	13	21.3
2	18	29.5
3	11	18.0
4	9	14.8
5	2	3.3
6	2	3.3
7	1	1.6
8	5	8.2

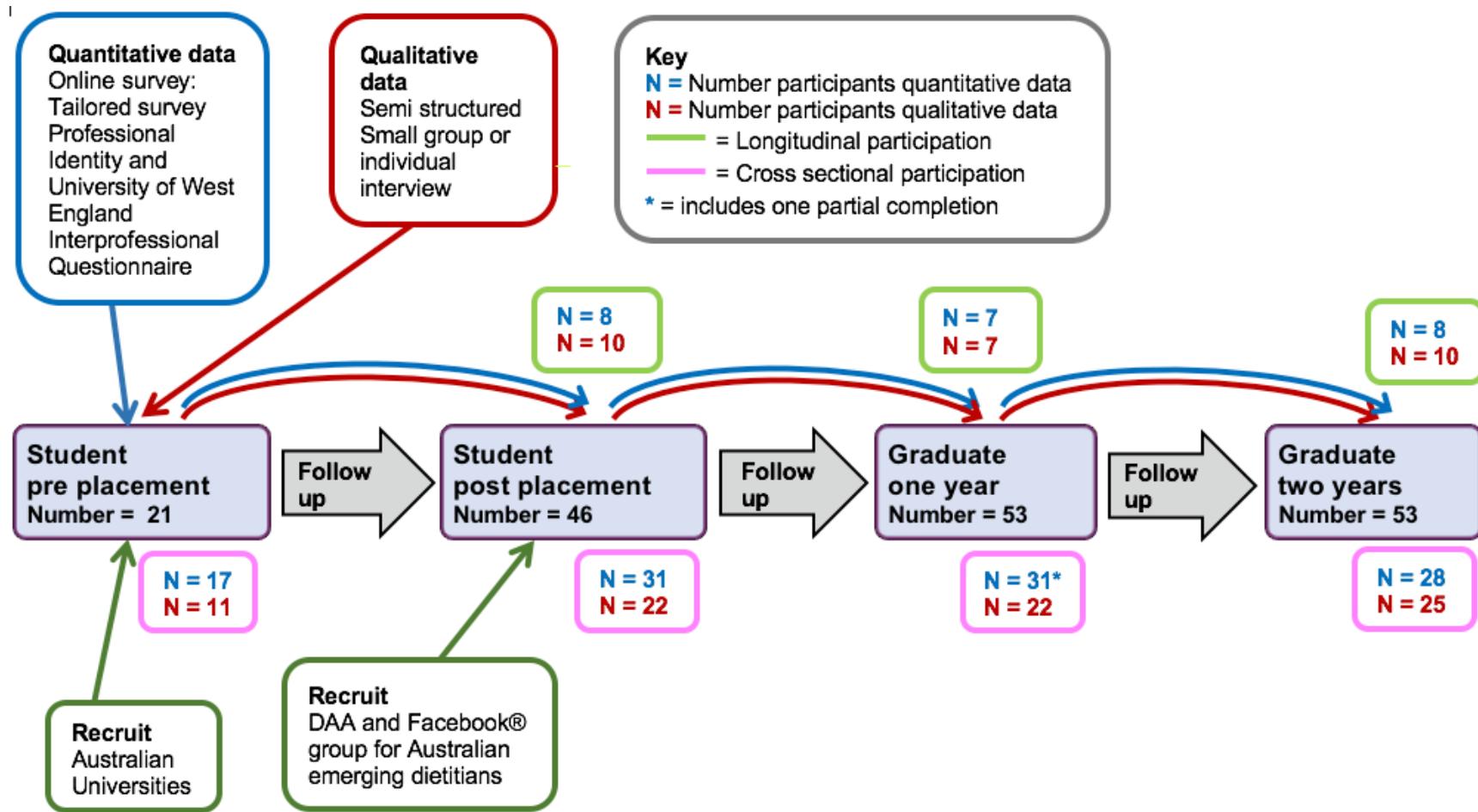
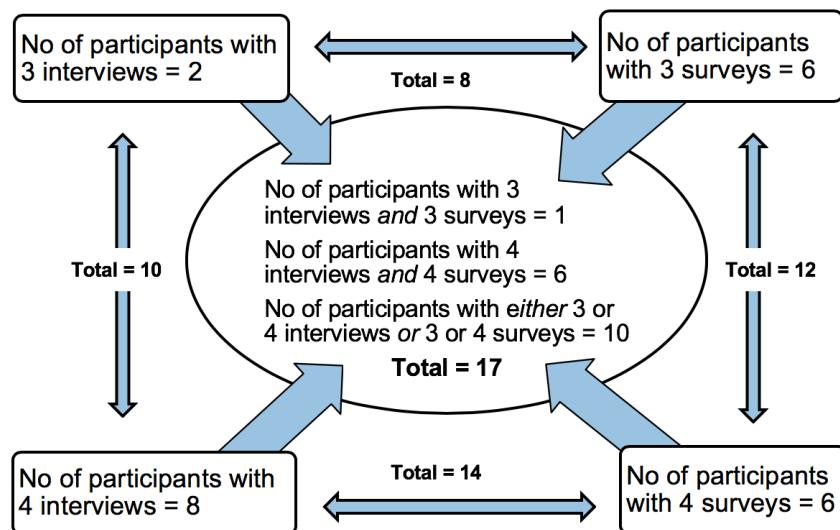


Figure 4.2 Flow of recruiting, data collection, and number of participants at each timepoint.

However, it was possible to do only surveys or only interviews rather than participate in both types of data collection. Overall, 17 respondents had the most engagement in the research: completing three or more surveys and three or more interviews. The number of people participating in survey and interviews is shown in Figure 4.3.



**Figure 4.3 Maximum participation in surveys and interviews.**

#### 4.2.5 Demographic data

All participants were female and the majority more than 21 years of age when recruited ( $n=51$ , 83.6%). One male student consented but did not proceed. Three quarters of participants were recruited as students ( $n=46$ , 75.4%) rather than after course completion, shown in Table 4.5.

**Table 4.5 Stage of participant when recruited.**

Stage	Frequency	Percent
<b>N=61</b>		
Student		
Pre placement	21	34.4
Post placement	25	41.0
Graduate		
One year	3	4.9
Two years	12	19.7

More than half of all participants were from La Trobe University (n=18, 29.5%) and Curtin University (n=15, 24.6%) combined, shown in Table 4.6. Nine universities with a small number of participants (less than five) were combined to make a group for Other universities for analysis and comparison.

**Table 4.6 University attended by participants.**

University	Frequency N=61	Percent
La Trobe University	18	29.5
Curtin University	15	24.6
University of Wollongong	7	11.5
Deakin University*	3	4.9
Flinders University*	3	4.9
University of Newcastle*	3	4.9
Griffith University*	2	3.3
Queensland University of Technology*	2	3.3
University of Canberra*	2	3.3
University Queensland*	2	3.3
Monash University*	1	1.6
University of South Australia*	1	1.6
University of Sydney*	1	1.6
Victoria University*	1	1.6

\* Combined to make a group of Other universities

Previous education and prior work experience by participants were captured to determine what impact this background would have on development of PI. In this study, the majority of participants had a nutrition background in their undergraduate degree (n=55, 90.2%) and very few people entered the profession with another background such as biomedical science.

Twenty-three participants (37.7%) confirmed they had previous experience working in a health or social care setting, 30 (49.2%) had not, and eight (13.1%) provided no information. Two respondents commented on their placements rather than previous experience.

Amongst those who had previous experience, the types were:

- assistant to a health care professional (n=7), such as dietary assistant
- extensive volunteering (n=4), such as with Nutrition Australia
- previous qualification and practice as health care professional (n=3), such as pharmacist
- an administrative position (n=3), such as medical receptionist
- fitness role (n=2), such as personal trainer
- another role (n=2), such as catering manager in aged care.

#### 4.2.6 Practice community

Accredited Practising Dietitian (APD) status was captured to assess engagement with the professional community of dietetics. APD status was reported by 45 participants, and 31 (68.9%) of these respondents were one year graduates while 14 (31.1%) were two year graduates. Engagement in the APD program was high and provisional APD status was reported by half of the participants, shown in Table 4.7. Two years after completing their course, a significantly greater proportion of graduates had provisional APD status than did at one year ( $p < 0.001$ ,  $\chi^2 = 29.200$ , df = 3) and only five respondents were not in the APD program.

**Table 4.7 Accredited Practising Dietitian status for participants at one or two years timepoint.**

APD Status	Timepoint*		Total	Percent
	One year	Two years		
Not APD	5	0	5	8.2
Provisional APD	23	9	32	52.5
Full APD	3	5	8	13.1
No response	0	0	16	26.2
Total	31	14	61	100

\* Timepoint of one year used if available, two years used if not

**Employment in paid work as a dietitian by participants is shown in Table 4.8 and the amount of work is shown in**

Table 4.9. Twenty-nine of the 45 respondents had been in paid work by the one year timepoint, only two had not, and information was unavailable for a further 16 participants. The amount of work reported most often at one year after course completion was 40-52 weeks, although the number of weeks of work was more varied for respondents at the two year timepoint.

**Table 4.8 Paid work as a dietitian at one or two years timepoint.**

Paid work	Timepoint*		Total	Percent
	One year	Two years		
Yes	29	14	43	70.5
No	2	0	2	3.3
No response	0	0	16	26.2
Total	31	14	61	100.0

\* Timepoint of one year used if available, two years used if not

**Table 4.9 Number of weeks paid work as a dietitian at one or two years timepoint.**

Weeks	Timepoint*		Total	Percent
	One year	Two years		
No paid work	2	0	2	3.3
1-12	4	3	7	11.5
13-26	7	1	8	13.1
27-39	5	0	5	8.2
40-52	8	2	10	16.4
53-64	1	0	1	1.6
65-78	1	3	4	6.6
79-91	1	1	2	3.3
92-104	2	3	5	8.2
> 105	0	1	1	1.6
No response	0	0	16	26.2
Total	31	14	61	100

\* Timepoint of one year used if available, two years used if not

**Around one third of participants reported being involved in unpaid work as a dietitian at one year or two years after completing their course and the usual amount was up to 40 hours, shown in Table 4.10 and**

Table 4.11. Reported participation in unpaid work at one year after course completion was significantly higher (n=13) than at two years (n=7), ( $p = 0.001$ ,  $\chi^2 = 6.42$ , df = 1).

**Table 4.10 Frequency of unpaid work as a dietitian at one or two years timepoint.**

Voluntary work	Timepoint*		Total	Percent
	One year	Two years		
Yes	13	7	20	32.8
No	18	7	25	39.3
No response	0	0	16	27.9
Total	31	14	61	100

\* Timepoint of one year used if available, two years used if not

**Table 4.11 Number of hours unpaid work as a dietitian at one or two years timepoint.**

No of hours	Timepoint*		Total	Percent
	One year	Two years		
No voluntary work	18	7	25	41.0
1-40	8	6	14	23.0
41-80	1	1	2	3.3
161-2000	4	0	4	6.6
No response	0	0	16	26.2
Total	28	16	61	

\* Timepoint of one year used if available, two years used if not

#### 4.2.7 Curriculum

Participation in interprofessional education (IPE) as a student may influence collaborative practice (CP) as a graduate. Opportunities for IPE and to *learn from, with, or about* other allied health profession students while they were studying dietetics are shown in Table 4.12. More than half of study participants (n=35, 57.4%) reported having an opportunity for IPE during their course.

**Table 4.12 Opportunity for interprofessional education as a student.**

IPE as a student	Frequency N=61	Percent
Yes	35	57.4
No	10	16.4
No response	16	26.2

Overall, 35 (77.8%) respondents participated in one or more explicit IPE activities, and 15 people had no exposure to IPE either because they had no opportunity for IPE offered during their course (n=10) or their only IPE activities were specific to dietetics (n=5). The majority of participants had been involved in more than one IPE activity as a student, and most often it was two activities (n=13, 21.3%), shown in Table 4.13.

**Table 4.13 Number of interprofessional education activities as a student.**

Activities	Frequency N=61	Percent
No opportunity	10	16.4
One activity	8	13.1
Two activities	13	21.3
Three activities	9	14.8
Four activities	2	3.3
Five activities	1	1.6
Seven activities	1	1.6
Eight activities	1	1.6
No response	16	26.3

Figure 4.4 shows the types and frequency of participation in potential IPE activities. The most frequent IPE activities reported by participants were face-to-face workshop, lecture and tutorial. Several participants (n=16) identified activities as IPE that were for a single profession, such as a dietetics placement.

Three people chose to make comments in the open-ended question for Other IPE activities on the role of dietetics placements as a source of informal learning from, with and about other health professionals. For example, one participant said:

*Learned about some allied health professionals on hospital placement especially speech pathology. #60*

**Figure 4.4 Frequency of interprofessional education activities.**

#### 4.3 Quantitative analysis: scale scores

##### 4.3.1 Measure for strength of professional identity

The range of total possible scores for the PI survey is intended to be 9-45, with three questions scored in reverse. One question was omitted from the PI survey provided to participants, and the range of scores for the scale in this research is 8-40. The question omitted was “I feel I share characteristics with other members of the profession” (Adams et al., 2006). The effect on the findings is likely to be small. The scores for PI are reported without adjustment. The tool is shown in Appendix C.3.2.

#### 4.3.1.1 Scores for professional identity

A small positive change in the median PI score was observed between students at post placement and one year timepoints, and both the range and interquartile range of scores became larger as participants progressed in their career. Summary statistics for the raw PI scores over the four timepoints are shown in Table 4.14.

The change between the median PI scores appeared small, and the Wilcoxon Signed-Ranks test for difference in median PI scores was statistically significant between pre placement and post placement ( $p < 0.001$ ), one year ( $p < 0.001$ ), and two years after course completion ( $p < 0.001$ ). No significant difference was found between the median PI scores post placement and one year ( $p = 0.227$ ), post placement and two years ( $p = 0.419$ ), and one year and two years ( $p = 0.105$ ) after course completion, or student between student and graduate stages ( $p = 0.219$ ).

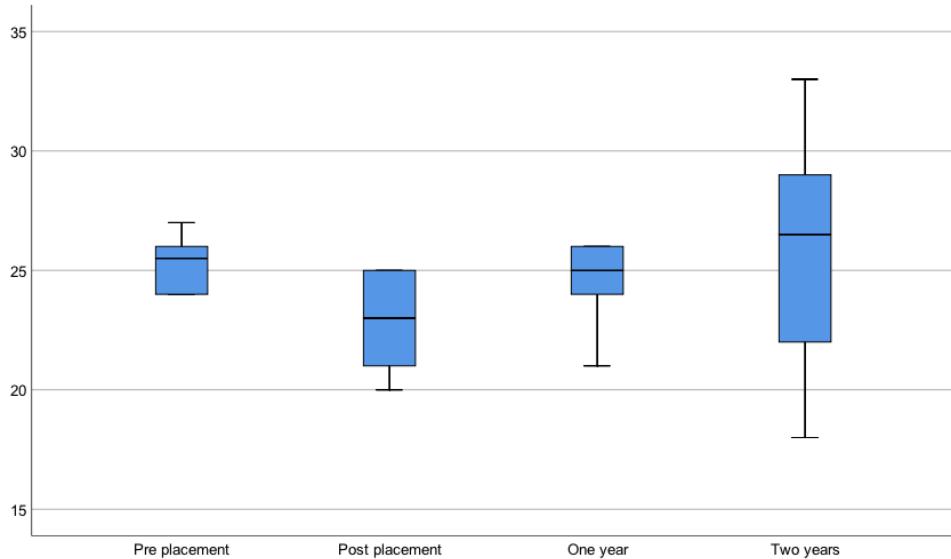
**Table 4.14 Summary statistics for Professional Identity scores at four timepoints.**

Statistic	Student		Graduate		
	N=61	Pre placement	Post placement	One year	Two years
N	17	31	31	28	
Median	24	24	25	24	
Range	6	7	11	17	
Percentile 25 <sup>th</sup>	24	22	22	22	
Percentile 75 <sup>th</sup>	26	25	26	27.75	
Interquartile range	2	3	4	5.75	
No response	44	30	30	33	

#### 4.3.1.2 Changes in scores over time

Six participants completed surveys at the four timepoints and their PI scores did not change significantly over time using the Friedman test ( $p = 0.417$ ,  $\chi^2 = 2.839$ ,  $df = 3$ ) although the dispersion of scores became larger, shown in

Figure 4.5.



**Figure 4.5 Box and whisker plot for Professional Identity scores by longitudinal participants at four timepoints.**

#### 4.3.2 Measure of interprofessional collaboration

##### 4.3.2.1 Four scales of interactional factors in for interprofessional collaboration

The UWE IQ tool was used to measure changes in attitudes and perceptions towards IP collaboration over the four timepoints. The four scale scores for interactional factors in IP collaboration making up the UWE IQ score are reported separately because the rate of change can vary for the individual scales. A decrease in pre to post test scores indicates a more positive attitude (Pollard et al., 2004). There was no consistent pattern of change between the median scores, range or interquartile range across the timepoints, shown in summary statistics

Table 4.15.

The median score for the communication and teamwork scale reduced slightly and the range of scores become larger over the four timepoints, with little change in the interquartile range. The pre placement median score was significantly higher than the median score one year after graduation using the Wilcoxon Signed-Ranks test ( $p = 0.008$ ) showing improvement in self-assessed communication and teamwork skills, but the difference was not significant between other timepoints.

Median scores in the IP learning scale rose slightly between the pre and post placement timepoints suggesting less willingness to learn from other allied health professionals after placements, but this was not sustained. The scale score fell at later timepoints so that overall there was a small increase in score, indicating a small negative shift in attitudes to IP learning over time. The range of scores followed a similar pattern but the interquartile range became smaller over the same period of time. The difference in median scores for the IP learning scale was only significant between pre and post placement ( $p = 0.030$ ), and not between any other timepoints.

The median IP interaction scores fell slightly over the four timepoints, showing a trend for improvement in perceptions of IP interaction, and both the range and interquartile range also reduced over the time, however the difference in median scores between any of the timepoints was not statistically significant.

The IP relationships median score declined between pre placement timepoint and one year after course completion indicating participants thought their own IP relationships had improved, although increased at the two year timepoint to show a small negative change over time. The range and interquartile range for the medians became larger over time. Several shifts between median scores at different timepoints were statistically significant: pre placement to post placement ( $p = 0.002$ ); pre placement to one year ( $p = 0.004$ ); post placement to one year ( $p = 0.007$ ); post placement to two years ( $p = 0.023$ ); one year and two years ( $p < 0.001$ ); and only the pre placement to two years was not significant ( $p = 0.500$ ).

**Table 4.15 Summary statistics for scores of University of West England Interprofessional Questionnaire scales at four timepoints.**

<b>Statistic</b>	<b>Student</b>		<b>Graduate</b>	
	Pre placement	Post placement	One year	Two years
N=61	17	31	30	28
No response	44	30	31	33
<b>Communication and teamwork</b>				
Median	22	21	21	21
Range	6	8	7	10
Percentile 25 <sup>th</sup>	21	21	20	20
Percentile 75 <sup>th</sup>	23	22	22	22.75
Interquartile range	2	1	2	2.75
<b>Interprofessional learning</b>				
Median	17	19	17.5	18
Range	11	14	11	10
Percentile 25 <sup>th</sup>	13	15	14.75	17
Percentile 75 <sup>th</sup>	20	20	20	20
Interquartile range	7	5	5.25	3
<b>Interprofessional interaction</b>				
Median	23	23	23	22
Range	11	12	11	9
Percentile 25 <sup>th</sup>	21	21	22	21
Percentile 75 <sup>th</sup>	25.5	24	25.25	24
Interquartile range	4.5	3	3.25	3
<b>Interprofessional relationships</b>				
Median	19	18	16	19.5
Range	7	10	15	13
Percentile 25 <sup>th</sup>	18.5	16	15	18
Percentile 75 <sup>th</sup>	21	19	18	23
Interquartile range	3.5	3	3	5

#### 4.3.2.2 Total University of West England Interprofessional Questionnaire scores

The UWE IQ survey measured attitudes and perceptions towards interprofessional collaboration. The total UWE IQ score appeared to have a modest increase over time suggesting a slight deterioration in attitude. The range and interquartile range appeared to be more consistent than seen for the PI scores, although there were no significant differences between median UWE IQ scores for any timepoints.

Summary statistics for the total score or sum of the scale scores for each timepoint is shown in Table 4.16.

**Table 4.16 Summary statistics for total University of West England Interprofessional Questionnaire scores at four timepoints.**

Statistic	Student		Graduate		
	N=61	Pre placement	Post placement	One year	Two years
N	17	31	30	28	
Median	95	101	100	100	
Range	28	30	30	29	
Percentile 25 <sup>th</sup>	91	91	94.75	93.25	
Percentile 75 <sup>th</sup>	104.5	107	106.5	104	
Interquartile range	13.5	16	11.75	10.75	
No response	44	30	31	33	

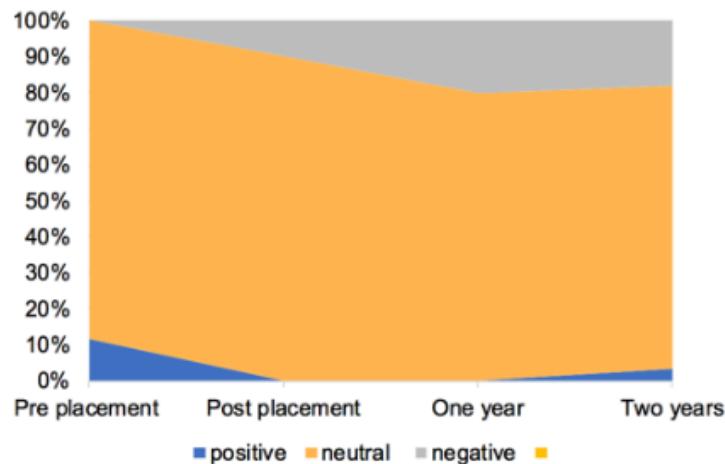
The total UWE IQ score has four components. In order to assess change as participants became more experienced, the four scale scores of the UWE IQ scores were ranked for attitude using categories of positive, neutral or negative at each of the timepoints (Pollard et al., 2004). As participants' careers progressed, their attitudes changed by varying amounts for each scale, shown in Table 4.17.

Between pre placement and two years after course completion, participants' attitudes to both communication and teamwork and IP learning became more negative compared to their attitudes to IP interaction which became more positive, and IP relationships becoming more neutral and less negative over the time.

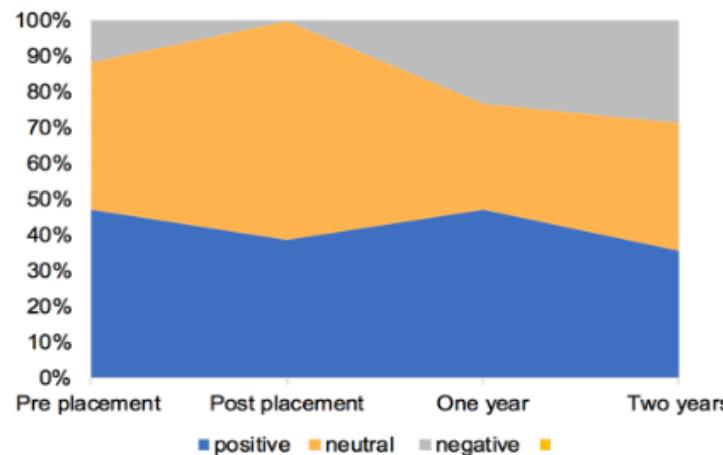
**Table 4.17 Percentage of ranked attitudes of scores for University of West England Interprofessional Questionnaire scales at four timepoints.**

Scale	Student		Graduate	
	Rank	Pre placement	Post placement	One year
<b>Communication and Teamwork</b>				
Positive	11.8	0	0	3.6
Neutral	88.2	90.3	80	78.6
Negative	0	9.7	20	17.8
<b>Interprofessional learning</b>				
Positive	47	38.7	47.7	35.7
Neutral	41.2	61.3	30	35.7
Negative	11.8	0	23.3	28.6
<b>Interprofessional interaction</b>				
Positive	41.2	48.4	30	60.7
Neutral	58.8	51.6	70	39.3
Negative	0	0	0	0
<b>Interprofessional relationships</b>				
Positive	0	0	0	0
Neutral	29.4	16.1	23.3	46.4
Negative	70.6	83.9	76.7	53.6

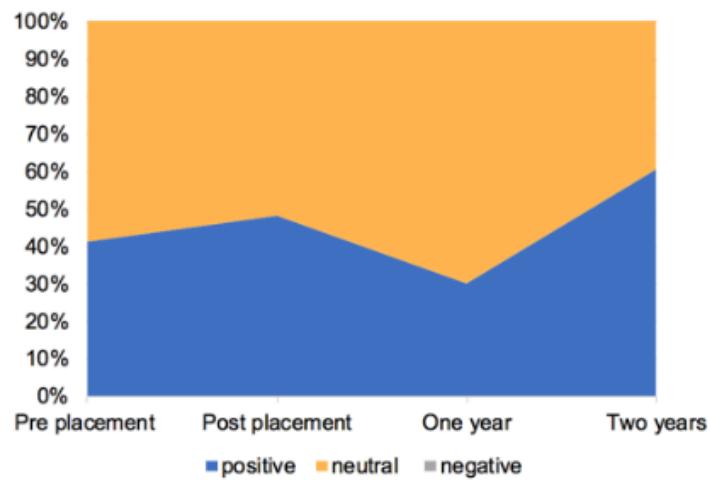
The changes in the attitude ranks for each of the scales of the UWE IQ over the four timepoints are shown in Figure 4.6, noting the data is categorical rather than continuous and the figure is used to show a visual representation of the changes over time.



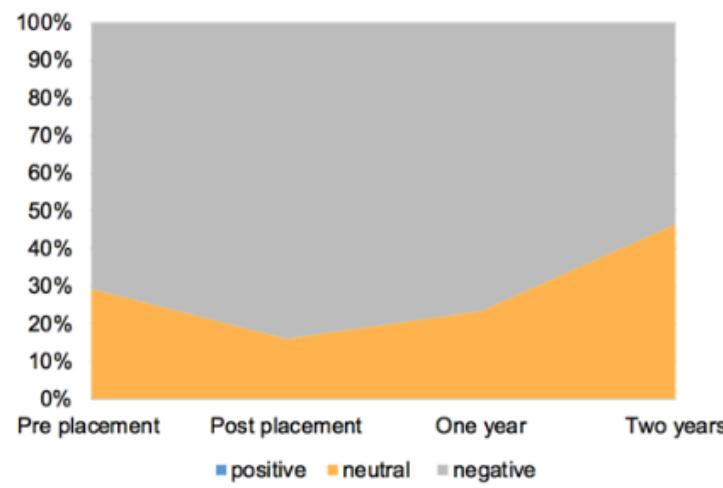
Communication and teamwork



Interprofessional learning



Interprofessional interaction

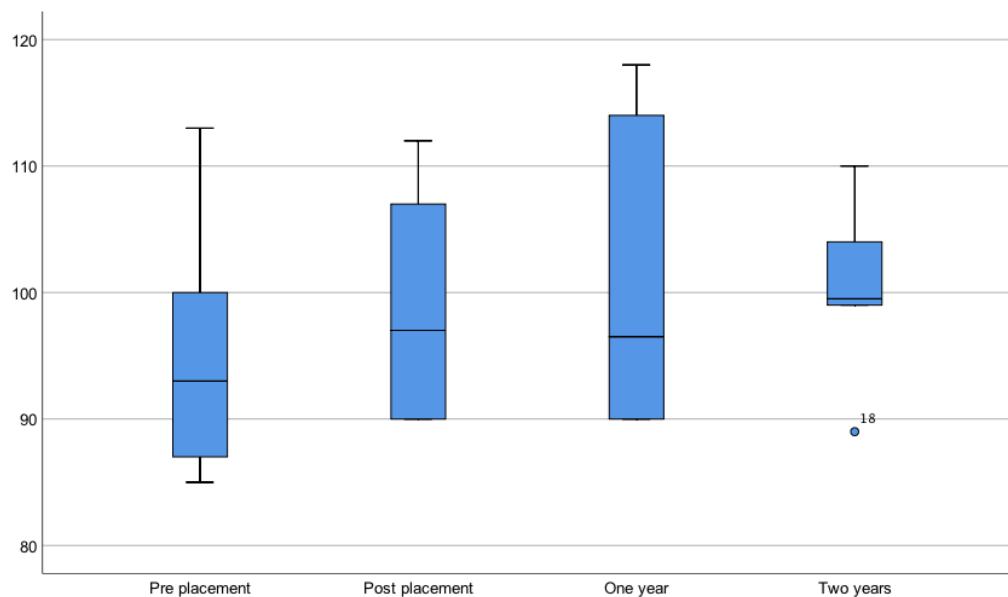


Interprofessional relationships

Figure 4.6 Changes in rank attitudes for scores in University of West England Interprofessional Questionnaire scales at four timepoints.

#### 4.3.2.3 Changes in scores over time

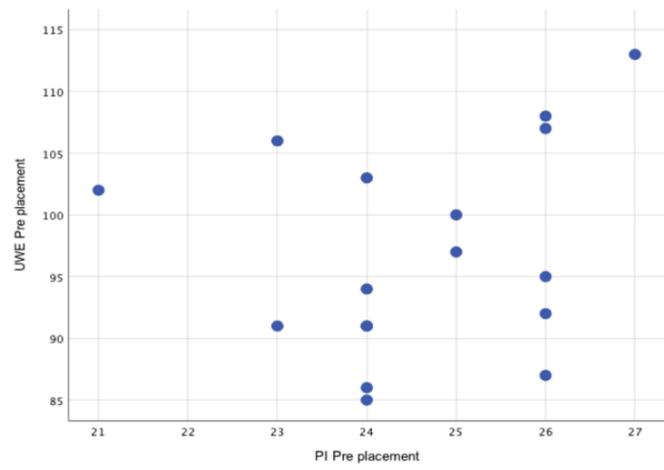
For the six participants who completed surveys at all four timepoints, the difference between the median UWE IQ scores over time was not significant with Friedman's repeated measures test ( $p = 0.320$ ,  $\chi^2 = 3.508$ ,  $df = 3$ ) and a widening dispersion of the scores was seen, as shown in Figure 4.7. The two year timepoint had the smallest interquartile range and the minimum score is shown as an outlier, although the score falls within the range for other timepoints.



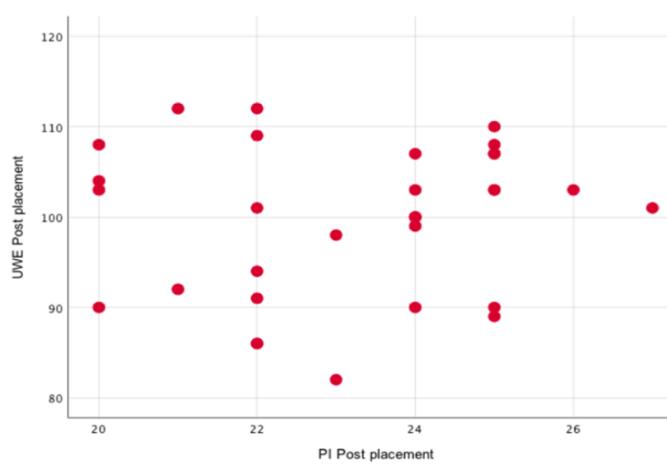
**Figure 4.7 Box and whisker plot for University of West England Interprofessional Questionnaire scores by longitudinal participants at four timepoints.**

#### 4.3.3 Relationships between variables

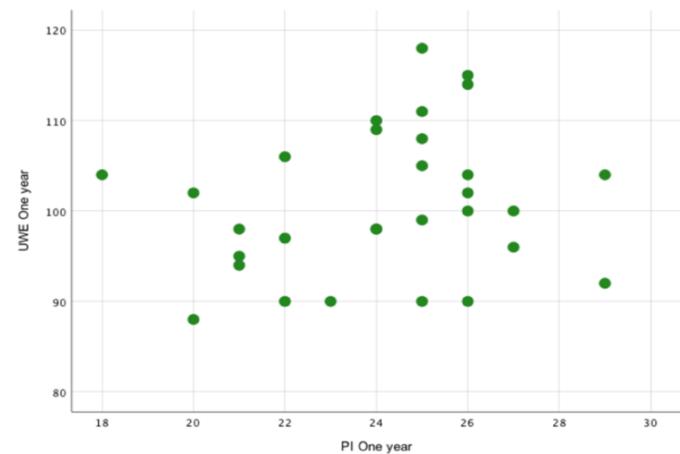
To determine the relationship between the PI score and UWE IQ score, the data was examined using scatterplots. While they measure different concepts, changes in PI and attitudes to CP respectively, the scores would be expected to change over time and career progression. A scatterplot showed the relationship between PI and UWE IQ scores was nonlinear at all timepoints, seen in Figure 4.8.



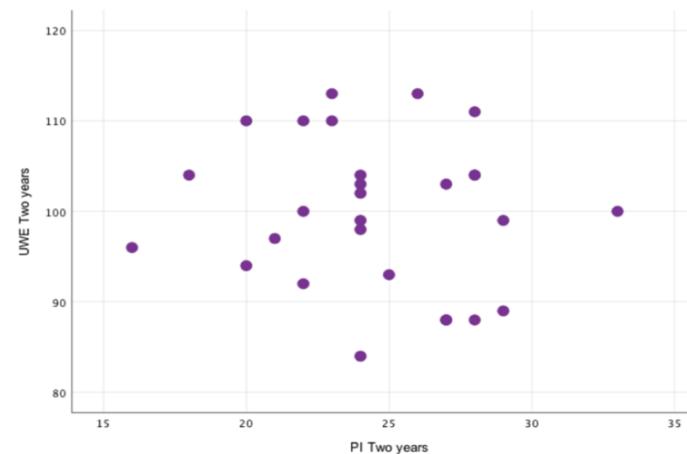
Pre placement



Post placement



One year



Two years

Figure 4.8 Scatterplots with Professional Identity and University of West England Interprofessional Questionnaire scores at four timepoints.

A statistically significant positive correlation between scores for UWE IQ pre placement and PI one year ( $p = 0.007$ ,  $\tau_b = 0.709$ ,  $n=10$ ) was found with Kendall's Tau-b two tailed test. Further investigation to determine if any particular scale of the UWE IQ pre placement score was responsible for the correlation showed three of the four scales were involved, and one was not. Test results using Kendall's Tau-b were significant for Communication and teamwork ( $p = 0.031$ ,  $\tau_b = -0.576$ ,  $n= 10$ ), IP learning ( $p = 0.038$ ,  $\tau_b = 0.557$ ,  $n=10$ ), and IP relationships ( $p = 0.009$ ,  $\tau_b = -0.720$ ,  $n=10$ ), but not for IP interaction ( $p = 0.851$ ,  $\tau_b = -0.051$ ,  $n=10$ ).

There were also strong positive correlations between UWE IQ scores at several timepoints with Kendall's Tau-b; those with a statistically significant relationship were:

- UWE IQ pre placement and UWE IQ two years ( $p = 0.006$ ,  $\tau_b = 0.815$ ,  $n=8$ )
- UWE IQ post placement and UWE IQ one year ( $p = 0.001$ ,  $\tau_b = 0.550$ ,  $n=19$ )
- UWE IQ post placement and UWE IQ two years ( $p = 0.044$ ,  $\tau_b = 0.551$ ,  $n=9$ )
- UWE IQ one year and UWE IQ two years ( $p = 0.012$ ,  $\tau_b = 0.520$ ,  $n=14$ ).

While the number of participants in this study is small, the trend for PI scores was to fall between pre and post placement, and rise over the two years following course completion. The UWE IQ score also rose over the two year time period, without the decline in scores between pre and post placement seen in PI scores, suggesting a decline toward interprofessional attitudes.

Two demographic variables - having a nutrition background and having previous experience in health care, were found to have a significant relationship with other variables using either McNemar's or Chi squared tests. These were:

- Participants with a nutrition background were more likely to have had previous health care experience ( $p < 0.01$ ,  $\chi^2 = 16.531$ , n=53); have had paid work as a dietitian ( $p < 0.01$ , n=38); and done unpaid work as a dietitian ( $p < 0.01$ , n=45).
- Participants with previous health care experience were more likely to be engaged in the APD program ( $p < 0.01$ , n=38); and a mature age student (more than 21 years of age) when recruited ( $p < 0.01$ ,  $\chi^2 = 16.690$ , n=52).

Other combinations of variables were not significant.

#### 4.3.4 Summary of quantitative results

Participants were female, and a small number were less than 21 years of age when recruited; most were recruited as mature age students (more than 21 years of age) while they were at university. Almost all had a nutrition background and around one third of participants had previous experience in the health or social care setting before undertaking their studies. These two demographic factors - having a nutrition background and having previous experience in health care, were significantly related to having paid work, unpaid work as a volunteer and engagement in the APD program.

Employment as a dietitian by respondents at two years after course completion was universal and most people had 40-52 weeks at this timepoint, and only a few people had not had any paid work at one year. In contrast to paid work, unpaid work as a dietitian was less frequent; only one third of respondents had done volunteer work. Engagement in the APD program was high, and at one year after finishing their studies, most people had provisional APD status. The opportunity for IPE was widespread and while the type of activities varied, most people finished their course having done two or more IPE activities as a student.

A small positive change in the median PI score was seen at post placement and one year timepoints, and was statistically significant between students at pre and post placement, pre placement and one year, and pre placement and two years after course completion. Both the range and interquartile range of PI scores became larger as participants progressed in their career. The range is related to the small sample size, as well as variation in the participants' involvement in the workforce and the professional community.

The total UWE IQ score appeared to have a modest increase over time, suggesting a deterioration in perception and attitude toward interprofessional collaboration, although there were no significant differences between median UWE IQ scores for any timepoints. The range and interquartile range were more consistent than seen for the PI scores.

The direction and rate of change for individual scales making up the overall UWE IQ score varied - attitudes to communication and teamwork and IP learning became more negative, while perception of IP interactions became more positive and participants perception of own IP relationships less negative and more neutral over time.

Median scores for PI and UWE IQ did not change significantly over the time period for the participants who completed all surveys, however the dispersion of their scores became wider as they gained experience.

Correlation between the UWE IQ pre placement and PI one year was statistically significant, and the UWE IQ score had strong positive correlations between pre placement and other timepoints.

#### 4.4 Qualitative thematic analysis

The transcripts for qualitative analysis were from interviews with 10 participants who participated in three or more group or individual interviews, with only three people missing an interview at the one year timepoint. A total of 24 transcripts were available for analysis, and these were imported into Nvivo 12 for Mac as Word documents (QSR International Pty Ltd, 2019).

Thematic analysis was undertaken using the reflexive technique described by Braun and Clarke (Braun & Clarke, 2006) and longitudinal qualitative analysis of change using the trajectory approach by Grossoehme and Lipstein (Grossoehme & Lipstein, 2016) with the framework developed by Saldaña (Saldaña, 2002).

##### 4.4.1 Themes and codes

A total of 22 hours 45 minutes of audiofiles became 558 pages of transcripts. From the 24 transcripts, 60 codes were generated across 19 subthemes and six themes at the four timepoints, and over 750 pieces of text were assigned coding labels. Richness of the data is demonstrated in Table 4.18, and Table 4.19 provides a summary of the themes and description of their meaning, subthemes and coding labels.

**Table 4.18 Richness of data from the qualitative interviews.**

ID and timepoint	Length of transcript (Pages)	Length of interview (Minutes)	No of participants	No of coding nodes	No of coding references
#1 two years	29	77.2	1	33	118
#1, #17 one year	25	62.51	2	31	169
#1, #2, #9, #13, #17 pre px	31	72.37	5	46	379
#1, #7 post px	19	51.54	2	39	233
#13 two years	20	50.01	1	41	96
#14 one year	15	43.59	1	31	97
#14 two years	19	46.05	1	33	97
#17 post px	22	51.54	1	33	185
#17 two years	21	43.12	1	27	82
#19 one year	20	56.18	1	34	99
#19 two years	20	49.27	1	33	105
#19, #20, #22 pre px	20	54.17	3	34	110
#19, #22 post px	21	48.14	2	35	139
#2 two years	27	63.04	1	34	116
#2, #9, #13, #14 post px	38	91.31	4	43	290
#20 one year	22	50.25	1	37	168
#20 post px	17	53.15	1	44	155
#20 two years	21	53.33	1	38	148
#22 one year	26	55.05	1	37	171
#22 two years	21	48.09	1	12	26
#7 two years	20	49.11	1	43	182
#7, #14, #15 pre px	31	62.19	3	41	311
#9 one year	26	68.34	1	36	178
#9 two years	27	65.54	1	29	145
Total	558 pages	1365.09 minutes or 22 hours 45 minutes			

Key: pre px = pre placement, post px = post placement.

**Table 4.19 Themes and a description of their meaning, subthemes and coding labels.**

Themes and subthemes	Description	Coding labels
<b>Dietetic practice</b>	Being a dietitian	
Attributes	Qualities and characteristics of a dietitian	Attitude, compassion, confidence, experience, responsibility
Reality	Experiences adjusting to working as a dietitian	Funding, politics, real world, work life balance, workload
Doing the work	Practicing as a dietitian	Advocacy, research, role of dietitian
Emotions	Feelings experienced	Feelings
<b>Hopes and dreams</b>	Moving forward from student to practitioner	
Getting a job	Commentary about getting work as dietitian	Availability of work, competitiveness, employment, financial matters
Looking ahead	Making plans and being different	Changes, expectations, internal conflict
Work ready	Factors related to being ready and able to work as a dietitian	Assessment, knowledge, preparedness, skills, university classroom
<b>Influences on practice</b>	Shaping a new practitioner	
People	People who have had an influence	Client, influences, role model, supervisor
Self	Self-assessment for the purpose of learning	Reflection
Setting	Social and cultural factors influencing practice	Environment, sick people
Support	Experiences of accessing resources and people for practical or emotional support	Family, isolation, mentor, who to turn to
<b>Teamwork</b>	Being a team player	
The team	Other professionals working with the dietitian towards a common goal	Allied health professionals, doctors, nurses, peers, teams
Working together	Factors related to working together in a team	IPE, communication, networking, turnover
<b>The profession</b>	Being in the profession of dietetics	
Being seen as a dietitian	Perception of being a dietitian	Public image, recognition, stereotypes
My people	Identifying with the profession	Belonging, motivation
Regulation	Commentary about the Dietitians Association of Australia	DAA, competencies
The science	Using scientific evidence to practice in an evidence-based paradigm	Naturopaths & celebrity nutritionists, nutrition myths & fallacies, social media
The ticket	Successful completion of the dietetics course	Imposter, qualification
<b>Other</b>	Information not related to other themes	Demographics and other useful information, useful quote

#### 4.4.2 Identifying changes over time

Coding labels representing pieces of text by individuals were mapped against the four timepoints within the themes. The text coded as useful demographic information for participants and other labels, and applicable across all themes and timepoints was viewed as context data. Otherwise, context for the timepoints was from responses to framing questions, asking about background, expectations, supports and who or what had been influences on their practice. Responses to descriptive questions were used as a guide for the interpretative phase of the analysis; enquiring about challenges, whether they felt prepared, working in teams and their role. The interpretative questions were last in the sequence of questions; enquiring about belonging to the profession, what it means to be a dietitian, and an open-ended question asking for anything else important to know about the experience of being a newly graduated dietitian.

Change was established by interrogation of the data using sequential matrixes (Grossoehme & Lipstein, 2016) and posing questions about what was different or had changed (Saldaña, 2002).

The first matrix mapped how the data changed within the groups of subthemes and themes. This matrix has themes on the Y axis and time on the X axis, with the individual being the primary unit of analysis. An example of the matrix for longitudinal analysis is shown in Table 4.20. Absence of data for an individual at a timepoint, did not necessarily mean that the topic was no longer relevant, as it may have changed into something else.

The second matrix continued with themes on the Y axis, and individuals on the X axis to identify what had changed for the individual and the unit of analysis was time (Grossoehme & Lipstein, 2016). An example of the matrix for analysis for an individual is shown in Table 4.21. Findings are reported for each theme (X axis) with pieces of illustrative text for the timepoint (Y axis) from individual participants.

The sequence for presenting and describing themes that follows approximates the flow through framing, descriptive and interpretative questions, and closely aligns with the flow of the interview questions.

**Table 4.20 Example of matrix for timepoint: pre placement.**

Codes	Jade (#1)	Joanna (#2)	Naomi (#17)	Heather (#9)
<b>Feelings</b>	Yes, I guess [emphasis] generally I'm feeling excited about it or most of it but particularly community	This is the start of a new adventure and I think that's what I'm looking forward to. And I [emphasis] will be nervous	I guess I'm excited but ... yeah ... I'm a little bit anxious about what that will be and things	So the fact that I feel so anxious about it, I know that that then is going to have an impact on how it goes I guess
<b>Advocate</b>	And I got the impression from those lectures that the dietitians in those teams had [emphasis] to push for certain things	Who's advocating for that person? And that may come down to me at some point	I'm absolutely [emphasis] amazed at how many people don't know what a dietitian is	So, part of our role may be to be, everyone needs to be proactive, but I guess I feel dietitians need to be very proactive
<b>IPE</b>	We've had a [emphasis] go at cooperating with other people on a case. And that's better than going in sort of not having done any collaboration with anybody like that	We did that IPE thing, we did face-to-face where they had all students from different allied health faculties and we had a case that we were all working on together ... Advocating for your perspective on that person's total care	That's what our group spent quite a bit of time talking about as, not necessarily the case study but [emphasis] getting to know each other's professions. And I found it really helpful	Nil

**Table 4.21 Example of matrix for individual: four participants.**

<b>Codes</b>	<b>Pre placement</b>	<b>Post placement</b>	<b>One year</b>	<b>Two years</b>
<b>Confidence</b> Lydia (#14)	For me I feel a bit shy and reserved And, also a little bit sort of [emphasis] reflective [in] thoughts, and I think on placement you're on show	Or you know, having a go at practising stuff, and then it became more clear [sic] in my mind	I can't let that, I have to get over that and just ask the question 'cos otherwise things won't get resolved and you don't want that	I guess you, yeah, gain confidence over time, and you know, learn from sort of trial and error in a way, sort of how best to, you know, practice in that sort of setting
<b>Changes</b> Naomi (#17)	I think it will just be a challenge for me to feel comfortable around sick people and supervisors asking me questions. Its just change I guess. Not one particular thing, just the unknown	I must admit, even now that I think about it, looking from my first week of placement to my last week of placement somehow things just eventually flow and you are able to carry out your day's work. But at the start it's really just trying to put a thousand pieces together and understanding why	Yeah, I think we're all doing very different things, which is quite exciting. You get to kind of, well it's not necessarily about doing what you think you would like to do [laughs], you just kind of get taken down a path sometimes	I have had a very positive response to my e-mails with getting work part time. But on top of that I have probably a bit more life experience, and I've done a year in [name department] and I'm not just a new grad anymore
<b>Knowledge</b> Elizabeth (#19)	So, I'm really worried, like I'm going to have to know everything and then I'm not going to remember it	The supervisors always said that you know the process you need to do, so even if you don't know the exact piece of knowledge, you can always obtain that	When I was first starting in the hospital, just pulling together all the knowledge you had ... but it was often things that you'd touched on once or twice and so it was kind of needing to go back and draw on that knowledge again and refresh it	From the knowledge side, I use much more the community side of things rather than anything clinical

#### 4.4.2.1 Dietetic practice

Dietetic practice as a theme is described as beginning to practice as a dietitian, and encompassed subthemes of attributes, reality, doing the work and emotions.

The final professional placements at the end of the course need to be passed for successful completion, and participants were significantly affected by placements being a high stakes activity. They expressed a range of emotions prior to starting placements - being nervous, anxious, excited, or all of these feelings, as well as looking forward to interacting with patients, and impatience to get going after four or more years of study.

*I'm really looking forward to kind of getting in and getting stuck in and doing it. So I guess it's because I've been studying part time, so it's been five years to get me up to this point. #13 Pre placement*

The role of a dietitian was spoken about by all participants in a variety of ways. Some people spoke of assignments and hospital visits that had helped them to prepare, but in the main, participants were starting placements with little exposure to the clinical setting and limited understanding of the role of the dietitian.

*Because it's something new. Like we've learned everything but we haven't actually been out there. Like with, well, the only dietitians we've met or that [emphasis] I've met anyway have been the lecturers that I've met here. So I haven't really sort of had that experience of working in a workplace with other dietitians. #1 Pre placement*

*I guess we haven't really had any experience in a hospital at all; I've hardly ever been in a hospital. So, just to kind of know that I've got the right degree and the possible area I can work in. # 7 Pre placement*

Levels of professional confidence in their ability at this timepoint were modest, with some students reassuring themselves that it would grow with experience. However, there was lingering self-doubt for at least one person who was unable to move past the uncertainty of not knowing what was ahead.

*Participant: I'm not ruling out the possibility that it [emphasis] could be a positive experience, I'm just not convinced at this point in time. But that's ok*

*Interviewer: So you are saying that you're coming in with an open mind about what the experience will be like?*

*Participant: I, I don't know if that's how I would describe it, I think I'm not saying "Oh it's going to be awful" [emphasis] but that, that I don't necessarily don't have any vision of it being good. I don't, I can't, I can't think of anything that will be. #9 Pre placement*

After finishing placements, most people had experienced growth in professional confidence.

*I think it was mainly having confidence in that you knew what you were talking about, and what nutrition intervention to have. So it was sort of getting past the "Oh, I'm still a student, I'm not actually sure what I'm doing", to realising "I've known all this", like I know what I'm talking about, I don't have to second guess myself. #22 Post placement*

This growth in confidence had ups and downs. One person spoke of observing a troublesome experience that affected the confidence of her peer, which seemed to upset her almost as much as it would have if she had been the one receiving it.

*We had one supervisor who had a bit of an empire and didn't want to necessarily share the empire with anyone. And then proceeded, he didn't berate me but my peer in front of nursing staff. And that really rocked her confidence, and that was just [emphasis] appalling, just appalling. #2 Post placement*

Emotions continued to feature in the discussions after the placements ended but changed to feelings of frustration, being overwhelmed, exhaustion or relief.

The role of a dietitian and doing the work also continued to be spoken about often. Growing familiarity with the dietitians' role was evident, as participants described daily activities and a range of diverse experiences they had engaged in, and welcome but unexpected responsibilities: writing in medical notes, representing the department in team meetings, carrying the pager, doing presentations and writing reports.

*Sort of the gravity of some of the situations that were discussed at the team meeting involved blood cancers in children. Often the discussion was about the life expectation and relapses and things like that. So that could be very heavy but also it was a little bit intimidating at times 'cos you had specialists. And quite heated discussion over treatment and what should be done and what shouldn't be done. #7 Post placement*

Workload was a new issue as participants struggled with time management and different pressures and constraints from when they were on campus as students.

*Although I continued to get faster as I became used to the processes. Then we were given the pager so we had the pager going off as well as going and seeing our patients. And just getting, juggling things I suppose. If you couldn't locate notes or somebody else had them, then learning how to move onto something else to do without forgetting what it was you were doing in the first place [small laugh]. That was a little bit challenging. #1 Post placement*

At the post placement timepoint, the real world and reality of dietetic practice was a new concept, and conflict occurred when there was contrast between what was taught and what they had experienced.

One year after course completion, graduates' professional confidence had grown from continued exposure to the profession and experience, with a few exceptions. Referring to the clinical setting, several participants' understanding of their role as dietitian began to extend beyond individual case management to acknowledge the potential for small research projects, such as an audit of waiting time for an outpatient appointment, time permitting.

Feelings were still discussed although had changed from being about their emotional state. The feelings tended to emerge when being reflective, such as looking back to being excited about getting a job or the reverse situation of anxiety about how long it had taken to get work. For those who had work, managing the workload was a great worry and work-life balance became a new problem as they became established in their role.

*Yeah, I guess the other thing is, if there's just a whole lot of referrals or there's just a lot to do and I don't get everything done, I sort of feel like, oh God, you know, I've failed today, I haven't gotten around to everything that I wanted to do. #22 One year*

Graduates at two years after course completion spoke generally about feeling more confident and believed they could handle themselves in most situations now, and this had accrued from experience. Professional confidence had developed slowly with challenges for some people, while others had assumed an active approach.

*And I think it's also a lot to do with having been the only dietitian onsite, you sort of, you have to take responsibility for everything in the hospital that's nutrition related. So you can't just sort of shift or think, oh, you know, the senior dietitian. So I'd have to, yeah, I think I just sort of took the responsibility, jumped in the deep end and I was like, "alright, what am I going to do to fix this problem?" So I think that's definitely been a part of it, just not being reliant on other people all the time. #22 Two years*

Different responsibilities also arose from the extra experience as they took on a new position, started supervising students, or moved to a more senior level. The commentary at two years about participants' involvement in the real world had more variety and changed from being opinions on differences between theoretical and practical aspects of practice, to include broader views based on observations of the funding, political and strategic aspects their role.

Their role as a dietitian was still spoken about most often and the need to speak for patients as part of that role continued as a low-key point. The circumstances of this advocacy had moved from promoting nutrition in team meetings at the preplacement timepoint, to seeing themselves as an ambassador for healthy eating in the community.

*To advocate for good health and nutrition, and to really help, also spur on others in the community to live healthier lifestyles, and to also just empower and educate people. I think that's a huge part of my role. Something that I love is just being able to empower and educate people on good nutrition. #13 Two years out*

#### 4.4.2.2 Hopes and dreams

This theme was about making plans and moving forward from student to practitioner, and covered subthemes of being work ready, getting a job and looking ahead.

The impending placements had an enormous effect on participants' expectations and they were dominated by conjecture, about what placements would be like, what they would do each day, acknowledging their learning styles, how to work with supervisors, working with peers and travelling to a rural placement. Pre placement, participants also spoke of a sense of being ready and practical things they were doing to prepare for placements. Being able to recall the correct knowledge when needed was a recurring concern for participants, with variations around application, access to sources of information and whether they knew enough. This concern came from thinking about what was ahead.

*Just, those kind of situations, where it's you and your brain and you've got to go with it [laugh]. You can't like do something half, you've got to do something, [emphasis] quick. #7 Pre placement*

*I just, just [emphasis] still feel like a doctor would know more than a dietitian in regards to everything. But I know they don't 'cos everyone has their own specialised area. So I guess its [emphasis] me finding my feet as a dietitian to then be able to put that information forward and be confident that maybe it's the right information. #17 Pre placement*

After placements finished, these key issues remained constant, with introduction of several new topics. Some people acknowledged changes had occurred during placements and attributed this to experiential learning.

*I think, I think some of the things that we did at uni before we went out were helpful. But I think big learning curve came from when you were actually doing, when you were doing it. That was where it made the big jump. #1 Post placement*

A low level of internal conflict was present for participants prior to placements starting, and increased to become a key feature of post placement talk. They covered reflections about compromises, difficulties with clinical decisions, accepting feedback, especially if it contradicted that from other supervisors, and going against their own introverted tendencies.

*And even if they look busy and don't want to talk to you, you have [emphasis] force them. That's really hard when a nurse is [emphasis] running around and you're not outgoing. You don't [emphasis] really want to talk to them anyway. But, but you [emphasis] have to even though they don't look like they want to make time for you. #9 Post placement*

However, these topics were overshadowed by discussion about employment and availability of work, neither of which had been raised earlier.

*I've got a casual job currently. And I've just started working, and that's been really exciting to use what I learned at uni and on placement in the real field. So that's been good. #7 Post placement*

*I've been applying for jobs for a long time now to get some practice. And before graduation, there's obviously not really much chance of getting a position because we haven't really been able to prove that we have graduated or that we are eligible to graduate. So having graduated, I feel like, just a little step closer to, well being able to work. #20 Post placement*

One year after course completion, hopes and dreams were similar for participants as they were at post placement, and related to employment, changes in roles or positions, and expectations for the year ahead.

Employment and availability of work remained firm topics of conversation for participants at two years after course completion. Uncertainty around contracts being renewed or wanting to go in new directions were ways this was sometimes presented.

*I think I've been, I've done this since I graduated, I've been in the same area, and I'm really ready for a change, and I feel like that kind of area will be really interesting to me. So I want to, yeah, depending on job availability, I'll see what happens. #7 Two years out*

Internal conflict increased at this timepoint and was similar among participants, who discussed such as the challenges of managing practice dilemmas.

*So, it's sort of, really supporting them, it's almost, they're almost on a palliative course because supporting them, they're not going to get any better without some massive weight reduction which you're not going to achieve. And apart from bariatric surgery, which most of them probably wouldn't survive anyway. #2 Two years out*

A variety of financial matters present at one year after course completion became more pressing with time, either for the individual as income and payment for services, or for their organisation as grant funding. These financial aspects affected decisions by participants for going forward in the profession.

*I decided to leave the travelling one because I did the maths and I worked out, you know, I was getting paid something like \$17 an hour or, you know, something like below award, and I wasn't getting super[annuation], and I wasn't getting sick or holiday pay. So if I'd taken that into, you know, I earned more when I was 15, and I mean, so that was good for experience initially but I sort of realised it was just costing too, you know, so much driving and so tiring. #9 Two years*

#### 4.4.2.3 Influences on practice

Shaping a new practitioner is the description of the theme for influences on practice. Subthemes are people, self, setting and support.

Before going to placements, students were anticipating who would be influential on their practice, based on feedback from university lecturers. They believed relationships their supervisors, clients and peers would play a role in their learning, and had also begun to consider who they would turn to when support was needed. The environment and sick people were aspects of the setting they thought could also have an influence, although not to the same extent as supervisors.

*Because, you know, we could come across clients who really affect how we think, or change how we think about certain things. Especially seeing that, speaking for myself, that I haven't had sort of, a [emphasis] lot of contact with. And yesterday brought that up. Like, children with disabilities, and like, if we come across something like that. Or a child who is dying. Now that that could have big effect on how we come back feeling about the experience. #1 Pre placement*

As students had anticipated, supervisors, clients and peers were influential on their practice and the placement experience. Positive and negative experiences were discussed by participants, and mostly the influence on their learning was positive.

*I don't know about specific things but more just learning to just really use the patient. Like use their information, talk to them, listen to them, don't do all the talking, let them talk. And so I probably learnt a lot about how to communicate and how to communicate to different people. But also I guess like diabetes patients would know, if they're on insulin, they know a lot about that and so you'd learn things about that. Because also they're living through these things so they'd kind of give you, not just textbook information which was helpful. #17 Post placement.*

*I think, you know, with different people you connect differently, with different personalities. Although all of my supervisors were [emphasis] lovely, there were some that were I actually learned more from because they had the, they challenged me in a way that was good to make me think what I was doing. #1 post placement*

The atmosphere at the site was confirmed to be influential on practice for several reasons, and size of the site was potentially important to the overall placement experience.

*Probably the atmosphere of the site, that was a big one, because I guess that would dictate how I performed or how I viewed myself as well in the whole setting. I think, at my first clinical site, I was just a pretty small fish in a big ocean in such a large hospital. So it was easy to feel overwhelmed there. And then my second site was much smaller and I actually knew some of the other health care professionals there, so I felt much more confident in myself at that site.* #20 Post placement

Sources of support and who to turn to were increasingly spoken about by students following the placements, with supervisors and peers featured in their comments as well as family and other health professionals. Missing the support of family when they were away from home for several weeks at a time was also reported by many participants.

*And if I didn't know something, I felt very comfortable asking the interns if they could explain something to me. Or anyone in the allied health if I had any further questions on a patient I could just go to chat to them about it. So I found that was very [emphasis] supportive and very good for me.* #7 Post placement

Clients, supervisors and family continued to be influential on graduates' practice as a dietitian at the one year after course completion timepoint. Working with clients living with chronic conditions, the graduate gained insight into their lives and learned how they managed their condition and priorities. At the same time, supervisors modelled behaviours for incorporating into their dietetic practice.

*I think it was my placement supervisors definitely. I sort of picked and chose the types of, you know, the good traits they had. I'm sure I picked up a few of their bad traits as well but, and then I suppose just by reading other dietitians' entries, and seeing the sorts of things that they were doing, and just sort of talking about it within the office. I sort of picked up on a few extra things that maybe I should be looking for.* #22 One year

The role of mentors as influencers began at this timepoint. Many participants had formalised mentoring through the APD program, although for others it was an informal arrangement providing support. Role models were people that participants looked up to and influenced their practice in different ways to a mentor, and they were as important as mentors at this timepoint.

*I guess the particular role models I have are people who are, in their own work, blending both. And that's something, yeah, that's definitely, and I think that's sometimes the reason why they are role models is because they've got that, not necessarily balance, because they probably do more research, but they are kind of keeping that relationship with practice going. And they therefore then often emphasise the importance of practice to, then of doing whatever kind of research it is that they're doing. #19 One year*

At one year after graduation, professional isolation and lack of collegial support became apparent as a new concern for several people that had not been present earlier. Being a sole practitioner or being away from the main department was a common situation for these graduates.

*Mm, mine is being a sole clinician, so mine is feeling like I don't have anybody directly to go to, and I don't have that support, and just somebody you can bounce ideas off, or yeah. So, we have the greater body of dietitians that we all get together for a meeting every three months and, by email and phone and all that, that we can contact. #17 One year*

Clients, supervisors, mentors, role models and family were consistently the people who were key influences, and with the exception of clients, providing support consistently through to the two year timepoint. Other influences changed only slightly, such as reflection grew slightly, and the environment and setting declined slightly.

Support and who to turn to when needed were ongoing issues for graduates at two years after course completion. The support people they referred to were both in personal and professional areas of their lives, and ideally, the participant had people supporting them in both areas.

*Yeah, I do work pretty independently, but I have a pretty supportive group around me. Friends who are dietitians, colleagues who are friends. Both, I guess, both dietitians and I've got a few speech pathologist friends and physio friends and friends who are doctors as well. So I guess I've got my own supportive little group of friends who still work within health. #20 Two years*

The feeling of isolation became greater for some participants as they continued in their positions or the gap in collegial support became more obvious. The basis of the gap was often for day-to-day, informal conversations about things that may or may not be about practice, rather than specific practice-based questions.

*I mean, I didn't really see any of my workmates almost ever [small laugh] so it was quite lonely as well. Like I saw clients, but work-wise I found some days, like, it was really lonely because, you know, you don't have any workmates or anyone that you can even just chat to or anything like that. #9 Two years*

#### 4.4.2.4 Teamwork

The theme teamwork referred to dietetic practice as a team player, with the team and working together as the subthemes for teamwork.

Pre placement, participants knew they would be working towards a common goal in teams and the team they spoke about was usually in the clinical setting. They expected to be working with speech pathologists, physiotherapists, and allied health professionals generally, peers from dietetics, as well doctors and nurses, but were unsure how much, whether the desire to communicate was mutual, and what the quality of that communication would be like.

Awareness of the potential for tension and overlapping roles within these teams was acknowledged by participants, reinforcing the need to know their own professional boundaries. Doubt about respect for their role in the team was also present, particularly in the working relationship with doctors.

*For me it's also interacting with doctors or consultants. That might be challenging the first couple of times, I think. Depending on how they approach allied health in general. And I've got the feeling that allied health isn't particularly respected in the hospital. So having to deal with that playing in the back of your mind but still trying to get your message across, or trying to explain a patient to someone. I think that might be challenging the first couple of times because we've not had any experience with doing that. #2 Pre placement*

They were prepared for various types of communication in the team, such as documenting their nutrition intervention in medical notes, attending team meetings and talking with individual members of the team about patient care.

*But I guess in the whole professional environment it will be quite new, particularly communicating with doctors and nurses, and also using medical jargon, and that kind of communication is a little bit more nerve wracking. #13 Pre placement*

After completing placements, participants spoke of positive and negative experiences working in teams. The observation that more time was needed to understand what other roles entailed and how they could work together more closely was not unusual, although they fell short of identifying this as collaborating.

*I think that, I think that probably firstly that I had a couple of experiences with diabetes educators. And I found them very helpful and I learned quite a lot from them, I had one occasion I gave a presentation with one of the diabetes educators and I found that really useful as well as sitting in on one of her one-on-ones. So that was a good learning experience. #1 Post placement*

*Sometimes I wished we could if we had the time. We could just spend the day with the speech pathologist and see them do what they do with their assessments. Or the stoma therapists, like, the education that they give. ‘Cos I think, I wasn’t sure, often they give dietary advice and I would’ve like to know what they do. So there’s no crossover. If we had the time I would have like to have done that. #2 Post placement*

The experience of working with doctors was problematic in some cases - the communication style playing out as they had expressed as concerns prior to starting placements.

*Mostly not being even considered by the doctors, even though I have a pretty fair point to put across, it was simply just asking for a supplement or refeeding risk so it was, it was justified, it just, they didn’t listen to me. And I had to get my supervisor to step in and say well, “can you chart this supplement please, because my student has asked you three times already?” #20 Post placement*

A new concept of networking and working with peers was introduced at this timepoint, and did not usually apply to colleagues outside the profession.

*So, getting to know people in the profession and who to contact if I have a question and who to talk to if I’m not sure about something. I think that will help, yeah networking. #7 Post placement*

One year after course completion, recognition of the benefits of working closely with other members in the team was clearly articulated by one participant.

*I guess it's really good to get their perspective of the patient and their progress, or their regression, and how that is going to change, [affects] how I am going to or what actions I'm going to take. So I guess being so close to speech as an example, means that I can really adapt the diet codes and change them to suit speech, and suit me and suit the patient. I guess having them around is really influential on me and my actions. And I just like to learn from them as well. #20 one year*

Working relationships within the team were becoming easier, partly from feeling more of an equal, either in age and experience or status in the team. Out of hours friendships with members of the team sometimes developed for dietitians in small rural towns, and this type of socialising was beneficial in reducing communication barriers.

*I mean, fantastic nurses and I think probably that was something I found that, that was probably one of the first relationships I built up because I felt, and I mean maybe, this is funny because it's a bit of reflection on what we think, but you thought of yourself more as an equal, you know, I wasn't as scared of the nurses, so you probably built up a relationship more quickly and you relied on them for a lot.*  
#19 One year

*But probably interestingly, most of my interactions, there were quite a lot of young doctors in all my teams and reasonably fresh out of university doctors, and so I definitely felt that I had more confidence around them and that allowed me to build relationships more quickly.*  
#19 One year

Some of the difficulties maintaining continuity in the team and the impact of turnover were new challenges, and noted as being disruptive to team functioning. The difficulties reported by participants appeared to be specific to the location and team.

*It takes a lot of time and [laughs] in regional health, there's such high turnover so it's consistently happening, which is quite frustrating and hard for people as well. #17 One year*

*I've found that because there's only, I've found allied health don't necessarily work great together in their regional areas, not because they don't want to I don't think, but because they can be quite spread out, it's hard to talk about one client. You can't necessarily just get together in one room and talk about it. So there's less of a group approach. #17 One year*

Experiences of teamwork were not all negative though.

*I suppose, so I guess it's quite, really, everyone's quite open and we meet regularly to discuss. And day-to-day, you can just, there's someone to go to, to talk through whatever needs to be discussed. Whether it be certain reporting requirements or ideas or for group education and that type of thing. Or even if they just needed some, if they, if you want someone to just look over some written work that you might have or getting, or an opinion. There's always, people are always more than happy to help in that sense. #14 One year*

Interprofessional education activities that participants had taken part in as students were a small element in talk of teamwork before placements explaining how they came to know about other allied health roles, and these recurred as being helpful now as graduates. Networking between peers and colleagues briefly mentioned after placements, extended to include health professional colleagues, had increased in relevance for one year graduates as they looked for employment, worked in teams, and needed to make and maintain connections.

Teams, allied health professionals, doctors and nurses were the main areas of discussion about teamwork for two year graduates, and team experiences remained mostly positive.

Communication within the team of health professionals; doctors nurses, and allied health professionals, either specifically named by profession or collectively, was spoken about consistently over the timepoints. Participants reported teamwork and a strong team atmosphere in regular meetings with the multidisciplinary team, nursing team, and allied health teams, and described as “a good connectedness amongst the team”.

Communication with doctors was the most likely to have problems.

*Yeah, definitely, though, you do notice that, well, particularly the GPs, I did find it the most challenging to work with. There were a few GPs that sometimes didn't go with my suggestions. Say, for example, refeeding, they didn't really believe in that and they were a bit more old-school. So, yeah, they were probably the group of doctors that were the most challenging to work with. But definitely, the ones that were more hospital-based, were definitely mostly good. #13 Two years*

#### 4.4.2.5                   The profession

The profession as a theme included subthemes of being seen as a dietitian, my people, regulation, the science, and the ticket. Enquiring about challenges preceded the final ‘big’ questions in the interview schedule; belonging to the profession and what it means to be a dietitian required participants to reflect and articulate what was important to them.

Before students had experienced placements, most had had limited exposure to the profession. The science and diet disease relationship and helping people make changes to their diet had widespread agreement among participants as the motivation for wanting to be a dietitian.

*Well my interest is in that whole diet disease relationship and that's another reason why I like the dietetics side of things ... But when you come away and someone's been able to make a positive change in life that you've had a role to play in that I think that's going to give me a real buzz. #14 Pre placement*

Several students were not convinced they belonged in the role, and spoke as if they were an imposter.

*Something I've been thinking about ties in with that. It's not [emphasis] faking it. Feeling like you legitimately have a valid reason to be there, sort of, basically not feeling like a fake. #9 Pre placement*

As students, participants were aware of the national competency standards for entry to practice and the role of the Dietitians Association of Australia (DAA) in regulation of the standards. This background led to the slightly lighthearted comment that the basis of belonging to the profession was getting the qualification. Obviously, participants were not identifying as being a dietitian, yet.

*A piece of paper in [emphasis] February. [All, long laughter] #13 Pre placement*

Participants thought gaining the qualification and being able to safely care for their patients would provide a sense of belonging to the profession at this early timepoint.

*I guess it's a mixture of having the pieces of paper with ticks on them and going "Yes, I'm competent at this list of things". But also having the personal confidence to go "Yes, I can get a job as a dietitian". I know I still have a lot of learning to do but going you know. Ahh, I know how to manage patients [emphasis] safely as well. And I know how to care for them well. And, um, it's all about the [emphasis] patients really. That they're going to receive the right care. #13 Pre placement*

Connections with the profession at this early timepoint also brought awareness of the stereotypes about their future role.

*People that say "I have this problem" and say "Do I see a dietitian? I don't really know?" It's, "I'm not overweight so I don't need to see a dietitian" kind of thing. Or "It's just about food and I eat everyday so I know what I'm doing, I'm fine, it's all good". Yeah, that's what I always hear. And they say, someone was like "So you work at Jenny Craig or something?" [small laugh] And I'm like [emphasis] "No, no. It's not just there". # 9 Pre placement*

Speaking after placements finished, participants' motivation to be a dietitian remained similar, that is the science and the satisfaction of knowing they had made a difference.

*But then in gen[eral] surg[ery] in [name hospital]. There was a lot of bowel issues and a lot of um, bowel surgery so you really were making a difference. Or there were people who'd had all their skin burnt off so they're on TPN [total parenteral nutrition] or something like that when, umm. Like [name] was saying, is writing a feed you're really essential. You're the one who's getting the right feed #13 Post placement*

Recognition of the profession and respect for their role was present earlier, but became more important after completing placements. This mattered to participants is the clinical setting as well as the public image of their profession.

*Overall, I would actually say strongly yes, but again I've been told from speaking to other people that I've been very fortunate to go to [name hospital] and to [name town] because they're two places that dietitians are really respected. #17 Post placement*

*And the whole practice is being made a joke of. So, I feel like often we are overlooked and I hope that things turn around, because it's not just weight and healthy eating. It's that we play a role in managing really, really chronic disease. #20 Post placement*

There was uncertainty about being a dietitian yet, however, as participants started working, the connection became clearer. One participant anticipated greater belonging to the profession as she engaged further with the practice community.

*Participant: A [emphasis] job [small laugh] I think even, even just starting a job. It would be hard to not feel like a new, like someone who's just [emphasis] been a student. It's hard to be like, "now I'm a real dietitian". Now I think having a job and having it for a little while will make me feel legitimate. #9 Post placement*

*I'm definitely feeling like I'm more of a dietitian 'cos I've just started working and I'm going back to my notes and researching again, and reminding myself what I need to know. And I think when I start going to more of the talks that they have, the DAA and getting like a community. Like know all the dietitians and getting to know people, I think that's when I'll really feel like a dietitian. #7 Post placement*

Awareness of the influence of social media and celebrity chefs in the field of nutrition was developing, and brought strong feelings for at least one participant.

*It makes me really angry but I'm still really proud to have the education that I have and the evidence-based background that I have. And I know, I know how to critically analyse information much more so than Pete Evans does. #20 Post placement*

One year after course completion, motivation and the reward of helping people to make changes and being part of a team where their contribution was valued, was important to graduates as they settled into their positions.

*So they might have seen a dietitian, diabetes educator or a GP, an endocrinologist, but they still don't know their own condition. And it's really nice just watching that switch or that light bulb with somebody, where they get why you're talking to them about, what you're talking to them about. #17 One year*

*So yeah, I think when it's very obvious that you're making those positive changes to someone's life, then that's, yeah, obviously super rewarding. But yeah, even just sort of being, especially if you're in a good team and a really supportive team, then yeah, if you can sort of note down what sort of concerns you're having, and just know that they're actually going to listen to you, and they've got time to hear what you say, then it just makes you feel like you're actually being respected as a team member as well.* #22 One year

Recognition of their role and contribution to the team enhanced the feeling of belonging in dietetics. Being asked to review a patient by another health professional was an example of how participants perceived their input as valued and acknowledged on the team.

Conversely, conversations about nutrition with family and friends were part of being a dietitian that made graduates feel uncomfortable sometimes. Participants concern for lack of recognition from family and friends was often related to "the years of studying" to be a dietitian not being valued.

*You can get in such big arguments I have one friend that is all about those shakes, I don't know if you've heard of Isagenix? Oh, she does not stop talking about it, posts me all of these articles that are, you know, in-vitro studies, and nothing human-related, and it's kind of like, "why are we having this conversation? You're not going to change your mind, I've studied for, you know, four years and been working for a year, and I'm not going to change my mind because you're sending me all these, you know, not very legitimate articles. So why are we even having this conversation?"* #22 One year

Employment promoted the feeling of being a dietitian and access to the practice community. Likewise, contact with their practice community, feeling supported, and being accepted were important for developing a sense of belonging to the profession. While a hierarchy in the profession was noted, the interactions with senior dietitians were seen as supportive and positive, not patronising.

The surrounding practice community helped show participants changes or progression; otherwise, it was not clear that they were occurring.

*Sometimes, ‘cos I’m not in a hospital, I’m not working with any other dietitians I don’t, sometimes I don’t feel like I’m still learning as much as I’d like to be. So that makes it a bit harder, to feel like I’m definitely a dietitian and not just pretending. But yeah, what does it mean It’s quite a nice profession, healthy weight week was nice, I liked that. #9 One year*

Another graduate believed belonging to the profession required her to be more passionate. She identified the difference between herself and other dietitians in the profession related to her feelings about DAA.

*Participant: I do in a sense, but I feel like I’m not as passionate about the industry or the profession as other people appear to be, other dietitians. I don’t think I want to be a dietitian forever, so that’s probably contributing to it.*

*Interviewer: So this passionate dietitian person, they, what would they look like to you?*

*Participant: Maybe I see someone who is more involved and keeps more up to date with DAA, as someone who is more passionate and more involved in the industry. Whereas I don’t really feel like I get much from DAA. I don’t really think that they are very supportive. I don’t think we really get much for the money that we pay to be a member. Maybe that’s the problem, maybe I have just had enough of DAA, really. #20 one year*

These same concepts for belonging to the profession continued and intensified for graduates two years after course completion.

Nutrition myths and fallacies from the general public and colleagues, and stereotypes of their profession were a great source of conflict for graduates. For some participants, informal interest and interactions about nutrition outside of the work setting were quite uncomfortable and awkward. One participant spoke of the frustration felt when her expertise was not taken seriously.

*Yeah, I don't really like even associating myself as a dietitian a lot socially, because it's just that people bring up all these things, and they don't want to listen to you, and they don't want to accept what you have to say, and a lot of the time it's not worth it. ... But also, general people, when they look at you and they look at what you eat I feel like being a dietitian, everyone wants to comment on what you're eating. And it's just, it's too much to talk about diet all day at work, and then with your social group, everyone seems to be on a diet, so I find it quite draining being in this career #7 Two years*

The way in which nutrition is promoted in social media was challenging for participants with an ethical and professional commitment to practising in an evidence-based paradigm focused on facts, science, and integrity of the information provided to readers and the public.

*I guess the other main sort of issue is to do with working in the corporate sector and dealing with, trying to get to the bottom line. And talking about the importance of nutrition and what nutrition messages should be given out, and looking at that academic integrity of the information that's being put out there on behalf of [name organisation]. And trying to, so working with the media team and going, you can't just go with the latest fad, because then you'll be known as fad friendly. Rather than, you know, health, science, evidence-based promotion.*

*That's something we have to constantly remind the marketing team about, and also the broader team, that nutrition isn't always a flashy message, but they want something flashy, and that's why they tend to go for the fad type thing. And sort of try and, it's slow and it's like turning around a great big ocean liner, to try and get them to see that if you want to be in this space for the long haul. You've got to sort of start to really make a name for yourself as a source of evidence-based, good information. #2 Two years*

In particular, nutrition promotion by naturopaths was an approach to practice that many participants found difficult, especially when clients overlapped. Comparing the difference in approach with naturopaths, participants aimed to be informative and non-judgemental of their client's position.

*And I think, yeah, I do think that the model of a naturopath, obviously they, you know, they often do provide or sell them, you know, supplements and the like. And I think that's probably quite reassuring to people that they have something that can help, you know, straight away, as opposed to someone, yeah, like I was saying, there's not that evidence to support what they're doing so much. But I mean, at the end of the day it's their choice I can only give them sort of my input, and explain where I'm coming from, and obviously not being judgmental of how they choose to manage their health. #1 Two years*

Recognition of their role and expertise by colleagues, clients and patients was acknowledged as an important and meaningful part of feeling connected with the profession. Self-recognition of their own expertise was a variation that also enhanced belonging to the profession, although not all participants experienced this.

*I think for me it's probably the recognition that I am an expert in the area. So it's like, actually I watched someone who I really admire, who has a lot of knowledge in [name area] and I watched her present last Tuesday, actually. And it was funny because I saw this come up and I thought I was definitely going to that because she has some really fantastic ideas, and when I was listening to her, I thought, you know, what, it's funny because I really enjoyed what she had to say, but I thought, Wow, nearly everything that she said I'm already doing and I already know that. And it was a bit of a light bulb moment for me, that, you know, you know what, I actually do know a lot in this area. #1 two years*

Taking time out from practising as a dietitian had already happened for some people, for different reasons. Seeing dietetics as a career for themselves into the future was spontaneously expressed by some participants; others were ambivalent, or the future was unclear. One participant considered dietetics developed skills and knowledge as a starting point for a career doing amazing things.

*Like, I love that I still have that title and that to go back to. So I love being a mum, but I'm just so glad that I also have a career that I can, you know, still get stuck into as a mum. So it's not something that I need to push aside because I'm a mum. It is something that I can continue with, and even benefit me being a mum as well. #17 Two years*

*So yeah, it's a bit sad actually. My husband said the other day, 'Oh, my wife was a dietitian' I thought, 'I'm a dietitian, not was' [laugh] You know, but yeah, so yeah, it's a bit funny. Yeah, sort of a half one, I guess. I still can't help but, you know, I seem to just accumulate dietetic resources. And you know, my husband wants me to get rid of my books and resources and things and I say, "No, no, you know, I need to keep them just in case". Because I don't know what I'm going to end up doing. You know, I could get rid of my clinical handbooks and things, but I don't know I don't know for sure, so yeah. So yeah, I guess I feel half like a dietitian [small laugh]. #9 Two years*

*Yes, I do, I do. But I don't think that I'll stay in the profession for too long I just feel like, well, I mean, I really enjoy, nutrition is really important for me. ... Maybe. I'm not really sure. I'm happy to be a dietitian for the next few years. But I, yeah, I feel like I probably don't want to do it forever I don't, like I can acknowledge how important nutrition is for health and recovery, but I don't feel like anyone else knows how important it is. And, yeah, so that makes me, I guess, not really feel that valued in, with respect to other professions, and so I don't really, that makes me not really want to stay in the industry for that long. #20 Two years*

*My experience has been of many different opportunities and pathways. And I think being, it's good to be open to those and I'm probably even becoming more open as I go of, the skills you learn, and just because you study dietetics doesn't mean you'll end up as a dietitian. Yeah, and I, I'm definitely learning that, I'm meeting people who are doing wonderful jobs and I find out that they're, they all started as dietitians. So in that sense I would say I think it prepares you well to do a great many number of very important jobs because, as I said, I have just recently been learning about all these people who are doing amazing jobs that I aspire to do and they've all originated from dietetics so that's a plus for the degree, that it brings out, yeah It gives you skills to do a really good variety of jobs. #19 Two years*

#### 4.4.2.6 Analysis of changes for individuals over time

The matrix for analysis of change for individuals has themes on the X axis and individual participants Y axis, and time becomes the unit of analysis. See Figure 3.5 for a sample of an individual matrix over time.

Three participants had not participated at the one year timepoint although did return to be interviewed at the two year timepoint. They were #2, #7, and #13.

#### 4.4.2.7 Dietetic practice

The theme is described as beginning to practice as a dietitian and includes subthemes of attributes, reality, doing the work and emotions.

All participants spoke to the main topics across the subthemes and timepoints. Coding for the role of the dietitian was universal and how participant's addressed this over time varied from anticipating what they would be doing prior to starting placements to describing how they managed particular clients at two years. Common subthemes were experience, reality and feelings, and these were spoken about by everyone at some point.

Feelings were not spoken about as much at the one and two year timepoints as they were earlier, only mentioned by three people (#9, #19, #20). This could be due to personal characteristics such as they may be more inclined to talk about feelings, or professional matters where they found their situation more stressful than other participants at these timepoints.

Some topics were only mentioned by a few people and/or limited to a particular point in time. For example, responsibility was mentioned at least once by most people except two people (#14, #19) who did not mention it at any time point. Confidence was not spoken at all by one person (#7) although all other participants raised this at least once.

#### 4.4.2.8 Hopes and dreams

The theme covered the broad description of moving forward from student to practitioner, and subthemes of work ready, getting a job and looking ahead.

Availability of work and employment was introduced by participants after they had completed their course and were eligible or qualified to take up a position as a dietitian, and was spoken about by everyone at least once from the timepoint of post placement onwards. Initially the focus was how hard it was and how long it was taking to find work, sources of situations vacant advertisements, and freezes on appointments or new positions. Four people (#7, #13, #15, #22) commented on competitiveness between peers and the limited number of clinical positions available, but this was not consistent at any timepoint. One person had non-dietetics work (#9) and/or reported multiple part-time jobs at the graduate timepoints (#2, #9), and some people had taken time away for personal reasons (#13, #17) unrelated to working as a dietitian. One person had chosen to discontinue working as a dietitian by the two years timepoint because the casual nature of her work was not financially viable (#9).

Although getting work as a dietitian and entering the workforce was a high priority for participants, the motive may not have been money. Financial matters, such as monetary aspects of income, salary and contractor arrangements, were only spoken about by a few participants, starting with one person at one year (#9) and five (#2, #7, #9, #13, #14) as two year graduates. Funding, politics and real world issues were not concerns for these people either (#2, #7, #9, #13), suggesting the desire to work was related to another reason.

The coding label of internal conflicts is referring to challenges and difficulties which can be personal or professional, and captures some of the conflicts, dissonance, and dissatisfaction for participants in the role. All participants spoke of internal conflicts at least once, and a couple of people at three timepoints (#9, #20).

#### 4.4.2.9 Influences on practice

Shaping a new practitioner is the description for the theme influences on practice. This is potentially the practice community for participants. The subthemes for influences on practice for participants were consistently people - clients, supervisors and role models to a lesser extent, and support was from mentors and family.

Who they could turn to for support was a subject frequently addressed, some participants raising this at all timepoints (#1, #7, #9). Patterns across timepoints were similar, other than for role models. It is notable the potential influence by role models was either not discussed or only at the pre placement timepoint by five people (#2, #7, #9, #14, #17), suggesting this influence did not eventuate for them.

The environment had a stronger influence for some participants than others (#14, #19, #22), being coded at three or more timepoints. In this study, environment referred to atmosphere or tone in the surrounding team, department, colleagues, and the absence of this code could be due lack of contact with a department or colleagues. This situation may apply to those people who spoke of the environment as students either pre or post placement (#1, #2, #7, #9, #13) and not again later at one and two year graduates.

As might be expected, professional isolation only became an issue after course completion for graduates, and was discussed by three people (#9, #14, #22) at both one and two year timepoints. Being a sole practitioner was common to this small group, and the location was often rural but not always (#9).

Self-reflection with the intention to learn and improve their practice was spoken about by all the participants at least once. Three people were more engaged in this topic than others (#9, #13, #14).

These three issues of environment, professional isolation and reflection were inter-related in their influence on practice, or for these people as a shortage of positive influences.

#### 4.4.2.10 Teamwork

The subtheme of the team covered the coding labels of allied health, doctors, nurses, peers and teams. Dietetic practice as a team player, working with others towards a common goal, and factors related to working together in a team are all key aspects of developing CP capabilities. It was spoken about consistently by participants with no discernable pattern for individuals or timepoint.

Working together as a subtheme contained coding for IPE, communication, networking and turnover, and had more fluctuations than the team.

Five participants (#1, #2, #9, #13, #17) spoke of their IPE experiences as a student but this was not mentioned again as graduates. It is not known whether not raising IPE experiences occurred because the learning gained from exposure to IPE had dissipated, or the influence persisted after entry to the workforce and attributed to another code.

Communication is an aspect of teamwork potentially affected by participation in IPE as a student, and was discussed more frequently by students pre and post placement. Skill development for documenting in medical records and concerns about asserting themselves to get information or advocacy for their clients were typical communication concerns for students.

It was commented on less often by people at one and two years after course completion, however communication was not spoken about at any timepoint by two people (#14, #19). At the later timepoints, lack of opportunities to communicate including face-to-face with members of the team were the most usual issues.

A positive perception of the team (#14, #19) may be the reason for the lack of coding for communication, and therefore it was not considered a problem. Alternatively, another explanation for the lack of coding may be related to their role and composition of the team, as both participants (#14, #19) were not working in a traditional clinical setting.

Networking was not mentioned before placements and only once after placements (#7), and obviously was more relevant for graduates at one (#9, #17, #19, #20,) and two years after course completion (#2, #7, #9, #13, #17). Awareness of the value of making connections and building relationships grew, and applied to peers or colleagues when looking for work and less often to other health professionals, such as for referrals. Likewise, the effect of turnover on working together was only seen after entry to the workforce by one year (#17, #22) and two year graduates (#1, #13, #20).

#### 4.4.2.11                  The profession

Being seen as a dietitian, my people, regulation and the science were the subthemes for this theme, and these topics related to the participants' sense of being in the profession of dietetics. These subthemes involve key elements of an individual's PI, viewed across the timepoints for individuals.

Being seen as a dietitian included coding for the public image, recognition of their role and the profession, and stereotypes of a dietitian, and these were spoken about a lot by some people and not so much by others. Four people (#2, #13, #14, #22) spoke much less across these topics, contrasting with four people who spoke about them most often (#1, #7, #9, #17). Recognition of their roles and the profession was important across all timepoints although one person made no mention of this at all (#14). Mostly applicable to the clinical setting and working in teams, these coding labels show external acceptance, or acceptance from others outside the profession was valuable to participants, potentially playing a part in their PI.

The science is described as relying on scientific evidence and practising an in an evidence-based paradigm and this had coding labels for nutrition myths and fallacies, naturopaths and celebrity chefs, and social media. Seven participants had references to this subtheme, and while some concerns about this were expressed by one participant pre and post placement (#20), most of the discussion was after entry to the workforce (#2, #7, #9, #14, #17, #22). The presence or absence of these coding labels may be related to their work setting, being higher for those in positions with client contact such as private practice. Sometimes participants spoke of social situations where general interest in nutrition was high, and they had to defend their position in a response to questions about nutrition knowledge. This seems to have a role in these dietitians' PI, perhaps challenging the strength of their PI or how strongly they identified with the profession.

The ticket as a subtheme had two coding labels – qualification and imposter. Neither were high frequency codes and generally occurred for students. The coding label of imposter showed a significant problem for those people who found themselves in the situation of not feeling legitimate or as competent as others. This was the case for three people pre placement (#9, #17, #22), two people post placement (#9, #14) and one person at the one year timepoint (#9). This person subsequently stopped practising as a dietitian, and was unclear whether this was temporary or permanent at the two year timepoint.

Entry to practice is regulated by DAA in the form of national competency standards, however two coding labels (DAA and competencies) were used to differentiate two types of commentary about DAA. The competencies were spoken about as students pre and post placements as expected, but later references to DAA at one and two years were regarding support and practice-type issues for new graduates.

The experiences of DAA varied among these participants. At one year, one person (#2) was grateful the opportunity to learn from experienced practitioners in an interest group, however later comments by others were less positive. They spoke of the high fees and not getting value for money, their values conflicting with the DAA relationship with food industry, and their perceived lack of support by DAA (#7, #9, #14, #20).

Identifying with the profession as the subtheme my people, covered coding labels for motivation and belonging. In this research, motivation was about reasons for behaving a particular way and features of the role that are rewarding or enjoyable. At two years after course completion, all participants could identify highlight experiences and the rewarding aspects of the work. Four people spoke of the specifics that what kept them going at three or more timepoints (#9, #17, #20, #22) - the patients, the work itself and seeing results.

Belonging referred to feeling included, aligning with the profession, acceptance, and/or feeling a connection with the profession, to feel like they were a dietitian. Everyone spoke to this as it was a question, although the responses varied for the individual and the timepoint. They ranged from not yet, maybe, half a dietitian, to an unequivocal yes, and this approximately followed the sequence of timepoints.

The sense of belonging before placements was often spoken about as successful course completion and qualifying as a dietitian. After placements this progressed to gaining employment as dietitian, followed by acceptance by team colleagues and seniors in the profession for graduates. In the early stage of being a student, it was support and influences from people around them that contributed positively or negatively to the sense of belonging. Later as graduates, opportunities and experience in the workforce were key factors influencing individual practitioners' feelings of belonging to the profession.

#### 4.4.3 Summary of qualitative results

*Dietetic practice* as a theme is described as beginning to practice as a dietitian, and encompassed subthemes of attributes, reality, doing the work and emotions.

Participants were significantly affected by needing to pass the final professional placements for their successful course completion. They expressed a range of emotions and generally were starting placements with little exposure to the clinical setting and limited understanding of the role of the dietitian. Professional confidence was modest, with some students expecting experience would help, although at least one person was unable to move past the uncertainty of not knowing what was ahead.

After finishing placements, most people had experienced growth in professional confidence. One year after course completion, graduates' professional confidence had grown with greater exposure to the profession and more experience, with a few exceptions. Referring to the clinical setting, several participants understanding of their role as dietitian began to extend beyond individual case management to acknowledge the potential for small research projects. Feelings were still discussed and were reflective, such as looking back to being excited about getting a job or the reverse situation of anxiety about how long it had taken to get work.

Graduates at two years after course completion spoke about feeling more confident and believing they could handle themselves in most situations. The commentary at two years about the real world had more variety and changed from being about theoretical and practical aspects of practice to the funding, political and strategic aspects their role. The need to speak for patients as part of the dietitian's role continued as a low-key point.

*Hopes and dreams* was about making plans and moving forward from student to practitioner, and covered subthemes of being work ready, getting a job and looking ahead.

Pre placement, participants' expectations were dominated by conjecture about what placements would be like. Being able to recall the correct knowledge when needed was a recurring concern for participants with variations around application, access to sources of information and whether they knew enough.

After placements finished, these issues remained constant, with development of several new topics. Some people acknowledged changes had occurred during placements and attributed this to experiential learning. A low level of internal conflict was present for participants prior to placements starting, and this increased to become a key feature of post placement talk. However, this was overshadowed by discussion about employment and availability of work, neither of which had been raised earlier.

One year after course completion, hopes and dreams remained similar and related to employment, changes and expectations. Employment and availability of work remained firm topics of conversation for participants at two years after course completion, and included uncertainty around contracts and wanting to go in new directions. Internal conflict increased at this timepoint and participant's concerns were similar, such as challenges of managing practice dilemmas and issues. A variety of financial matters present at one year after course completion became more pressing at two years, either as income for individuals or grant funding for health agencies.

*Influences on practice* refers to shaping a new practitioner and subthemes are people, self, setting and support. Before going to placements, students believed relationships with their supervisors, clients and peers would play a role in their learning, and had also begun to consider who they would turn to when support was needed. They thought the environment and sick people in the setting might also have some influence.

As expected, supervisors, clients and peers were key influences on learning to practice and this was mostly positive. The atmosphere and the size at the site were potentially important to the overall placement experience. Sources of support were supervisors and peers as well family and other health professionals.

Clients, supervisors and family continued to be influential on practice as a dietitian at the one year after course completion timepoint. The role of mentors as influencers emerged at this timepoint. Many participants had experienced formalised mentoring through the APD program, although for others it was an informal arrangement providing support. Role models provided support in different ways but were not as important as mentors at this timepoint. Professional isolation and lack of collegial support became apparent as a new concern for several people that had not been present earlier.

Support and who to turn to when needed were ongoing issues for graduates at two years after course completion. The feeling of isolation became greater for some participants as they continued in their positions.

*Teamwork* The theme is about dietetic practice as a team player, with subthemes of the team and working together.

Pre placement, participants knew they would be working in teams with others towards a common goal and that team was usually in the clinical setting. They expected to be working with speech pathologists, physiotherapists, and allied health professionals generally, peers from dietetics, as well doctors and nurses but were unsure what the quality of communication would be like. Doubt about respect for their role in the team was a concern, particularly in the working relationship with doctors. They were prepared for communicating in teams by documenting nutrition interventions in medical notes, attending team meetings and talking with individual members of the team.

After completing placements, participants spoke of positive and negative experiences working in teams. The observation that more time to understand what other roles entailed and how they could work together more closely was common, although they fell short of identifying this as collaborating. The experience of working with doctors was problematic in some cases, the communication style playing out as expressed in concerns prior to starting placements. A new concept of networking and working with peers was introduced at this timepoint.

Recognition of the benefits of working closely with other members in the team was recognised one year after course completion, and working relationships within the team were becoming easier. Interprofessional education activities done while they were students was a small element in talk of teamwork explaining how they came to know about other allied health professional roles.

Teams, allied health professionals, doctors and nurses were the main areas of discussion about teamwork for two year graduates, and team experiences remained mostly positive.

*The profession* as a theme included subthemes of being seen as a dietitian, my people, regulation, the science, and the ticket. Before students had experienced placements, most had had limited exposure to the profession. Interest in the science, the diet disease relationship and helping people make changes to their diet were widespread as the motivation for wanting to be a dietitian. Several students were not convinced they belonged in the role, describing an imposter syndrome.

As students, participants were aware of the national competency standards for entry to practice and the role of DAA in regulation of the standards. At this early timepoint, they thought gaining the qualification and being able to safely care for their patients would provide a sense of belonging to the profession. Some awareness of the stereotypes about their future role was beginning.

Speaking after placements finished, participants' motivation to be a dietitian remained similar, that is, interest in the science and the satisfaction of knowing they had made a difference. Recognition of the profession and respect for their role was present earlier but became more important after completing placements. The image mattered to those working in the clinical setting and others more generally as the public image of their profession. There had been uncertainty about 'being' a dietitian, however, as participants started working, it became clearer.

Awareness of the influence of social media and celebrities in the field of nutrition arena was developing and brought strong feelings. The reward of helping people to make changes and being part of a team where their contribution was valued, were important motivation to graduates as they settled into their positions.

Being employed promoted the feeling of being a dietitian. Likewise, contact with the practice community, feeling supported, and being accepted were important for developing a sense of belonging to the profession. Recognition of their role and contribution to the team enhanced the feeling of being valued, but conversations about nutrition with family and friends were part of being a dietitian that made some one year graduates feel uncomfortable.

At two years after course completion, these same concepts continued and intensified for graduates. Nutrition myths and fallacies from the general public and colleagues, and stereotypes of their profession, already as a source of conflict for graduates, became even more so at this timepoint. For some participants, informal interest and conversations about nutrition outside of the work setting were quite uncomfortable and frustrating, particularly when their expertise was not taken seriously.

Recognition of their role by colleagues, clients and patients was acknowledged as beneficial to feel a connection with the profession. The way in which nutrition is promoted in social media was challenging for participants with a commitment to practicing in an evidence-based paradigm. In particular, nutrition promotion by naturopaths was an approach to practice that participants found difficult, especially when clients overlapped.

Taking time out from practicing as a dietitian had already happened for some people, for a variety of reasons. Seeing dietetics as a career for themselves into the future was spontaneously expressed by some participants, others were ambivalent or the future was unclear.

This research has taken a mixed methods approach and a convergent parallel study design to address the research questions. In this chapter, results from the analysis of quantitative data and findings from the qualitative data analysis have been presented.

Following in Chapter 5, integration of the two data strands and the interpretation of findings and meta-analysis are provided.

## Chapter 5

## Results of qualitative and quantitative integration

This chapter is closely linked with Chapter 4 Results, where results and findings from the quantitative and qualitative analysis were reported. In this chapter, the two data strands are merged, and meta-inferences developed.

Data integration is shown as joint displays for timepoints and for individuals. Outline templates showing the data sources and description of contents for each of the domains are followed by the displays.

The displays are shown against the research questions; how dietitians develop their PI, and specifically to address what influences contribute to the development of PI by dietetics graduates and how CP is incorporated into the PI of dietitians?

## 5.1 Outline for joint display and integration of quantitative and qualitative results by timepoint

The integration of the qualitative and quantitative components is presented as a longitudinal joint display with each timepoint following the same outline. Three domains were constructed from the merging of quantitative and qualitative results at the timepoint. The outline for the joint display functions as a template to show the source of data for integration and the results of the integration follow this outline at each timepoint, as shown below in Table 5.1.

### 5.1.1 Outline template for the joint display by timepoint

**Table 5.1 Outline template for the joint display by timepoint.**

Timepoint			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
<i>Domain Name of domain Description of the domain</i>	<i>Domain 1 Practice community Engagement with the community of dietitians and stakeholders supporting dietitians in their practice.</i>	<i>Domain 2 Feeling like a dietitian Engagement with the profession of dietetics</i>	<i>Domain 3 Working collaboratively Engagement with the team in practice and developing skills to work collaboratively</i>
<i>Domain constructed from: Demographic profile and context from quantitative and qualitative data relevant to the timepoint</i>	<i>Practice Community constructed from: Voluntary work, paid work, previous health care experience, APD status and mentoring, nutrition background Demographics and context relevant information to the domain eg change jobs, had a baby, studying PhD</i>	<i>Feeling like a dietitian constructed from: Demographics and context information to the domain eg left being a dietitian because too hard to get regular work, loves being a dietitian</i>	<i>Working collaboratively constructed from: Opportunity for IPE, number and type of IPE activities done as students Demographics and context information to the domain eg offices nearby</i>

<b>Quantitative</b> Summary of results for the timepoint from the survey data related to the domain		<i>PI</i> score Range 8-40 <i>UWE IQ</i> total score Range 35-166 Missing scores are shown as na.	<i>UWE IQ scale scores</i> , as shown: <i>Communication and Teamwork Scale</i> Score from 9-20 (positive), 21-25 (neutral), and 26-36 (negative) self-assessment of communication and teamwork skills <i>Interprofessional Learning and Interprofessional Interaction Scales</i> score from 9-22 (positive), 23-31 (neutral), and 32-45 (negative) attitudes towards interprofessional learning and perceptions of interprofessional interaction <i>Interprofessional Relationships Scale</i> Score from 8-20 (positive), 21-27 (neutral), and 28-40 (negative) indicate attitudes towards the respondent's own interprofessional relationships
<b>Qualitative</b> Descriptive summary for the timepoint from the theme, subthemes and codes related to the domain	<i>Influences on practice</i> is described as shaping a new practitioner. Subthemes are people, self, setting and support. <i>Dietetic practice</i> as a theme is described as beginning to practice as a dietitian, and encompassed subthemes of attributes, reality, doing the work and emotions.	<i>Hopes and dreams</i> was about making plans and moving forward from student to practitioner, and covered subthemes of being work ready, getting a job and looking ahead. <i>The profession</i> as a theme was related to being in the profession of dietetics and included subthemes of being seen as a dietitian, my people, regulation, the science, and the ticket	<i>Teamwork</i> This theme referred to being a team player, with the team and working together as the subthemes.
<b>Meta-inference</b> Summarise convergence and divergence	Expansion from mixing demographics and context with the qualitative results	Expansion from mixing demographics and context with the quantitative and qualitative results	Expansion from mixing demographics and context with the quantitative and qualitative results

Acronyms used: AHP = Allied health professional, CP = collaborative practice CPD = continuing professional development, IPE = Interprofessional education, IQR = Interquartile range, PI = Professional identity, UWE IQ = University of West England Interprofessional Questionnaire

5.2 Joint display for the integration of results and inference by timepoint

5.2.1 Pre placement timepoint

The joint display below in Table 5.2 follows the outline template (Table 5.1), and shows data sources and results of integration for the pre placement timepoint.

**Table 5.2 Joint display for pre placement timepoint.**

Pre placement			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	All 61 participants were female, most were more than 21 years of age (n=51, 83.6%) and recruited as students (n=39, 63.9%), majority were from La Trobe (n=18, 29.5%) and Curtin (n=15, 24.6%) Universities  23 participants (37.7%) had previous experience working in health or social care, 30 (49.2%) no previous experience, and 8 (13.1%) no information was available  55 (90.2%) had a nutrition background	Participants were final year dietetics students prior to starting professional placements	35 (57.4%) had done one or more IPE activities as a student, 10 (16.4%) no IPE, and 16 (26.2%) no information was available. The number of IPE activities was usually two (n=13, 21.3%) or three (n=9, 14.3%)  The most common IPE activities were face-to-face workshop, lecture and tutorial
<i>Quantitative</i>		<i>PI score</i> Median n = 24 1 <sup>st</sup> -3 <sup>rd</sup> percentile 24-26, IQR = 2	<i>Communication and Teamwork Scale</i> Median = 22 1 <sup>st</sup> -3 <sup>rd</sup> percentile = 21-23, IQR = 2

Pre placement			
		<p><i>UWE IQ score</i>  Median = 95  1<sup>st</sup>-3<sup>rd</sup> percentile = 91-104.5, IQR = 13.5  1<sup>st</sup>-3<sup>rd</sup> percentile = 18.5-21, IQR = 2.5</p>	<p>Attitudes = Positive 11.8%, Neutral 88.2%, Negative 0%; self-assessment of their own communication and teamwork skills were mostly neutral</p> <p><i>Interprofessional Learning Scale</i>  Median = 17  1<sup>st</sup>-3<sup>rd</sup> percentile = 13-20, IQR = 7</p> <p>Attitudes = Positive 47%, Neutral 41.2%, Negative 11.8%; attitudes towards IP learning were either positive or neutral</p> <p><i>Interprofessional Interaction Scale</i>  Median = 23  1<sup>st</sup>-3<sup>rd</sup> percentile = 21-25.5, IQR = 4.5</p> <p>Attitudes = Positive 41.2%, Neutral 58.8%, Negative 0%</p> <p>Perceptions of IP interaction often neutral or positive</p> <p><i>Interprofessional Relationships Scale</i>  Median = 19  1<sup>st</sup>-3<sup>rd</sup> percentile = 18.5-21, IQR = 2.5</p> <p>Attitudes = Positive 0%, Neutral 29.4%, Negative 70.6%; attitudes towards their own IP relationships were mostly negative.</p>
Qualitative	<p><i>Dietetic practice</i>  Most participants were starting placements with little exposure to the professional setting, especially clinical, and limited knowledge of the role of the dietitian.</p>	<p><i>Hopes and dreams</i>  Thinking about placements was dominated by conjecture and uncertainty.  Anxiety about being able to recall the correct knowledge when needed with variations around</p>	<p><i>Teamwork</i>  Participants were expecting to work with other allied health professionals, dietetic peers, as well doctors and nurses but</p>

Pre placement			
	<p>Anxiety and excitement were common emotions, and modest levels of confidence were reported but some participants had major self-doubt.</p> <p><i>Influences on practice</i></p> <p>University lecturers influenced their expectations of practice.</p> <p>Participants believed relationships with supervisors, clients and peers will play a role in their learning, and already thinking about who to turn for support when it was needed.</p> <p>The environment and sick people in the setting likely to have an influence, although not as much supervisors.</p>	<p>application, access to sources of information and whether they knew enough was common. Spoke of "being ready".</p> <p><i>The profession</i></p> <p>Limited exposure to the profession. Motivations to be a dietitian were an interest in the science, diet-disease relationship and helping people make changes to their diet.</p> <p>Knew about the national competency standards for entry to practice and the role of DAA in regulation of the standards.</p> <p>Gaining the qualification and being able to safely care for their patients would bring a sense of belonging to the profession.</p> <p>Awareness of the stereotypes about their future role was beginning.</p> <p>Participants were not identifying as being a dietitian, yet.</p>	<p>unsure what the quality of the communication would be like.</p> <p>Concern expressed about the working relationship with doctors and respect for the dietitian's role.</p> <p>Anticipating team communication to be documenting in medical notes, attending team meetings and talking with individual members of the team.</p>
<i>Meta-inference</i>	<p>Low exposure to the practice community before starting placements limited participants' knowledge of the role of a dietitian and affected their professional confidence, and they started placements relying on information about the setting and how to practice as a dietitian from university lecturers.</p>	<p>Before placements, connection with and belonging to the profession was low although there was some understanding of competency standards and requirements of the professional organisation to qualify as a dietitian.</p> <p>Motivation to be a dietitian was high and related to science and wanting to help others make dietary changes.</p> <p>It seems likely that the mid-range scores for PI and UWE IQ are based on theoretical knowledge rather than their own experience</p>	<p>IPE experience in the academic setting with other students was common.</p> <p>Working in teams in the clinical setting was spoken about more than other settings for placements (and the dietitian's role) ie community and public health, and food service management.</p> <p>Going into placements, students were concerned about respect for their contribution to the team and the quality of communication, particularly with doctors.</p>

Pre placement			
			<p>Their concerns were reflected in the scale scores:</p> <ul style="list-style-type: none"> <li>• neutral attitude towards their own Communication and Teamwork skills</li> <li>• positive or neutral attitude towards IP Learning from other AHP</li> <li>• perception of their IP Interactions with other AHP were neutral or positive</li> <li>• held negative attitudes about their IP relationships with other health professionals.</li> </ul>

## 5.2.2 Post placement timepoint

The joint display below in Table 5.3 follows the outline template (Table 5.1), and shows data sources and results of integration for the post placement timepoint.

**Table 5.3 Joint display for post placement timepoint.**

Post placement			
Research objective <i>Mixed method</i>	What influences contribute to the development of PI by dietitians?		How is CP incorporated into the PI of dietitians?
	<i>Domain 1</i> Practice Community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	Participants were final year dietetics students after completion of placements	Participants were final year dietetics students after completion of placements	Ten people had IPE placements
<i>Quantitative</i>		<i>PI score</i> Median = 24 1 <sup>st</sup> -3 <sup>rd</sup> percentile = 22-25, IQR = 3 <i>UWE IQ score</i> Median = 101 1 <sup>st</sup> -3 <sup>rd</sup> percentile = 91-107, IQR = 16 Pre to post placement no change in median <i>PI</i> score but Wilcoxon signed ranks test was statistically significant, and small increase in IQR. Pre to post placement the total <i>UWE IQ</i> score showed a small increase suggesting a slight	<i>Communication and Teamwork Scale</i> Median = 21 1 <sup>st</sup> -3 <sup>rd</sup> percentile = 21-22, IQR = 1 Positive 0%, Neutral 90.3%, Negative 9.7%; self-assessment of communication and teamwork skills were mostly neutral, <i>Interprofessional Learning Scale</i> Median = 19 1 <sup>st</sup> -3 <sup>rd</sup> percentile = 15-20, IQR = 5 Positive 38.7%, Neutral 61.3%, Negative 0%; attitudes towards IP learning were most often neutral <i>Interprofessional Interaction Scale</i>

Post placement			
		<p>deterioration in attitudes but not statistically significant.</p>	<p>Median = 24 1<sup>st</sup>-3<sup>rd</sup> percentile = 21-24, IQR = 3 Positive 48.4%, Neutral 51.6%, Negative 0%; perceptions of IP interaction often neutral or positive</p> <p><i>Interprofessional Relationships Scale</i> Median = 18 1<sup>st</sup>-3<sup>rd</sup> percentile = 16-19, IQR = 3 Positive 0%, Neutral 16.1%, Negative 83.9%; attitudes towards their own IP relationships mostly negative.</p> <p>Pre to post placement the median <i>communication and teamwork scale</i> score fell slight suggesting a small improvement in self-assessed communication and teamwork skills, but the difference was not significant.</p> <p>The median score for <i>IP learning scale</i> rose slightly suggesting less interest in learning from other allied health professionals after placements. The difference in median scores was statistically significant.</p> <p>The trend for median <i>IP interaction</i> score followed the same pattern as IP learning scale, also statistically significant.</p> <p><i>IP relationships</i> median score declined with participants' view of their IP relationships improving, and was statistically significant.</p>

Post placement			
Qualitative	Dietetic practice  Professional confidence had increased for most people.  Emotions changed to frustration, being overwhelmed, exhaustion or relief.  Familiarity with the dietitians' role grew from experiencing the daily routine and unexpected responsibilities.  Workload issues were new, from learning time management and different pressures and constraints.  The realities of practice introduced as a new concept and the result of contrasts between what was taught and what they experienced.  <i>Influences on practice</i>  Supervisors, clients and peers were influential on practice and the placement experience, and mostly the influence on learning was positive.  The atmosphere and size of the site were important to the experience.  Sources of support were supervisors and peers, as well family and other health professionals.	Hopes and dreams  The key issues were constant after placements with development of several new topics.  Some people acknowledged changes had occurred and attributed this to experiential learning.  A low level of internal conflict increased post placement.  The overall focus was on employment and availability of work, neither of which had been raised earlier.  <i>The profession</i>  Participants' motivation to be a dietitian was consistent - the science and knowing they had made a difference.  Recognition of their profession by colleagues was important, as well the public image of their profession.  Uncertainty about being a dietitian resolved somewhat, to feeling more connected with the profession.  Awareness of the influence of social media and celebrity chefs in the field of nutrition was developing.	Teamwork  Participants had positive and negative experiences working in teams.  They wanted to spend more time with other AHP to understand their roles and how they could work together more, but did not identify this as collaboration.  The experience of working with doctors had problems mostly due to communication issues.  Networking and working with peers introduced.

Post placement			
<i>Meta-inference</i>	<p>Beginning to practice as a dietitian was emotional, and balancing new learning with the workload and reality of practice was stressful.</p> <p>Supervisors, clients, peers, and the environment impacted on learning. Mostly this was seen as supportive and positive.</p> <p>Participants are on the periphery of the practice community.</p>	<p>PI developed during placements and belonging to the profession grew, with recognition and acceptance in the practice community as key factors. Getting work was the next step in their career and important validation of being a dietitian.</p> <p>Some participants knew a change had occurred in belonging to the profession, and for others, employment was needed to enhance their connection with the profession.</p>	<p>Participants self-assessed Communication and Teamwork skills, and perception of their IP relationships improved from the experience of working in teams on placements.</p> <p>However, IP learning and IP interactions did not improve showing less interest in learning and interactions.</p> <p>With more experience and opportunity to compare, participants view of their own contribution to the team improved and that of others lessened.</p> <p>Being focused on developing their own skills and role, the purpose and interest in learning about other AHP was to support or enhance their own practice, rather than for CP.</p>

### 5.2.3 One year timepoint

The joint display below in Table 5.4 follows the outline template (Table 5.1), and shows data sources and results of integration for the one year timepoint.

**Table 5.4 Joint display for one year timepoint.**

One year			
Research objective <i>Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice Community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	APD status at the timepoint of one year is reported if available, two years used if it was not	Graduate dietitians one year after course completion	Teams and teamwork
<i>Quantitative</i>	<p><i>Paid work as a dietitian</i> 29 participants had some paid work while 2 had not, and no information available for 16. The usual amount of work at one year was 40-52 weeks.</p> <p><i>Volunteer or unpaid as a dietitian work</i> 13 people had done unpaid work while 18 had not, no information for 16, participation at one year significantly higher than at two years. The usual amount of unpaid work was up to 40 hours.</p> <p><i>APD status</i></p>	<p><i>PI score</i> Median = 25 1<sup>st</sup>-3<sup>rd</sup> percentile = 22-26, IQR = 4</p> <p><i>UWE IQ score</i> Median = 100 1<sup>st</sup>-3<sup>rd</sup> percentile = 94.75-100.5, IQR = 11.75</p> <p>Post placement to one year median <i>PI</i> score showed a small increase but not statistically significant, and IQR increased.</p> <p><i>UWE IQ score</i> fell slight but the difference between median scores was not significant. IQR reduced.</p>	<p><i>Communication and Teamwork Scale</i> Median = 21 1<sup>st</sup>-3<sup>rd</sup> percentile = 20-22, IQR = 2</p> <p>Positive 0%, Neutral 80%, Negative 20%; self-assessment of communication and teamwork skills were mostly neutral</p> <p><i>Interprofessional Learning Scale</i> Median = 17.5 1<sup>st</sup>-3<sup>rd</sup> percentile = 14.75-20, IQR = 5.25</p> <p>Positive 47.7%, Neutral 30%, Negative 23.3%; attitudes towards IP learning were often positive or neutral</p>

	<p>At one year, 23 were provisional APD, 3 full APD status, 5 not APD, and no information for 16.</p>	<p>A statistically significant positive correlation between scores for UWE IQ pre placement and PI one year was found with Kendall's Tau-b two-tailed test. Three of the four scales were involved in the correlation, and one was not - IP interaction.</p>	<p><i>Interprofessional Interaction Scale</i> Median = 23 1<sup>st</sup>-3<sup>rd</sup> percentile = 22-25.75, IQR =3.25 Positive 30%, Neutral 70%, Negative 0%; perceptions of IP interaction mostly neutral</p> <p><i>Interprofessional Relationships Scale</i> Median = 16 1<sup>st</sup>-3<sup>rd</sup> percentile = 15-18, IQR = 3 Positive 0%, Neutral 23.3%, Negative 76.7%; attitudes towards their own IP relationships mostly negative</p> <p>From post placement to one year the median <i>communication and teamwork</i> scale score for self-assessment of skills remained constant, while the IQR increased slightly.</p> <p>The median score for <i>IP learning scale</i> decreased slightly suggesting more willingness to learn from other allied health professionals after placements, but the difference was not significant. The IQR had a small increase.</p> <p>The median score for <i>IP learning scale</i> remained constant. The IQR showed a small increase.</p> <p><i>IP relationships</i> median score declined with participants view of their IP relationships improving, and statistically significant with no change in the IQR.</p>
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One year			
Qualitative	<p><i>Influences on practice</i></p> <p>Clients, supervisors and family continued to influence practice as a dietitian. Mentors, role models and influencers were introduced into discussions.</p> <p>Professional isolation and lack of collegial support became a new concern for a small number of graduates. Being a sole practitioner or being away from the main department was common in this situation.</p> <p><i>Dietetic practice</i></p> <p>Graduates' professional confidence continued to grow.</p> <p>Understanding their role as dietitian extended beyond individual case management to include small research projects.</p> <p>Feelings were still discussed and were usually reflective.</p> <p>For those who had work, managing the workload and work-life balance became new problems.</p>	<p><i>Hopes and dreams</i></p> <p>Expectations were similar for participants at one year after course completion as they were post placement, and related to employment.</p> <p><i>The profession</i></p> <p>The reward of helping people to make changes and being part of a team where their contribution was valued were motivation.</p> <p>Recognition of their role by others enhanced the feeling of belonging in dietetics. Employment and contact with their peers and colleagues, feeling supported, and being accepted contributed to the feeling of being a dietitian.</p> <p>Conversations about nutrition with family and friends were part of being a dietitian that often made graduates feel uncomfortable.</p>	<p><i>Teamwork</i></p> <p>Recognition of the benefits of working with other members in the team was beginning and working relationships were becoming easier.</p> <p>Socialising between team members helped reduce communication barriers for people in rural positions, however team turnover was a new challenge.</p> <p>IPE activities done as a student became helpful for knowing about other allied health roles.</p>
Meta-inference	<p>Dietetic practice, influencers, and professional support were meaningful for those people who had employment and were practising as a dietitian.</p> <p>For those dietitians who did not have regular work, the support systems and who to turn to were limited. Professional confidence was spoken about less and they acknowledged</p>	<p>Gaining work was significant to all participants at this timepoint.</p> <p>Without employment and recognition of their role by others and reinforcement of their motivation, it was difficult for PI to progress.</p> <p>PI and identifying with the profession were challenged at the professional boundaries and</p>	<p>Teams and working with others had less priority than developing or consolidating their own professional skills, and attitudes showed only small changes from post placement to one year.</p> <p>Some participants remained employed in the same position during the year and</p>

	<p>professional isolation. These people remained on the periphery of the practice community.</p>	<p>ownership of nutrition expertise related to EBP. This was consistently referred to regardless of employment status.</p> <p>DAA was referred to by participants for its role in CPD and the APD program.</p>	<p>for others, their teams would be fractured with each change.</p>
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## 5.2.4 Two year timepoint

The joint display below in Table 5.5 follows the outline template (Table 5.1), and shows the data sources and results of the integration for the two year timepoint.

**Table 5.5 Joint display for two year timepoint.**

Two years			
Research objective <i>Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice Community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	APD status and work reported at two years timepoint if it was not available at one year.	Graduate dietitians two years after course completion	Teams and teamwork
<i>Quantitative</i>	<p><i>Paid work as a dietitian</i> Reported at two years by 14 people and 16 had no information. The amount of work at two years varied from 1-12 weeks (n=3) to &gt;105 weeks (n=1).</p> <p><i>Volunteer or unpaid as a dietitian work</i> at two years was done by 7 people while 7 had not, and 16 had no information; participation at one year was significantly higher than at two years. The usual amount was up to 40 hours.</p> <p><i>APD status</i> At two years, 9 participants had provisional APD and 53 had full APD status, and no</p>	<p><i>PI score</i> Median = 24 1<sup>st</sup>-3<sup>rd</sup> percentile = 22-27.75, IQR = 5.75</p> <p><i>UWE IQ score</i> Median = 100 1<sup>st</sup>-3<sup>rd</sup> percentile = 93.25-104, IQR = 10.75</p> <p>Median <i>PI</i> score between one year and two years showed a small decline but Wilcoxon signed ranks test was not statistically significant, and IQR increased</p> <p><i>UWE IQ score</i> remained constant while the IQR reduced.</p>	<p><i>Communication and Teamwork Scale</i> Median = 21 1<sup>st</sup>-3<sup>rd</sup> percentile = 20-22.75, IQR = 2.75</p> <p>Positive 3.6%, Neutral 78.6%, Negative 17.8%; self-assessment of communication and teamwork skills were mostly neutral</p> <p><i>Interprofessional Learning Scale</i> Median = 18 1<sup>st</sup>-3<sup>rd</sup> percentile = 17-20, IQR = 3</p> <p>Positive 35.7%, Neutral 35.7%, Negative 28.6%; attitudes towards IP learning were most often either positive or neutral</p>

Two years			
	<p>information was available for 16. A significantly greater proportion of graduates had provisional APD status at two years than did at one year after course completion.</p>		<p><i>Interprofessional Interaction Scale</i> Median = 22 1<sup>st</sup>-3<sup>rd</sup> percentile = 21-24, IQR = Positive 60.7%, Neutral 39.3%, Negative 0%; perceptions of IP interaction mostly positive</p> <p><i>Interprofessional Relationships Scale</i> Median = 19.5 1<sup>st</sup>-3<sup>rd</sup> percentile = 18-23, IQR = 5 Positive 0%, Neutral 46.4%, Negative 53.6%; attitudes towards their own IP relationships most often negative or neutral.</p> <p>Between one and two years, there was no change in the median <i>communication and teamwork</i> scale score and IQR increased slightly.</p> <p>The median score for <i>IP learning scale</i> had a small increase in this time, suggesting less willingness to learn from other allied health professionals after placements. The difference in median scores was statistically significant. and IQR increased slightly.</p> <p>The median <i>IP interaction</i> score fell slightly showing a small improvement in perceptions of IP interaction that was not statistically significant, and IQR reduced very slightly.</p>

Two years			
			The <i>IP relationships</i> median score increased with participants view of their IP relationships declining, and this was statistically significant. IQR became slightly larger.

Two years			
Qualitative	Influences on practice	Hopes and dreams	Teamwork
	<p><i>Influences on practice</i></p> <p>Support and who to turn to when needed were ongoing issues for graduates at two years after course completion.</p> <p>The feeling of professional isolation became greater for some participants.</p> <p><i>Dietetic practice</i></p> <p>Generally feeling more confident and able to handle most situations now, and this was from experience.</p> <p>Professional confidence had developed slowly for some people, while others were active in pursuing challenges.</p> <p>Different responsibilities also came from extra experience as they took on a new position, started supervising students, or moved to a more senior level.</p> <p>Real world issues included broader views of the funding, political and strategic aspects of their role.</p> <p>Advocacy as needing to speak for patients continued as a low-key point and changed to include for healthy eating in the community.</p>	<p><i>Hopes and dreams</i></p> <p>Employment and availability of work remain firm topics from the first year after graduation. Internal conflict increased at this timepoint. A variety of financial matters present at one year after course completion became greater with time.</p> <p><i>The profession</i></p> <p>The same concepts continued and intensified. Nutrition myths and fallacies from the general public and colleagues, and stereotypes of their profession caused conflict for some participants.</p> <p>Informal interest and interactions about nutrition outside of the work setting were quite uncomfortable and awkward.</p> <p>Participants found promotion of nutrition in social media challenging because of their commitment to practising in an evidence-based paradigm.</p> <p>Recognition of their role by colleagues, clients and patients was helpful to feel connection with the profession.</p>	<p><i>Teamwork</i></p> <p>Team interaction, and specifically communication with allied health professionals, doctors and nurses remained mostly positive.</p> <p>The professions participants engage with are consistent throughout.</p> <p>Networking with peers and colleagues increased while communication within the team and between health professionals was constant, and combined they are most frequent forms of working together at this timepoint.</p>

		<p>Taking time out from practising as a dietitian had already happened for some people, for a variety of reasons.</p> <p>Seeing dietetics as a career for themselves into the future applied for some participants, others were ambivalent or the future was unclear.</p>	
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<i>Meta-inference</i>	<p>Although all had some paid work as a dietitian, some had a small amount for the length of time from course completion, suggesting under employment.</p> <p>Almost everyone experienced mentoring at this timepoint, but the value or support gained from the relationship was inconsistent. Timing of mentoring seemed to be a factor, as well as the suitability of the match.</p> <p>Professional confidence did not seem to progress for those people who were professionally isolated.</p>	<p>Little change in median PI score between one and two years but IQR continuing to widen.</p> <p>Individuals were diversifying in their work roles and some were not working, while others were taking a break.</p> <p>Belonging and feeling connected to the profession and identifying as a dietitian was becoming complicated for some people.</p> <p>Separating personal and professional lives seemed to make it easier to manage the internal conflicts.</p> <p>Other participants were very comfortable in the role and their engagement with the profession.</p>	<p>Attention on teams and teamwork was consistent between one and two years, and the individual scale scores show no change or deterioration.</p> <p>The IQR for 3 of the 4 scales increased and variation between individual's experience grew.</p> <p>The scores could not progress or develop for those who were not able to secure regular employment.</p> <p>For those participants who had regular work, their responses related to their work setting and how the team worked.</p> <p>Some people in clinical positions based in a hospital and their teams had face-to-face contact. In contrast, the team was dispersed or not accessible to others in community-based positions.</p>
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### 5.3 Joint display for the integration of results and inference for individual participants

The integration of results and meta-analysis for the ten individual participants followed the same data sources and method as the integration for timepoints. Three domains were constructed from the merging of quantitative and qualitative results. The results are presented as longitudinal joint displays with pseudonyms for each participant.

#### 5.3.1 Outline template for the joint display by participant

The outline for the joint display functions as a template to show the source of data for integration and the results of the integration for each participant, shown below in Table 5.6.

**Table 5.6 Outline template for the joint display by participant.**

Participant pseudonym (#)			
<i>Research objective</i> <i>Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
<i>Domain</i> Name of domain Description of the domain	<i>Domain 1</i> Practice community Engagement with the community of dietitians and stakeholders supporting dietitian in their practice.	<i>Domain 2</i> Feeling like a dietitian Engagement with the profession of dietetics	<i>Domain 3</i> Working collaboratively Engagement with the team in practice and developing skills to work collaboratively

<i>Demographic profile and context</i> Demographic profile and context from quantitative and qualitative data relevant to the participant	Practice Community constructed from:  Voluntary work, paid work, previous health care experience, APD status and mentoring, nutrition background  Demographics and context relevant information to the domain eg change jobs, had a baby, studying PhD	Feeling like a dietitian constructed from:  Demographics and context information to the domain eg left being a dietitian because too hard to get regular work, loves being a dietitian	Working collaboratively constructed from:  Opportunity for IPE, number and type of IPE activities done as a student  Demographics and context information to the domain eg offices nearby
<i>Quantitative</i> Participant's survey data related to the domain		<i>PI</i> score Range 8-40; are reported in sequence: pre placement, post placement, one year, two years  <i>UWE IQ</i> total score Range 35-166; reported in sequence: pre placement, post placement, one year, two years	<i>UWE IQ scale</i> scores are reported in sequence: pre placement, post placement, one year, two years. Some participants did not complete all four timepoints and where this data is missing, it is shown as na, or not available.  <i>Communication and Teamwork Scale</i> score from 9-20, 21-25, and 26-36 indicate positive, neutral and negative self-assessment of communication and teamwork skills  <i>Interprofessional Learning and Interprofessional Interaction Scale</i> scores from 9-22, 23-31, and 32-45 indicate positive, neutral and negative attitudes towards interprofessional learning and perceptions of interprofessional interaction  <i>Interprofessional Relationships Scale</i> score from 8-20, 21-27, and 28-40 indicate positive, neutral and negative attitudes towards the respondent's own interprofessional relationships

<i>Qualitative</i> Descriptive summary for the participant from the theme, subthemes and codes related to the domain	<i>Influences on practice</i> is described as shaping a new practitioner. Subthemes are people, self, setting and support. <i>Dietetic practice</i> as a theme is described as beginning to practice as a dietitian, and encompassed subthemes of attributes, reality, doing the work and emotions.	<i>Hopes and dreams</i> was about making plans and moving forward from student to practitioner, and covered subthemes of being work ready, getting a job and looking ahead. <i>The profession</i> as a theme was related to being in the profession of dietetics and included subthemes of being seen as a dietitian, my people, regulation, the science, and the ticket	<i>Teamwork</i> This theme referred to being a team player, with the team and working together as the subthemes.
<i>Meta-inference</i> Summarise convergence and divergence	Expansion from mixing demographics and context with the qualitative results	Expansion from mixing demographics and context with the quantitative and qualitative results	Expansion from mixing demographics and context with the quantitative and qualitative results

Acronyms used: AHP = Allied health professional, CP = collaborative practice, CPD = Continuing professional development, IPE = Interprofessional education, IQR = Interquartile range, PI = Professional Identity, UWE IQ = University of West England Interprofessional Questionnaire

### 5.3.2 Jade (#1)

The joint display below in Table 5.7 follows the outline template (Table 5.6), and shows data sources and results of integration for Jade (#1).

**Table 5.7 Joint display for Jade (#1).**

Jade (#1)			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
Demographic profile and context	Mature age student at recruitment, with a nutrition background and previous health care experience.  At one year, she had provisional APD status and paid work of 15 weeks, no unpaid work in volunteer capacity.  By two years after course completion, Jade had been working in aged care for about 18 months, and was close to full time across three positions.	Mostly wanted to talk about cases and examples of helping with quality of life and nutrition status. Previous experience in aged care had helped her feel more comfortable in the setting.  Went to a presentation by 'expert' on aged care for CPD and realised she was already doing most the suggestions.  Only really felt like she belonged as she started working and getting more experience.	Reports no opportunity for IPE as a student. Sees her role as an advocate for the residents.  Team includes residents and their families, facility managers, nurses, carers, catering staff, GPs, speech pathologists.  Communicates through the notes mostly, some people on the team she has never met in person.

<p><i>Quantitative</i></p>		<p><i>PI</i> score: 23, 21, 23, 18            Mid range scores, fluctuating and lower at two years than at pre placement.</p> <p><i>UWE IQ</i> total score: 87, 81, 89, 83            Pattern is similar to PI, with mid range scores, fluctuating, and lower at two years after course completion than at pre placement.</p> <p>Missing scores are shown as na.</p>	<p><i>Communication and Teamwork Scale</i> score: 24, 21, 22, 21            These scores show a neutral self-assessment of her communication and teamwork skills, becoming more positive after placements which was sustained for two years.</p> <p><i>Interprofessional Learning Scale</i> score: 20, 21, 22, 19            Positive attitudes towards interprofessional learning, which fluctuated and became slightly more positive over time</p> <p><i>Interprofessional Interaction Scale</i> score: 24, 25, 28, 26            Neutral perceptions of interprofessional interaction, fluctuating and becoming slightly more negative over time</p> <p><i>Interprofessional Relationships Scale</i> score: 19, 14, 17, 17 Jade began with a positive attitude towards her own IP relationships, becoming more positive at post placement, and this continued, but not as strongly, at two years.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>The influence of the environment featured as a student at pre and post placement although not as a graduate.</p> <p>Who to turn to for support was a gap at all timepoints for Jade.</p> <p>Clients were a key part of the discussion at most timepoints and were a significant influence on her practice.</p> <p><i>Dietetic practice</i></p> <p>Confidence grew with experience and responsibility for Jade.</p> <p>Real world experiences spoken about were the funding for the role and site politics.</p> <p>Advocacy for the residents was a central to her role as a dietitian.</p>	<p><i>Hopes and dreams</i></p> <p>Jade was those spoke who spoke the most about being a dietitian.</p> <p>She did not expect to end up working in aged care as a dietitian.</p> <p>In the position, she used a wide range of nutrition and dietetics knowledge and skills gained from the course but was not prepared for working with older clients and dementia when she left university.</p> <p><i>The profession</i></p> <p>Recognition of the dietitian's role in the workplace mattered, especially for colleagues to see how nutrition support could help their clients.</p> <p>Belonging was related to experience and recognition by colleagues for Jade.</p> <p>Two years after finishing course, she was involved in Dietitians Association of Australia (DAA) interest groups.</p>	<p><i>Teamwork</i></p> <p>Jade was one of the few participants who spoke of their IPE experiences as a student but not again after graduation.</p> <p>Communication and team interaction were discussed at all four timepoints, and Jade referred to the range of health professionals in her team consistently, not favouring any in particular.</p> <p>There was face-to-face contact with some of the team occasionally, but not all together at the same time, and most of their communication was through the medical notes. Some people on the team she had never met in person but "knows" them through their entries in the patient records.</p>
<p><i>Meta-inference</i></p>	<p>By two years after course completion, Jade was not reliant on external sources of professional support such as a mentor or role model.</p> <p>The Practice Community included the client, and she was practising in a client-centred way.</p>	<p><i>PI score</i> decreased over time which is in contrast to her enthusiasm for the work, and connection to the profession.</p> <p>Non evidence-based practice (EBP) and naturopaths did not come up they were not relevant to her clients.</p> <p>Being a dietitian was important to Jade and belonging to the profession came with experience.</p>	<p>Most of Jade's <i>UWE IQ</i> scale scores became more positive over time, except for IP Interaction which became slightly more negative. Her perception of the IP interactions signified deterioration, and overall, the team interactions were not as productive as they could be.</p> <p>The scores support that there was little direct contact within the team.</p>

### 5.3.3 Joanna (#2)

The joint display below in Table 5.8 follows the outline template (Table 5.6), and shows data sources and results of integration for Joanna (#2).

**Table 5.8 Joint display for Joanna (#2).**

Joanna (#2)			
Research objective <i>Mixed method</i>	What influences contribute to the development of PI by dietitians?		How is CP incorporated into the PI of dietitians?
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	Mature age student at recruitment, with a nutrition background and previous health care experience.  At two years had provisional APD status and paid work of 82 weeks, 20 hours in volunteer capacity.	It took about six months to get a position in the corporate sector after a short, unsatisfying experience in a clinical role.  Joanna was working full time in the corporate sector at two years after finishing dietetics, and expected to continue in the position  She enjoyed what she was doing, the range of other people in the office, variety of clients and diversity in the work.	Reports opportunity for IPE as a student, doing two activities. They were IPE face:to:face workshop and IPE online workshop.  Believed her role is quite unique by not working mainly with health professionals. Her team is really, really diverse.

Quantitative		<p><i>PI</i> score: 25, 23, na, 22  Joanna's PI scores were mid-range and were lower as a two year graduate than at the pre placement timepoint.</p> <p><i>UWE IQ</i> total score: 82, 76, na, 81  Also mid-range scores with a fall at post placement timepoint, and increasing at two years to a similar level as pre placement.</p>	<p><i>Communication and Teamwork Scale</i> score: 23, 22, na, 26  Shows a neutral self-assessment of own communication and teamwork skills, becoming more negative at two years</p> <p><i>Interprofessional Learning Scale</i> score: 17, 18, na, 14  The scores show positive attitudes towards interprofessional learning that became more positive by two years.</p> <p><i>Interprofessional Interaction Scale</i> score: 21, 21, na, 25  Scores indicate positive perceptions of interprofessional interaction, becoming neutral or more negative at two years.</p> <p><i>Interprofessional Relationships Scale</i> score: 21, 15, na, 16  Joanna's attitude towards her IP relationships at the preplacement timepoint was neutral, and this became more positive over time.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>Joanna predicted clients and supervisors would have a substantial influence on practice before placements and their influence continued, still referring to placement experiences even at two years after course completion.</p> <p>The family was an important source of support while she was a student, and she missed this when she went away for placements.</p> <p><i>Dietetic practice</i></p> <p>Before starting placements, she was excited and looking forward to them, seeing it as an adventure. On placements, she found the high rate of patient turnover and not being able to provide continuity of care was unsatisfying.</p> <p>In her role as a dietitian, Joanna found the environment and the office layout impacted how she worked.</p> <p>At two years after finishing, she enjoyed ongoing contact with clients.</p>	<p><i>Hopes and dreams</i></p> <p>Said she was passionate about dietetics and helping people help themselves, and knew that's what she really wanted to do</p> <p>Didn't know whether to focus on after finishing the course, clinical or community.</p> <p>The monetary aspects of income, salary and contractor arrangements, were only spoken about by a few participants, including Joana as a two year graduate.</p> <p><i>The profession</i></p> <p>As a student, Joanna spoke of regulation and needing to meet DAA competencies for the safety of her clients. After graduating, awareness of the role of DAA in regulation shifted to include the code of professional conduct. This awareness was associated with promotion of nutrition myths and fallacies in social media.</p> <p>At one year, she appreciated the opportunity to learn from experienced practitioners in a DAA interest group.</p> <p>Reports belonging as a dietitian and connection with the profession. This belonging to the profession and being a dietitian were associated with using the skills and knowledge gained from four years of studying.</p>	<p><i>Teamwork</i></p> <p>Spoke of the IPE experiences as a student but not later when in the workforce.</p> <p>As a student, Joanna recognised and valued the role of allied health professionals, nurses and doctors in client care and teamwork.</p> <p>The team members that Joanna worked most closely as a two year graduate with were peers, and because of her role, she had much less communication with other health professionals than many participants.</p> <p>Networking became relevant for Joanna after completing her course; however, this was usually with dietitian peers.</p>
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<i>Meta-inference</i>	<p>Clients featured strongly to influence her practice as a dietitian, followed by the line manager.</p> <p>Joanna had a client-centred approach to practice and was self-reliant.</p> <p>The practice community consisted of clients and her manager, and potentially dietetic peers.</p>	<p>Joanna's PI score declined, contrasting with her satisfaction in the position, commitment to clients, and ongoing participation in professional activities.</p>	<p>Two scale scores - IP learning and IP relationships, became more positive, whereas Communication and teamwork and IP Interactions became more negative.</p> <p>The IP relationships and learning from others improved, but her perception of the team functioning deteriorated.</p> <p>Dietitian peers in the team were more significant and consistent than working with other health professionals, which tended to be specific to the project or activity.</p>
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### 5.3.4 Heather (#9)

The joint display below in Table 5.9 follows the outline template (Table 5.6), and shows data sources and results of integration for Heather (#9).

**Table 5.9 Joint display for Heather (#9).**

<b>Heather (#9)</b>			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	<p>Mature age student at recruitment, with a nutrition background and no previous health care experience.</p> <p>At one year had provisional APD status and paid work of 40 weeks, with no volunteer work.</p> <p>After graduation, Heather did private practice work initially with another health professional and then a fulltime position doing call centre work in a nutrition-related industry. This work provided temporary financial security. She continued to work as a dietitian with different allied health professionals under contractor agreements. During that year, she had up to five contracts.</p>	<p>Without a stable income, two years after finishing, the collection of jobs had been dropped and Heather was studying in another area.</p> <p>It had been very stressful trying to get a start in the profession but she still loved the area of nutrition.</p>	<p>Reports there was opportunity for IPE as a student, doing two activities. They were IPE face-to-face workshop and IPE online workshop.</p> <p>The team included psychologists and exercise physiologists. Communication with these colleagues was through online debriefs and shared document notes</p>

Quantitative		<p><i>PI score:</i> 24, 25, 24, 33</p> <p>The PI score was consistently mid range scores to one year, with a rise at two years after course completion.</p> <p><i>UWE IQ total score:</i> 90, 81, 83, 91</p> <p>Above mid range scores that fell at post placement and one year, returned to the pre placement level at two years.</p>	<p><i>Communication and Teamwork Scale score:</i> 26, 23, 23, 21</p> <p>Heather's self-assessment of her communication and teamwork skills was negative, becoming progressively more positive with time.</p> <p><i>Interprofessional Learning Scale score:</i> 17, 17, 18, 19</p> <p>Scores indicated a positive attitude towards IP learning at pre placement, becoming less positive and more neutral with time.</p> <p><i>Interprofessional Interaction Scale score:</i> 23, 20, 23, 24</p> <p>Scores indicated a neutral perception of IP interaction, that became more positive initially after placements, then returning to and remaining neutral after one year.</p> <p><i>Interprofessional Relationships Scale score:</i> 24, 21, 19, 27</p> <p>Heather's neutral attitude towards her IP relationships, became progressively more positive after placement and at one year, but deteriorated at two years to become neutral.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>Knowing who to turn to for support was raised at all timepoints as being a gap for her.</p> <p>At one year Heather had had an APD mentor, which had been a positive experience, however the timing had not been ideal as she did not have regular employment to discuss.</p> <p>Heather was strongly influenced in her practice by the relationship with clients. It was enduring, being mentioned often over the four timepoints.</p> <p><i>Dietetic practice</i></p> <p>Heather spoke about feelings frequently throughout the interviews, and they ranged from self-doubt before placements to relief and exhaustion afterwards.</p> <p>At one year after finishing the course, she was excited at getting two “proper jobs” and by two years, looked back at the loneliness from not seeing or interacting with work colleagues.</p> <p>All participants spoke of internal conflicts at least once, and Heather spoke to this at three timepoints. Concerns included “feeling like an imposter” pre and post placement which continued at one year after course completion.</p> <p>Professional isolation became an issue for Heather and she was one of three people to discuss this at both the one and two year</p>	<p><i>Hopes and dreams</i></p> <p>At the one year timepoint, Heather had multiple part-time jobs and was the only person who reported doing non-dietetics work at this timepoint. Financial matters such as monetary aspects of income, salary and contractor arrangements, were only spoken about by a few participants although were a prominent concern for Heather.</p> <p>At two years, she said she had been very underprepared for the business side of private practice work, such as the administration, billing, appointments and time management, and contracts.</p> <p><i>The profession</i></p> <p>Four people spoke the most about being a dietitian, including Heather. Her motivation was the patients or clients, the work itself and seeing results.</p> <p>Discussion about EBP, and nutrition myths and fallacies by the public and colleagues was present for Heather as a graduate, as well as stereotyping of the role of a dietitian.</p> <p>Belonging as a dietitian was difficult and at two years, she was “half a dietitian” because she was not working as one.</p>	<p><i>Teamwork</i></p> <p>Heather was one of five participants who spoke of their IPE experiences as a student.</p> <p>Networking, mostly with peers, was relevant for Heather at one and two years after course completion.</p> <p>She had contact with other health professionals as a graduate, however, only some of this was as members of the same team, often they were the owner of the practice.</p>
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	timepoints. Being a sole practitioner was common to this small group, and Heather was the only one not in a rural position.		
<i>Meta-inference</i>	<p>Heather appeared to have few positive influences in the practice community.</p> <p>Low confidence and professional isolation emerged early and did not improve over time.</p> <p>Although she interacted with other health professionals, it was often as an employee or contractor and only sometimes as a colleague.</p>	<p>Heather loved the clients and being a dietitian but was not able to establish financially viable work to continue.</p> <p>By two years, her DAA membership was on hold, and she was studying in another area.</p> <p>This is in contrast with PI score which increased over time, and was one of the highest of all participants at two years after completing dietetics.</p>	<p>Changes for UWE IQ scale scores varied - Communication and teamwork score became more positive, and IP learning became less favourable over time.</p> <p>The IP interaction score remained relatively consistent while the IP relationships were becoming more positive but took a turn at two years to deteriorate overall.</p> <p>These scores probably reflect difficulties in the working relationships Heather had in business matters with health professionals rather than the IP team experiences.</p>

### 5.3.5 Ruth (#13)

The joint display below in Table 5.10 follows the outline template (Table 5.6), and shows data sources and results of integration for Ruth (#13).

**Table 5.10 Joint display for Ruth (#13).**

<b>Ruth (#13)</b>			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1 Practice community</i>	<i>Domain 2 Feeling like a dietitian</i>	<i>Domain 3 Working collaboratively</i>
<i>Demographic profile and context</i>	Mature age student at recruitment, with a nutrition background and no previous health care experience. APD status not reported.	<p>After graduation, getting employment as a dietitian was very competitive.</p> <p>Her first position was a short locum and, eight or nine months later, she took a clinical role in a hospital in a country town, staying for 18 months.</p> <p>By this time, Ruth was starting to feel burned out. She resigned and at two years after finishing the dietetics course, was as studying in another area. Planning to return to dietetics, she was actively looking for work when interviewed.</p> <p>As a student, she had thought she would work in the community but changed her mind after doing placements – she loved clinical.</p>	<p>Two opportunities for IPE as a student: IPE face-to-face workshop and IPE tutorial.</p> <p>Ruth said the team was “standard MDT team” with physios, OT’s, speechies, social workers. She worked with nurses the most, and speech pathologists, and doctors a bit more.</p> <p>There were weekly meetings with the multidisciplinary team, medical meetings to discuss cases with nursing staff and journey boards, and general allied health meetings.</p>

Quantitative		<p><i>PI</i> score: na, 25, na, na            Mid range score  <i>UWE IQ</i> total score: na, 82, na, na            Mid range score</p>	<p><i>Communication and Teamwork Scale</i> score: na, 22, na, na            The score shows a neutral self-assessment of her communication and teamwork skills.</p> <p><i>Interprofessional Learning Scale</i> score: na, 21, na, na            This score indicates a positive attitude towards IP learning at this timepoint.</p> <p><i>Interprofessional Interaction Scale</i> score: na, 22, na, na            At post placement, the score shows positive perceptions of interprofessional interaction.</p> <p><i>Interprofessional Relationships Scale</i> score: na, 17, na, na            Positive attitudes towards her own interprofessional relationships post placement are demonstrated.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>The people who were influences and support for Ruth; supervisors, role models, mentors and clients were spoken about over all timepoints.</p> <p>Despite support, after being in a rural position for over a year, Ruth reported missing her family and friends and was starting to experience burnout and professional isolation.</p> <p><i>Dietetic practice</i></p> <p>Under the subtheme of setting, Ruth spoke of the work environment; referring to the positive atmosphere and dynamics of the team.</p> <p>Reality or real world issues such as work-life balance and excessive workload were reported and contributed to her decision to leave the position at one year.</p>	<p><i>Hopes and dreams</i></p> <p>The first position, a brief locum appointment of five weeks, was a massive boost to Ruth's confidence after placements. Looking for employment became her priority, and she spoke of the competitiveness between peers and the limited number of clinical positions available.</p> <p>At two years availability of work, employment and financial matters continued to be critical issues for her, as she was looking to return to work as a dietitian after a break.</p> <p><i>The profession</i></p> <p>Ruth was one of four people who spoke the least about being a dietitian.</p> <p>She saw being a dietitian as helping others to have healthier lives, empowering and educating people.</p> <p>Ruth felt the most connectedness and belonging to the profession when she was working in a rural hospital position, and less while she had been studying.</p>	<p><i>Teamwork</i></p> <p>Ruth was among the few who spoke of their IPE experiences only as a student. Being mostly on the ward, she did not get to see allied health colleagues that often but there was teamwork and a strong sense of the team through meetings.</p> <p>The team and working relationship with health professionals at the hospital had been positive experiences for Ruth, who commented many times on the strong team atmosphere. The effect of turnover on working together was seen in the rural position. Networking became relevant for Ruth as a graduate and was related to referrals in this instance.</p>
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<i>Meta-inference</i>	<p>In the practice community, support and influences at one year included a mentor, role model, and access to dietetic colleagues and clients.</p> <p>The support of family and friends was missing for her, and this outweighed all other aspects.</p> <p>The reported early stages burnout may have been lessened if these supports had been available to her.</p>	<p>Unfortunately, UWE IQ scale and PI scores were not available.</p> <p>Belonging to the profession was directly related to working as a dietitian.</p>	<p>Ruth's team experiences were positive, and she had found it rewarding to be part of such a strong team.</p>
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### 5.3.6 Lydia (#14)

The joint display below in Table 5.11 follows the outline template (Table 5.6), and shows data sources and results of integration for Lydia (#14).

**Table 5.11 Joint display for Lydia (#14).**

Lydia (#14)			
Research objective <i>Mixed method</i>	What influences contribute to the development of PI by dietitians?		How is CP incorporated into the PI of dietitians?
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	Mature age student at recruitment, with a nutrition background and no previous health care experience.  At one year after finishing, Lydia had provisional APD status and paid work of 36 weeks, and no work in volunteer capacity.	It took 3-4 months to get work after finishing dietetics and it wasn't a dietitian position at first. At one year, her role became a split position between health promotion and dietetics, and it was hard switching hats between the two positions.  At two years, the role is now as a dietitian and like private practice and community work combined, mostly for people with diabetes covered by the medicare chronic care package with GP.	Reports opportunity for IPE as a student, doing four activities. They were IPE face:to:face workshop and IPE placement, dietetics lecture and dietetics placement.  The work is quite solo and Lydia is on her own most of the time; communication with the other professionals only occurs if things are complicated, and then there might be more interaction.  The team includes GP, OT and speech, and she works closely with the diabetes educator, often seeing similar clients.  There is also podiatrist and a mental health councillor but Lydia does not have much contact with them.

Quantitative		<p><i>PI</i> score: 22, 24, 22, na  Lydia showed mid-range scores that rose after placements, and returned to pre placement level at one year</p> <p><i>UWE IQ</i> total score: 84, 81, 77, na  These were also mid-range scores, consistently falling to a low at one year.</p>	<p><i>Communication and Teamwork Scale</i> score: 22, 21, 20, na  The scores show a neutral self-assessment of own communication and teamwork skills, becoming progressively more positive with time, although no result was available for the two year timepoint.</p> <p><i>Interprofessional Learning Scale</i> score: 19, 21, 16, na  Indicates a positive attitude towards IP learning that became neutral and less positive after placements, and returning to positive attitudes as a one year graduate.</p> <p><i>Interprofessional Interaction Scale</i> score: 24, 22, 23, na  Lydia's perception of IP interaction was neutral before placements and remained neutral, with slightly more positiveness over time.</p> <p><i>Interprofessional Relationships Scale</i> score: 19, 17, 18, na  These scores indicate a positive attitude towards her IP relationships, becoming slightly more positive with time.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>The environment had more influence for some participants than others, and this was raised at three or more timepoints by Lydia. For Lydia, a good working environment meant they were very supportive of new graduates.</p> <p>Although she had a mentor, the main influences on her practice were her line manager supervisor and clients.</p> <p>Reflection played a large part in her professional development, and she mentioned this at all timepoints.</p> <p><i>Dietetic practice</i></p> <p>Lydia experienced some isolation at both one and two years after finishing because she was the only dietitian in her team, and she missed being able to ask little questions.</p> <p>It was more difficult to have contact with other dietitians because much of the CPD was city-based.</p> <p>A sense of being an imposter occurred for two participants after placements, and Lydia was one of these people. She admitted to struggling with being an introvert.</p> <p>Her low level of confidence was attributed to lack of experience both as a student and one year graduate, and a complicated case could still trigger confidence issues at two years.</p>	<p><i>Hopes and dreams</i></p> <p>Availability of work and getting a position were spoken about, and that the first job was not as a dietitian was **</p> <p>Financial matters related to getting a job were only spoken about by a few participants at two year graduates, including Lydia.</p> <p>Funding for the position was secure for the immediate future, but it had not always been.</p> <p><i>The profession</i></p> <p>Recognition of their role and the profession was important across all timepoints to most participants, although Lydia was the only person who made no mention of this. She was one of four people who spoke much less about being a dietitian.</p> <p>Being a dietitian meant an obligation to provide an evidence-based approach, and this was essential to her practice.</p> <p>Lydia confirmed that she sees herself, and belonging as a dietitian at the two year timepoint.</p>	<p><i>Teamwork</i></p> <p>Lydia spoke of the teams she was part of and the allied health professionals throughout the interviews and all timepoints, and particularly doctors and nurses more often at the two year timepoint.</p> <p>Working together, and specifically, communication, networking and turnover were not raised.</p> <p>The absence of this detail was surprising until her observation in the two year interview that her day-to-day work was mostly solo.</p>
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<i>Meta-inference</i>	<p>Confidence grew slowly with experience for Lydia. She was fortunate to have general support in her position as a new graduate in the team.</p> <p>However, influences and support from dietetic peers and colleagues were limited in her rural position, leading to professional isolation.</p>	<p>The PI score increased after placements and declined at one year, resulting in no overall change. The score for PI at two years after graduating was not known but Lydia articulated belonging to the profession.</p> <p>The absence of recognition for the dietitian's role may be related to having a split role for her first job, slowing entry into the profession.</p> <p>Job insecurity may also have been a factor affecting connection with the profession, and not being able to commit to her work role fully when the future was in doubt.</p>	<p>By two years, the team was most doctors and nurses in diabetes education.</p> <p>Communication and teamwork and IP learning became more positive over time, and IP relationships only slightly more positive. The IP interaction score became somewhat negative.</p> <p>The solitary nature of her position was a major factor affecting these scores.</p>
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### 5.3.7 Naomi (#17)

The joint display below in Table 5.12 follows the outline template (Table 5.6), and shows data sources and results of integration for Naomi (#17).

**Table 5.12 Joint display for Naomi (#17).**

<b>Naomi (#17)</b>			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	Mature age student at recruitment, with a nutrition background and no previous health care experience.  At one year, Naomi had not joined APD program and had 12 hours paid work and 30 days work in volunteer capacity. This was the one of the highest amounts of unpaid work by any participant in the study.	One year after finishing the course, Naomi was employed as a dietitian in a rural hospital.  It had taken eight months to get that position, and she spoke of the continuing competitiveness for employment.	Reports opportunity for IPE as a student, doing three activities. They were IPE face:to:face workshop and IPE online workshop, as well as dietetics placement.  The team was the traditional medical team of doctors, nurses and allied health professionals.

Quantitative		<p><i>PI</i> score: na, na, 23, na      Mid range score  <i>UWE IQ</i> total score: na, na, 84, na      Mid range score</p>	<p><i>Communication and Teamwork Scale</i> score: na, na, 22, na      Self-assessment of her own communication and teamwork skills was neutral.  <i>Interprofessional Learning Scale</i> score: na, na, 20, na      Indicates a positive attitude towards IP learning at one year.  <i>Interprofessional Interaction Scale</i> score: na, na, 24, na      This score shows neutral perceptions of interprofessional interaction.  <i>Interprofessional Relationships Scale</i> score: na, na, 18, na      Positive attitudes towards own interprofessional relationships.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>Learning from clients was a strong feature of placements for Naomi. Few people stood out as being influential on her practice after entering the workforce.</p> <p>Knowing who to turn to for support was spoken at both graduate timepoints and professional isolation at one year when she was in the rural position.</p> <p><i>Dietetic practice</i></p> <p>As a student, she said they felt like an imposter. This resolved with experience and was not an issue at the one year timepoint.</p> <p>Naomi was involved in a substantial amount of unpaid volunteer work after finishing dietetics, and this was a significant component of her practice experience.</p> <p>A rural position in the first year of work provided variety and learning opportunities - doing clinical, community, outpatients, and food service; there was a bit of everything as a sole clinician. She said she was not 100% confident in any one area but had covered many topics from birth to death.</p>	<p><i>Hopes and dreams</i></p> <p>Getting a job was a high priority after placements, and employment and availability of work were key topics also as a graduate. At the two year interview, she had taken time away from work for personal reasons and was finding the employment field to be competitive as she looked to return.</p> <p><i>The profession</i></p> <p>Naomi was one of the people who spoke most about being a dietitian in the interviews. Nutrition myths and fallacies and naturopaths were pronounced topics of discussion at the two year timepoint and related to doing voluntary work in a self-help health group. This was run by volunteers who used their own experience rather than EBP, and naturopaths were very popular.</p> <p>Naomi said she is passionate about nutrition and "not just doing it". She "loved being a dietitian", and it was very much a part of who she is. She spoke about her motivation at all timepoints – the patients, the work itself and seeing results.</p> <p>Belonging to the profession was confirmed. Being able to have a family and career was important to her, and she saw herself continuing in the profession.</p>	<p><i>Teamwork</i></p> <p>Naomi reported that allied health didn't work well together in the regional areas, not because they didn't want to but because they were often spread out geographically. It was not feasible to meet in a room to talk about a client, resulting in less of a group approach to client care. Use of technology was not common practice eg telehealth.</p> <p>Naomi spoke of the disruptive effect of turnover on teamwork and working together at the one year interview.</p> <p>Networking was more significant to Naomi at one year and two years after course completion than may other participants. She applied this form of collaboration in the work setting interacting with health professionals, and in relationships with dietetic peers and colleagues out of work hours.</p>
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<i>Meta-inference</i>	<p>Generalist experience in a rural position gave her a broad grounding; however, there were some issues with isolation.</p> <p>The influences of the practice community were not obvious in her interviews. Volunteer work added another perspective, particularly around the popularity of naturopaths.</p>	<p>Unfortunately, there were insufficient scores to determine a change in UWE IQ scales and the PI score.</p> <p>Blending family and career was evident. Naomi was enthusiastic about being a dietitian and having a career in dietetics into the future.</p>	<p>The team not being co-located made working together more difficult, and affected the approach to teamwork.</p> <p>Surprisingly low use of technology for team communication.</p>
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5.3.8            Elizabeth (#19)

The joint display below in Table 5.13 follows the outline template (Table 5.6), and shows data sources and results of integration for Elizabeth (#19).

**Table 5.13 Joint display for Elizabeth (#19).**

<b>Elizabeth (#19)</b>			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	Mature age student at recruitment, with a nutrition background and previous health care experience.  At one year had not joined the APD program and had paid work of 16 weeks, and no work in volunteer capacity.	Appointed to a series of locum contracts after finishing dietetics but further renewal was not available. She accepted a place in a higher degree research program in a related field.  At the two year interview, Elizabeth had worked in three areas of practice; clinical, community & public health, and education. She had just joined the APD program and was working part-time in a dietetics-related area, and studying part-time.	Reports opportunity for IPE as a student, doing two activities. They were dietetics tutorial and dietetics placement.  Mostly works with health promotion officers and other public health professionals in the part-time role. However, she has previously worked in the clinical setting with the **

Quantitative		<p><i>PI</i> score: 22, 20, 22, na      These PI scores were mid-range, falling slightly after placements and returning to the pre placement level at one year  <i>UWE IQ</i> total score: 76, 77, 73, na      Low mid range scores, declining at one year</p>	<p><i>Communication and Teamwork Scale</i> score: 20, 21, 19, na      This was a positive self-assessment of own communication and teamwork skills before placements, fluctuating to neutral and becoming slightly more positive at one year.</p> <p><i>Interprofessional Learning Scale</i> score: 13, 14, 13, na      Elizabeth had a positive attitude towards IP learning at pre placement that fluctuated upwards slightly after placements and returned to remain constant at one year timepoint.</p> <p><i>Interprofessional Interaction Scale</i> score: 26, 24, 22, na      Scores began with a neutral perception of IP interactions that improved over time but remained neutral.</p> <p><i>Interprofessional Relationships Scale</i> score: 17, 18, 19, na      These scores indicate a positive attitude initially, although this became slightly less positive with time.</p>
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<b>Qualitative</b>	<p><i>Influences on practice</i></p> <p>Elizabeth was one of the few participants who raised the environment or atmosphere as an influence at three or more timepoints.</p> <p>The potential influence of supervisors was discussed pre and post placement, and this continued through to two years, more than many other participants.</p> <p>Role model and mentor were less influential and only raised at the one year timepoint.</p> <p>The main influence on her practice has been a university lecturer, who is now her higher degree research supervisor.</p> <p><i>Dietetic practice</i></p> <p>Work-life balance and workload were concerns at both the one and two year interviews.</p> <p>At the two year timepoint Elizabeth spoke of her part-time work in nutrition promotion. She put high value on contributing to a healthy lifestyle and obesity prevention program versus weight management being a medical treatment or a part of a medical process.</p>	<p><i>Hopes and dreams</i></p> <p>As a student, Elizabeth was always interested in community and public health but “didn’t really have an exact idea” of what she wanted to do when she left university.</p> <p>The availability of work and employment were raised at one and two years, with competitiveness between peers for work reported as a negative issue.</p> <p><i>The profession</i></p> <p>Believes the dietetics course and DAA put more emphasis on clinical roles even though the profession is more diverse than that.</p> <p>Although students were not prepared for other pathways as much as they were for clinical work, the skills are transferable to many different areas.</p> <p>There are some things that she likes about the profession of dietetics and other aspects not so much.</p> <p>Overall Elizabeth still identifies with as a dietitian and saw herself being a dietitian for quite some time.</p>	<p><i>Teamwork</i></p> <p>Teams and teamwork were discussed at all timepoints although communication was not spoken about specifically at any timepoint by Elizabeth.</p> <p>In her first position working in a hospital, she had very positive experiences of being in teams in the clinical setting. One of the early relationships she developed was with nurses because she thought of more them as an equal, and she was not as scared of them. She observed the more confident she was about what she was doing with a particular patient, the more easily her team relationship developed. If she was uncomfortable with how much she knew or the condition was new territory for her, that was when a gap in the professional relationships occurred. This discomfort about her lack of knowledge meant she was not able to put as much into the discussion about patient care.</p> <p>Later at the two year timepoint, in a part-time position, the health promotion team was much smaller, and they all worked more independently.</p> <p>Networking as a graduate for Elizabeth was with dietetic peers rather than health professionals.</p>
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<i>Meta-inference</i>	<p>Elizabeth had professional experiences in a broad practice community across three settings – clinical, education, and community and public health.</p>	<p>The PI score fell after placements and rose at one year to become constant.</p> <p>An initial employment period in a clinical role at the one year timepoint was a positive experience followed by research and community and public health type work which was closer to her early interests as a student. Elizabeth saw the preparation for a career in dietetics as very versatile, although noticeably focused on clinical roles.</p> <p>Belonging to the profession was slightly conflicted for her because of this, but she still identified as a dietitian.</p>	<p>Her scores for communication and teamwork slightly became more positive from pre placement to one year. IP learning was constant, IP interaction improved and IP relationships fell somewhat.</p> <p>Elizabeth spoke of confidence influencing her professional and team relationships, and this low confidence was likely to be reflected in the IP interaction score rather than IP relationships. She may have been viewing her interactions as unfavourable due to her own low confidence.</p> <p>The shift in her UWE IQ scores is consistent with transitioning from an active role in a clinical team to a smaller team working more independently.</p>
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5.3.9            Tiffany (#20)

The joint display below in Table 5.14 follows the outline (Table 5.6), and shows data sources and integration for Tiffany (#20).

**Table 5.14 Joint display for Tiffany (#20).**

Tiffany (#20)			
Research objective <i>Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	<p>Less than 21 years of age as a student at recruitment with a nutrition background and previous health care experience.</p> <p>At one year had provisional APD status and 13 weeks paid work and no volunteer work.</p>	<p>Initially after finishing dietetics, Tiffany worked in a company that sold nutrition products, although not as a dietitian, and stayed for almost a year. Then, she took her dream job as a clinical dietitian in a rural town and was in this position at two years. Going overseas very soon and planning to work as dietitian in the UK.</p> <p>The job is pretty standard or typical dietetics. Feels like she belongs to the profession but doesn't think she'll stay there too long, doesn't want to do it forever. The main reason is that not everyone sees nutrition as important as you do.</p> <p>This view of dietetics by others was expected because it started to come through when she was at uni.</p>	<p>Reports no opportunity for IPE as a student. The team is nurses and medical team, and allied health. She worked with the medical team most closely, and often directly with the doctors. This was followed by nursing staff and a small but efficient and effective allied health team, and especially the speech pathologists within this team. She does work with physiotherapists and OT's too, but not as much as "speechies".</p>

Quantitative		<p><i>PI</i> score: 24, 22, 27, 29            Mid range score declined at post placement, and then increased consistently, highest at two years after finishing dietetics.</p> <p><i>UWE IQ</i> total score: 80, 79, 74, 74            Mid range scores, declined over time, with little change between one and two years after finishing dietetics.</p>	<p><i>Communication and Teamwork Scale</i> score: 23, 22, 18, 20            Before placements, Tiffany had a neutral self-assessment of her own communication and teamwork skills, and this became progressively more positive.</p> <p><i>Interprofessional Learning Scale</i> score: 12, 13, 13, 13            Her attitude towards IP learning was positive pre placement and remained relatively consistent over the two years.</p> <p><i>Interprofessional Interaction Scale</i> score: 25, 26, 25, 22            Her perception of IP interaction was neutral, improving in positiveness over time.</p> <p><i>Interprofessional Relationships Scale</i> score: 20, 18, 18, 19            Tiffany's attitude towards her own IP relationships was positive and became slightly more so with time.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>Tiffany had excellent support from mentors, role models and dietitian friends. Other members of the team in the hospital were always happy to answer questions.</p> <p>At the one year interview, she spoke in detail about the bond with her APD mentor as a very good close relationship and friendship. The mentor was a source of information, and they shared professional values such as views on ethical behaviour.</p> <p><i>Dietetic practice</i></p> <p>Described her work as pretty standard or typical dietetics although she admitted did not have much for comparison.</p> <p>She was among a small number who spoke about their internal conflicts at all timepoints. The small medical team was inclusive, but she not sure whether it was about her or nutrition.</p> <p>Tiffany spoke about the high workload at all timepoints, and work-life balance became a major issue for her as a one year graduate.</p>	<p><i>Hopes and dreams</i></p> <p>She has been in her dream job, a clinical position in a rural town for over a year. Was planning to travel and work as a dietitian in the year ahead.</p> <p><i>The profession</i></p> <p>The high fees and not getting value for money, values conflicting with the DAA relationship with food industry, and perceived lack of support by DAA were concerns for Tiffany.</p> <p>Motivation was mentioned at three or more timepoints by Tiffany as; the patients, the work itself and seeing results.</p> <p>She reported belonging to the profession, and nutrition is very important for her but she did not think she wanted to do it forever. The main reason is that not everyone sees nutrition as important as she does. She somewhat expected this view of dietetics by others because it had started to come through when she was at university.</p>	<p><i>Teamwork</i></p> <p>The team included allied health professionals, doctors, nurses, and peers, and the team was spoken about consistently over time by Tiffany.</p> <p>Tiffany's experience of being in teams included socialising and friendships out of work hours. This contributed to the open working relationships, and was probably related to living and working in a small town.</p> <p>All the nurses, medical team, and allied health communicated openly and exchanged information about the patients. Getting another perspective sometimes affected her decisions for patient care.</p> <p>The effect of turnover on working together was seen at one year and two year timepoints.</p> <p>A concern for her was that eating and nutrition were not the priority the medical team.</p>
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<i>Meta-inference</i>	Tiffany had a high level of engagement in the practice community with positive influences on her dietetic practice in a small rural hospital doing clinical work.	The PI increased steadily over the two years. Belonging to the profession and nutrition was important for her, but she did not see herself being a dietitian forever because she was not “passionate” enough.	Scale scores showed that all individual IP factors improved over time to varying degrees. Communication and teamwork and IP interaction became more positive, while overall change for IP learning and IP relationships became slightly more positive at two years. Team experiences were mostly positive, with professional relationships and friendships with members of the team. Tiffany’s team experience was supported by the scale scores becoming more positive.
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5.3.10 Sophie (#22)

The joint display below in Table 5.15 follows the outline template (Table 5.6), and shows data sources and results of integration for Sophie (#22).

**Table 5.15 Joint display for Sophie (#22).**

<b>Sophie #22</b>			
<i>Research objective Mixed method</i>	<b>What influences contribute to the development of PI by dietitians?</b>		<b>How is CP incorporated into the PI of dietitians?</b>
	<i>Domain 1</i> Practice community	<i>Domain 2</i> Feeling like a dietitian	<i>Domain 3</i> Working collaboratively
<i>Demographic profile and context</i>	Student less than 21 years of age at recruitment, with a nutrition background and health care experience. APD status not known.	Was working at the area tertiary health hospital after graduation, then moved to regional hospital covering their aged care program.  Wanted to work in this area as a student ie clinical setting, and was surprised at the responsibility she had so early.	As a student reported two opportunities for IPE: IPE tutorial and IPE lecture.  The region has a major tertiary hospital and about several smaller hospitals, Sophie has worked in both areas.  Works with the medical staff and the nurses, and the other allied health professionals.  The tertiary hospital is busier and things are done quickly, whereas in the smaller satellite campuses the patients are less acute, the medical team is generally on the ward more, there's a bit more of a team environment.

Quantitative		<p><i>PI</i> score: 24, 22, na, na  These were mid range scores that declined slightly at post placement.</p> <p><i>UWE IQ</i> total score: 90, 88, na, na  The above mid range score declined slightly at post placement.</p>	<p><i>Communication and Teamwork Scale</i> score: 22, 24, na, na  Self-assessment of own communication and teamwork skills was neutral, becoming somewhat less favourable after placements.</p> <p><i>Interprofessional Learning Scale</i> score: 23, 24, na, na  Showing a positive attitude towards IP learning, the score became slightly less favourable post placement.</p> <p><i>Interprofessional Interaction Scale</i> score: 23, 28, na, na  Neutral perceptions of IP interaction remained neutral but deteriorated becoming more negative after placements.</p> <p><i>Interprofessional Relationships Scale</i> score: 22, 12, na, na  Sophie went into placements with a neutral attitude towards her own IP relationships and showed a large change in scores to become positive after placements.</p>
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<p><i>Qualitative</i></p>	<p><i>Influences on practice</i></p> <p>People had a substantial influence on dietetic practice, and this included clients, mentors and role models, and supervisors. One year after university, she was working independently but had a supportive group of friends who were dietitians, and other colleagues who were friends. This friendship group included speech pathologists, physiotherapists, and doctors.</p> <p><i>Dietetic practice</i></p> <p>Sophie was one of the people who said she felt like an imposter before going on placements, although this had resolved after placements.</p> <p>The workload was an issue at the one year interview, such as keeping up with the documentation and notes was time-consuming and often done out of hours.</p> <p>Confidence and experience were linked and came together at about the one year timepoint. Having to take responsibility and being accountable for decisions were other components of professional maturation.</p> <p>Sophie had elements of professional isolation at both the one and two year timepoints. The isolation was related to not having immediate on-site support from dietetic colleagues.</p>	<p><i>Hopes and dreams</i></p> <p>Shortly after graduating, Sophie got her dream job, and said she has been "lucky" with opportunities.</p> <p>She spoke about competitiveness in dietetics. Some of this was about the availability of work and she believed competitiveness was "in the nature of dietitians".</p> <p>Lack of availability of employment continued as keen points of discussion at the one and two year timepoints.</p> <p>By the two year interview, she had moved states with her partner and was actively looking for work.</p> <p><i>The profession</i></p> <p>She spoke much less about being a dietitian than other participants.</p> <p>Reports belonging to the profession.</p> <p>At the two year interview, she confirmed feeling she belonged to the profession, saying "It used to be 'I'm a student', then, 'I'm a new grad'. And now I feel like I can say 'I'm a dietitian'."</p>	<p><i>Teamwork</i></p> <p>Sophie worked consistently with all members of the medical team over time, but the experience of teams was different across hospital sites.</p> <p>At the one year interview, she commented the team was supportive, she was respected as a dietitian and her contribution valued. However, being taken seriously by doctors was one of the challenges.</p> <p>In Sophie's opinion, the team functioning was better, and there was more interest in nutrition when the whole medical team focused on the client and what they needed, and turnover was a slower pace.</p> <p>The smaller sites seemed to be more holistic in their care, client-focused and inclusive of nutrition.</p>
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<i>Meta-inference</i>	<p>Sophie had a supportive and robust professional community, with overlap of her personal and professional lives.</p> <p>Confidence and experience grew, and the turning point occurred at about one year after course completion, and working as a dietitian.</p> <p>Despite this support, professional isolation occurred.</p>	<p>She took her dream job as a clinical dietitian in a rural hospital not long after leaving university. A bonus of the appointment was being able to move positions within the region to different size hospitals.</p> <p>The PI score fell pre to post placement, and unfortunately scores are not available after graduation. However, interviews at this time are strongly suggestive that Sophie's PI grew over the two years, and she was very aware of her status at the various timepoints in her career.</p>	<p>Some of the UWE IQ scale scores improved and others did not, although there were only two timepoints.</p> <p>IP relationships became much more positive, and communication and teamwork became more positive. In contrast, IP interaction became less positive and IP learning slightly less positive. Issues of medical dominance in working relationships with doctors may have been a factor in the declining the scores, coupled with the experience of teams varying according to the size of the site.</p>
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## 5.4 A tale of two trajectories

Two hypothetical trajectories were constructed to illustrate the spectrum of possible career pathways for participants and highlight features that positively or negatively influenced the development of PI. These influences are drawn from Domains 1: Engaging with a professional community and 2: Feeling like a dietitian.

They exemplify the extremes of experiences, rather than a typical trajectory. As individuals, study participants did not purely follow one path or the other and it was common to have some features from each trajectory.

### 5.4.1 Flourishing - a trouble-free run

The graduates who flourished and had a trouble-free run tended to have positive experiences across placements and achieved early employment. The position was full-time, with access to support from strong professional teams, positive mentors and role models, and clinical experience to build skills, knowledge and confidence in their clinical judgement.

The placement experience was initially both exciting and anxiety-provoking. Still, after a few days of getting to know the people and the hospital system, everything settled into a progressively challenging rotation. All the people in the dietetics department were welcoming, and the clinical supervisors were knowledgeable and experienced. As a student, they had more responsibility than expected and the ward areas covered had interesting cases.

After the dietetics course finished, the dietitian on the trouble-free run typically undertook a short locum position or two, and then successfully gained a fulltime clinical position in a hospital in the multidisciplinary team. Volunteer work at a non-government organisation done as a student may have helped by providing an early idea of the dietitian's role and networking contacts.

Graduates reported enjoying dietetics because it involved talking to people, the team was supportive and they could help make a difference for their clients. The dietitian felt prepared for the work, and there were always colleagues around and available for support. Keeping in touch with university friends was important, and being able to ask each other questions on a variety of topics, even during the day sometimes, was helpful. An APD mentor was essential for support in the initial period transitioning into the role too.

On the trouble-free run, the dietitian was part of a team that met regularly, and talked informally between times on the wards. Equally important, for the dietitian was a sense of being valued in the multidisciplinary team. As part of the role, the dietitian worked closely with other allied health professionals and they shared client care plans. Whilst there were a few challenges - learning to manage time effectively and working with clients with complex conditions and mental health problems, the graduates saw themselves as a dietitian and belonged to the profession. They were confident and proud to be a dietitian.

#### 5.4.2 Struggling - a rocky road

The participants who struggled tended to have lower confidence in the role. They experienced difficulty getting work and were often working part-time in multiple jobs without access to professional support. They were in areas of practice for which they felt less prepared by their studies, such as private practice.

Before starting placements, the dietitian on the rocky road had minimal experience in the practice setting, speaking with patients or seeing what a dietitian might do in a typical day. They were also excited and nervous about starting placements. The supervisors were nice enough but had busy caseloads and weren't around when help was needed or to check what to do next. Relieved at passing the assessments, they looked forward to finishing university and getting into the workforce.

The time in transition between leaving university and getting work was a funny stage, neither being a student nor a dietitian. Applying for jobs was quite competitive and timing was a factor in the availability of work. There were not very many positions available on the locum list when the health department implemented a budget freeze on leave cover.

The first “real” job of two half days per week was often in private practice, and with other part-time or short-term roles whilst maintaining non-dietetics work. Staying organised with several jobs and a long commute was quite exhausting!

On the rocky path, the workload was overwhelming and clients were complex cases with multiple co-morbidities, and it took time to identify the priority problem. Feeling tired and burnt out was not unusual. Private practice was not encouraged for new graduates, and the business side of things such as insurance, contracts, marketing and developing an online media profile had not been covered in the course.

Support from dietetic peers and colleagues was modest or not available for the dietitian on the rocky path. Typically, the year group from the dietetics course were not close, and they didn’t stay in touch after graduating. If the APD mentor was not working in the same area and/or well-matched to the dietitian and their circumstances, it was difficult to discuss issues and concerns such as managing complex cases, dynamics and politics in their work. Although the dietitian was usually a member of DAA Interest Groups and read the conversation threads, she was not confident to post questions.

On the rocky path, the graduate believed others, her family, friends or even health professionals did not understand what she did. Often frustrated with the effort and time it took to continually try to improve as a solo dietitian, there was an awareness of not being able to do everything. The dietitian did not have a sense of belonging to the profession, perhaps because more experience was needed, yet was usually pleased to have done dietetics

## 5.5 Strengths and limitations of the research

This section looks at the strengths of the research, its limitations, and where another approach may offer solutions to matters that arose.

The mixed methods approach and longitudinal data collection are strengths of this research. The quantitative and qualitative strands explore a different perspective of the same phenomenon, development of PI by dietitians. The interview findings support and provide explanation for the quantitative results, and insight into the participants' experiences. Thick description and richness of data from the small number of participants promotes transferability of findings to other contexts.

The survey tools selected were validated tools. The PI tool and UWE IQ survey have been used with other allied health professional students, although not specifically with dietetic students. The tools rely on self-reported survey data and responses were not verified or triangulated with another source.

In this study, all data were analysed by the researcher, with codes and themes discussed with supervisors. Coding by a single researcher aligns with the thematic analysis approach by Braun and Clarke (2019) and promotes consistency of coding, rather than inter-rater reliability and accuracy of coding (Braun & Clarke, 2019b). Authenticity of the data was supported by the discipline experience of the researcher and one of the supervisors, and health professional colleagues.

Recruitment for data collection was from a non-probability, convenience sample via course coordinators of dietetics programs, and participants may not be representative of the larger population of early career dietitians, limiting the transferability to other dietitians. Self-selection bias is possible and students' expectation of volunteering was unknown, although the only benefit to individuals from taking part was altruism (Thomas et al., 2019). They were advised the university would not be informed of their involvement.

Final year dietetic students were recruited from universities in Australia for longitudinal participation, and the participation rate was less than anticipated. Students in the health professions can become fatigued with multiple requests to do surveys and evaluations, and this may have affected the decision by dietetic students to not participate (Thomas et al., 2019). Participation was voluntary, and students in their final year of studies with a heavy workload often view discretionary curricula work as optional, and this may have affected decisions on availability.

Attrition in longitudinal studies is recognised as a problem (Farrall et al., 2016; Robinson et al., 2015), and a variety of efforts were taken to ameliorate this (See section 3.4.3). Convenience, no cost for the participant, email reminders, contribution was acknowledged and valued, and a draw for an iTunes voucher were among the examples.

The sample size for the quantitative arm does not meet the sample size determined in the power calculation (See section 3.3.2). The statistical tests conducted were nonparametric. They are considered suitable for use with small sample sizes, and data with nominal or interval variables, or outliers (Field, 2016). The study has low statistical power and risks reporting a false-negative (type II error) from significant results (Biau et al., 2008). Cognisant of these factors, the quantitative results and their interpretation are reported cautiously in this research (Hackshaw, 2008).

Although the sample size was small for the quantitative arm, some qualitative data was not used. Other mixed methods study designs may have been able to address the phenomenon of PI and CP more efficiently. An embedded design, with quantitative data collection embedded in qualitative data collection is one possibility, with repeated data collection from participants to identify the changes over time (Creswell & Plano-Clark, 2007).

Reducing the respondent burden influenced the demographic data collected in the tailored survey. Seeking more detailed demographic information from participants may have enhanced generalisability to other early career dietitians.

For example, rather than enquiring if a student was more than 21 years of age (mature age) or not as used in the original work on the UWE IQ tool (Pollard & Miers, 2008), and having more age categories may highlight if or when the effect of age on development of PI is most pronounced. Similarly, knowing the number of positions held as a dietitian in the first two years after course completion may clarify the impact of frequent job changes experienced by new graduates transitioning into the workforce (Morgan, Campbell, Sargeant, et al., 2019).

The omission of the question in the PI tool asking, "I feel I share characteristics with other members of the profession", potentially affects the tool's validity to measure group identification (Worthington et al., 2012).

Brown et al., reporting on the development of the tool, suggests the changes in identity being measured by changes in attitude are accompanied by "a corresponding change in ideological outlook" (Brown et al., 1986, p. 285). In this research, survey questions and interview questions overlap regarding belonging to the profession. It is highly feasible the qualitative data capture participants' attitudes about characteristics shared with the profession which lessens the impact of the missing question. With a larger sample size, it may have been possible to apply statistical measures.

Participants were recruited when the DAA competency and accreditation standards were in transition between 2009 to 2015, with the likelihood that the curriculum in dietetics programs will have changed accordingly. It is not known how long it will take to embed the new competency standards in education and practice, and whether the new standards will affect the PI in different ways. The changes in DAA competency standards do not detract from this research, and continued research on the formation of PI by dietitians is warranted.

This chapter has reported the integration of qualitative and quantitative data from the two separate strands of the research. In Chapter 6 Discussion, which follows, the convergence and dissonance of results and findings are explored against the theoretical frameworks, drawing on the literature to provide the perspective for dietetics.

In the discussion that follows, results and findings are explored in relationship to the theories of professional identity (PI) development and collaborative practice (CP). As a mixed methods study design, the focus of the discussion is on the integration of the data and meta-analysis. The discussion primarily draws on the literature for the profession of dietetics but also considers health professions more generally to broaden the applicability of the findings. An overview of the findings is followed by a more detailed description.

Every profession has its own PI with a unique set of values, attitudes, knowledge, and behaviours. In the formation of their PI, the individual's personal identity is merged with that of the profession in a dynamic process of professional socialisation (Adams et al., 2006; Clouder, 2003; Cruess et al., 2019) and transformation (Jarvis-Selinger et al., 2012; Leedham-Green et al., 2020). Professional identity influences a number of perceptions and behaviours, ranging from participation in teams to job satisfaction.

The strength of an individual's PI is important because it is a factor in the individuals' ability to collaborate in teamwork, and leads to the purpose of this research.

This research set out to determine how dietitians develop their PI, and specifically to address two research questions:

1. What influences contribute to the development of PI by dietetics graduates?
2. How is CP incorporated into the PI of dietitians?

A convergent mixed methods approach was used to collect quantitative and qualitative data longitudinally. Triangulation of the two types of data allowed the phenomena of PI and CP to be viewed from different perspectives to address the research questions.

Merging and integration of results for the quantitative and qualitative strands produced three domains: Engaging with a professional community (Domain 1), Feeling like a dietitian (Domain 2) and Working collaboratively (Domain 3). The data sources for the domains included the PI scores and University of West England Interprofessional Questionnaire (UWE IQ) scale scores and five themes over the timepoints, with the data sources shown in Table 6.1.

**Table 6.1 Data sources for domains.**

Research question	<b>What influences contribute to the development of PI by dietitians</b>		<b>How is CP incorporated into the PI of dietitians</b>
	<i>Domain 1</i>	<i>Domain 2</i>	
Description of domain	Engaging with a professional community	Feeling like a dietitian	Working collaboratively
Qualitative	Theme 1 Beginning to practice as a dietitian Theme 2 Shaping a new practitioner	Theme 3 Moving forward from student to practitioner Theme 4 Being in the profession	Theme 5 Being a team player
Quantitative	Context and demographic data	PI scores and changes over time	UWE IQ scale scores and changes over time

In interpreting Domain 1 and Domain 2 to answer the first research question, “What influences contribute to the development of PI by dietitians?”, four constructs were consistent between participants, and recurred across the four timepoints. Each of these factors had a major influence on the PI for early career dietitians:

- Knowledge of the profession and preparedness for practice
- Professional confidence as a dietitian
- Expectations of employment and the workplace
- A sense of belonging to the profession

Initially, anticipatory socialisation challenged the participants' PI after entering the dietetics course with a narrow view of the role of a dietitian, and beginning placements with little prior exposure to the profession. Self-categorisation and PI progressed, although this was not linear, and participants' salient identity shifted from student to dietitian as they entered the workforce.

The professional community that is the broader dietetics community of practice including lecturers, supervisors, clinical educators, mentors, and role models was influential on the participants' PI at all stages. However, support from colleagues in the professional community was insufficient for several new graduates, and was accompanied by professional isolation.

Growth in confidence influenced the PI, and increasing self-categorisation as a dietitian was related to doing the work of a dietitian.

Professional self-confidence developed from experiential learning in the practice setting, and this continued for participants as they gained experience and took on professional responsibilities in the workforce. Lack of confidence and feeling like an imposter before placements was not unusual and resolved with experience for most, although not for everybody. By about one year after course completion, a perceivable strengthening of PI had occurred.

As graduates, the workplace became the context on which many aspects of their PI depended. Securing a position in a clinical role was highly desirable, which transpired for some, but those who did not were likely to show signs of struggle. Burnout and leaving the dietetic workforce were raised by some participants two years after finishing the course. Inconsistent employment patterns and heterogeneity of the work settings appeared to influence the variability in PI seen after graduation.

Student participants did not think they belonged to the profession or identify as a dietitian, and they thought successful course completion with the dietetics qualification would make the difference. As one year graduates, a sense of belonging and the dietitian PI were emergent, but they often thought they needed more work experience. PI was related to, and influenced by participants' opportunities in the workforce two years after course completion; however, qualitatively, belonging to the profession was stable among participants.

To address the second research question, "How is CP incorporated into the PI of dietitians?", Domain 3 comprised three constructs that featured consistently between participants and across timepoints. These three factors determined the extent to which CP was adopted by graduate dietitians:

- Learning a CP role
- Sharing power
- Organisational context and culture

Participants all developed a CP identity as a dual identity, although to varying degrees.

Learning about and working with other health professionals enhanced their role as a dietitian and dietitian PI. IP collaboration was beneficial for developing dual identities - understanding their profession was helped by frequently explaining their role to team members. Accordingly, the CP identity was established via the imperative of advocating for their client.

Participants perceived power sharing and power imbalance, and dynamics within the health care team impacted on the emergent CP identity. Applying Khalili's model of dual identity development, the dietitian PI precedes the development of the CP identity and would be the strongest (Khalili et al., 2013). The team context may be perceived as an unsafe environment for the CP identity to be salient, with conflicting cues, allowing the dietitian PI to be dominant (Burford, 2012).

Reducing the perception of a power imbalance through informal, friendly relationships developed confidence to interact with junior doctors. Positive experiences in these relationships built confidence and facilitated progressive deepening of the engagement with more senior doctors, enhancing the CP identity.

The organisational context was a factor for determining whether the CP identity progressed as a graduate. The salient identity as a CP dietitian identity was invoked only when the team dynamics were positive. Geography and team dynamics played a significant role in opportunities for collaborating, and were barriers to CP.

Collaborative practice was incorporated into the dietitian PI, and client-centred practice by participants included focusing on the client in CP with other health professionals. However, needing to be the nutrition expert potentially affected participants' capability to provide collaborative client-centred care, and was feasibly detrimental for the CP identity.

Expressions used by participants are used throughout this chapter. For example, practitioners whose primary employment was the placement site, with overseeing students as a component of that position are often called preceptors or clinical educators in the literature, although in this thesis they are simply called supervisors.

While participants spoke of the clinical setting, hospitals and clinical dietitian, and the terms are self-explanatory; they refer to the domain of practice where the individual case management (ICM) competencies are primarily developed. Development of professional competency includes a total of 20 weeks of full-time placement in the three domains of practice - individual case management, food service management, and community and public health nutrition (See Appendix B.1.2 and B.1.1). The professional expectations of a graduate dietitian for entry to the workforce are described in the National Competency Standards (NCS) for entry level dietitians in Australia (Palermo et al., 2016).

## 6.1 Developing a professional identity as a dietitian

Professional identity is described as “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” (Adams et al., 2006, p. 6), and summarised as “the sense of being a professional” (Paterson et al., 2002, p.6).

Similarly, professional socialisation is the dynamic social process of developing a PI that occurs when the individual selectively incorporates “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”, according to Merton et al., 1957, p. 283, cited in (Clouder, 2003, p. 213).

There is a lack of consensus on the terminology for PI (Snell et al., 2020), although it is accepted there is a merging of the culture of a profession with the individual’s own in a progressive socialisation, resulting in transformation (Ajjawi & Higgs, 2008; Cruess et al., 2019). The adopted professional identity is a “subjective self-conceptualisation associated with the work role” (Adams et al., 2006, p. 6).

### 6.1.1 Knowledge of the profession and preparedness for practice

Students who know more about their profession will identify more strongly with it than those who do not know it as well (Adams et al., 2006), and an understanding of their own role is needed to collaborate effectively as practitioners (Miller, 2004). Previous experience in health and social care can support preparation for the workforce and development of PI as it is likely to provide interaction with health professionals, including the profession they are about to join (Adams et al., 2006).

In this study, despite many study participants entering the course with previous experience in the health and social care setting, they had limited knowledge of the dietitian's role, and exposure to the professional community came late in their studies. There was knowledge of the link between science and dietetics, with an interest in science including the diet-disease relationship, similar to other students in nutrition and dietetics nationally and internationally (Hughes & Desbrow, 2005; Lordly & MacLellan, 2012), although an interest in food reported by other researchers was not raised (Brady et al., 2012).

Anticipatory socialisation is known to influence career choices by health care students, and presents in varying degrees as they enter the course (Keshishian, 2010; Khalili et al., 2013; Price et al., 2019). It is made up of preconceptions and influences of family and friends, school career counsellors and is a combination of assumptions, myths and reality from a variety of sources (Khalili et al., 2013).

The first experiences of placement and the practice setting for study participants were almost certain to present challenges, particularly with such limited prior exposure to the profession on which to base preconceptions. Not knowing about the dietitian's role and their profession was a significant hurdle for participants to overcome, and negatively influenced their PI.

However, knowledge of the role was only one of several associated factors influencing their PI at this stage. Preparedness has been described as preparation for practice and readiness for the workforce with the "requisite attributes to independently practise as a dietitian" (Morgan, Campbell, Sargeant, et al., 2019, p. 47). Dietitians are prepared for the Australian workforce as a generalist, competent to work in all areas of practice – individual case management (or clinical), food service and community and public health.

The Dietitians Association of Australia (DAA, and Dietitians of Australia (DA) from April 2020) National Competency Standards (NCS) provide guidance for the breadth and depth of learning experiences for entry level dietitians, and advise the student is not expected to be able to demonstrate they can manage every type of clinical condition, food service setting or population group. The focus is on demonstrating the “application in practice of the nutrition care process, as it applies to a variety of health and disease states throughout the lifecycle and demonstrate the ability to transfer learning to other contexts” (Dietitians Australia, 2020f, p.6).

Most study participants said they had adequate theoretical preparation from their university, with a rapid learning curve when they first encountered the practice setting. According to the participants, while the foundations were covered, the learning experiences at university, such as case studies and tutorials, were not representative of the real world. Authentic learning experiences are crucial for students to help develop a deeper understanding of the profession and reality of practice, in preparation for their transition into the workforce (Ashby et al., 2016; Morgan, Campbell, & Reidlinger, 2019). In addition, students may need assistance to contextualise their learning and professional skills to the practice setting (Gibson & Molloy, 2012).

A lack of skills and preparedness for private practice was common for the study participants, such as managing the business component or specific client groups or diseases, and this is consistent with the Australian literature (Morgan, Campbell, Sargeant, et al., 2019; Palermo et al., 2016). Knowing how to manage clients with mental health issues is an aspect of the role usually difficult for a new graduate, and clients with eating disorders or complex bariatric cases were considered complicated by participants, requiring advice from a more experienced dietitian. Finding themselves in the situation of needing support and advice for these conditions is not unusual for new graduates. Perhaps the issue is more about expectations and preparing graduates for the situation during their university course (Buttenshaw et al., 2017; Dowding et al., 2011; Maher et al., 2015).

The challenges experienced by graduates in this study were often related to non-technical skills required to perform the job, such as time management, work-life balance, administrative tasks, stress management, and teamwork. Gaps in these skills are not unusual among graduate health professionals as they enter the workforce (Gibson & Molloy, 2012). However, their absence increases pressure on the individual and their employer, and risks attrition from the profession if they cannot learn on the job (Merga, 2016).

Morgan and colleagues qualitatively explored experiences of preparedness for the workforce in a sample of Australian recent dietetics graduates (graduated within the last two years) (Morgan, Campbell, Sargeant, et al., 2019). Findings included participants “not being empowered” to take advantage of opportunities in “more diverse and emerging areas of practice” (Morgan, Campbell, Sargeant, et al., 2019, p. 18). Similar to the themes and experiences by participants in this research, the authors found graduates in their research valued authentic real world experiences and real life learning, but were underprepared for transition from student to graduate into the workforce, and limited by the focus on preparation for clinical practice. Some participants in the research benefited from career development although often it was too late; “the process of becoming ‘job ready’ needed to start earlier and be embedded throughout degrees” (Morgan, Campbell, Sargeant, et al., 2019, p. 17).

Graduate employability is important for universities as graduates’ first-destination employment is a performance indicator for funding (Bridgstock, 2009). Discipline-specific skills and generic skills, including desirable graduate attributes, are often the focus for universities but employability skills are often overlooked. Universities need to consider early integration of career management skills for students, or “the ability to build a career” and “intentionally manage the interaction of work, learning and other aspects of the individual’s life throughout the lifespan” (Bridgstock, 2009, p. 35). Career management skills appear to have been a gap in workforce preparation for many dietetics participants in this study, suggesting they were not as job-ready as required (Morgan, Campbell, Sargeant, et al., 2019).

After leaving university, helping clients, and “making a difference” were rewarding for study participants as graduates, and reinforced their career choice. Reflection on the fit of the work role and greater job satisfaction was associated with motivation. However, this was difficult for those who struggled to gain regular employment and potentially started the rocky path in the hypothetical trajectory. Career choice, expectations, and job satisfaction are interconnected with employment and graduate employability (Daniels & Brooker, 2014), and ultimately influence the PI.

Ideally, the professional community would provide a combination of dietetic peers and colleagues, supervisors, mentors, and role models, each with a robust and dynamic contribution at the pertinent time. A selection from the combination of resources would be available as the student transitions into practice, the workforce, and the profession. The significance of a community of practice for student learning, based on Situated Learning Theory, is that learning is a social process and occurs through interacting in a community, and an identity develops in the community (Ranmuthugala et al., 2011). Sharing of knowledge takes place and as the student increasingly engages in the community, their position shifts from “legitimate peripheral participation to full participation in the community” (Cruess et al., 2015, p. 720).

Through participating in activities and knowledge-sharing by the professional community, novice dietitians are learning and forming the social identities of the profession (Jackson, 2017). Opportunities for students to observe dietitians in the community of practice begins the process of learning and “formal and informal interaction between novices and experts, the emphasis on learning and sharing knowledge, and the investment to foster the sense of belonging among members” (Li, 2009, p. 7).

For study participants, the influence of supervisors on PI was long-lasting and graduates still recalled experiences two years later. Supervisors’ behaviour and the professional environment played a key role in students feeling supported and their emerging self-confidence, as other studies have found (Maher et al., 2015).

In a systematic review of skills and qualities of clinical educators in allied health, Australian researchers Gibson and colleagues singled out clinical educators, generically termed supervisors by participants in this study, for their potential to help students develop their PI (Gibson et al., 2018).

Supervision involved positive and negative experiences for students, particularly around the delivery of feedback. Lack of feedback and acknowledgement of their work were observed equally by students. Students were sensitive to their environment, looking for acceptance by an individual supervisor through to the department as a whole. For students, the absence of feedback could support an opportunity for reflection on their practice or allow an opening for self-doubt, noting “aspects which are ignored or criticized will wither or become distorted” (Holden et al., 2012, p. 249). The culture of the department and inclusiveness portrayed to students was usually recognition as future colleagues, although not always.

The placement site provided role models, patients, culture, context and opportunities for experiential learning, and opportunities to apply classroom theory into practice. Acceptance as a potential future colleague by supervisors to students signaled their belonging to the professional community. The acceptance validated students’ self-categorisation to become a member of the profession, and strengthened their PI. In Social Identity Theory, the profession functions as the ingroup for the student. Through exposure to the profession, the student self-stereotypes and their self-concept changes. An individual identifies less like a student and more as a dietitian, and self-stereotypes to the profession of dietetics (Burford & Rosenthal-Stott, 2017). The PI begins to shift from a student PI to a dietitian PI, influenced by the professional community and the collective identity of the profession (Jarvis-Selinger et al., 2012).

After graduation, influences on participants’ PI in the professional community expanded to include mentors for the Accredited Practising Dietitian (APD) Program, dietetic peers and work colleagues, and less frequently role models. Mentoring was almost universal among participants as it is a requirement of the APD program.

The mentoring program seemed to be more useful or meaningful for some participants than others. The timing for when the partnership was established in relation to employment and match with a mentor from the same practice area mattered, but it was the ongoing support of the mentor that graduates valued most. Accessibility, respect, experience and friendship were aspects of the partnership that mentee participants in this study regarded as fundamental to the success of the pairing. These factors determined the quality of the mentoring partnership for participants, similar to other mentoring studies (Eller et al., 2014; Hawker et al., 2013).

The lack of a significant influence and positive relationship with a mentor was found for participants who were professionally isolated, comparable to the rocky path in the hypothetical trajectory. Having an experienced mentor can become a substitute when there is no other form of professional supervision, with the key distinction between them being that independence from the workplace fosters greater trust and honesty (Hawker et al., 2013). The quality of a participant's relationship with their mentor was a crucial influence on their PI.

#### 6.1.2 Professional confidence as a dietitian

Confidence for early career practitioners has been described as “a state of increasing awareness of abilities and competence (including trust in clinical decisions) as perceived by oneself and others” (Black et al., 2010, p. 1765), with self-efficacy sometimes used instead of professional confidence (Buttenshaw et al., 2017; Holland et al., 2012).

Clinical decision making, development of competency, and PI are all thought to be affected by professional self-confidence (Snell et al., 2020), although confidence can vary according to the activity (Buttenshaw et al., 2017). Higher levels of professional confidence are expected to be associated with competence but the link is not clear-cut because under- and over-confidence adding complexity to understanding (Hecimovich & Volet, 2011).

In this research, participants were aware of their professional self-confidence at all timepoints. Low self-confidence was common among students beginning placements, which usually improved with practice, as reported in other studies on Australian dietetics students (Ross et al., 2017; Swanepoel et al., 2016). Experiential learning on placements boosted confidence. Doing the work and day-to-day activities of a dietitian was essential for developing professional confidence, both as students and graduates. Learning through experience, as described by participants in this study, is supported by studies with first year health profession student as they transition into the workforce, and promotes self-confidence (Black et al., 2010; Yardley et al., 2012).

A marked increase in professional self-confidence began at about 12 months after course completion for the graduates in this study. Some participants described the shift in how they felt and changes in their practiced that had occurred, while others knew something was changing but could not pinpoint what it was. The differences between participants in the timing of the shift is likely to be the result of influences in the work setting, which would contribute to varying rates of developing competence.

The positive shift in confidence described by participants may be how they experience their increasing competence and strengthening of PI. As discussed by medical educators Cruess and colleagues (2015), increasing competence is marked by feeling more secure in the role and increased participation in the community of practice. Feedback to graduates on their improved competence supported “reinforcing an altered sense of self and helping learners to define and stabilize their identity” (Cruess et al., 2015, p. 722). However, when this growth in self-confidence and perception of competence does not occur, PI may be impaired.

Being a solo dietitian in a rural position was a source of confidence for some graduates. They attributed this to only having themselves to rely on, relishing the responsibility, and the wide variety of clinical and professional opportunities available in this type of position. Professional isolation and lack of support from dietetic colleagues and as a graduate occurred for some new graduates in rural positions, although not all.

The professional community in rural positions included other health professionals and an overlap of personal friendships and professional relationships, potentially meeting professional and social needs. Some participants especially noticed the absence of such support after they moved to take up a position, missing informal collegial support for debriefing after difficult patients, discussing new or complex conditions, and bouncing new ideas around.

As participants themselves identified, day-to-day support for new graduates may be more effective in reducing professional isolation than access to continuing professional development (CPD) (Beckingsale et al., 2016; Keane et al., 2012). Scarcity of professional support for health care practitioners in rural and remote areas is well documented in the Australian literature (Coleman & Lynch, 2006; Devine, 2006; Keane et al., 2012; Kumar et al., 2020). Support may take the form of CPD, but increasingly, professional or clinical supervision is recommended to prevent professional isolation for new graduates with a focus on patient safety and workforce retention (Beckingsale et al., 2016; Davys et al., 2017; Martin et al., 2015; Snowdon et al., 2019).

Lack of confidence from not feeling legitimate and being an imposter occurred for several people before placements, but this mostly resolved with experience. As time went by, professional confidence did not seem to progress for those who were professionally isolated, even if they had paid work. Not knowing who to turn to, or limited access to support, and lack of positive influences featured to varying degrees in each of their profiles.

#### 6.1.3           Expectations of employment and the workplace

Employment and workplace context directly affected access and entry to the profession, and the participant's PI. Graduates who were employed quickly after graduation, in a fulltime position in a hospital setting and with good support from peers and supervisors, had a very different experience than those who found themselves juggling part-time dietetic work with other roles, in community settings or private practice.

Before graduation, there was evidence that placement experiences challenged the students' PI, possibly from unrealistic expectations or exposure to the realities of practice during placements. Coster reported findings from a longitudinal study with health professional students, including dietetics students, PI scores declined markedly from entry to course completion, and the decline was attributed to the "reality shock" of placements (Coster et al., 2008, p. 1676). Scores were lower for students from all professions as they exited their three- or four-year course which Coster suggested was from an increasing realisation of dissonance between their expectation and the realities of the profession (Coster et al., 2008).

For participants in this study, inconsistent employment patterns and heterogeneity of the participants' work settings appeared to influence the variability in PI seen between participants after graduation.

As graduates, the employment status for the participants became the context on which so many aspects of the PI depended. The workplace environment provides the acculturation into codes of conduct, roles and responsibilities, organisational structures and hierarchy, and expectations (Trede, 2012), and the support system for new graduates such as mentors, supervisors, and colleagues. The variety of clinical experiences and service delivery in a positive environment promoted consolidation of clinical reasoning and other professional skills.

In this study, doing the work of a dietitian dominated the discussion at all timepoints as participants concentrated on performing the daily activities and tasks of their role, and reality and real world experiences were a large part of the learning. By doing the work of a dietitian, the student is becoming a dietitian, highlighting the performative element of developing a PI (Burford, 2012; Monrouxe, 2010). In Social Identity Theory, the dietitian identity becomes the salient identity over the student identity, and this in turn determines self-perception and behaviour. The salience of an identity is related to accessibility and fit, and it is highly dependent on context. Access to a group identity, in this case the dietitian PI, is influenced by factors such as group goals, tasks and cues, while fit is influenced by comparison of self to the identity stereotype. Burford (2012) cites an example from medical student education:

*Even after qualification an individual may not categorise herself as a doctor until she feels she possesses qualities (such as knowledge, skills, maturity) that she holds to be more representative of the group of ‘doctors’ than of ‘medical students’ (Burford, 2012, p. 145).*

Understanding the shift in salient identities helps interpret the fall in PI scores for students after placements and their “transition shock” (Duchscher, 2009) as they experience the reality of the practice setting. The students’ PI scores before placements reflected a degree of anticipatory socialisation by identifying as a dietitian. In contrast, after placements, they had a greater awareness of differences in attributes between their student and dietitian identities resulting in lower PI scores. Although supervisors had shielded students from internal politics and social dynamics while they were doing placements, developing an understanding of the setting was crucial real-world learning for a new graduate.

Learning during placements allows students to observe the dietitian as a role model of attitudes and behaviours in context and portraying professionalism. Aside from finding appropriate timing and other work factors, shielding students from ethical dilemmas, social dynamics and other professional work matters is a missed opportunity to “engage with issues of professionalism” (Trede, 2012, p. 1). Trede (2012), a proponent of the the unintended curriculum, believes that it may be reinforced if practice experiences are not appraised and a discourse generated.

Workforce structure also appears to play a role influencing the PI. Porter (2019) investigating the PI of a large cohort of allied health professionals before an organisational restructure, found significant differences based on profession and the workforce structure, with greater interaction with their own profession strengthening PI (Porter & Wilton, 2019). Porter suggested that employees identified more with their professional department than with the clinical team or division, similar to findings reported by other researchers (Callan et al., 2007).

However, varied perspectives appeared to be linked with their employment for participants in this study. Two participants who identified as being a dietitian and belonging to the profession were not working in hospital-based positions, with PI scores declining over the two years from course completion. These participants probably identified more with their broader or more generic professional role and had less contact with other dietitians or no alignment, as in Porter’s study (2019). Despite this, these graduates retained a sense of belonging as a dietitian and remained connected to their profession.

The adverse experiences alongside incongruously high PI scores for some participants in this study may be explained by findings of individual circumstances affecting PI. In a longitudinal study with social workers, the interaction between personal factors, education and training, and recognition and support in the practice setting determined how individuals fared in constructing their PI (Pullen Sansfaçon, 2016). Participants in their study had to overcome challenges, and Pullen and colleagues found that an accessible environment does not always lead to a stronger PI.

Knowledge, science and evidence-based practice were almost universally central to their idea of being a dietitian for participants. Although they were committed to client-centred care and accepted a patient may choose an alternative health paradigm, the differences between the belief systems remained a barrier to practice. Some participants were less able to find the way to negotiate change, and concepts of wellness and wellbeing may offer a way forward (McMahon et al., 2016).

With a client-centred care approach, dietitians have been encouraged to explore what was meaningful for clients, and work together to understand their health paradigm (McMahon et al., 2013). Widely used terms of wellness and wellbeing were associated with health and nutrition in diverse fields of psychology, economics, sociology, marketing, and complementary and alternative medicine (McMahon et al., 2010). What and how to measure the outcomes from a nutrition intervention for wellness and wellbeing were unclear, McMahon reported, as was how to inspire or motivate client behaviour change. The researchers developed a theoretical framework suitable for use by dietitians, with wellbeing described as “satisfaction with life” and wellness as “a personal state of being” (McMahon et al., 2013, p. 2013).

The early work understanding wellness and wellbeing led them to propose a “professional identity dilemma” for recently graduated dietitians (McMahon et al., 2016, p. 81). The dilemma was the conflict between needing to be more accepting of the client’s viewpoint and being confident as a nutrition expert. While the research was conducted as a case study within the constraints of a clinical trial, the dietitians’ perspectives were considered similar to other areas of practice. The authors concluded “referring to these concepts [wellness and wellbeing] can build bridges between biomedical and more client-oriented health paradigms” (McMahon et al., 2016, p. 83).

Burnout and intention to leave the dietetic workforce was raised by participants in this research and was associated with professional isolation. Some researchers have investigated burnout as a way to assess work stressors affecting retention and job satisfaction. Canadian dietitians found moderate levels of emotional exhaustion among dietitians (Gingras et al., 2010). Emotional exhaustion is “feelings of depleted emotional resources caused by excessive psychological demands” and is a predictor of burnout and stress (Gingras et al., 2010, p. 239). Age was correlated with burnout, with higher levels found among older respondents. Gingras noted younger dietitians were under-represented in the study sample, which may have influenced their findings (Gingras et al., 2010).

An Australian study in 2015 with dietitians in public hospitals using the same tool found they had low to moderate levels of emotional exhaustion (Milosavljevic & Noble, 2015), which was slightly higher than dietitians in the Canadian study (Gingras et al., 2010). Recent graduates in the Australian study experienced less burnout than longer qualified dietitians (Milosavljevic & Noble, 2015).

Another Australian study published in the same year, took a slightly different approach, investigating professional quality of life for dietitians in acute care caseloads (Osland, 2015). Similar to the findings of Milosavljevic et al., (2015), Osland found that a longer time working as a dietitian and size of the facility impacted on the dietitians' quality of life. Those working in smaller hospitals had higher levels of burnout, thought to be associated with a perceived lower level of support in the workplace (Osland, 2015`).

According to Milosavljevic, adaptation seen in new graduates from nursing, teaching and other professions occurs more slowly for newly graduated dietitians, possibly taking two to three years to reach the same point (Duchscher, 2009; Milosavljevic & Noble, 2015). With this in mind, it may be premature to consider the effects of transition and adaptation on dietitians in this study.

#### 6.1.4 A sense of belonging to the profession

Belonging, as “connection or acceptance from others” has been highlighted in health professional education to influence identity formation (Vivekananda-Schmidt & Sandars, 2018, p. 8). A sense of belonging is far more than being liked: it involves being valued, included and respected by others. It is profoundly personal and is “created through an interaction between an individual and their surrounding environment” (Vivekananda-Schmidt & Sandars, 2018, p. 10).

Belonging to a social group is a source of pride and self-esteem, and individuals view their own group more favourably, even enhancing its status (Price et al., 2019). To identify as “being a dietitian”, a sense of belonging is critical as it impacts on motivation, self-directed learning, and confidence to ask questions. When it is missing, anxiety becomes a barrier to learning (Levett-Jones & Lathlean, 2008) and developing competency (Maher et al., 2015).

To belong to a profession requires a new practitioner to understand the scope of practice and role boundaries of the profession. In this study, for most participants, belonging to the profession was as a clinical dietitian, and they viewed the setting as more desirable than other practice settings. Dietetics has struggled with the extent of influence by clinical practice outside acute care with findings of higher status for clinical expertise rather than in community settings (Morgan, Campbell, & Reidlinger, 2019).

The origins of nutrition and dietetics are in biomedical sciences and a positivist paradigm with the focus of research on “the ‘post-swallowing sciences’ (medicine, physiology and biochemistry)” rather than the ‘pre-swallowing sciences’ (sociology, anthropology and psychology)” (Williams, 2016, p. 218). These origins and the higher status of those who work in acute care, despite the range of work done in community settings and the need for that work (Ash et al., 2019) may produce dissonance between the expectations of a dietitian’s role and the reality of practice.

As early as 2010, using feminist methodologies, Gingras explored “dietitians’ experiences of discontinuity between their educational and professional encounter” (Gingras, 2010, p. 438). Interviews with 12 dietitians with varied backgrounds found similar experiences related to the role of “passion and melancholia” (Gingras, 2010, p. 440). Their passion referred to helping others and working with colleagues, while melancholia was from lack of professional recognition.

The dietetics competencies and resulting curriculum implemented by the university dietetics program are likely to be where the mismatch between role expectations and workforce reality is introduced for participants. Recent changes to competency standards aiming to diminish barriers between the three practice domains (individual medical nutrition therapy, food service management, and community and public health nutrition) may facilitate a shift in mindset and practice in the profession (Ash et al., 2019; Morgan, Kelly, et al., 2019).

Two years after course completion, participants were making career moves such as changing positions, travelling and studying. Belonging to the profession and individual PI scores varied at this time of change, and some participants had flourished while others had struggled. For some people, a critical period in development of PI seems to have passed or reached a turning point, and for others, it was finally time to do something that had been on hold. This two-year change point was later than reported in physiotherapy (Black et al., 2010) where, by the end of the first year in practice, their study participants had developed considerable confidence in their skills and an awareness of their PI with a clearer and expanded view of roles. However, they also experienced a dissonance between the emerging PI and their values, practices and cultural norms of the workplace. For these new professional physiotherapists, that dissonance led them to look for other opportunities at the end of their first year of practice. In contrast, for many dietitians in this study, the slow start into employment delayed opportunities in the workforce, with potential impairment to their PI.

The challenges of belonging to the profession described by participants in this study have similarities with findings from studies with dietitians nationally and internationally. Devine and colleagues (2004) from the United States of America identified similar concerns with a lack of respect for expertise, unrealistic expectations and stereotyping by clients and co-workers, high workload and time constraints, and professional isolation (Devine et al., 2004). A more recent, comparable Australian study showed the importance of the workplace in validating and giving purpose to the role (Milosavljevic et al., 2015). A conceptual model identified five sources of value for the dietitians' sense of worth: "personal attributes, acquisition of knowledge, culture, role clarity, and relationships" (Milosavljevic et al., 2015, p. 109).

The level of importance of each value differed according to career stage. Acquisition of knowledge and culture in their professional department mattered more for new graduates, compared to mid-career dietitians (two to six years of experience) (Milosavljevic et al., 2015). The mid-career dietitians were more concerned about the hospital culture and role clarity within the hospital. Other similarities to this research, unrelated to the career stage, were a perception of being underappreciated and a desire for professional recognition in relationships, both at home by family and friends and at work by professional colleagues (Milosavljevic et al., 2015).

There are also societal perceptions about a profession that affects development of PI (ten Hoeve et al., 2014). Using Social Identity Theory developed by Tajfel in a study of the nursing profession, ten Hoeve and colleagues proposed that when the public has a positive image of a group, the self-esteem, self-image and self-presentation of the group is increased (Tajfel, 1982). In this study, participants expressed concern about the lack of recognition of their role and the narrow, and often negative, public image of dietitians.

Diminishing their expertise and stereotyping the role of a dietitian to weight management was also common, and challenging for many participants. Variations to this pattern were persistent questioning and unsolicited advice about food and nutrition, healthy eating and commercial products. Mostly this was from the general public but also family, friends, and sometimes colleagues knew little about their training and professional role.

Identity involves identifying with the profession, becoming a case of “us” and “them” (Trede et al., 2012, p. 380). Despite some respondents feeling undervalued and unrecognised in the workplace, they still reported belonging to the profession. The belonging and sustained connection with the profession suggests a high degree of identifying with the profession and depersonalisation according to Social Identity Theory (Trepte & Loy, 2017).

Belonging to a social group is a source of pride and self-esteem and individuals view their own group more favourably, even enhancing its status (Price et al., 2019). Categorisation Theory as a sub theory of Social Identity Theory, holds that individuals will compare and choose to identify or align themselves with the group that offers greater status and self-esteem, and will use cognitive strategies to minimise threats to their self-image (Trepte & Loy, 2017). The challenges posed by negative stereotyping to participants' PI may be resolved for an individual by employing social mobility and leaving the group, in this case the profession. Leaving the profession could be literally or figuratively leaving; for example, a dietitian may prefer to identify as a nutritionist, or enrol in further study in a dietetics-related area.

It is not known whether there is a time lag between quantitative and qualitative findings for participants who struggled to gain sustainable employment. By two years after course completion, PI had improved although was still weak, they still spoke of a sense of belonging to the profession. There may be an internal, temporal gap processing the two positions for the individual, and they are conflicted.

However, the group or profession itself may engage in ways to improve its status, such as shifting the comparison group to one that is more favourable (social creativity) or begin social competition with the 'outgroup' (Trepte & Loy, 2017). An example of a social competition strategy by the profession of dietetics is an ongoing public media debate with celebrity chef Pete Evans (My Health Career, 2014). Evans promotes the paleolithic diet or 'paleo diet' for a variety of health benefits, which includes poultry, fish, eggs, fruit, vegetables and meat but excludes all types of grains and dairy products. When the DAA publicly discredited the diet, Evans returned the challenge, and the social competition strategy between DAA and Evans (as the outgroup) continued over multiple media outlets and time.

## 6.2 Practising collaboratively as a dietitian

The second enquiry in this research was to establish what factors determine how CP is incorporated into the PI of dietitians, and this was the focus of *Domain 3: Working collaboratively*.

Data sources over the four timepoints were the qualitative theme Teamwork - being a team player, and quantitative scores from the UWE IQ scales measuring changes in attitudes to CP. The four scales were participants' self-assessment of their communication and teamwork skills, attitudes to interprofessional (IP) learning, perception of IP interactions and their own IP relationships.

The authors of the tool advise "collaborative learning and working are held to be synonymous with interprofessional learning and working, as defined by CAIPE [Centre for the Advancement of Interprofessional Education] 1997" (Pollard et al., 2005, p. 252). That is "occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (The Centre for the Advancement of Interprofessional Education, 2020).

Collaborative practice, as seen by Orchard, is inspiring and aspirational (Orchard et al., 2005, p. 10):

*Imagine a world where each group's expertise is held in regard, offered, and shared as the need arises. Imagine a time when the patient can determine which kinds of practitioners he or she needs or wants, and then imagine a system that makes those professionals available (Carroll-Johnson, 2001, p. 619).*

In the literature review, it was established that collaborative practice (CP) has a variety of interpretations, with the following terms provided:

Collaboration in health care teams:

*The process by which interdependent professionals are structuring a collective action towards patients' care needs. D'Amour, 1997, cited in (San Martín-Rodríguez et al., 2009, p. 133).*

Collaborative practice was 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).*

It was also found that the DAA competency standards require entry level dietitians to develop collaborative relationships with clients or their carers', colleagues, health care professionals and multidisciplinary teams, organisations and stakeholders (See DAA National Competency Standards in Appendix B.1.2, p. 12).

Bringing these two understandings together, the individual dietitian practises collaboratively with colleagues, health care professionals, organisations, and works in teams with other health professionals to provide client-centred care (Interprofessional Education Collaborative, 2016).

Three constructs in *Domain 3: Working collaboratively* provide insight into the way that, and the extent to which, recently graduated dietitians, adopted, implemented and incorporated CP into their PI. They are:

- Learning a collaborative practice role
- Sharing power
- Organisational context and culture

Although the connection between IPE and CP is indirect, the premise is that by completing IPE activities as a student, the graduate will be more able to collaborate in practice (Khalili et al., 2019; Thistlethwaite, 2016). It is the next step, the relationship between PI, IPE and CP, that is complex (Joynes, 2018; McGuire et al., 2020).

An individual has multiple social identities, and this is thought to apply to professional identities, so it follows that a practitioner will have several PI (Joynes, 2018; Khalili et al., 2013; Khalili et al., 2019; Tong, Brewer, et al., 2020). A three-stage IP model for dual identity development and learning an IP role has been proposed by Khalili and colleagues (Khalili et al., 2013). In the model, students establish a single profession PI which precedes IPE socialisation through experiences and opportunities to collaborate, and learning an IP role. The final stage in becoming an IP practitioner with dual identities encompasses belonging to their own profession as well as an IP community (Khalili et al., 2013).

The proposed dual identities bring willingness and confidence in CP (Khalili et al., 2013). Supporting this concept of dual identities, IP research has found health and social care staff held both a PI and an “intra-professional identity”, which included a commitment to CP, expressed as a “responsibility towards working effectively with other professions [and] was also associated with doing what is best for patients” (Joynes, 2018, p. 8).

Empirical evidence supporting development of dual identities, a PI and an IPE PI, has been reported from evaluating an IPE program delivered to students in diverse health care disciplines (McGuire et al., 2020). Tong and colleagues advise that there is no specific tool, quantitative or qualitative, that measures an IPE identity. However, in the absence, it is feasible to consider concepts relevant to the IPE context such as interdependence and belonging, for the adoption of an IP identity (Tong, Brewer, et al., 2020).

Returning to this research and the concept of dual identities, study participants have graduated with varying degrees of exposure to IPE and opportunities for development of dual identities during their education. Without a tool to assess the integration of CP into PI, in this research the four scales of the UWE IQ tool provided a framework of attitudes and perceptions towards CP: IP learning, IP relationships, IP interaction, and communication and teamwork. Naming the potential dual identities for participants in this study, the discipline specific PI is the “dietitian PI”, and the interprofessional, collaborative practising PI is the “CP identity”.

### 6.2.1 Learning a collaborative practice role

Undertaking an IPE experience in the academic setting with other health professional students was common among participants in the study. Almost all of the participants in the longitudinal group reported undertaking between two and four IPE activities as a student, including face-to-face workshops, lectures and tutorials. The single profession dietetics placement was often identified as an IPE opportunity, supporting the position that learning in context and practice-based learning is profoundly influential for students.

IPE programs vary widely in their learning activities, duration and which specific professions are involved (Olson, 2014; Thistlethwaite, 2013), while effectiveness is related to the quality of student IP interactions (Tong, Roberts, et al., 2020) and the amount of contact (de Oliveira et al., 2018).

The references to teams and teamwork in this study by students and graduates were invariably about the clinical setting. Teamwork as dietitian employed in community and public health and food service roles was rarely mentioned. Depending on the learning goals of the IPE activities undertaken as students, participants may have difficulty identifying and transferring the application of CP skills to other settings as graduates.

An alternative view is preparation for the non-clinical placements was delivered as a single profession to dietetics students, known as silo teaching (Hall, 2005), and self-stereotyping reinforced the expectation that dietetic practice in non-clinical settings has less requirement of teamwork skills. These are not mutually exclusive views, and it is highly plausible that both situations occurred for the participants.

Demonstrating IP thinking, graduates expected to work in health care teams and their nutrition care plans would incorporate the goals of the client and other team members (Olson & Brosnan, 2017). Interestingly, the reverse expectation was not articulated, that the team and other team members care plans would include the aims of nutrition care. The position of participants where the focus is on their own practice rather than the team suggests the dietitian PI is more developed than the CP identity, consistent with Khalili's model (2013), where the development of discipline PI precedes the CP role (Khalili et al., 2013).

Professional boundary issues are documented as being a significant barrier to successful teamwork and IP practice (Hall, 2005; McNeil et al., 2013; Wackerhausen, 2009). It is at the boundary of their profession that graduates with limited understanding or experience of working with other health professions can have difficulties (Morgan, 2017; S Reeves et al., 2010). Trede (2012) argued that "identity is also about differences" and being able to recognise similarities helps when learning about boundaries (Trede et al., 2012, p. 380).

Students acknowledged and were prepared for the potential overlap of roles with other health professionals. As graduates, knowing their boundaries within the team, role clarity, and the scope of practice for a dietitian were more evident.

Attitudes to IP learning by participants were generally positive. Students expressed a strong interest in learning in more detail about the practice of other health professionals, and especially wanted to understand the communication style of colleagues. As graduates, learning about and working with other health professionals was seen as important because it would enhance their role as a dietitian. For example, after discussing clinical care with the speech pathologist, one participant described changing diet codes to suit the speech pathologist and the patient better, thus improving their own nutrition practice.

Although many participants spoke of wanting to know more about the role of other health professionals which suggested moving towards a CP identity, the direction of change for the UWE IQ IP learning Scale score over the time period varied; the score became more positive or had no change for half of the participants, and deteriorated for the other half of the participants. The differences in change of direction for IP learning scores indicates the combination of mastering professional skills and opportunities for CP in the workforce was more effective for those people whose experiences were more positive (Black et al., 2010).

The imperative for a new graduate in the workforce is learning to apply theoretical knowledge and progress clinical reasoning skills in a new context (Hayward et al., 2013; Morgan, 2017), and this was the case for participants. As their clinical skills consolidated, participants were able to distinguish more opportunities for learning and working with other health professionals, and the IP learning score increased.

The findings of this research are consistent with others; IP collaboration was beneficial for the PI of graduate health care professionals. Frequently explaining their role to team members bolsters understanding of their profession (Morgan, 2017). Initially, graduates were profession-centric and revised their focus over time to become more collaborative as they developed proficiency in their discipline alongside IP practice (Morgan, 2017). Morgan's findings show the progression and enrichment of PI rather than weakening to a more generic health PI. In this study, the findings align with those by Morgan, that is roles which involve the dietitian in teams and CP, sustain the dietitian PI.

Advocating for their patients in the team often required the dietitian to explain the role of nutrition and the importance of their nutrition intervention for the patient's recovery or wellbeing.

Advocacy was a recurring element of the dietitians' role at all stages, whether it was advocating for their clients or for the profession of nutrition and dietetics. Examples of wording associated with advocacy from different participants were: "really, really had to push ... to get the changes that you thought would be best for the patient", "to be proactive within the team to push for what you wanted", "actually to be quite forward and confident in what you think about how a patient is performing", and "so yeah, you just have to, you have to go for it".

The tone of the language surrounding advocacy was of needing to be active or even assertive in the collaboration. As Morgan explains "to clearly communicate profession-related knowledge, terminology and skills when interacting among professions [and this] is challenging for graduates" (Morgan, 2017, p. 444).

Accordingly, for the newly graduated dietitians in this study, invoking the CP identity in the health care team required significant effort, which is reflected in the tone of their language. In Khalili's model, the dietitian PI would precede development of the CP identity, and it would be the strongest (Khalili et al., 2013). In Social Identity Theory, the salient identity needs to be accessible, and the team context may be perceived as an unsafe environment or there are conflicting cues for the CP identity, allowing the dietitian PI to be dominant (Burford, 2012).

#### 6.2.2 Sharing power

Discussion about power and power relationships has been in the interprofessional health care literature for some time, although many authors believe the topic is under-theorised and deserves further attention (Baker et al., 2011; Cohen Konrad et al., 2019; DeMatteo & Reeves, 2013; Hall, 2005; Paradis & Whitehead, 2018).

Power is inherent in professional relationships in the health and education setting, according to Cohen Konrad and colleagues, because they “are by and large situated within hierarchical structures and are historically unequal in nature” (Cohen Konrad et al., 2019, p. 401). The allied health professions sit between medicine and nursing in the hierarchy (Cohen Konrad et al., 2019). Power sharing issues between allied health professionals and the medical team are reportedly related to hospital acuity, clinical pathways and the governance structure (Baker et al., 2011; Boyce, 2006; Nugus et al., 2010). To support sharing knowledge and power in the hospital hierarchy, allied health professions have become aligned as a collective with medical and nursing forming separate groups (Baker et al., 2011; Boyce, 2006).

A power imbalance when working with doctors was reflected by some participants. The imbalance could have been at an individual level, influenced by interpersonal factors in the relationship between the doctor and the dietitian, or may be the result of a more extensive, systemic institutional or organisational factor (Baker et al., 2011; Bourgeault & Mulvale, 2006; Orchard et al., 2005). Identifying the level for the specific examples of skirmishes was difficult, either personal or systemic factors can occur in the interprofessional team.

In Social Identity Theory, the group processes are separate and different from interpersonal factors, “but grounded firmly in individual cognition” (Burford, 2012, p. 144). Professional identities support cohesion between the ingroup and outgroup, and communication between the groups can be used to maintain the boundaries. Information exchange and language influence intergroup communication, and communication patterns can promote or hinder team interactions (Burford, 2012; Monrouxe, 2010).

However, some of the reported experiences occurring in the team and conversations with doctors might be considered medical dominance. It was common for participants to feel uncomfortable when communicating with doctors, and having to prepare themselves before a conversation to ensure they would be taken seriously. Their experiences lead to connotations of a “psychological safety”, that is, some participants had a feeling of being unable to express themselves “without the fear of negative consequences” (Appelbaum et al., 2020, p. 21).

To better understand IPE team processes, Appelbaum explored the impact of a perceived imbalance of power on psychological safety, and perceived team cohesion on team effectiveness (Appelbaum et al., 2020). The study employed simulated scenarios involving teamwork between medical and nursing students, noting the students had no previous exposure to IPE concepts. The medical and nursing students represented professions with high- and low-status of power, respectively, in a role hierarchy that characterised the “distance of power” (Appelbaum et al., 2020, p. 21). The findings showed psychological safety was inversely related to the students’ perception of differences in power. Perceptions of team cohesiveness and team effectiveness were also negatively influenced by the perception of power imbalance, leading to the proposal that “these concepts influence desired interprofessional team collaboration” (Appelbaum et al., 2020, p. 20).

Power imbalance and role hierarchy with doctors was a recurring concern for some participants in this research. Appelbaum’s findings suggest participants’ perceptions of power imbalance contributed negatively to their perceptions of psychological safety and team cohesiveness. By extension, the power imbalance may be harmful to CP by the graduate and their CP identity.

The medical dominance model has become less prominent in Australian health care than it used to be in the 1980’s (Boyce, 2006; Schofield, 2009), although institutional and organisational factors, and regulations remain (Bourgeault & Mulvale, 2006; Schofield, 2009; Willis, 2006) as barriers to “clinical democracy” (Long et al., 2006, p. 506).

In a scoping review on PI in IPE teams, Best and Williams found the use of power, either positively or negatively, was related to trust in enabling collaboration in integrated care teams (Best & Williams, 2018). They observed that power and dynamics in teams have changed with the rise in multiprofessional teams. Power used to be assigned or assumed with the role for a health professional and clearly defined, but roles and boundaries now need to be negotiated within the team (Best & Williams, 2018). Baker disputed the impression of equality in power sharing in IPE teams, arguing the imbalances “stem from the regulatory and work arrangements of each profession as well as the historically entrenched attitudes of whose knowledge and skill ‘really’ matters” (Baker et al., 2011, p. 103).

Graduates who were able to establish professional and social relationships with junior doctors were less intimidated and more able to approach the consultants or “scary doctors” as they gained experience and confidence. The first step to building relationships, particularly with doctors, took confidence, and was only possible when they were able to push away the self-doubt. Informal and friendly relationships as enablers of confidence is supported by findings on power, hierarchy and emotions for trainee doctors (Crowe et al., 2017). Returning to Appelbaum’s study findings, reducing the perception of a power imbalance through informal, friendly relationships promoted confidence to interact with junior doctors (Appelbaum et al., 2020).

One interpretation of IPE power issues is offered by Baker and colleagues, identified in the findings from a larger IPE project between multiple health and education organisations (Baker et al., 2011). The health and social care professionals in their study credited the doctors’ attitudes and actions as determining the tone of the team, culture and decision-making processes, despite their low level of engagement in IP processes.

The participants in Bakers' study interpreted the doctors' apathy toward IPE as especially challenging because it reinforced the hierarchy among the professions. For the allied health professionals, IPE offered an opportunity to improve status, respect and autonomy. Both sides used power strategies that contributed to tensions and competition within the team, protected and maintained existing patterns of interaction, and undermined efforts to collaborate. Baker concluded when IPE was believed to threaten to professional status, attitudes "were expressed through a type of protectionism where it mattered more to foreground one's own professional identity than to find common ground" (Baker et al., 2011, p. 103). The protection of their own PI observed in Baker's study, cannot be excluded as a source of the power issues between doctors and participants in this research.

Another interpretation of IPE power imbalance was proposed by Orchard and colleagues who suggested the issues originated from either role conflict or goal conflict (Orchard et al., 2005). Participants in this study expressed concerns about ownership of nutrition knowledge with doctors which is potentially role conflict, however their more substantial issues are likely to result from goal conflict. Differences in values and opposing philosophies could occur when there are different expectations for shared decision-making and teamwork between the doctors and dietitians, leading to role conflict. In contrast, differences in values from opposing philosophies can lead to goal conflict, such as differing priorities between doctors and dietitians for client care.

Collaborative practice is less likely to occur when the team dynamics of power and hierarchy challenge an unconfident new graduate or either of the dual identities are weak or emergent. This is illustrated with the assertion "members need to be on equal footing when it comes to deciding a course of action for patient and family care... those with the needed expertise at the moment must not only step forward, but be allowed and encouraged to do so by the team" (Pecukonis, 2014, p. 64).

Participants demonstrated elements of client-centred care; they described giving attention to and learning from clients although clients were not generally seen as part of the team. They spoke about advocating for the nutrition needs of clients, engaging with clients in determining the direction of their care, and the difficulties of not being able to provide continuity of care. Clients were influential for student learning, but the influence and power intensified for new graduates assimilating client-focused dietetic practice.

The literature provides insight as to why clients featured so prominently for graduates in this research. Sladdin and colleagues, reporting on a scoping review to improve provision of patient-centred care by dietitians, discovered themes around establishing a positive relationship, communicating effectively and showing qualities such as empathy, encouragement, honesty, integrity, trust and respect (Sladdin et al., 2017). They found the nutrition intervention needed to be tailored to the individual and with power redistributed to the patient for sharing in the decision making to occur.

Other researchers have found client-centred practice was valued by dietitians although there was a persistent belief some clients prefer a biomedical practitioner-led consultation (Levey et al., 2020). Harper and Maher, based on findings from their study on novice to expert dietitians in private practice, found that “dietitians form collaborative relationships with their clients” to cultivate trust and promote change (Harper & Maher, 2017, p. 1). Dietitians in Harper and Maher’s study (Harper & Maher, 2017) believed establishing a relationship with clients and building rapport were needed for the client to engage in the process and commit to making dietary changes. These changes were negotiated through a non-prescriptive approach by using interpersonal skills to apply evidence-based practice, with the client’s circumstances determining how far evidence guidelines were compromised for the nutrition intervention. Described as “collaborative therapy”, there are similarities with the patient or client-centred care model (Harper & Maher, 2017, p. 13).

The greatest challenge for dietitians implementing client-centred care is reassigning power to patients, according to Sladdin and colleagues, mostly from needing to be seen as “the expert” (Sladdin et al., 2017, p. 465). Citing the term “professional identity dilemma” used by McMahon and colleagues (McMahon et al., 2016, p. 81), dietitians’ difficulties in power-sharing were attributed to being unclear about their professional role when the client was actively involved. Less experienced practitioners were more likely to encounter difficulty when being the nutrition expert while sharing power with the client (Sladdin et al., 2017).

Orchard (2005) explored how the IPE team might bring patients into team discussions and the collaborative decision-making process about their care (Orchard et al., 2005). Structural barriers to a more inclusive role for patients were noted to include power imbalances between health professionals and their clients, and power relationships within the health care team. In addition, the patient and their family would need to share responsibility for the decision-making, or be independent of it, and this would be influenced by their ability to be active partners in the process (Orchard et al., 2005).

The findings reported by Sladdin and Orchard are supported by this study (Orchard et al., 2005; Sladdin et al., 2017). Participants highly valued client-centred practice, and they graduated with skills to provide nutrition care to meet client needs. However, managing the power balance with clients and their own expectations of being the nutrition expert was still developing as new graduates. Client-centred care was incorporated into the dietitian PI, but the client was not seen as a team member for the complete adoption of a dual CP identity. For participants in this study, it appears power sharing issues with clients may be operating in both identities and related to being the nutrition expert.

Before the start of placements, student respondents were unsure how much interaction they would have with other health professionals. They were concerned about respect for their contribution to the team and quality of communication, particularly with doctors. Time in the workforce brought recognition of the benefits of working with other members of the team, and working relationships were becoming easier.

Deterioration in participants' scores for IP interaction was most likely affected by individual aspects of context and the working environment, or other factors related to the team functioning, with the scores as evidence of participants' interpretation or perception of their experiences. The power sharing issues with doctors previously discussed would be likely to contribute to a deterioration in attitude. An example cited by a graduate was needing a senior nursing staff member to intervene and support her request to delay discharging a patient because a feeding pump was not available, despite requesting this herself several times. This example fits with Applebaum's conclusion of power imbalance and hierarchy status of roles influencing participants' perceptions of psychological safety, and perception of team cohesion supports the likelihood of a deterioration in IP interaction scores (Appelbaum et al., 2020).

The IP interaction scales can also be influenced by student experiences, with graduates carrying stereotypes and negativity into practice and becoming more critical as professionals than they were as students (Pollard & Miers, 2008; Pollard et al., 2006). While the legacy of placements continuing into practice for participants was certainly a possibility, it was not specifically observed in this study.

For five of the eight participants, the UWE IQ IP relationships scale scores assessing attitudes towards the participant's own interprofessional relationships became more positive or improved over the timepoints, while they deteriorated or became more negative for three people. The enrichment of participant's IP relationships as they gained experience is likely to be associated with growth in professional confidence, leading to more active involvement in the team.

Power sharing and power imbalance perceived by participants impacted on the CP dynamics within the health care team, and potentially affected their capability to provide client-centred care through needing to be the nutrition expert. Reducing their perception of a power imbalance through informal friendly relationships developed confidence to interact with junior doctors. Positive experiences in these relationships were confidence building, and enabled progressive ability to engage with more senior doctors.

#### 6.2.3 Organisational context and culture

Recently, findings from a scoping review examining the effect of context on the outcome of IP collaboration in hospitals, reported context is the variable that might account for conflicting results seen in other review studies (Pomare et al., 2020). Context was considered to include “the types of patients seen and the complexity of the care delivered” (Pomare et al., 2020, p. 515). The authors concluded, “IPC [IP collaboration] as a phenomenon may vary with context” (Pomare et al., 2020, p. 517) and recommend including qualitative data such as culture and context in studies on IP collaboration.

Context is “a dynamic and ever-changing system that emerges from underlying patterns of patients, locations, practice, education and society, and from the unpredictable interactions between these patterns” (Bates & Ellaway, 2016, p. 814).

For this research, one implication from the scoping review findings (Pomare et al., 2020) is that context may contribute to the varied experiences of CP by participants, and observations on context are valuable to understanding the dual CP identity. Contexts with potential to influence the CP identity of participants includes: patient contexts such as demographics, physical context such as rural or urban, practice contexts such as clinical focus and disciplines, the institutional contexts for the type of clinic or hospital and expressions of authority and rules, and social context for the individual’s beliefs and behaviours (Bates & Ellaway, 2016). In this research, these influences are collectively summarised as organisational context.

Among participants in this research, some engaged in teamwork, having face-to-face discussions with individual colleagues and team meetings. Other participants had less opportunity to meet but communicated with their team via the medical notes.

The less direct form of teamwork is endorsed by similar findings by IPE researchers that teamwork and working in teams in health care is complicated – teams are heterogeneous, many different health professionals are involved, and the team changes over time (Dow et al., 2017).

Recognising the reality of teamwork by health care professionals is often conducted by indirect communication and collaboration through virtual networks, changes were proposed to IP teamwork competencies to include this type of networking as a form of collaboration (Dow et al., 2017).

To accommodate an even broader view of IP practice, the endorsed and updated the original 2010 IP framework, centred the dimensions of IP activity on the consultative, partnership, coordinated, and delegative interactions within the team (S. Reeves et al., 2010; Reeves et al., 2018). There was support for the inclusion of networking in a revised typology for a collaborative competence framework (Dow et al., 2017; Reeves et al., 2018). The focus remained on the concept of teamwork activities; teamwork, collaboration, coordination and networking, with dimensions of IP activity rated for the expected intensity of team contact, ranging from very high to low levels (Xyrichis et al., 2018).

Freer forms of IP activity in the revised IP framework offer an understanding of how participants in this study functioned in teams in their day-to-day practice (Reeves et al., 2018). The IP teamwork activities by participants were most often low intensity, and the dimension of contact was networking without meeting face-to-face or collaborative partnership with just two professions (Xyrichis et al., 2018). The team itself was often dispersed and featured varied contexts such as composition of the team, practice setting, and types of patients seen, all factors with potential influence on the CP identity (Bates & Ellaway, 2016).

Students and graduates reported interacting consistently with all health professionals at all timepoints. As dietitians, they worked with doctors of all career stages from junior to senior medical officers, GPs and consultants. Nurses were rarely described by study participants as being at a particular level of seniority or career stage, but rather they were differentiated by their area of specialty, such as diabetes educator or mental health nurse.

The term “allied health” was sometimes used to describe a generic group of allied health professionals and other times professions were specified, such as speech pathologist, physiotherapist and occupational therapist.

Abbreviating roles to “speechies” and “OTs” was common and could be interpreted as familiarity with the team member and a typically Australian manner of speech. Other members of their teams with varying degrees of contact were chiropractor or “chiro”, exercise physiologist, podiatrist, pharmacist, psychologist, social worker, as well as non-health professionals, such as accountants.

Clinical teams, also referred to as medical teams or multidisciplinary teams, were a combination of health professionals and had team meetings and communication specifically related to patient care were the most common way of working together. This is typical of a multifunctional health care team (Morley & Cashell, 2017; Thistlethwaite, 2016).

The varied communication patterns within the team were another form of the organisational context and culture for participants. Dietitians documented services they delivered and communicated with the team through the medical notes, as a reasonable way to collaborate. Speaking directly with team members and colleagues about clients was not always possible and groups who were not able to meet face-to-face for meetings, such as occurred in rural positions, did not appear to have other ways of working together. Turnover in the team affected team processes in rural positions leaving vacancies in the team, and existing team members to expend time and effort getting to know new people to keep service delivery running smoothly.

Doctors were spoken about in a different way to nurses and allied health professionals, by participants as students and as graduates. The working relationship with doctors was considered more challenging than with any other health professional. Before placements, their views may have been affected by anticipatory socialisation, related to stereotyped perceptions of imbalance in knowledge and power perpetrated by university lecturers, based on comments made by participants in interviews.

After entering the workforce, a frequent concern was lack of respect for their role and contribution as a dietitian, and the high level of confidence needed to interact with doctors. Junior hospital doctors who were a similar age and a few senior doctors were less intimidating according to one participant. Some participants were positive about interactions with doctors who believed nutrition was important, and GPs who valued the contribution of nutrition referring patients to the dietitian. Older GPs were less likely to seek the dietitian's opinion and often resisted acting on their advice. Doctors' views on the importance of nutrition for their patients is varied and resistance to change has been reported in the literature; which could be particularly difficult for new graduates' tenuous confidence levels (Milosavljevic et al., 2015; Rattray et al., 2019).

These concerns did not apply to other members of the team. Nurses were seen as more approachable and equal status by participants and a reliable source of support for students and new graduates, and the relationships built quickly. They were considered the most accessible health professional on the wards and available to share information about the patient, and nurses made time to answer questions. Relationships with allied health professionals such as OTs and speech pathologists tended to resemble those with nurses, with a similar sense of equal status.

Dietitian peers and colleagues were frequently identified by participants as being part of their team, with one person saying they worked more closely in this type of team than a clinical or medical team. Relationships with peers which began as students were sources of support during their studies and important friendships after graduation. Some people kept in contact with their friends from student days, although others lost touch and reported they felt the absence of peer support.

Participants spoke of competitiveness with their peers during placements and when applying for work, and relationships with peers were affected if they were successful in gaining employment. While not everyone experienced competitiveness within the profession as a graduate, it seemed most pronounced for students, perhaps from the heightened emotions of placements.

Competitiveness in the profession and among the student cohort has been raised by other researchers. The extent or effect of competitiveness in dietetics in Australia is not known (Morgan, Campbell, & Reidlinger, 2019) although among Canadian student dietitians it is associated with modifying behaviour and identity to secure an internship, leading to reduced peer collaboration (Brady et al., 2012; Lordly & MacLellan, 2012; Ruhl & Lordly, 2017).

The significance of competitiveness for CP is twofold. Firstly, behaving competitively in interactions with peers, colleagues, networks and teams is potentially detrimental to CP (Michalec & Hafferty, 2015), and may reduce the sources of professional support as new graduates in the workforce (Morgan, Campbell, Sargeant, et al., 2019). Secondly, it is highly likely that by strongly identifying with their profession, professional competitiveness will contribute to boundary protectionism and profession-centrism, leading to only looking at the world through the lens of the profession (Pecukonis, 2014).

In Social Identity Theory, this approach is associated with a negative attitude towards the outgroup of other health professions, and influences perceptions and behaviour to maintain an individual's positive self-esteem and preserve the group values (Pecukonis, 2014). Conflict occurs in the health care team when relational issues, bias and stereotyping emerge to negatively influence decision-making processes, where "stereotyping... must be managed to achieve effective interprofessional team work" (Pecukonis, 2014, p. 63).

Professional isolation and withdrawing from the profession by some graduates occurred when their experience in the workforce was less structured, and the organisational context and culture were less relevant. They tended to have had difficulty gaining employment or had multiple part-time positions, and their trajectory was closer to the rocky path discussed earlier. Many of these people also had poor professional support and less engagement in the professional community. By two years after course completion, although they identified as being a dietitian, their opportunities to develop a dual identity through experience working with other health professionals, a CP identity, were more limited.

The UWE IQ communication and teamwork scale score became more positive or improved for six of the longitudinal participants, and it was the only scale score to show such positiveness. According to Pollard and colleagues, communication and teamwork scales tend to fall when students lose confidence (Pollard et al., 2006), as occurs on entry to practice and expectations are not met. With more experience, participants adjust to the reality of their situation and responses become more positive.

Typically, students overestimate their skills when they have little experience of the item being measured, in this case IP communication, which would account for scores declining after the experience of placements.

In this longitudinal group where there was a high rate of previous experience in health care, some of the effects of loss of confidence may have been mitigated (Pollard et al., 2006). Teamwork in clinical teams in the hospital setting was the most common form of CP. The communication aspect of teamwork was not a great worry for students who felt prepared for this, although as mentioned, except for communicating with doctors.

As graduates, the communication and teamwork scores were supported by qualitative findings, and communication with other health professionals was in a comfortable position. For example, one participant described learning what type of nutrition information medical staff looked for in the medical notes, and this enabled her to ensure it was documented.

Learning how best to communicate with other health professionals could be seen as developing a “cognitive map” of colleagues (Hall, 2005, p. 4). The cognitive map described by Hall combines an individual’s disposition and educational factors, and is a defining feature in the culture of a profession. Understanding the cognitive map of a profession facilitates IP communication, and participants were looking to distinguish patterns and messages within the team. Working with the cognitive map of their colleagues would facilitate open communication and information sharing which are antecedents of teamwork and collaboration (Xyrichis & Ream, 2008).

#### 6.2.4 Implications for practice

Findings presented in this chapter address the research questions; what influences contribute to the development of PI by dietetics graduates, and how CP is incorporated into the PI of dietitians? A summary of the findings against the research questions and implications for practice are shown in Table 6.2.

The following final chapter addresses the significance of the findings for the dietetics profession and recommendations for practice, directions for future research, and conclusion of the thesis.

**Table 6.2 Summary of findings and implications for practice.**

<b>Research question</b> What influences contribute to the development of professional identity by dietitians?		
<b>Data source</b>	Domain 1 Engaging with a professional community and Domain 2 Feeling like a dietitian	
<b>Constructs</b>	Findings	<b>Implications for practice</b>
<b>Knowledge of the profession and preparedness for practice</b>		
Anticipatory socialisation and a narrow view of the role of a dietitian challenged the PI		Low awareness of diversity of dietitians' role and skills by the public and health professionals
Students began placements with little prior exposure to the profession and settings. Self-categorisation as a dietitian and PI progressed, although this was not consistent or linear		Delayed exposure to the professional community contributes to transition shock for students
Salient identity shifted from student to dietitian PI after entry the workforce		Entry to the workforce is a significant time for PI
<b>Professional confidence as a dietitian</b>		
Growth in confidence was related to doing the work of a dietitian, and influenced the PI		Few opportunities to practice as a dietitian hinders confidence
Lack of confidence and "feeling like an imposter" before placements was common and resolved with experience for most, although not for everybody		Identify at risk students early to avoid of professional isolation
By one year after course completion, a perceivable strengthening of the PI had occurred		Support from the professional community in the early years of practice is vital
<b>Expectations of employment and the workplace</b>		
The professional community or dietetics community of practice including lecturers, supervisors, clinical educators, mentors, and role models, influenced the PI at all stages		Support from the professional community in the early years of practice is vital
Support from the professional community was insufficient for some graduates and professional isolation began in the first year after graduating		Range of options available to support graduates at risk of professional isolation is not adequate
Employment and workplace context influenced PI at two years after course completion		Lack of workforce data available to inform graduate support
<b>A sense of belonging to the profession</b>		
Students did not identify as being a dietitian, believing the qualification was required		Low awareness of PI by students
At one year, a sense of belonging and the dietitian PI were emergent, but graduates often thought they needed more work experience to belong		Limited connection with the professional community for those not in the workforce
Belonging to the profession was stable among two year graduates		Networks in the professional community sustain PI

<b>Research question</b> How is collaborative practice incorporated into the professional identity of dietitians?	
<i>Data source</i>	Domain 3 Working collaboratively
<b>Constructs</b>	<b>Findings</b> <b>Implications for practice</b>
<b>Learning a CP role</b>	
Dual identities developed, with dietitian PI preceding CP identity	CP identity needs a dietitian PI to be established
Advocating for clients supported the dietitian PI and CP identity	Diversity of skills is needed to advocate for clients
Collaborative practice was incorporated into the dietitian PI and the CP identity focused on delivering client-centred care with other health professionals	Diversity of teamwork skills is needed to provide client-centred care in CP
The client was not seen as a member of the team for complete adoption of a CP identity	Limited skills in sharing power with the client for them to be included in the health care team
<b>Sharing power</b>	
Power sharing, power imbalance, and team dynamics impacted the CP identity	Strengthen the emergent CP identity to resist external factors
If the team context was perceived as an unsafe environment for the CP identity to be salient, the dietitian PI was dominant	Strong dietitian PI enhances CP identity
Positive experiences helped build confidence, facilitated progressive deepening engagement in the team, and enhanced the CP identity	Barriers to CP reduced by interacting early and often with student health professional colleagues
Needing to be the nutrition expert affected collaborative client-centred care, and was potentially detrimental for the CP identity	Limited skills in power sharing for true client-centred care
<b>Organisational context and culture</b>	
Organisational context was a factor for determining whether CP identity progressed	Strengthen the emergent CP identity to resist external factors
Geography was a barrier to CP and influenced CP identity	Team communication and CP over reliant on meeting face-to-face
Competitiveness between peers occurred for some students and graduates, and was potentially detrimental for the CP identity	Dietitian PI and CP identity is sustained through networking with peers and health professional colleagues

Abbreviations: PI = professional identity, CP = collaborative practice

This is the final chapter of the thesis, and concludes with the major findings and significance of the work for the Australian profession of dietetics.

The research set out to determine how dietitians develop their PI, specifically to address what influences contribute to the development of PI by dietetics graduates, and how CP is incorporated into the PI of dietitians?

The implications and significance of the findings, recommendations for practice, and future research are discussed. Stakeholders are identified, and recommendations directed towards them. A short overview of the research closes the final comments.

## 7.1 Main findings and implications for practice

### 7.1.1 Developing a professional identity as a dietitian

In the development of PI by dietitians, two hypothetical trajectories for career pathways - flourishing on a trouble-free run and struggling on a rocky path exemplified the extremes of influences on the dietitian PI. Among a variety of features, professional support and employment patterns had the greatest influence on the PI. Rather than following one path, participants tended to have features from each trajectory, and it appeared the trajectory was able to change according to influences and context.

Initially, the formation of PI by participants was challenged by anticipatory socialisation after entering the dietetics course with a narrow view of the role of a dietitian, and commencing placements with little exposure to the profession. The delayed exposure to the profession allowed “imposter syndrome” to flourish and the idea of being a dietitian was largely theoretical for students. The lack of prior opportunity to experiment with a dietitian PI inhibited professional confidence. PI was impaired or remained as a student PI until confidence was resolved.

Self-categorisation and PI development progressed, although this was not linear, and participants' salient identity shifted from student to dietitian after entering the workforce. Support came from the broader dietetics community of practice including lecturers, supervisors, clinical educators, mentors for the Accredited Practising Dietitian Program (APD), and role models.

However, the support from dietetic colleagues was insufficient or lacking for several new graduates, resulting in perceptions of professional isolation. The range of support options available to new graduates who were professionally isolated appeared modest, relying heavily on the APD mentor and continuing professional development opportunities that did not meet their needs.

As graduates, the workplace became the source of context for so many influences on the PI. Participants envisaged securing a position in a clinical role, which transpired for some, and those who did not achieve sustainable employment were likely to struggle with burnout and leaving the dietetic workforce was apparent two years post course completion. Inconsistent employment patterns and heterogeneity of the work settings appeared to influence the variability in the dietitian PI seen in the first year of practice. The full extent of employment distress for new graduates beyond this sample is not known, emphasising the absence of workforce data for early career dietitians.

Lack of recognition and knowledge of the professional role by dietitians and training by the public and health professionals was a significant frustration at all stages and occurred in all contexts for participants. Not only did the lack of awareness contribute to a gap in their knowledge of the role when starting the course, but the narrow view of their expertise held by others also challenged their confidence and emergent dietitian PI after graduating.

Participants had low awareness of PI but articulated belonging to the profession, growth in confidence, and experiences related to PI. The first year of practice shifted their status from being a student, and an emergent dietitian PI was observed along with a growing connection with the profession. They expected a greater sense of belonging as a dietitian would come with more experience. The belief that acquiring more experience would validate their belonging to the profession highlights the significance of entry to the workforce in the first year of practice for the dietitian PI.

#### 7.1.2 Collaborative practice by dietitians

Almost all the participants experienced IP opportunities as students and developed a CP identity as a dual identity with the dietitian PI. A CP identity was evident early for student participants, despite variations in IPE opportunities. The presence of dual identities was demonstrated in the expectation to include CP and goals of other health professions in nutrition care plans, recognition of others' roles and boundaries, and advocacy for the patient. As graduates, relationships in the team were generally positive, with some people able to establish rapport and connections with health professional colleagues that allowed the dual identities to progress. IP learning was more positive at two years after graduation, indicating both the dietitian PI and CP identities had strengthened.

However, the CP identity was not as strong as the dietitian PI, and may not have been accessible in certain contexts such as team settings. As the PI preceded the CP identity, earlier formation of the PI may be beneficial for the emergent CP identity. While the influence of IPE on the CP identity was unclear, interacting with health professional student colleagues contributes to reducing barriers and promotes developing advocacy skills. Observing role modelling of CP by dietitians and CP in health care teams as students would further support the CP identity.

The organisational context determined whether the CP identity progressed for the graduate. Team dynamics and geography were the context for determining when the salient identity of CP dietitian identity was invoked. Other graduates experienced power imbalance or competitiveness that were not constructive and hindered or damaged the weak and emergent CP identity. A stronger CP identity may be more resistant to these factors and warrants further research.

Clients and CP were incorporated in the dietitian PI, and client-centred practice by participants included focusing on the client in a collaborative process with other health professionals. Participants fell short of seeing clients as members of the IP health care team to entirely adopt the dual CP identity.

## 7.2 Significance of the findings

An individual's PI is important because it affects perceptions and behaviours including professionalism and mental health, job satisfaction and workforce retention (Rees et al., 2019). The strength of PI influences participation and ability to collaborate in the team. A strong PI is thought to provide some protection for the challenges in the early years of practice although it can also be a barrier to CP. Dietitians have a responsibility for CP and to work in partnerships with health professional colleagues and clients.

The significance of the findings falls into two areas of interest.

The first relates to the multitude of influences on the PI of early career dietitians: the professional community, DAA, competency standards, universities, the curriculum, dietetic educators, academics and clinical educators, student peers, APD mentors, the health care setting and health professional colleagues, to name the obvious influences. Some of these influences are potentially modifiable, while others are not.

In this study, the participants' PI developed without specific attention or discourse on formation of PI during their dietetic education and training. Similarly, following graduation, the PI was influenced by the DAA required mentoring for the provisional APD program although other specific forms of support by the professional community of practice were limited. The informal and hidden or unofficial curriculum of attitudes, values, and beliefs would be unintendedly transferred by lecturers, clinical educators and placement supervisors, APD mentors, and student peers. Many of these unknown aspects are likely to be positive attributes such as professionalism; however, some will be less desirable.

Collaborative practice needs a strong PI but this can also bring stereotyping and profession-centric behaviour. If CP is not modelled and observed in practice settings, the emergent CP identity is not reinforced and may recede. The dietitian PI shapes the CP identity, and any unintentional outcomes from the hidden curriculum may affect both CP and the CP identity.

The second area of interest concerns the perceptions and expectations of the dietitians' professional role. The view of the professional role held by dietitians themselves, their clients, the general public, and health professionals was narrow compared to the competencies which prepare new graduates for a diversity of roles. This diversity seems not to be portrayed in the training while the focus on clinical practice is perpetuated, with implications affecting PI, workforce preparation, and employability of graduates. The effect of the higher status for some clinical positions or roles and the influence on graduates' employment aspirations is particularly troublesome, considering the vulnerable emergent dietitian PI and shortage of the desired positions.

The professional isolation experienced by a few participants appears related to workforce issues and possible gaps in their training, highlighting the importance of preparing graduates beyond knowledge and skills related to the nutrition care process for an evolving dietetics workforce.

A narrow perception of the dietitians' role is detrimental to the emergent PI and constrains workforce opportunities for individuals and the profession. When potential employers are unaware of dietitians' professional attributes and practice-based skills and knowledge, practitioners have fewer opportunities, dietetic practice does not evolve, and growth of the profession is restricted.

### 7.3 Recommendations for practice

Support for the development of a strong PI by dietitians and the capability for CP is the shared responsibility of multiple stakeholders. The individual as student and graduate, the university program, the profession of dietetics, and the client, each have an interest in the results of this research. Implications of the findings, recommendations for changes to practice, and future research can be viewed through the perspective of these stakeholders, as they each have a slightly different focus.

This section provides recommendations to address the findings, and is separated into sections directed to the main stakeholders.

#### 7.3.1 Student seeking a fulfilling career with job satisfaction

*Finding 1:* Students who were actively engaged in their own learning had greater self-confidence and development of their PI as graduates.

*Recommendation 1:* Adopt practices that support active learning and development of PI such as self-reflection and self-authorship.

*Finding 2:* Informal networks developed as a student provided support in the form of friendship and peer learning for the transition into practice as a graduate. These networks also helped minimise competitiveness between peers.

*Recommendation 2:* Establish friendships during the course and maintain informal social networks with your dietetics peers after graduation.

*Finding 3:* Knowledge of the profession and diversity of the potential roles of a dietitian helped reduce transition shock for the first experiences in the practice setting.

*Recommendation 3:* Seek out opportunities that will provide live or virtual contact with dietitians at all levels of experience from, emerging and early career to Advanced Accredited Practising Dietitians (APD) and Fellows. Ideally, these dietitians would reflect the diversity of employment in the profession.

*Finding 4:* Professional support by APD mentors and other role models was a critical factor in avoiding professional isolation. However, sometimes the timing was not appropriate, or the match between graduate and mentor was not beneficial for the new graduate. Sometimes finding a mentor was rushed just to “tick the box” and start provisional APD, only to discover they had a different approach to practice.

*Recommendation 4:* Select an APD mentor in a similar area of practice with shared professional interests.

*Finding 5:* A small number of graduates felt unsupported and overwhelmed as they looked for work, and this was more likely occur in the first year of practice.

*Recommendation 5:* Reflect on your practice, and reach out for help when needed.

### 7.3.2 University program focused on graduate employability

*Finding 6:* Students highly valued authentic learning experiences, and real world learning facilitated their transition into placements and practice. Claims were made that links between theory and practice were not clear.

*Recommendation 6:* Augment the classroom learning and placement experiences by assisting the student to contextualise the learning.

*Finding 7:* Exposure to the professional community of practice came late in the dietetics program. Many students reported having little prior knowledge of the role of a dietitian or experience in the health care setting before starting placements, creating challenges for the PI.

*Recommendation 7:* Facilitate early and ongoing experiences to meet and observe dietitians in a range of practice settings. Ideally, the exposure and experiences would build progressively and involve an assessment to assist students self-evaluate their learning.

*Finding 8:* Many participants felt underprepared for employment, and graduate career management experiences were not consistently provided to participants before course completion.

*Recommendation 8:* Establish early and ongoing career management in the program to enable workforce ready graduates and enhance employability. Ideally, this would involve self management skills and career building skills.

*Finding 9:* Entry to the workforce was crucial for the dietitian PI, and graduates who struggled to find employment felt unsupported, with potential attrition from the profession.

*Recommendation 9:* Develop a suite of flexible options to support graduates in the transition to finding suitable employment. Ideally, this would cover the first year post qualification.

*Finding 10:* Low awareness of PI among students although the role of DAA was well known. Some participants were unable to distinguish clearly between belonging to the profession and belonging to DAA.

*Recommendation 10:* Professional identity to be articulated in the dietetics curriculum. Ideally, this would link competency development and professional practice, and the broader dietetics community of practice.

*Finding 11:* The CP identity was weak and salience was strongly influenced by the team context, including safety to participate in the IP health care team.

*Recommendation 11:* Promote participation in high quality IPE activities with health professional student colleagues across all stages of the course to build a repertoire of CP experiences for the graduate to take into practice.

7.3.3 Dietetics profession focused on competent practitioners

*Finding 12:* Student participants emphasised the hospital or clinical setting for individual case management, and in turn, they believed this was the focus of the dietetics program. This focus continued for graduates, whose employment preference was to gain a clinical role for their first position, despite the limited employment opportunities.

*Recommendation 12:* Increase the diversity and variety of placement settings provided other requirements can be met, such as aged care, private practice, mixed practice, IPE, and service learning.

*Finding 13:* Graduates were underprepared for emerging areas of practice such as private practice, online and media business, and other forms of entrepreneurial self employment. Some of this may be the result of an oversupply of graduates for the available employment opportunities.

Retention in the profession was lowest among those who were unable to establish a financially viable practice.

*Recommendation 13:* Ensure competency standards and accreditation guidelines reflect the dynamic, changing environment of the contemporary and future workforce.

*Finding 14:* The role of clinical educators and supervisors on students' placement experiences and learning, and influence on PI was significant. By far, most experiences were positive. However, there was variation, and the impact of negative experiences on PI can be long lasting for the individual, potentially leading to attrition from the profession.

*Recommendation 14:* Value and promote the contribution made by clinical educators and supervisors to student learning. Ideally, this would include greater recognition, support and preparation for their role to ensure a large pool of potential supervisors across a variety of settings.

*Finding 15:* Professional isolation by some graduates working in solo positions or small departments impaired their PI. These positions were not necessarily in rural or remote locations. Support was not being met by the current mentoring requirements of the provisional APD program, and not related to access for continuing professional development.

*Recommendation 15:* Implement optional professional supervision for the new graduate to provide a more holistic approach to their transition into the workforce.

7.3.4 Client and community focused on receiving high quality service.

*Finding 16:* Client-centred care was valued by students and practitioners. Students appreciated dietetics counselling unit for developing communication skills, however, the opportunities to interact with real clients was limited.

*Recommendation 16:* Clients, either real or actors, to be included in the counselling unit or other units in dietetics programs to fast-track developing confidence and practicing the role of being a dietitian.

*Finding 17:* The client was not incorporated into the CP identity nor accepted by dietitians as a member of the IP health care team. One contributing factor was a power imbalance between the dietitian and client conflicting with the need to be a nutrition expert.

*Recommendation 17:* Greater acceptance of the client in self-management of their condition requires a more inclusive and holistic view of client-centred care and health paradigms. Ideally, this approach would be supported by the IP health care team.

## 7.4 Future research

*Finding 18:* Clients were influential on the PI of students and graduates.

However, opportunities for direct contact with real clients came too late in the program for students to benefit from experimenting with a novice PI prior to placements. Pressure on placement sites and student clinics is already heavy, and other forms of teaching and learning are likely to be required, such as virtual case studies and other types of online learning.

*Recommendation 18:* Further research is recommended to identify the most effective way to incorporate client contact earlier in student learning.

*Finding 19:* Findings from this research may not be transferable to different populations of early career dietitians. Delayed entry to the workforce appeared to be a factor for some participants, and two years may not have been long enough to capture changes for those who entered the workforce later, took a career break, or had a fragmented employment pattern.

*Recommendation 19:* Further research is needed to provide detailed information about employment patterns in the early years of practice. Ideally the time frame would extend to the first five years after course completion.

*Finding 20:* The dietitian PI is influenced by the interplay between DAA competency standards and accreditation framework, the dietetics education and training curriculum, and dietetic practice.

*Recommendation 20:* Continue research on the competency standards to ensure the requirements of a contemporary Australian workforce are being met. Ideally, this would include ongoing evaluation to ensure the dietetics curriculum is innovative and responsive to emerging areas of practice when applying the competency standards.

*Finding 21:* The hidden and informal curriculums can influence PI and CP, and many factors are potentially involved.

*Recommendation 21:* Further research is recommended to understand the hidden and informal curriculums in dietetics education. Ideally this would include identifying desirable and unintended consequences, and promote an ongoing discussion between stakeholders.

*Finding 22:* Collaborative practice was incorporated into the dietitian PI although the CP identity was emergent.

*Recommendation 22:* Further research on the CP identity of early career dietitians is recommended to build the body of knowledge.

*Finding 23:* The body of work on PI in dietetics is small and findings from this research many not be transferable to different populations of early career dietitians.

*Recommendation 23:* Further research on the PI of early career dietitians is recommended to build the body of knowledge.

## 7.5 Final comments

The objectives of this research were to establish what influences the development of PI by dietitians and how CP is incorporated into the PI of early career dietitians. Theoretical constructs informing the research were Social Identity Theory, the Contact Hypothesis and Communities of Practice.

The research was exploratory and its strength is in the mixed methods study design. It reports changes over time and longitudinally for a small cohort of participants, from final year dietetics students to two years after course completion. Evidence of dual identities, a dietitian PI and an emerging CP identity, was found. Influences on the dietitian PI and the capability for CP with colleagues in the health care team were identified.

Implications of the findings are relevant to dietetic education to enhance graduate employability and the professional community that supports graduates. Recommendations are directed to stakeholders - students, the dietetics profession, dietetics educators and the client community. Articulation of PI in the curriculum, early exposure to the professional community, and greater opportunities for CP with health professional student colleagues and clients are proposed.

## Appendix A

## Ethics Committee Approvals

### A.1 Curtin University



#### Memorandum

To	Professor Sue Fyfe, Medical Education, Public Health
From	Professor Stephan Millett, Chair, Human Research Ethics Committee
Subject	Protocol Approval HR 56/2013
Date	21 May 2013
Copy	Dr Georgina Fyfe, Biomedical Science Public Health Robynne Snell, School of Public Health Public Health

Office of Research and Development  
Human Research Ethics Committee

TELEPHONE 9266 2784  
FACSIMILE 9266 3793  
EMAIL [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au)

Thank you for providing the additional information for the project titled "*A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia*". The information you have provided has satisfactorily addressed the queries raised by the Committee. Your application is now approved.

- You have ethics clearance to undertake the research as stated in your proposal.
- The approval number for your project is **HR 56/2013**. Please quote this number in any future correspondence.
- Approval of this project is for a period of four years **22-05-2013 to 22-05-2017**.
- Your approval has the following conditions:
  - i) Annual progress reports on the project must be submitted to the Ethics Office.
  - ii) Please refer to the competitions toolkit located: <http://legal.curtin.edu.au/comps>
- **It is your responsibility, as the researcher, to meet the conditions outlined above and to retain the necessary records demonstrating that these have been completed.**

#### Applicants should note the following:

It is the policy of the HREC to conduct random audits on a percentage of approved projects. These audits may be conducted at any time after the project starts. In cases where the HREC considers that there may be a risk of adverse events, or where participants may be especially vulnerable, the HREC may request the chief investigator to provide an outcomes report, including information on follow-up of participants.

The attached **Progress Report** should be completed and returned to the Secretary, HREC, C/- Office of Research & Development annually.

Our website [https://research.curtin.edu.au/guides/ethics/non\\_low\\_risk\\_hrec\\_forms.cfm](https://research.curtin.edu.au/guides/ethics/non_low_risk_hrec_forms.cfm) contains all other relevant forms including:

- Completion Report (to be completed when a project has ceased)
- Amendment Request (to be completed at any time changes/amendments occur)
- Adverse Event Notification Form (If a serious or unexpected adverse event occurs)

Yours sincerely

A handwritten signature in black ink.

Professor Stephan Millett

Chair Human Research Ethics Committee

## A.1.1 Curtin University amendments



### Memorandum

To	Professor Sue Fyfe, Medical Education, Public Health
From	Professor Peter O'Leary, Chair Human Research Ethics Committee
Subject	Protocol Amendment Approval HR 56/2013
Date	22 July 2014
Copy	Dr Georgina Fyfe, Biomedical Science, Public Health Robynne Snell, School of Public Health, Public Health

Office of Research and Development  
Human Research Ethics Committee  
**TELEPHONE** 9266 2784  
**FACSIMILE** 9266 3793  
**EMAIL** hrec@curtin.edu.au

Thank you for keeping us informed of the progress of your research. The Human Research Ethics Committee acknowledges receipt of your progress report, indicating modifications / changes, for the project "*A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia*". Your application has been **approved**.

The Committee notes the following amendments have been approved:

1. The protocol approved is for an Australia-wide multi site study with participants being final year students enrolled in a Bachelor of Nutrition and Dietetics. The proposal is to extend the recruitment to include final year dietetics students from an additional university, La Trobe University. The method and documents used to recruit these students would be exactly the same as has been approved for the other universities in the study. There is an agreement form the Head of Department of Dietetics at La Trobe University for the students to be included in the study. This additional site will potentially increase the number of participants as recruitment has been slow. The proposed changes will not impact on existing participants.

Approval for this project remains until **22-05-2017**.

Your approval number remains **HR 56/2013**, please quote this number in any further correspondence regarding this project.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Peter O'Leary'.

Professor Peter O'Leary  
Chair Human Research Ethics Committee

**Memorandum**

<b>To</b>	Professor Sue Fyfe, Medical Education, Public Health
<b>From</b>	Professor Peter O'Leary, Chair Human Research Ethics Committee
<b>Subject</b>	Protocol Amendment Approval <b>HR 56/2013</b>
<b>Date</b>	23 May 2014
<b>Copy</b>	Dr Georgina Fyfe, Biomedical Science, Public Health Robynne Snell, School of Public Health

Office of Research and Development  
Human Research Ethics Committee

TELEPHONE 9266 2784  
FACSIMILE 9266 3793  
EMAIL hrec@curtin.edu.au

Thank you for keeping us informed of the progress of your research. The Human Research Ethics Committee acknowledges receipt of your progress report, indicating modifications / changes, for the project "*A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia*". Your application has been **approved**.

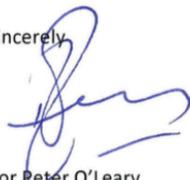
The Committee notes the following amendments have been approved:

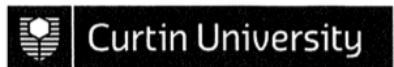
1. 1) Continue to recruit participants as students before they go on placement and, on completion of the placements, invited to continue after graduation when they have been in the workforce for one year and two years.
2. 2 The professional association Dieticians Association of Australia (DAA) will be approached for permission to recruit potential participants from the membership. The recruitment method will be as a item in the weekly electronic newsletter (fee payable) with those who are interested to contact the researcher for further information. The participants invited will be one year and two years in the workforce.

Approval for this project remains until **22-05-2017**.

Your approval number remains **HR 56/2013**, please quote this number in any further correspondence regarding this project.

Yours sincerely,

  
Professor Peter O'Leary  
Chair Human Research Ethics Committee

**MEMORANDUM**

To:	Professor Sue Fyfe, Medical Education Public Health
CC:	
From	Prof Peter O'Leary, Chair HREC
Subject	Amendment approval Approval number: HR56/2013
Date	18-Jun-15

Office of Research and  
Development  
Human Research Ethics Office  
  
TELEPHONE 9266 2784  
FACSIMILE 9266 3793  
EMAIL hrec@curtin.edu.au

Thank you for submitting an amendment to the Human Research Ethics Office for the project:

HR56/2013 A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia

The Human Research Ethics Office approves the amendment to the project.

Amendment number: HR56/2013/AR1

Approval date: 18-Jun-15

The following amendments were approved:

Recruitment of participants from a Facebook group called Network of Emerging Australian Dietitians.

Please ensure that all data are stored in accordance with WAUSDA and Curtin University Policy.

Yours sincerely,

Professor Peter O'Leary  
Chair, Human Research Ethics Committee

## A.2 Other Universities

### A.2.1 University of Wollongong



#### NON STANDARD APPROVAL: APPROVAL BY EXTERNAL HREC

In reply please quote: NSA13/018

Further Enquiries Phone: 02 4221 3386

2 December 203

Ms Robynne Snell  
School of Public Health  
Curtin University

Dear Ms Snell,

Thank you for forwarding the documentation from Curtin University for the Human Research Ethics Committee approval of the project detailed below. The approval of this project has been noted.

Ethics Number: NSA13/018

Title: A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia

Researchers: Ms Robynne Snell, Professor Sue Fyfe, Dr Georgina Fyfe

As this project has been approved and will be monitored by the Curtin University HREC, no additional monitoring of the project will be undertaken by a University of Wollongong - ISLHD HREC.

Please note that approval may be required from the University of Wollongong Academic Registrar's Division regarding surveying of UOW students. Please contact Fran Walder Interim Director Student Experience, Deputy Vice Chancellor (Education)  
E: fran@uow.edu.au P: 4221 5154 for more details.

The University of Wollongong has institutional responsibilities for the research which are separate from the ethical review. The University's Ethics Unit must be informed of amendments, complaints about the project and provided with reports of serious or unexpected adverse effects on participants.

Yours sincerely,

A handwritten signature in black ink.

Professor Jim Greenstein  
Chair, UOW & ISLHD Health and Medical  
Human Research Ethics Committee

Ethics Unit, Research Services Office  
University of Wollongong NSW 2522 Australia  
Telephone (02) 4221 3386 Facsimile (02) 4221 4338  
Email: [rso-ethics@uow.edu.au](mailto:rso-ethics@uow.edu.au) Web: [www.uow.edu.au](http://www.uow.edu.au)

## A.2.2 Flinders University

**From:** Human Research Ethics <[human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)>

**Date:** Monday, 17 June 2013 11:47 AM

**To:** Robynne Snell <[robynnesnell@people.net.au](mailto:robynnesnell@people.net.au)>

**Subject:** RE: Enquiry re Ethics Approval

Dear Robynne,

Thank you for your email. I can confirm that if you are a researcher (staff or student) from another Institution that you do not need to seek ethics approval from the Social and Behavioural Research Ethics Committee (SBREC) at Flinders University. The SBREC only reviews ethics applications from Flinders University staff and student researchers. To recruit participants (student or staff members) from the Flinders University department of Nutrition and Dietetics you will just need to seek formal written permission (for your own records) from that department.

Please feel free to contact me if you require any additional information.

Kind regards  
Andrea



## RESEARCH SERVICES

## MEMORANDUM

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**To:** Dr Catherine Itsopoulos, Department of Dietetics and Human Nutrition, FHS  
**From:** Executive Officer, La Trobe University Human Ethics Committee  
**Subject:** UHEC acceptance of the Curtin University HREC approved project – HR56/2013  
**Title:** A longitudinal study on development of professional identity by Dietitians  
**Date:** 11 August 2014

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Thank you for submitting the above protocol to the University Human Ethics Committee (UHEC). Your material was forwarded to the UHEC Chair for consideration. Following evidence of a full review and subsequent final approval by the **Curtin University HREC**, the UHEC Chair agrees that the protocol complies with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research* and is in accordance with La Trobe University's *Human Research Ethics Guidelines*.

Endorsement is given for you to take part in this study in line with the conditions of final approval outlined by the **Curtin University HREC**.

**Limit of Approval.** La Trobe UHEC endorsement is limited strictly to the research protocol as approved by the **Curtin University HREC**.

**Variation to Project.** As a consequence of the previous condition, any subsequent modifications approved by the **Curtin University HREC** for the project should be notified formally to the UHEC.

**Annual Progress Reports.** Copies of all progress reports submitted to the **Curtin University HREC** must be forwarded to the UHEC. Failure to submit a progress report will mean that endorsement for your involvement in this project will be rescinded. An audit related to your involvement in the study may be conducted by the UHEC at any time.

**Final Report.** A copy of the final report is to be forwarded to the UHEC within one month of it being submitted to the **Curtin University HREC**.

If you have any queries on the information above please e-mail: [humanethics@latrobe.edu.au](mailto:humanethics@latrobe.edu.au) or

contact me by phone.

On behalf of the La Trobe University Human Ethics Committee, best wishes with your research!

Kind regards,

Sara Paradowski  
Executive Officer – Human Ethics / University Human Ethics Committee  
Research Integrity Unit / Research Services  
La Trobe University Bundoora, Victoria 3086  
P: (03) 9479 – 1443 / F: (03) 9479 - 1464  
<http://www.latrobe.edu.au/researchers/starting-your-research/human-ethics>

#### A.2.4 Queensland University of Technology

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**From:** Janette Lamb <[jd.lamb@qut.edu.au](mailto:jd.lamb@qut.edu.au)>  
**Date:** Thursday, 21 November 2013 9:45 AM  
**To:** Robynne Snell <[robynnesnell@people.net.au](mailto:robynnesnell@people.net.au)>  
**Cc:** Danielle Gallegos <[danielle.gallegos@qut.edu.au](mailto:danielle.gallegos@qut.edu.au)>  
**Subject:** re recruiting QUT students for your PhD study

Hi Robynne  
As per our conversation, it is not necessary to obtain QUT ethics approval to recruit and conduct research at QUT.  
We just advise that you should have ethics approval in place from your university and the approval of the QUT dean of faculty or head of school or subject coordinator, whichever is relevant.

I have therefore withdrawn your application to us.

Janette Lamb • Research Ethics Administration Officer  
Office of Research • Queensland University of Technology  
Level 4 • 88 Musk Avenue • Kelvin Grove Campus • GPO Box 2434 • BRISBANE QLD 4001  
p +61 7 3138 5123  
e [jd.lamb@qut.edu.au](mailto:jd.lamb@qut.edu.au)  
e [ethicscontact@qut.edu.au](mailto:ethicscontact@qut.edu.au)  
w <http://www.research.qut.edu.au/ethics/>  
CRICOS No 00213J

This email and its attachments (if any) contain confidential information intended for use by the addressee and may be privileged. We do not waive any confidentiality, privilege or copyright associated with the email or the attachments. If you are not the intended addressee, you must not use, transmit, disclose or copy the email or any attachments. If you receive this email by mistake, please notify the sender immediately and delete the original email.

**please consider the environment before you print this email or any attachments  
save the trees – save the planet**

## A.2.5

## University of Sunshine Coast

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**From:** Student Survey <[StudentSurvey@usc.edu.au](mailto:StudentSurvey@usc.edu.au)>

**Date:** Thursday, 14 November 2013 11:21 AM

**To:** Robynne Snell <[robynnesnell@people.net.au](mailto:robynnesnell@people.net.au)>

**Subject:** RE: External Application to Survey Students

Hi Robynne

Thank you for this. I have noted all of your dates and divided the survey implementation time into two separate implementation periods.

I will now forward your documentation on to Greg Kiorgaard, Research Ethics Officer, to review your existing ethics clearance. Greg may contact you in regard to this if he has any questions.

I hope to send you notification of the outcome of the approval process by the end of next week.

Kind regards

Amanda

**Amanda Bailey**

Data & Statistics Officer

Strategic Information and Analysis Unit

University of the Sunshine Coast

Ph: +61 7 5456 5465 | Fax: +61 7 5459 4854

---

**From:** Greg Kiorgaard

**Sent:** Sunday, 15 December 2013 11:32 AM

**To:** 'Robynne Snell'; Student Survey

**Cc:** humanethics

**Subject:** RE: External Application to Survey Students

Robynne and Amanda

The outcome of ethics consideration is that we see no major ethical reasons why the project cannot go ahead in its present form. I am sorry for the delay in processing.

Regards

Greg Kiorgaard

Page 1 of 5

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Research Ethics Officer  
Office of Research  
Room B1.53, First floor, B Block, USC  
Maroochydore DC Qld 4558 Australia  
Tel. 5459 4574  
Web. [www.usc.edu.au](http://www.usc.edu.au)

## A.3 Recruitment of Participants

### A.3.1 Recruitment flyer



#### ***Are you about to start placements?***



***... I'm looking for participants for my PhD research on the development of professional identity by dietitians.***

##### ***What would you do?***

The study is titled: A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia'.

You would be asked to do a quick and easy online survey, and take part in a focus group before you go on placements. Your expectations of placements and your role in providing health services and nutrition programs will be explored; along with your experience of working with peers and factors that influence your ability to be part of team.

##### ***Why participate?***

By participating, you would be helping us understand the professional identity by dietitians, and how the development of skills to work collaboratively. Thinking and talking about the placements may help you prepare for them. There are minimal risks associated with participating.

##### ***What's in it for you?***

In return, I will provide a delicious afternoon tea at the focus group and your name will go into a draw for a \$50 iTunes voucher that will be drawn at the time, terms & conditions apply.

##### ***Rights***

If you decide to participate in this study, your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty. Results will only be used for research. Your lecturers will not be informed of your participation and your grades will not be affected in any way.

##### ***RSVP***

If you would like to participate, please email Robynne Snell at [r.snell@curtin.edu.au](mailto:r.snell@curtin.edu.au) or [SMS](#) your email address to 0411 136 398. You will be sent a consent form to register for the survey – you need to do the survey first, before the focus group. Or you can just do the survey. It all helps!

##### ***Ethics Approval***

This study has been approved by the Human Research Ethics Committee at Curtin University (Approval Number HR56/2013). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 08 9266 2784 or by emailing [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au). If you request any further information, or have any queries you wish to be answered, please contact Robynne Snell on 0411 136 398 or [r.snell@curtin.edu.au](mailto:r.snell@curtin.edu.au).



## INFORMATION SHEET

### A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia.

**Chief Investigators:** Robynne Snell, Professor Sue Fyfe, and Dr Georgina Fyfe.

#### Introduction

Thank you for considering taking part in this study. We would like to know if, and how dietitians learn to work collaboratively with other health professionals, and whether it is part of the identity of being a dietitian. Your expectations of placements will be explored, along with your experience of working with peers, providing health care services, and factors that influenced your ability to be part of teams.

The research is being done because, both in Australia and worldwide, there is a movement towards a more collaborative practice model, and we are keen to know how, when, and where, dietitians develop the skills to work collaboratively.

#### Aims of the study

The study will investigate the development of professional identity during placement as a student, and progression into the early years of practice as a dietitian. We will investigate and measure changes in professional identity of dietitians, starting from student status through to early career practitioner, and to evaluate the assimilation of interprofessional practice and client centred care into the professional identity of dietitians.

#### Your contribution

You are invited to participate as a student and on two later occasions as a graduate. As a student you will be asked to complete an online survey and participate in a focus group before and after your placements. This will be repeated again after graduation in your first year of practice as a provisional APD, and again two years after graduation. The survey will take about 10-15 minutes to do and the focus group will be between 60-90 minutes in length. You will be asked questions about your experience of working in teams, communication in the team and how well you feel you belong in the team. You may decline to answer any question or section of questions, and can leave the focus group at any time. You may do the survey only or the focus group only.

As an incentive for your continued participation in the study over this time, your name will be included in a draw for a \$50 iTunes voucher at each focus group, terms and conditions apply.

#### Results of the study

Findings from the study will be used to make recommendations for dietetics curricula, and continuing professional development needs of dietetic educators and practitioners. By participating, you will be helping to enhance workforce readiness of future students and graduates. Aggregated findings and recommendations may be published in reports and journal articles but individual participants will not be identifiable.

**Confidentiality**

Your consent form will be used to generate an identification code that will be used instead of your name. All information from the surveys and focus groups will be de-identified, treated confidentially and securely kept by the researchers. The researcher will receive survey results using your identification code and your identity will not be known. During the focus group, the discussion will be recorded but you will be addressed only using your first name or pseudonym. You will have the opportunity to check the transcripts of the focus group to ensure it is an accurate account.

**Possible risk, inconvenience and discomforts**

There are no substantial risks to you from participating in this study, although there may be a minor inconvenience of the time taken to participate.

**What do I do now?**

If you decide to participate in this study, your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without discrimination, judgment or penalty.

If you would like to participate, please email Robynne Snell at [r.snell@curtin.edu.au](mailto:r.snell@curtin.edu.au) or [sms](#) your email address to 0411 136 398. You will be sent a consent form to register for the survey – you need to do the survey first, before the focus group.

**Contact details**

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 56/2013).

If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 08 9266 2784 or by emailing [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au). If you request any further information, or have any queries you wish to be answered, please don't hesitate to contact Robynne Snell on 0411 136 398 or [r.snell@curtin.edu.au](mailto:r.snell@curtin.edu.au).

Please direct any ethical complaints to the Human Research Ethics Committee (Secretary) on phone: 08 9266 2784 or [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au) or in writing C/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth WA 6845.

### A.3.3

## Consent form



## **CONSENT FORM**

I have been given information about 'A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia'.

**Chief Investigators:** Robynne Snell, Professor Sue Fyfe, and Dr Georgina Fyfe.

I understand that, if I consent to participate in this project, I will be asked to:

1. Complete two online surveys about my perceptions of communication and teamwork, working with peers and other health professionals, and how I identify with my profession while I am a student
  2. Participate as a student in a focus group about my expectations and experience of placements
  3. Participate one year after graduation and in the workforce for 1 year as a Provisional APD, in the two online surveys and a focus group
  4. Participate again after graduation and in the workforce for 2 years as a full APD, in the two online surveys and a focus group
  5. Allow for the digital audio recording of the focus groups
  6. Allow for the recordings to be transcribed by the researcher
  7. Allow for potential follow-up within one month of the initial focus group by e-mail or telephone for clarification of issues arising from the focus group
  8. I will be given the opportunity to check the transcripts of the focus group to ensure it is an accurate account
  9. Give permission to be contacted after graduation, and provide contact details for this purpose.

I have been advised of the potential risks and burdens associated with this research, and I have had an opportunity to ask Robynne Snell any questions I may have about the research and my participation on [r.snell@curtin.edu.au](mailto:r.snell@curtin.edu.au) or 0411 136 398.

I understand that my participation in this research is voluntary, I am free to decline to participate and I am free to withdraw from the research at any time. My decision to not participate or withdrawal of consent will be without penalty in any way. If I have any concerns or complaints regarding the way the research is, or has been conducted, I can contact the Human Research Ethics Committee (Secretary) on phone: 08 9266 2784 or [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au) or in writing C/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth WA 6845.

By signing below, I am indicating my consent to participate in the research titled 'A Longitudinal Study on the Development of Professional Identity by Dietitians in Australia' conducted by Robynne Snell as it has been described to me in the Information Sheet. I understand that the data collected from my participation will be used for research purposes and potentially journal publication and conference presentations, and I consent for it to be used in that manner with the understanding no individual will be identifiable.

..... / ..../ .....  
Signed Date Name (please print)

The following details are provided for the purpose of contact (please print):

**Postal address .....**

Email address ..... Alternate email address .....

## Appendix B                    Competency Standards for Dietitians

### B.1.1                2009 Entry Level Competency Standards

The 2009 DAA on the competency standards are included here as they are no longer available website.

Shown on following page in landscape layout.



## National Competency Standards for Entry Level Dietitians in Australia

Foundation Units of Competency	<b>Unit 1</b> <i>Underlying knowledge</i> Demonstrates knowledge sufficient to ensure safe practice		
	<b>Unit 7</b> <i>Research &amp; Evaluation</i> Integrates research and evaluation principles into practice	<b>Unit 8</b> <i>Management and Organisation</i> Applies management principles in the provision of nutrition services, programs and products	<b>Unit 9</b> <i>Professionalism, advocacy, innovation and leadership</i> Demonstrates a professional, ethical and entrepreneurial approach, advocating for excellence in nutrition and dietetics
Core Units of Competency	<b>Unit 2</b> <i>Nutrition Communication</i> Demonstrates effective and appropriate skills in listening and communicating information, advice, education and professional opinion to individuals, groups and communities	<b>Unit 3</b> <i>Collection, analysis and assessment of nutrition/health data</i> Collects, organises and assesses data relating to the health and nutritional status of individuals, groups and populations	
Critical Practice	<b>Unit 4</b> <i>Individual Case management</i> Manages client centred nutrition care for individuals	<b>Unit 5</b> <i>Community and Public Health Nutrition and Advocacy for Food Supply</i> Plans, implements and evaluates nutrition programs with communities or populations as part of a team	<b>Unit 6</b> <i>Food Service Management</i> Manages components of a food service to provide safe and nutritious food

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**Unit 1*****Underlying Knowledge*****Demonstrates knowledge sufficient to ensure safe practice**

Elements	Performance criteria
<p>1.1 Applies current knowledge of the theory of human nutrition and dietetics and related practice to a level which supports safe practice</p> <p>1.2 Describes personal, social, cultural, psychological, environmental, economic and political factors influencing food and food use, food habits, diet and lifestyle</p> <p>1.3 Demonstrates knowledge of foods and food preparation methods used in the practice community</p> <p>1.4 Relates knowledge of food science to nutrition and dietetics</p> <p>1.5 Describes and compares food service systems</p> <p>1.6 Describes food systems, food use, and food and nutrition policy</p> <p>1.7 Applies the basic principles of education theory as it applies to nutrition and dietetic practice</p> <p>1.8 Demonstrates or employs effective communication and counselling strategies as they apply to nutrition and dietetic practice</p> <p>1.9 Relates theories of organisation, management and marketing to nutrition and dietetic practice</p> <p>1.10 Describes and compares theories of health promotion, program planning, and management and public health</p> <p>1.11 Conducts or uses nutrition research methodology, research principles and evidence-based practice including qualitative and quantitative research methods</p> <p>1.12 Applies the National Physical Activity Guidelines in practice</p> <p>1.13 Applies principles of learning theory</p> <p>1.14 Applies clinical reasoning theory</p>	<p>Performance criteria have not been defined for the Elements in Unit 1 as it is a knowledge based competency</p>

**Unit 2****Nutrition Communication**

**Demonstrates effective and appropriate skills in listening and communicating information, advice, education and professional opinion to individuals, groups and communities**



Elements	Performance criteria
2.1 Translates technical nutrition information into practical advice on food and eating	<ul style="list-style-type: none"><li>2.1.1 Uses food composition data, food regulations and codes of practice, nutrient reference tools and food guides to identify food options, which meet nutrition needs</li><li>2.1.2 Develops and uses specific tools to assist food choices and preparation</li><li>2.1.3 Interprets nutritional information and communicates it using socially and culturally appropriate language</li><li>2.1.4 Explains the relationship between dietary intake and development and management of disease</li></ul>
2.2 Identifies and develops education resource material	<ul style="list-style-type: none"><li>2.2.1 Sources appropriate existing material to support the development of education resources</li><li>2.2.2 Develops education material that is evidence-based, culturally sensitive, and pitched at the appropriate literacy level, to meet the needs of the target group</li><li>2.2.3 Develops engaging nutrition education material using a mode that meets the needs of the target group</li></ul>
2.3. Communicates with individuals, groups, organisations and communities from various cultural socio-economic, organisational and professional backgrounds to enable them to take actions to improve nutrition and health outcomes applying the principles of learning theory	<ul style="list-style-type: none"><li>2.3.1 Uses appropriate verbal and non-verbal communication</li><li>2.3.2 Listens and provides feedback that encourages participation and engagement</li><li>2.3.3 Communicates in a way which respects customs of other cultures, using socially and culturally appropriate strategies</li><li>2.3.4 Uses an interpreter appropriately to communicate nutrition and health information</li><li>2.3.5 Presents an accurate, clear and logical message that is targeted to the audience when speaking publicly</li></ul>
2.4 Develops and delivers education sessions for small groups	<ul style="list-style-type: none"><li>2.4.1 Develops, implements and evaluates nutrition education plans for a variety of target groups</li><li>2.4.2 Provides appropriate rationale for educational approach based on evidence</li><li>2.4.3 Uses a variety of presentation techniques</li><li>2.4.4 Displays innovation implementing nutrition education plans</li><li>2.4.5 Displays group facilitation skills</li></ul>

**Unit 3 Collection, analysis and assessment of nutrition/health data**

Collects, organises and assesses data relating to the health and nutritional status of individuals, groups and populations



Elements	Performance criteria
3.1 Collects food intake and food systems data	3.1.1 Uses dietary methodology to collect retrospective, current and prospective food and nutrient intakes for individuals which identify nutrient and food intake patterns as required by the situation 3.1.2 Identifies appropriate dietary methodology to collect retrospective, current and prospective food and nutrient intakes for groups and populations which identify nutrient and food intake patterns as required by the situation
3.2 Collects health and medical, social, cultural, psychological, economic, personal and environmental data	3.2.1 Identifies and records health and medical, social, cultural, psychological, physical activity, economic, personal and environmental data, which are necessary to plan nutritional management 3.2.2 Uses a variety of sources to obtain health and medical, social, cultural, psychological, economic, personal and environmental data, taking into account ethical issues
3.3 Provides assessment of food intake data	3.3.1 Selects a suitable method and level of detail for assessing intake of foods and nutrients identified by referral, the client, previous history or epidemiological data 3.3.2 Is able to estimate nutrient intake for individuals using food composition tables and/or databases and compare with Nutrient Reference Values (NRVs) or estimated requirements 3.3.3 Is able to interpret nutrient intake for groups and populations using food composition tables and/or databases and compare with Nutrient Reference Values (NRVs) or estimated requirements 3.3.4 Uses food guidance systems to contribute to the assessment of the client's dietary intake
3.4 Provides assessment of nutritional status	3.4.1 Selects suitable methods for assessment of anthropometry and body composition 3.4.2 Is able to interpret anthropometric and body composition and nutritional assessment data using appropriate reference ranges 3.4.3 Recognises clinical signs of malnutrition
3.5 Assesses and assigns priorities to all data	3.5.1 Accurately interprets dietary, health, medical, anthropometric, and body composition data against standards relevant to the nutritional issues 3.5.2 Makes judgements about potential impact of health and medical, social, cultural, psychological, economic, personal and environmental factors on nutrition 3.5.3 Integrates assessment data in order to assign priorities for nutrition and resource planning
3.6 Draws justifiable conclusions from all data	3.6.1 Defines nutrition problems/diagnoses as a prelude to planning management 3.6.2 Documents the collection, analysis and assessment process as a basis for planning

**Unit 4:*****Individual Case Management***

Manages client-centred nutrition care for individuals



<b>Elements</b>	<b>Performance criteria</b>
4.1 Undertakes screening and assessment to identify and prioritise those at nutritional risk	4.1.1 Demonstrates awareness of the range of validated nutrition screening and assessment tools available, including strengths and limitations 4.1.2 Identifies and uses appropriate validated tools in nutrition screening and assessment 4.1.3 Includes appropriate follow-up timeline
4.2 Determines nutritional status using assessment data	4.2.1 Interprets available documentation to identify problems 4.2.2 Assesses anthropometric and other body composition data 4.2.3 Assesses clinical, biochemical and other biomedical parameters 4.2.4 Assesses dietary intake, food habits, mental health and well-being issues, physical activity and lifestyle habits
4.3 Makes appropriate nutrition diagnoses	4.3.1 Organises, interprets and prioritises data to undertake nutritional diagnoses 4.3.2 Refers to all available evidence to inform clinical judgement 4.3.3 Formulates and prioritises nutrition diagnoses
4.4 Prepares plan for achieving management goals in collaboration with client or carer and other members of health care team	4.4.1 Determines realistic goals for nutritional management in collaboration with client and other members of health care team 4.4.2 Identifies nutrition outcome measures and performance indicators 4.4.3 Develops dietary prescriptions and formulates meal plans and feeding regimens consistent with nutrition goals 4.4.4 Communicates food service and supply needs of individual clients to appropriate persons 4.4.5 Considers discharge planning and/or referral to other services

### **Unit 5: Community & Public Health Nutrition and Advocacy for Food Supply**

Plans, implements and evaluates nutrition programs\* with groups, communities or populations as part of a team  
 (\*Program refers to programs, projects or pilots)

<b>Elements</b>	<b>Performance criteria</b>
5.1 Conducts a needs assessment	<ul style="list-style-type: none"> <li>5.1.1 Uses qualitative and/or quantitative methods to collect and analyse data to identify and inform program development and nutrition issues</li> <li>5.1.2 Identifies individual, socio-economic, cultural and environmental determinants, including equity and social justice issues</li> <li>5.1.3 Identifies, consults and engages key stakeholders and partners</li> <li>5.1.4 Reviews relevant literature</li> <li>5.1.5 Assesses and critically reviews priorities for action and strategy development based on assessment of data and available capacity</li> <li>5.1.6 Clearly articulates and justifies conclusions and recommendations for action</li> </ul>
5.2 Assesses opportunities to improve nutrition and food supply in a community or population group	<ul style="list-style-type: none"> <li>5.2.1 Applies existing standards to identify opportunities to improve an aspect of the food supply</li> <li>5.2.2 Applies food legislation and regulations to evaluate an aspect of the food supply</li> <li>5.2.3 Assesses the nutrition implications of changes to the food supply on individuals, groups and populations including the impact on vulnerable groups</li> <li>5.2.4 Identifies socio-cultural and environmental determinants of the food supply, relevant to the nutrition issue</li> <li>5.2.5 Assesses and assigns priorities for action based on assessment of data and available capacity</li> <li>5.2.6 Clearly articulates and justifies conclusions and recommendations for action</li> </ul>
5.3 Plans nutrition programs with the population group	<ul style="list-style-type: none"> <li>5.3.1 Identifies and contributes to the development of community and organisational capacity for program management and implementation</li> <li>5.3.2 Develops program plans, that are relevant to the target group, which consider the social determinants of health</li> <li>5.3.3 Develops program plans that incorporate goals, objectives and strategies relevant to identified determinants and needs assessment findings</li> <li>5.3.4 Develops program plans that incorporate process, impact, outcome evaluation</li> <li>5.3.5 Develops program plans that incorporate a communication strategy</li> <li>5.3.6 Uses appropriate behaviour change, health promotion, social marketing, communication, community development and public health policy frameworks in the planning of nutrition programs</li> <li>5.3.7 Demonstrates consideration of resource implications for community/public health programs</li> <li>5.3.8 Considers the sustainability of the program</li> </ul>

**Unit 6:****Food Service Management**

Manages components of a food service to provide safe and nutritious food



<b>Elements</b>	<b>Performance criteria</b>
6.1 Assesses opportunities to improve nutrition and food standards within a food service institution*  (* Food service institution refers to an environment where clients are nutritionally dependent)	<p>6.1.1 Uses qualitative and/or quantitative methods to collect and analyse data to identify food service and/or nutrition issues</p> <p>6.1.2 Applies existing standards to evaluate available nutrients and nutritional adequacy and recommends strategies to improve nutrition in general and in therapeutic menus</p> <p>6.1.3 Assesses the nutrition implications of food service systems on individuals and groups</p> <p>6.1.4 Applies food legislation and regulations to develop and evaluate food service systems to maintain food safety</p> <p>6.1.5 Identifies, consults and engages stakeholders and partners, where possible</p> <p>6.1.6 Assesses, and assigns priorities for action based on assessment of data and available capacity</p> <p>6.1.7 Clearly articulates and justifies conclusions and recommendations for action</p>
6.2 Develops plans to provide safe and nutritious foods in a food service institution	<p>6.2.1 Identifies goals for addressing food service issues in collaboration with stakeholders, where possible</p> <p>6.2.2 Proposes modifications to improve food service including a practical time-frame</p> <p>6.2.3 Identifies benefits, costs and potential savings, both economic and health related</p> <p>6.2.4 Demonstrates consideration of sustainability issues, environmental and economic</p> <p>6.2.5 Identifies risks and develops a basic risk management plan</p>
6.3 Implements activities to support delivery of quality nutrition and food standards within a food service	<p>6.3.1 Ensures nutrition information provided about food, recipe or menu is accurate</p> <p>6.3.2 Prepares meal plans for individuals and groups, which meet nutritional, personal, cultural, sociological, psychological, socioeconomic needs and specific health needs, taking into account the ordering, preparation, service, availability and distribution of food</p> <p>6.3.3 Applies these meal plans for groups in an institutional, commercial or community foodservice setting</p> <p>6.3.4 Provides advice on appropriate ingredients and alternatives to achieve nutritional goals for general, diverse or therapeutic diets</p> <p>6.3.5 Formulates, modifies or standardises recipes for general, diverse or therapeutic diets that are relevant to the production and distribution system within a food service</p> <p>6.3.6 Recognises and supports the role of food service personnel in the delivery of nutrition care</p> <p>6.3.7 Provides accurate and clear information to food service personnel and other health carers to allow implementation of plans</p>
6.4 Evaluates and disseminates results of activities	<p>6.4.1 Evaluates outcomes using standard benchmarks and procedures, where appropriate</p> <p>6.4.2 Critically reflects on evaluation data in the context of plans, goals and implementation activities, where possible</p> <p>6.4.3 Reports outcomes of activities to internal and external stakeholders, where possible, where appropriate</p> <p>6.4.4 Communicates to effect practice change if required</p>

***Unit 7: Research and Evaluation*****Integrates research and evaluation principles into practice**

<b>Elements</b>	<b>Performance criteria</b>
7.1 Adopts a questioning and critical approach in all aspects of practice	7.1.1 Formulates a clear understanding of the nature of a practice problem 7.1.2 Applies an evidence-based approach to practice 7.1.3 Identifies and selects appropriate research methods to investigate and resolve practice problems 7.1.4 Applies valid and relevant conclusions and recommendations to practice
7.2 Evaluates practice on an ongoing basis	7.2.1 Monitors and reviews the ongoing effectiveness of practice and modifies it accordingly
7.3 Applies the research process using appropriate research methods, ethical processes and procedures and statistical analysis	7.3.1 Critically reviews the literature 7.3.2 Utilises ethical procedures in the research process 7.3.3 Identifies and selects appropriate research methods to investigate and resolve practice problems 7.3.4 Collects and interprets information, including qualitative and quantitative data 7.3.5 Documents outcomes of research using the research process
7.4 Applies evaluation findings into practice	7.4.1 Applies evidence and judgement to food and nutrition issues 7.4.2 Disseminates outcomes of research in professional and scientific fora



## **Unit 8: Management and Organisation**

**Applies management principles in the provision of nutrition services, programs and products**

<b>Elements</b>	<b>Performance criteria</b>
8.1 Applies organisational skills in the practice of nutrition and dietetics	8.1.1 Manages workload and resources to complete tasks within required timeframes 8.1.2 Applies the principles of personnel management, using principles of human resource management and industrial relations 8.1.3 Allocates resources (time, personnel, other) according to established priorities 8.1.4 Performs and manages administration tasks effectively (e.g. makes appointments, responds to referrals, maintains records and statistics)
8.2 Applies management principles in the practice of nutrition and dietetics	8.2.1 Applies the strategic or organisational planning process to the nutrition and dietetics service 8.2.2 Develops a case to justify program, service, product, or procedure 8.2.3 Understands and performs simple budgeting and cost control measures
8.3 Applies quality management principles to all aspects of professional practice	8.3.1 Identifies opportunities for service improvement 8.3.2 Develops recommendations for the review of systems or policies or procedures 8.3.3 Prepares and implements achievable quality activities, consistent with policy and procedures 8.3.4 Evaluates, documents and communicates outcomes of quality activities



## Unit 9: Professionalism, advocacy, innovation and leadership

Demonstrates a professional, ethical and entrepreneurial approach advocating for excellence in nutrition and dietetics

Elements	Performance criteria
9.1 Demonstrates safe practice	<ul style="list-style-type: none"> <li>9.1.1 Exercises professional duty of care in accordance with the DAA Code of Professional Conduct and the organisation's guidelines or protocols</li> <li>9.1.2 Refers clients/patients/issues to appropriate professional when beyond own level or area of competence</li> </ul>
9.2 Develops and maintains a credible professional role by commitment to excellence of practice	<ul style="list-style-type: none"> <li>9.2.1 Complies with legislation and regulations which define ethical behaviour, including maintaining confidentiality</li> <li>9.2.2 Accepts responsibility for and manages, implements and evaluates personal professional development</li> <li>9.2.3 Demonstrates consistent, reflective practice in collaboration with peers and mentors</li> <li>9.2.4 Promotes a high standard of nutrition care, while respecting the goals and roles of other professionals</li> </ul>
9.3 Demonstrates professional leadership to promote the contribution of nutrition and dietetics to health and prevention of disease	<ul style="list-style-type: none"> <li>9.3.1 Advocates for the role of nutrition and dietetics</li> <li>9.3.2 Uses negotiation and conflict resolution skills to promote best practice</li> <li>9.3.3 Identifies opportunities to collaborate with other professionals/organisations to improve nutrition outcomes</li> <li>9.3.4 Demonstrates willingness to share information and act as a resource person to, and advocate for, colleagues, community and other agencies</li> </ul>
9.4 Creates solutions which match and solve problems	<ul style="list-style-type: none"> <li>9.4.1 Discusses and explores ideas with colleagues/others on an ongoing basis</li> <li>9.4.2 Seeks external ideas</li> <li>9.4.3 Demonstrates initiative by proactively developing solutions to problems</li> </ul>
9.5 Advocates on behalf of individuals, groups and the profession to positively influence the wider political, social and commercial environment, about factors which affect eating behaviour and nutritional standards	<ul style="list-style-type: none"> <li>9.5.1 Recognises the role of interdepartmental, interagency (government, non-government and professional) and industry co-operation to reduce barriers to healthy eating habits</li> <li>9.5.2 Develops cooperative relationships with stakeholders in the food system to positively influence nutrition outcomes</li> </ul>
9.6 Demonstrates cultural competency	<ul style="list-style-type: none"> <li>9.6.1 Understands what is meant by cultural awareness with respect to the Aboriginal and Torres Strait Islander and Culturally and Linguistically Diverse (CALD) communities and is aware of the skills required for communicating in a culturally respectful way</li> <li>9.6.2 Has a working knowledge of the nutrition issues and diet related diseases impacting on the health of Aboriginal and Torres Strait Islanders and people from CALD communities</li> <li>9.6.3 Has an awareness of the current policy and implementation frameworks for Aboriginal and Torres Strait Islander and CALD communities</li> </ul>
9.7 Develops sustainable collaborative relationships and networks	<ul style="list-style-type: none"> <li>9.7.1 Contributes effectively to work undertaken as part of a multi-disciplinary team</li> <li>9.7.2 Builds relationships with stakeholders</li> <li>9.7.3 Acknowledges the different ways that different people may contribute to building or enhancing a team</li> </ul>

## National Competency Standards for Dietitians in Australia



The National Competency Standards for Dietitians in Australia were originally published in 1993 and reviewed in 1998, 2005 and 2009. This revision was developed in 2014 and endorsed by Dietitians Association of Australia (DAA) in 2015.

The National Competency Standards for Dietitians in Australia are used to facilitate a shared understanding of competency. More specifically they may be used by:

**Students to:**

- Identify the relationship between their program of learning, assessment and program outcomes
- Determine what they are expected to do by the end of their university study (on entry to the profession)
- Guide their plans for professional development as part the Accredited Practising Dietitian program

**Practitioners to:**

- Provide a framework for assessment of students
- Guide professional development plans for the Accredited Practising Dietitian mentoring program
- Describe minimum performance in the workplace

**Universities to:**

- Design and implement dietetic education programs that are compliant with the DAA Accreditation Standards
- Develop curricula and assessment strategies that are aligned with the Competency Standards
- Graduate entry-level dietetic practitioners that are competent against the Competency Standards.

**DAA to:**

- Inform standards for accreditation of university programs
- Guide the assessment processes of dietitians whose qualifications are not from Australia and for dietitians returning to practice
- Describe safe performance in the workplace

**By patients, clients and the community to:**

- Establish the expected knowledge, skills and behaviours of dietitians and provide the standards against which the public can expect safe practice

<b>Domain 1. Practises professionally</b>	
<b>Key Tasks/Elements</b>	<b>Observable and/or measurable actions</b>
<b>1.1 Demonstrates safe practice</b>	1.1.1 Reviews and evaluates the impact of own practice on improving nutritional health 1.1.2 Recognises own professional limitations and the profession's scope of practice and seeks assistance as necessary 1.1.3 Accepts responsibility for and manages, implements and evaluates own personal health and well-being 1.1.4 Shows a commitment to professional development and conduct and lifelong learning 1.1.5 Consistently demonstrates reflective practice in collaboration with supervisors, peers and mentors 1.1.6 Accepts responsibility for own actions 1.1.7 Demonstrates flexibility, adaptability and resilience and the ability to manage own emotions
<b>1.2 Practises within ethical and legal frameworks</b>	1.2.1 Exercises professional duty of care in accordance with relevant codes of conduct, ethical requirements and other accepted protocols 1.2.2 Demonstrates integrity, honesty and fairness 1.2.3 Prepares appropriate documentation according to accepted standards
<b>1.3 Demonstrates professional leadership</b>	1.3.1 Uses negotiation and conflict resolution skills when required 1.3.2 Develops and maintains a credible professional role by commitment to excellence of practice 1.3.3 Seeks, responds to, and provides, effective feedback 1.3.4 Participates in mentoring 1.3.5 Demonstrates initiative by being proactive and developing solutions to problems
<b>1.4 Practises effectively</b>	1.4.1 Applies organisational, business and management skills in the practice of nutrition and dietetics (effective time, workload and resource management) 1.4.2 Utilises suitable evaluation tools to review effectiveness of practice 1.4.3 Identifies and assesses risks, follows risk management protocols and develops basic risk management strategies for services 1.4.4 Utilises relevant technology and equipment efficiently, effectively and safely 1.4.5 Applies the principles of marketing to promote healthy eating and influence dietary change
<b>1.5 Demonstrates cultural competence</b>	1.5.1 Reflects on own culture, values and beliefs and their influence on practice 1.5.2 Seeks out culturally specific information to inform practice 1.5.3 Works respectfully with individuals, groups and/or populations from different cultures

<b>Domain 2. Positively influences the health of individuals, groups and/or populations to achieve nutrition outcomes</b>	
<b>Key Tasks/Elements</b>	<b>Observable and/or measurable actions</b>
<b>2.1 Applies an evidence-based approach to nutrition and dietetics services</b>	<p>2.1.1 Collects, analyses and interprets relevant health, medical, cultural, social, psychological, economic, personal, environmental, dietary intake, and food supply data in determining nutritional status</p> <p>2.1.2 Makes appropriate nutrition diagnoses and identifies priority nutrition issues based on all available information</p> <p>2.1.3 Prioritises key issues, formulates goals and objectives and prepares goal oriented plans in collaboration with patient/client or carer, community/population/service, other members of the health care team, key stakeholders and partners</p> <p>2.1.4 Implements, evaluates and adapts nutrition care plans/programs/services in collaboration with patient/client or carer, community/population/service and other members of the health care team or key stakeholders and/or partners</p>
<b>2.2 Influences the food supply to improve the nutritional status of individuals, groups and/or populations</b>	<p>2.2.1 Applies an approach to practice that recognises the multi-factorial and interconnected determinants influencing nutrition and health</p> <p>2.2.2 Identifies opportunities and advocates for change to the wider social, cultural and/or political environment to improve nutrition, food standards or the food supply in various settings</p> <p>2.2.3 Acknowledges the multiple factors that influence food choice and the provision of service</p> <p>2.2.4 Uses food legislation, regulations and standards to develop, implement and evaluate food systems to maintain food safety</p> <p>2.2.5 Applies a socio-ecological approach to the development of strategies to improve nutrition and health</p>
<b>2.3 Facilitates optimal food choice and eating behaviours for health</b>	<p>2.3.1 Applies a highly developed knowledge of nutrition science, health and disease, food and food preparation methods to tailor recommendations to improve health of individuals, groups and/or populations</p> <p>2.3.2 Displays effective active listening, interviewing and interpersonal skills to better understand perspectives of clients, carers, groups and key stakeholders to inform approaches and influence change</p> <p>2.3.3 Uses client-centred counselling skills to negotiate and facilitate nutrition, behaviour and lifestyle change and empower clients with self-management skills</p>

<b>Domain 3. Applies critical thinking and integrates evidence into practice</b>	
<b>Key Tasks/Elements</b>	<b>Observable and/or measurable actions</b>
<b>3.1 Uses best available evidence to inform practice</b>	<p>3.1.1 Adopts a questioning and critical approach in all aspects of practice</p> <p>3.1.2 Gathers, critiques, uses and shares research and information to support sound decision making with key stakeholders</p> <p>3.1.3 Applies problem-solving skills to create realistic solutions to nutrition problems or issues</p>
<b>3.2 Conducts research, evaluation and quality improvement processes using appropriate methods</b>	<p>3.2.1 Identifies and selects appropriate research methods to investigate food and nutrition problems</p> <p>3.2.2 Applies ethical processes to research and evaluation</p> <p>3.2.3 Collects, analyses and interprets qualitative and quantitative research and evaluation data</p> <p>3.2.4 Accurately documents and disseminates research, quality improvement and evaluation findings</p>

<b>Domain 4. Collaborates with clients and stakeholders</b>	
<b>Key Tasks/Elements</b>	<b>Observable and/or measurable actions</b>
<b>4.1 Communicates appropriately with individuals, groups, organisations and communities from various cultural, socio-economic, organisational and professional backgrounds</b>	<p>4.1.1 Practises in a manner that encompasses the needs, preferences and perspectives of others</p> <p>4.1.2 Demonstrates empathy and establishes trust and rapport to build an effective relationship with client, carers, families, colleagues, community and other key stakeholders</p> <p>4.1.3 Translates technical information into practical advice on food and eating and other relevant topics</p> <p>4.1.4 Adapts and tailors communication appropriately for specific audiences</p> <p>4.1.5 Communicates clearly and concisely to a range of audiences using a range of media</p>
<b>4.2 Builds capacity of and collaborates with others to improve nutrition and health outcomes</b>	<p>4.2.1 Shares information with and acts as a resource person for colleagues, community and other agencies</p> <p>4.2.2 Identifies, builds relationships with and assists in implementing plans with key stakeholders who have the capacity to influence food intake and supply</p> <p>4.2.3 Empowers individuals, groups and/or the broader community to improve their own health through engagement, facilitation, education and collaboration</p>
<b>4.3 Collaborates within and across teams effectively</b>	<p>4.3.1 Promotes a high standard of nutrition care, while respecting the goals and roles of clients and other professionals, key stakeholders or groups</p> <p>4.3.2 Participates in collaborative decision making, shared responsibility, and shared vision within a team</p> <p>4.3.3 Shares responsibility for team action, recognising the diverse roles and responsibilities other team members play</p> <p>4.3.4 Guides and supports other team members and peers</p> <p>4.3.5 Actively promotes the role of a Dietitian and the broader profession of nutrition and dietetics</p>

Domain 1. Practises professionally		
Elements	Performance criteria	Definition of key terms
1.1 Demonstrates safe practice	<ul style="list-style-type: none"> <li>1.1.1 Reviews and evaluates the impact of own practice on improving nutritional health</li> <li>1.1.2 Recognises own professional limitations and the profession's scope of practice and seeks assistance as necessary</li> <li>1.1.3 Accepts responsibility for and manages, implements and evaluates own personal health and well-being</li> <li>1.1.4 Shows a commitment to professional development and conduct and lifelong learning</li> <li>1.1.5 Consistently demonstrates reflective practice in collaboration with supervisors, peers and mentors</li> <li>1.1.6 Accepts responsibility for own actions</li> <li>1.1.7 Demonstrates flexibility, adaptability and resilience and the ability to manage own emotions</li> </ul>	<p><i>Safe practice:</i> practice of health-professionals and their interaction with patients that leads to positive health outcomes.<sup>1</sup></p> <p><i>Professional conduct:</i> behaviours exhibited in line with the DAA Code of Professional Conduct<sup>2</sup> and Statement of Ethical Practice.<sup>3</sup></p> <p><i>Scope of practice:</i> the breadth and extent of safe dietetic practice for an individual practitioner. The DAA Code of Professional Conduct<sup>2</sup> and Statement of Ethical Practice<sup>3</sup> describe the skills, knowledge, attitudes and ethical behaviour expected of the practice of dietitians.</p> <p><i>Health:</i> is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.<sup>4</sup></p> <p><i>Well-being:</i> the combination of feeling good and functioning effectively<sup>5</sup> whereby an individual manages both positive and negative emotions and has some control over their life with helpful relationships.<sup>5</sup></p> <p><i>Professional development:</i> the process of identifying learning needs, making plans for personal and professional development, implementing plans and reflecting on practice.<sup>6</sup></p> <p><i>Resilience:</i> a personal and cultural strategy for surviving and even transcending adversity.<sup>7</sup></p> <p><i>Reflective practice:</i> the process of reviewing an experience you have had, identifying what happened, your behaviour, thinking and emotions and building on this experience for future practice.<sup>8</sup></p>
1.2 Practises within ethical and legal frameworks	<ul style="list-style-type: none"> <li>1.2.1 Exercises professional duty of care in accordance with relevant codes of conduct, ethical requirements and other accepted protocols</li> <li>1.2.2 Demonstrates integrity, honesty and fairness</li> <li>1.2.3 Prepares appropriate documentation according to accepted standards</li> </ul>	<p><i>Ethical framework:</i> practices to Statement of Ethical Practice<sup>3</sup> with clients and the community.</p> <p><i>Legal framework:</i> practices according to the DAA Code of Professional Conduct<sup>2</sup> privacy legislation, and other relevant organisational laws and systems.</p> <p><i>Applicable codes of ethics and conduct:</i> may include but are not limited to the DAA Code of Conduct and Statement of Ethical Practice, workplace policies, National Statement on Ethical Conduct, Privacy, Equal Opportunity</p>
1.3 Demonstrates professional leadership	<ul style="list-style-type: none"> <li>1.3.1 Uses negotiation and conflict resolution skills when required</li> <li>1.3.2 Develops and maintains a credible professional role by commitment to excellence of practice</li> <li>1.3.3 Seeks, responds to, and provides, effective feedback</li> <li>1.3.4 Participates in mentoring</li> <li>1.3.5 Demonstrates initiative by being proactive and developing solutions to problems</li> </ul>	<p><i>Excellence of practice:</i> aspires to and is committed to improve knowledge, skills and abilities.</p> <p><i>Effective Feedback:</i> the process whereby learners become judges of their own performance, draw feedback from peers and supervisors and where education allows opportunities for learners to build on all feedback received.<sup>9</sup></p> <p><i>Mentoring:</i> a reciprocal learning process whereby two individuals support each other's professional and personal development.<sup>10</sup></p>
1.4 Practises effectively	<ul style="list-style-type: none"> <li>1.4.1 Applies organisational, business and management skills in the practice of nutrition and dietetics (effective time, workload and resource management)</li> <li>1.4.2 Utilises suitable evaluation tools to review effectiveness of practice</li> <li>1.4.3 Identifies and assesses risks, follows risk management protocols and develops basic risk management strategies for services</li> <li>1.4.4 Utilises relevant technology and equipment efficiently, effectively and safely</li> <li>1.4.5 Applies the principles of marketing to promote healthy eating and influence dietary change</li> </ul>	<p><i>Organisational, business and management skills:</i> the approach to individual workload management, working in small teams and skills and knowledge of team dynamics as applied to an individual work practice, utilising these skills as an employee.</p> <p><i>Technology:</i> advancements in materials, information technology or other components to support practice.</p> <p><i>Marketing:</i> in the context of dietetics practice and these standards, it is a process by which healthy eating or dietary behaviour change is identified, developed, priced, placed and promoted to create consumer demand.<sup>11</sup></p>
1.5 Demonstrates cultural competence	<ul style="list-style-type: none"> <li>1.5.1 Reflects on own culture, values and beliefs and their influence on practice</li> <li>1.5.2 Seeks out culturally specific information to inform practice</li> <li>1.5.3 Works respectfully with individuals, groups and/or populations from different cultures</li> </ul>	<p><i>Culturally competent:</i> the ability to be inclusive, effective and sensitive to the cultural, linguistic and spiritual needs of groups other than your own.<sup>12</sup></p>

**Examples of strategies to support the development of competence:**

- evidence of workload management at university (eg. submission of assessment tasks on time, timely attendance) and in practice (managing typical new graduate workload)
- peer or teamwork assessment, taking a role as leader and team member with accompanying reflection on role in team and areas for improvement
- critical incident reflection regarding a key incident with peer or other professional or an observation of optimal/suboptimal healthcare reporting on development of plans to address nutrition problems
- feedback from a patient/client of Aboriginal or Torres Strait Islander or Culturally and Linguistically diverse background
- client/group members feedback on ability to market nutrition messages
- continuing professional development or learning plans/goals with evidence of progression towards achievement of goals over time
- direct supervisors feedback on compliance with relevant ethical and legal processes
- feedback from direct supervisors, clients or peers on performance criteria above
- marketing or business plan, grant/project proposal with budget
- peer mentoring of fellow students and other non-dietetic staff
- reflection on factors (personal, environmental, knowledge) that influence performance

Contexts include all areas of supervised practice, such as: public and private hospitals, clinics, community health care centres, private practice, health care agencies, residential aged care facility and hostels, education institutions and private industry.

**Comments regarding evidence of entry-level:**

Competence is a point on the spectrum of improving performance from beginner to advanced practitioner. The competence of any one individual at any point in time will depend on the complexity of the situation, the environment of practice and the personal state of the individual professional. Entry level competence is demonstrated when individuals have had some experience, and are able to make autonomous decisions regarding nutrition problems with limited complexity, based on process and the analysis of the situation.<sup>13</sup> There should be no expectation that complex issues are managed autonomously by an entry-level practitioner.

Domain 2. Positively influences the health of individuals, groups and/or populations to achieve nutrition outcomes		
Elements	Performance criteria	Definition of key terms
<b>2.1 Applies an evidence-based approach to nutrition and dietetics services</b>	<p>2.1.1 Collects, analyses and interprets relevant health, medical, cultural, social, psychological, economic, personal, environmental, dietary intake, and food supply data in determining nutritional status</p> <p>2.1.2 Makes appropriate nutrition diagnoses and identifies priority nutrition issues based on all available information</p> <p>2.1.3 Prioritises key issues, formulates goals and objectives and prepares goal oriented plans in collaboration with patient/client or carer, community/population/service, other members of the health care team, key stakeholders and partners</p> <p>2.1.4 Implements, evaluates and adapts nutrition care plans/programs/services in collaboration with patient/client or carer, community/population/service and other members of the health care team or key stakeholders and/or partners</p>	<p><i>Evidence based approach:</i> approach to practice whereby the practitioner uses best available scientific evidence to inform assessment and interventions including the use of critical thinking and clinical reasoning to inform decisions.<sup>14</sup> Critical thinking is described as purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, and inference [needed to] ... effectively manage complex care situations.<sup>15</sup> Clinical reasoning is defined as 'the cognitive processes involved in making judgments ... followed by a determined course of action'<sup>16</sup> underpinned by critical thinking.</p> <p><i>Nutrition and dietetics services:</i> the provision appropriate food or dietary assessment, intervention and monitoring to individuals, groups and populations to improve health outcomes taking into account the holistic needs of those individuals, groups or populations.</p> <p><i>Nutrition diagnosis:</i> part of the nutrition care process which is a systematic approach to providing high-quality nutrition care or services. It consists of distinct yet interrelated steps: Nutrition Assessment, Diagnosis, Intervention and Monitoring/Evaluation as applied to individuals, groups and/or populations.<sup>17</sup></p> <p><i>Patient/client:</i> recipient (individual, providers or funders) of a health care service from a healthcare professional.</p> <p><i>Carer:</i> individual who provides ongoing personal care, support and/or assistance to another individual.</p> <p><i>Community/Population:</i> a group who share a similar characteristic or geographical location.</p> <p><i>Service:</i> a system supplying a need.</p> <p><i>Health care team:</i> professionals from a range of disciplines who work together to deliver comprehensive care or services.</p> <p><i>Stakeholders:</i> individuals or organisations that are invested in an issue.</p> <p><i>Partners:</i> individuals who are unified with others in an issue, circumstance or situation.</p>
<b>2.2 Influences the food supply to improve the nutritional status of individuals, groups and/or populations</b>	<p>2.2.1 Applies an approach to practice that recognises the multi-factorial and interconnected determinants influencing nutrition and health</p> <p>2.2.2 Identifies opportunities and advocates for change to the wider social, cultural and/or political environment to improve nutrition, food standards or the food supply in various settings</p> <p>2.2.3 Acknowledges the multiple factors that influence food choice and the provision of service</p> <p>2.2.4 Uses food legislation, regulations and standards to develop, implement and evaluate food systems to maintain food safety</p> <p>2.2.5 Applies a socio-ecological approach to the development of strategies to improve nutrition and health</p>	<p><i>Food supply:</i> production and distribution of food, including the way consumers eat (prepare and consume) food, retail, processing, growing and distributing food.</p> <p><i>Nutritional status:</i> outcome of a validated assessment process to provide objective evidence regarding an individual, group or populations nutrition related health.<sup>18</sup></p> <p><i>Multi-factorial and interconnected determinants:</i> the multiple factors (see below) which are known to contribute to health.<sup>19</sup></p> <p><i>Advocates:</i> acts on behalf of for individuals, groups and/or communities to gather commitment, support, and policy change around a health issue.<sup>20</sup></p> <p><i>Food legislation and regulation:</i> the relevant authoritative laws and rules that stipulate food composition, safety and standards.<sup>21</sup></p> <p><i>Food safety:</i> the provision of safe food which is food that does not cause physical harm to any individual who eats the food. Safe food is not damaged, perished, nor contains physical, biological or chemical matter that could cause harm.<sup>21</sup></p> <p><i>Food standards:</i> guidelines and laws that relate to the provision of meals/menus,<sup>22</sup> labelling, composition and marketing of foods.<sup>21</sup></p> <p><i>Multiple factors:</i> the social, political, economic, environmental, cultural and behavioural factors influencing health.<sup>19</sup></p> <p><i>Service:</i> a system supplying a need.</p> <p><i>Food systems:</i> activities related to the production and supply of food, including the way consumers eat (prepare and consume) food, retail, processing, advertising and marketing, growing and distributing food - the food supply system - all of which have the potential to influence health.<sup>23</sup></p> <p><i>Socio-ecological:</i> an approach that recognises the individual, institutional, organizational, community and public policy factors influencing health. It assumes that changes in the social environment will produce health behaviour change for individuals.<sup>24</sup></p>

Domain 2. Positively influences the health of individuals, groups and/or populations to achieve nutrition outcomes		
Elements	Performance criteria	Definition of key terms
<b>2.3 Facilitates optimal food choice and eating behaviours for health</b>	<p>2.3.1 Applies a highly developed knowledge of nutrition science, health and disease, food and food preparation methods to tailor recommendations to improve health of individuals, groups and/or populations</p> <p>2.3.2 Displays effective active listening, interviewing and interpersonal skills to better understand perspectives of clients, carers, groups and key stakeholders to inform approaches and influence change</p> <p>2.3.3 Uses client-centred counselling skills to negotiate and facilitate nutrition, behaviour and lifestyle change and empower clients with self-management skills</p>	<p><i>Food preparation methods:</i> includes shopping, cooking, presenting food as well as chemical properties of food when cooked and its effect on composition and also practical application to meals and dietary patterns.</p> <p><i>Client-centred counselling:</i> an approach whereby health care practice supports client/patient autonomy and choice through a partnership between the practitioner and client. The approach assumes both practitioner and client have responsibility to improve health and involves strategies that enable the client to achieve health outcomes.<sup>25</sup></p> <p><i>Active listening:</i> the act of alert intentional hearing, interpretation, and demonstration of an interest in what a person has to say through verbal signal, nonverbal gestures, and body language.</p> <p><i>Empower:</i> an approach that supports individuals to be able to address their own health such that they have increasing control over their own health.<sup>26</sup></p> <p><i>Self-management:</i> engaging clients in activities to support them to manage their own health.<sup>27</sup></p>
<b>Examples of strategies to support the development of competence:</b>		
<ul style="list-style-type: none"> <li>• documented nutrition care plans or patient/client case notes, including clinical reasoning and decision making and opportunity to demonstrate in practice</li> <li>• facilitating a nutrition education session using client-centred approaches to support nutrition and health outcomes</li> <li>• development of nutrition education materials in consultation with clients or the target group</li> <li>• client/patient encounter involving assessment and translation of scientific knowledge into client-centred practical advice that supports behaviour change</li> <li>• evidence of client/patient/community/population nutrition related health outcomes as a consequence of care/input</li> <li>• implementing recommendations from project reports, governance documents, practice guidelines</li> <li>• reports of quality audits (eg. meal quality assessment), systems review of food services (eg. review of meal delivery system or menu management system)</li> <li>• assessment of meals meeting client/group requirements</li> <li>• completion of client satisfaction surveys for clinical nutrition or food services, evaluation of consumption and/or food wastage</li> <li>• food service menu analysis and recommendation action plan developed in consultation with key personnel or outcome of such work</li> <li>• a community situational and determinant analysis, community consultation, community led intervention and evaluation or outcome of such work</li> <li>• planning for, or implementation of, a program/policy/project/change related to addressing a population nutrition problem/issue</li> <li>• evaluation of an existing program/policy/project related to addressing a population nutrition problem/issue or food service system</li> </ul> <p>Applications may include but are not limited to: simulated settings (eg. role plays, student clinics, Objective Structured Clinical Exam), individuals, small groups, institutions, communities or populations where dietary behaviour change is the intended outcome.</p> <p>Contexts include, but are not limited to: hospital in and out-patient settings, residential aged care facilities, community health centre, client-residence, private practice, general practice, Aboriginal Community Controlled Health Service, worksite, government and non government agencies such as population health units, community health centres, welfare agencies, schools, long day care centres, Aboriginal communities, food production, development and manufacturing including advocacy in food industry, retail settings, meals on wheel services, boarding schools, university colleges, prisons, detention centres, live-in worksites (eg. mines), central production units.</p> <p><b>Comments regarding evidence of entry-level:</b>  Student placement learning experience limitations may not enable students to demonstrate: <ul style="list-style-type: none"> <li>• Management of every type of clinical case, food service setting or population group. Students must demonstrate application in practice of the nutrition care process, as it applies to a variety of health and disease states throughout the lifecycle and demonstrate the ability to transfer learning to other contexts.</li> <li>• All components of the planning implementation and evaluation for services, groups and populations, however students must demonstrate that they know where their practical experience sits within the context of these processes and provide evidence of knowledge and skills in each of the other stages through documentation. This could be achieved through simulated menu reviews or situational analyses, proposals, reports, case or problem based learning activities, written or oral exams.</li> <li>• Assessment of competence must be based on a system of assessment that uses multiple pieces of evidence to inform decisions regarding competence over time, by people, adequately experienced and qualified to be making decisions about competence, rather than just being based on single performances or encounters in single settings/contexts. Overall competence judgement needs to be assessed by more than one person.</li> </ul> </p>		

Domain 3. Applies critical thinking and integrates evidence into practice		
Key Tasks/Elements	Performance criteria	Definition of key terms
<b>3.1 Uses best available evidence to inform practice</b>	3.1.1 Adopts a questioning and critical approach in all aspects of practice 3.1.2 Gathers, critiques, uses and shares research and information to support sound decision making with key stakeholders 3.1.3 Applies problem-solving skills to create realistic solutions to nutrition problems or issues	<p><i>Critical thinking:</i> is described as purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation, and inference [needed to] ... effectively manage complex care situations.<sup>15</sup></p> <p><i>Best-available evidence:</i> the highest level of evidence according to study design hierarchy that is available in the scientific literature to inform practice.<sup>14</sup></p> <p><i>Research:</i> the systematic examination of an issue or topic in order to obtain new information and reach new conclusions.</p> <p><i>Evaluation:</i> an assessment of the degree to which a desired program/service/system achieves its intended process, impact or outcomes.</p> <p><i>Quality improvement:</i> a process aimed to change practice that is undertaken to improve, evaluate or formalise processes, systems or service, usually at a local level.<sup>28</sup></p> <p><i>Research methods:</i> include a range of quantitative and qualitative approaches that are used to inform study design.<sup>29</sup></p> <p><i>Appropriate methods:</i> in this context refers to feasible, practical, valid/credible, reliable/dependable strategies and/or approaches.</p> <p><i>Ethical processes:</i> methods that take into consideration issues related to collecting data from humans and reporting on it that comply with the Declaration of Helsinki<sup>30</sup> and National Health and Medical Research Council National statement on ethical conduct in human research.<sup>31</sup></p> <p><i>Qualitative methods:</i> research strategies that emphasise words rather than numbers in data collection and analysis. The focus of qualitative research is on the generation of theories.<sup>29</sup></p> <p><i>Quantitative methods:</i> research strategies that emphasise numbers in data collection and analysis. The focus of quantitative research is on the testing of theories.<sup>29</sup></p> <p><i>Disseminates:</i> process of sharing results to others to enhance their impact and influence change.<sup>32</sup></p> <p><i>Key stakeholders:</i> individuals, groups and organisations with an interest or stake in, and the potential to influence, an issue.<sup>33</sup></p> <p><i>Nutrition problems/issues:</i> a topic that is considered important or a priority to address that is related to nutrition in its broadest sense, they may be social, political, economic, environmental, cultural and behavioural factors influencing nutrition.</p>
<b>3.2 Conducts research, evaluation and quality improvement processes using appropriate methods</b>	3.2.1 Identifies and selects appropriate research methods to investigate food and nutrition problems 3.2.2 Applies ethical processes to research and evaluation 3.2.3 Collects, analyses and interprets qualitative and quantitative research and evaluation data 3.2.4 Accurately documents and disseminates research, quality improvement and evaluation findings	
<b>Examples of strategies to support the development of competence:</b>		
<ul style="list-style-type: none"> <li>• a review of the literature relevant to practice, such as evidence based guidelines or a systematic literature review</li> <li>• research, evaluation or quality improvement project reports</li> <li>• research papers (suitable for submission into a peer reviewed journal) or thesis</li> <li>• presentation of research, evaluation or quality improvement activity in a state or national conference-type (eg, within the university setting) format (oral or poster)</li> <li>• facilitation of a workshop or discussion group to present gathered evidence and support plans for the way forward</li> </ul> <p><b>Comments regarding evidence of entry-level:</b>            Students are not required to undertake an individual research project, but may work as individuals or groups and use research, evaluation or quality improvement processes, to systematically identify questions for inquiry, use valid/credible and reliable/dependable research methodologies to answer questions, analyse using appropriate methods and document and disseminate outcomes to support the translation of the findings into practice contexts. The emphasis should be on meaningful workplace focussed projects that add authenticity to the learning experience and a process of review/research applied to these projects.</p>		

<b>Domain 4. Collaborates with clients and stakeholders</b>		
<b>Key Tasks/Elements</b>	<b>Observable and/or measurable actions</b>	<b>Definition of key terms</b>
<b>4.1 Communicates appropriately with individuals, groups, organisations and communities from various cultural, socio-economic, organisational and professional backgrounds</b>	<p>4.1.1 Practises in a manner that encompasses the needs, preferences and perspectives of others</p> <p>4.1.2 Demonstrates empathy and establishes trust and rapport to build an effective relationship with client, carers, families, colleagues, community and other key stakeholders</p> <p>4.1.3 Translates technical information into practical advice on food and eating and other relevant topics</p> <p>4.1.4 Adapts and tailors communication appropriately for specific audiences</p> <p>4.1.5 Communicates clearly and concisely to a range of audiences using a range of media</p>	<p><i>Empathy:</i> a personality trait that enables one to identify with another's situation, thoughts, or condition by placing oneself in their situation.<sup>24</sup></p> <p><i>Communicates appropriately:</i> ability to tailor or adapt communication based on the situation and feedback from the recipients in the context of stage of personal and professional development.</p> <p><i>Empowerment:</i> an approach that supports individuals to be able to address their own health such that they have increasing control over their own health.<sup>25</sup></p> <p><i>Media:</i> a method of communication that extends to a wide range of people and aims to influence them. In a range of forms - print (eg. magazine, newspaper etc.), electronic (television, internet, radio, blog etc).</p> <p><i>Capacity building:</i> process by which individual, groups and communities are enabled to take control over improving their health to increase the sustainability of health outcomes.<sup>26</sup></p> <p><i>Collaborates:</i> the process of working with others, including demonstration of active listening, teamwork, negotiation and sharing.</p>
<b>4.2 Builds capacity of and collaborates with others to improve nutrition and health outcomes</b>	<p>4.2.1 Shares information with and acts as a resource person for colleagues, community and other agencies</p> <p>4.2.2 Identifies, builds relationships with and assists in implementing plans with key stakeholders who have the capacity to influence food intake and supply</p> <p>4.2.3 Empowers individuals, groups and/or the broader community to improve their own health through engagement, facilitation, education and collaboration</p>	<p><i>Team:</i> a group of people who come together to develop a shared goal and work together towards achievement of that goal.</p> <p><i>Peers:</i> a person who is equal to another in abilities, and qualifications that provides feedback, support and guidance.</p> <p><i>Promotes:</i> the process of actively supporting or encouraging an outcome.</p>
<b>4.3 Collaborates within and across teams effectively</b>	<p>4.3.1 Promotes a high standard of nutrition care, while respecting the goals and roles of clients and other professionals, key stakeholders or groups</p> <p>4.3.2 Participates in collaborative decision making, shared responsibility, and shared vision within a team</p> <p>4.3.3 Shares responsibility for team action, recognising the diverse roles and responsibilities other team members play</p> <p>4.3.4 Guides and supports other team members and peers</p> <p>4.3.5 Actively promotes the role of a Dietitian and the broader profession of nutrition and dietetics</p>	
<b>Examples of strategies to support development of competence:</b>		
<ul style="list-style-type: none"> <li>• peer assessment of performance within team context or with others</li> <li>• personal reflection on own role in team and teamwork performance and management of conflict within groups or teams</li> <li>• feedback from supervisors/other health professionals, members of interdisciplinary team on functional ability within team or outcomes</li> <li>• feedback from supervisors/preceptors/clients/carers/colleagues on interpersonal style</li> <li>• undertaking critique of existing resources and/or development of nutrition education resources for individual, group or other professionals</li> <li>• media article written for newspaper</li> <li>• demonstrated outcomes/product of team/group work</li> <li>• training or providing knowledge to others with evidence of participants evaluation of training</li> </ul>		
<b>Comments regarding evidence of entry-level:</b> Students will have the opportunity to work in a range of different teams. Assessment on their ability to collaborate with clients, peers, colleagues and stakeholders should be made based on multiple piece of evidence, including, but not limited to, their ability to function as a member of a team and work-based placement experience where they work with other health professionals and/or key staff (eg. food service staff or community members) to achieve outcomes.		
Interprofessional learning competency statements <sup>26</sup> may provide a useful guide from which to base assessment of outcomes for entry-level practitioner. They state what a graduate of any professional entry-level health care degree will be able to do at the completion of a program of study.		

## Appendix C Data Collection

### C.1 Method map for the mixed methods convergent model

Shown on following page in landscape layout.

**Method map for the mixed methods convergent model**

<b>Overall research question</b>	How do dietitians develop their professional identity?	
<b>Specific questions</b>	What influences socialisation to the profession by early career dietitians?	What factors determine whether capability for collaborative practice is incorporated into the professional identity of dietitians?
<b>Integration of mixed methods research</b>	Quantitative strand	Qualitative strand
<b>1. Research questions</b>	What influences contribute to the development of professional identity (PI) of graduates	How is collaborative practice (CP) incorporated into professional identity (PI) and practice of early career dietitians
<b>2. Units of analysis</b>	Two stages of career as a dietitian and four timepoints <ul style="list-style-type: none"> <li>• Student: pre and post placement</li> <li>• Graduate: one and two years after course completion</li> </ul>	Same units of analysis
<b>3. Sample for study</b>	Recruitment from universities, professional organisation and Facebook group  All participants invited at each timepoint	Same sample  All participants invited at each timepoint
<b>4. Instrumentation and data collection methods</b>	Online toolkit with a tailored survey and two validated survey tools: Professional Identity (PI) and University of West England Interprofessional Questionnaire (UWE IQ)	Semi-structured small group and individual interviews, face-to-face or by telephone
	PI and UWE IQ surveys at each timepoint Tailored survey collects information for factors with potential to influence PI and CP: <i>Students: pre and post placement</i> <ul style="list-style-type: none"> <li>• Demographic factors such as age, gender, university attended, type of degree and nutrition background</li> <li>• Previous health and social care experience</li> <li>• Curriculum opportunities to learn from, with, and about other health professionals ie IPE activities</li> </ul> <i>Graduates: one and two years after course completion</i> <ul style="list-style-type: none"> <li>• Engagement in the practice community such as APD status and mentoring</li> <li>• Curriculum opportunities to learn from, with, and about other health professionals ie IPE activities</li> <li>• Type and amount of work ie paid and voluntary</li> </ul>	<i>Students: pre and post placement</i> Focus group explored understanding of the students' views before and after the placement, such as expectations and how they compared to the actual experience, myths and fallacies about placements, roles of the dietitian and members of the healthcare team, their ability to fulfil their role, and what it meant to belong to the profession. <i>Graduates: one and two years after course completion</i> The interview explored whether entry into the real-world of practice had their matched expectations of being a dietitian, their experiences getting a job and being in the role, and working in the healthcare team. Development of questions for this stage was based on the literature for features and challenges common to first year health professionals, such as developing clinical reasoning, confidence and communication skills, influence of the clinical environment and a sense of belonging to the profession

	<p><i>Measures strength of PI</i>  <i>Measures UWE IQ interactional factors of IP collaboration in four scales:</i></p> <ul style="list-style-type: none"> <li>• Communication and teamwork</li> <li>• Interprofessional learning</li> <li>• Interprofessional interaction</li> <li>• Interprofessional relationships with health professionals</li> </ul>	<p><i>Themes using thematic analysis with an inductive semantic approach, subthemes and codes</i></p>
<b>5. Analytic strategies</b>	<p><i>Convergent model</i></p> <ul style="list-style-type: none"> <li>• Exploratory, parallel, with equal weighting for quantitative and qualitative strands</li> <li>• Merge results from quantitative measures with qualitative themes, examine convergence and divergence, form domains</li> </ul> <p>Joint display: Integrated table relating PI and UWE IQ scale scores and themes by timepoint</p> <p>Joint display: Integrated table relating PI and UWE IQ scale scores and themes for individuals</p> <ul style="list-style-type: none"> <li>• Consider how merged results produce greater understanding and direct future research</li> <li>• Interpretation: Merged results addressed in the Discussion, Recommendations and Limitations</li> </ul>	

C.2      Summary of tools to measure interprofessional education,  
collaboration, and professional identity

Shown on following page in landscape layout.

**Summary of tools to measure interprofessional education, collaboration and professional identity**

Measure/ Authors	Core scales	Design	Psychometric properties	Sample	Comment
<b>Interprofessional and collaborative practice tools</b>					
University of West England Interprofessional Questionnaire (UWE IQ)  Pollard, Miers, & Gilchrist, 2004, 2005	Items published; Longitudinal  4 scales: communication & teamwork, interprofessional learning, interprofessional interaction, interprofessional relationships	5-pt Likert scales; 35 items	Test-retest reliability: $r = 0.77-0.86$ ; Internal consistency: $r = 0.71-0.84$	Students and Practitioners: DI, Midw, Nurs, OT, PT, Radiotherapy, SW	Measures interactional factors of IP collaboration
Readiness for Interprofessional Learning Scale (RIPLS)  Parsell & Bligh, 1998; 1999 Parsell, Spalding, & Bligh, 1998	Items published; pre-post design  3 Factors: changing attitudes, awareness of roles, teamwork	70 true-false statements about different professions	Internal consistency: $r = 0.9$ High content validity	Students: Dentistry, Med, Nurs, OT, Orthoptics, PT, therapy/ diagnostic Radiog  Practitioners: OT, Orthoptists, Dentists, Nurs, therapy Radiog, PT	Measures readiness for IP learning  Widely used
Revised Readiness for Interprofessional Learning Scale (RevRIPLS)  McFadyen, Webster, Strachan, Figgins, Brown & McKechnie, 2005, 2006	Items published; factors revised from original version  4 factors: teamwork and collaboration, roles & responsibilities, negative professional identity, positive professional identity	5-pt Likert scale; 19 items	Internal consistency: teamwork & collaboration, $r = 0.79-0.88$ ; roles & responsibilities: $r = 0.40-0.43$ ; negative professional identity: $r = 0.60-0.76$ ; positive professional identity: $r = 0.76-0.81$	Students: Diet, Nurs, OT, Podt, Prosthetics & orthotics, PT, Radiogr, SW	Measures readiness for IP learning

Interprofessional Socialisation Valuing Scale (ISVS-24) King, Shaw, Orchard & Miller, 2009	Items published  3 scales: ability to work with others, value in working with others, comfort in working with others	7-pt Likert scale; 24 items	Internal consistency: 3 scales $r = 0.79-0.89$ whole scale $r = 0.9$	Students: Clinical kinesiology, Dietetics, Med, Nurs, OT, PT, Psych, Pre-professional program, SW, ST	Measures the impact of IPE  Cannot be applied to practitioners
Revised Interprofessional Socialisation Valuing Scale (ISVS-9A, 9B, ISVS-21)  King, Orchard, Hussein & Avery, 2016	Items published; pre-post design  Single scale: ability to work with others, value in working with others, comfort in working with others	Versions with different numbers of items; 9 and 21	Internal consistency: $r = 0.988$	Students: Audiol, Med, OT, Psych, PT, ST  Practitioners: Lab tech, Nurs, Med, PT, PSW, RT	Quantifies willingness to work in IP relationships  Recent refinement of existing tool
Interdisciplinary Education Perception Scale (IEPS)  Luecht, Madsen, Taigher & Petterson, 1990	Items published  4 factors: competence & autonomy, perceived need for cooperation, perceptions of actual cooperation, understanding others' values	6-pt Likert scale; 18 items	Content-validated by 5 faculty in nursing and allied health	Students and Practitioners: Audiol, OT, MR, ST, RT	Measures the impact of IPE
<b>Professional identity tools</b>					
Professional Identity  Adams, Hean, Sturgis & Macleod Clark 2006	Items published 1 factor	5-pt Likert scales; 9 items	Internal consistency: $r = 0.79$	Students: Audiol, Med, Midw, Nurs, OT, Pharm, PT, Podt, Radiog, SW	Professional identity development  Based on group identification scale by Brown et al in 1986
Nurses Professional Values Scale  Revised NPVS-R  Weis and Schank 2009	Items published  Caring, activism, trust, professionalism and justice	5-pt Likert scale; 26-item	Internal consistency: $r = 0.92$	Students and Practitioners: Nurs	Measures professional values

Clarity of Professional Identity	Items published; Longitudinal	7-point Likert scale; 4 items	Internal consistency: $r = 0.90$	Students; Business	Professional identity development
Dobrow & Higgins, 2005	Developmental network density, mentoring				
Professional Self Identity Questionnaire (PSIQ)	Items published; 3 factors	9 items	Internal consistency; $r = 0.93$	Students; Med	Professional identity development
Crossley & Vivekananda-Schmidt, 2009	Interpersonal tasks, generic attributes, profession-specific elements		Presents the process of defining its content as evidence of content validity	Intended for use with other student health and social care professions; Midw, Nurs, PT, SW, other allied health professions	Based on existing professional standards documents

**Key for professions:** Audiol = Audiology, DI = Diagnostic imaging, Diet = Dietetics, MR = Medical records, OT = Occupational therapy, Laboratory technologists = Lab tech, Med = Medicine, Midw = Midwifery, Nurs = Nursing, Personal support workers = PSW, Podt = Podiatry, Pharm = Pharmacy, Psych = Psychology, PT = Physical therapy, Radiog = Radiography, RT = Recreational therapy, ST = Speech therapy, SW = Social work

(Thannhauser et al., 2010, Appendix, p. 344).

## C.3 Quantitative Toolkit

### C.3.1 Tailored survey

#### Tailored survey Student

The following questions ask you for some background information about yourself.

1. What is your gender?  
 Male     Female
2. How old are you?  
 I am 21, or less, years of age     More than 21 years of age
3. Which university are you from?

---

4. Have you had any opportunity during your course to experience learning **from, with or about** students from other health or social care professions?  
 Yes     No
5. If you selected **Yes**, which of the following options best describes your experience of learning *from, with or about* students from other health or social care professions? More than one option may be selected.

<input type="radio"/> Workshop face-to-face - interprofessional	<input type="radio"/> Workshop face-to-face - dietetics only
<input type="radio"/> Workshop online - interprofessional	<input type="radio"/> Workshop online - dietetics only
<input type="radio"/> Lecture - interprofessional	<input type="radio"/> Lecture - dietetics only
<input type="radio"/> Tutorial - interprofessional	<input type="radio"/> Tutorial - dietetics only
<input type="radio"/> Placement - interprofessional	<input type="radio"/> Placement - dietetics only
<input type="radio"/> Conference	<input type="radio"/> Other
6. If you selected **Other**, please describe your experience learning *from, with or about* students from other health or social care professions.

---

7. Have you had previous experience working in the health or social care setting?  
 Yes     No
8. If you selected **Yes**, please describe your experience working in the health or social care setting.

---

### Tailored survey Graduate

The following questions ask you for some background information about yourself.

1. What is your gender?  
 Male     Female
2. How old are you?  
 I am 21, or less, years of age     More than 21 years of age
3. Which university are you from?

---

4. Have you had any opportunity during your course to experience learning **from, with or about** students from other health or social care professions?  
 Yes     No
5. If you selected **Yes**, which of the following options best describes your experience of learning **from, with or about** students from other health or social care professions? More than one option may be selected.

<input type="radio"/> Workshop face-to-face - interprofessional	<input type="radio"/> Workshop face-to-face - dietetics only
<input type="radio"/> Workshop online - interprofessional	<input type="radio"/> Workshop online - dietetics only
<input type="radio"/> Lecture - interprofessional	<input type="radio"/> Lecture - dietetics only
<input type="radio"/> Tutorial - interprofessional	<input type="radio"/> Tutorial - dietetics only
<input type="radio"/> Placement - interprofessional	<input type="radio"/> Placement - dietetics only
<input type="radio"/> Conference	<input type="radio"/> Other
6. If you selected **Other**, please describe your experience learning **from, with or about** students from other health or social care professions.

---

7. Have you had previous experience working in the health or social care setting?  
 Yes     No
8. If you selected **Yes**, please describe your experience working in the health or social care setting.

---

**The following questions ask you about working as a dietitian after finishing your course.**

This is a definition of working as a dietitian:

*Dietetic Practice includes using professional knowledge in both clinical and non-clinical relationships with patients or clients, communities and populations and can be working in management, administration, education, research, advisory, program development and implementation, regulatory or policy development, food service, food security, food supply, sustainability and any other roles that impact on safe, effective delivery of services in the profession and/or using professional skills.*

In other words, it means any work you have done, in any setting, using knowledge and professional skills you gained from doing the course.

9. Have you had any **paid** work as a dietitian since finishing your course?

Yes       No

10. If you selected **Yes**, please estimate the **total** amount of time you have had paid work as a dietitian.

It can be in hours **or** days **or** weeks, whichever is the most convenient.

Total number of hours **or** \_\_\_\_\_

Total number of days **or** \_\_\_\_\_

Total number of weeks \_\_\_\_\_

11. Have you done any **volunteer** work as a dietitian since finishing your course?

Yes       No

12. If you selected **Yes**, please estimate the **total** amount of time you have done voluntary work as a dietitian.

It can be in hours **or** days **or** weeks, whichever is the most convenient.

Total number of hours **or** \_\_\_\_\_

Total number of days **or** \_\_\_\_\_

Total number of weeks \_\_\_\_\_

13. Are you a Provisional Accredited Practising Dietitian (APD) member of the Dietitians Association of Australia?

Yes       No

14. Are you a Full Accredited Practising Dietitian (APD) member of the Dietitians Association of Australia?

Yes       No

C.3.2 Professional identity survey

**PROFESSIONAL IDENTITY**

For the following questions, please think about your professional group:

1. I feel like I am a member of this profession
2. I have strong ties with members of this profession
3. I am often ashamed to admit that I am studying for this profession\*
4. I often find myself making excuses for belonging to this profession\*
5. I try to hide that I am studying to be part of this profession\*
6. I am pleased to belong to this profession
7. I can identify positively with members of this profession
8. Being a member of this profession is important to me

**Instructions:**

5-point Likert scale (SD – SA)

**ERROR**

The following question was inadvertently omitted from the tool.

9. I feel I share characteristics with other members of the profession.

### C.3.3 University of West England Interprofessional Questionnaire

#### THE UNIVERSITY OF WEST ENGLAND INTERPROFESSIONAL QUESTIONNAIRE (UWE IQ)

##### **Communication and Teamwork Scale:**

1. I feel comfortable justifying recommendations/advice face-to-face with more senior people.
2. I feel comfortable explaining an issue to people who are unfamiliar with the topic.
3. I have difficulty in adapting my communication style (oral and written) to particular situations and audiences.
4. I prefer to stay quiet when other people in a group express opinions that I don't agree with.
5. I feel comfortable working in a group.
6. I feel uncomfortable putting forward my personal opinions in a group.
7. I feel uncomfortable taking the lead in a group.
8. I am able to become quickly involved in new teams and groups.
9. I am comfortable expressing my own opinions in a group, even when I know that other people don't agree with them.

##### **Interprofessional Learning Scale:**

10. My skills in communicating with patients/clients would be improved through learning with students from other health and social care professions.
11. My skills in communicating with other health and social care professionals would be improved through learning with students from other health and social care professions.
12. I would prefer to learn only with peers from my own profession.
13. Learning with students from other health and social care professions is likely to facilitate subsequent working professional relationships.
14. Learning with students from other health and social care professions would be more beneficial to improving my teamwork skills than learning only with my peers.
15. Collaborative learning would be a positive learning experience for all health and social care students.
16. Learning with students from other health and social care professions is likely to help to overcome stereotypes that are held about the different professions.
17. I would enjoy the opportunity to learn with students from other health and social care professions.
18. Learning with students from other health and social care professions is likely to improve the service for patient/client.

##### **Interprofessional Interaction Scale:**

19. Different health and social care professionals have stereotyped views of each other.
20. The line of communication between all members of the health and social care professions is open.
21. There is a status hierarchy in health and social care that affects relationships between professionals.
22. Different health and social care professionals are biased in their views of each other.
23. All members of health and social care professions have equal respect for each discipline.
24. It is easy to communicate openly with people from other health and social care disciplines.
25. Not all relationships between health and social care professionals are equal.
26. Health and social care professionals do not always communicate openly with one another.
27. Different health and social care professionals are not always co-operative with one another.

##### **Interprofessional Relationships Scale:**

28. I have an equal relationship with peers from my own professional discipline.
29. I am confident in my relationships with my peers from my own professional discipline.
30. I have a good understanding of the roles of different health and social care professionals.
31. I am confident in my relationships with people from other health and social care disciplines.
32. I am comfortable working with people from other health and social care disciplines.
33. I feel that I am respected by people from other health and social care disciplines.
34. I lack confidence when I work with people from other health and social care disciplines.
35. I am comfortable working with people from my own professional discipline.

##### **Instructions:**

5-point Likert scale (SA – SD)

C.4 Qualitative Data

C.4.1 Map of categories for interview questions with the purpose  
and timepoints

Shown on following page in landscape layout.

## Map of categories for interview questions with the purpose and timepoints.

Purpose of questions	Pre placement	Post placement	One and two years after graduation
<b>Rapport building and chat</b>			
	So, placements will be starting soon... How are you feeling about that?	So, the year is over now and you've PASSED ... How are you feeling about that?	To help me, can you give me a brief summary of what you have been doing since last time, and what it's been like for you? I'm most interested in the past year although will need some context.
<b>Framing</b>			
	Situate the context of the data in which the data have arisen. These questions describe how data collected at each timepoint relates to data from the other timepoints such as defining changes in context, or when changes occur.		
	Q1. What do you think is going to be the best part of placements?	Q1. What was the best part of placements?	Q1. What has been the best part of the last year?
	Q2. What sort of things do you think you will be doing on a day-to-day basis on your placement?	Q2. What sort of things did you do on a day-to-day basis on your placement?	Q2. Thinking specifically about your work, particularly the last year. What sort of things do you do on a day-to-day basis? Is there a typical day?
	Q3. Who or what do you think will have the biggest influence on your placement experience?	Q3. What did you rely on most, to help you in the role and making the transition from student to professional?	Q3. Who or what do you rely on most now, that helps you in your role of being dietitian? Who do you turn to for support. It can be personal or professional?
<b>Descriptive</b>			
	Intended to guide the interpretive phase of data analysis. Answers to these questions describe behaviour in the environment.		
	Q4. What do you think you will need to do to help you in the role, as you make the transition from student to professional?	Q4. Who or what do you think was the biggest influence on your placement experience?	Q4. Who or what do you think have been the biggest influence on your work now? Has that changed?
	Q5. Which aspects of the placement will be the most challenging for you?	Q5. Which aspect/s of the placement was the most challenging for you?	Q5. Which aspects of the work have been, and maybe still are, the most challenging for you?
	Q6. I'm thinking about teams you will be part of during the placement, and wondering what do you think the role of the dietitian will be in the team?	Q6. I'm thinking about teams you were part of during the placement, and the role of the dietitian in the team. What kind of things did the dietitian do to contribute to the team?	Q6. I'm thinking about teams you are part of, and the role of the dietitian in the team. What sort of teams have you been involved in? Who or what professions are in the team? And what kind of things do you contribute to the team as the dietitian?
		Q7. Were you comfortable in the role in these teams?	Q7. Are you comfortable in the role in these teams? Did you feel prepared?

---

**Interpretative**

Lead to descriptions of the behaviour of interest within its context of relationships. These may include how changes in the behaviour relate to one another; mediators and barriers to the behaviour, or the data's consistency with current practices.

---

Q7. How do you see yourself being able to fulfill these roles, in these teams	Q8. What does it mean to you, to belong to the profession of dietetics?	Q8. Do you feel like you are a dietitian NOW? Do you feel like you belong to the profession of dietetics?	Q8. Looking forward, what is ahead for you in the year ahead?
		Q9. Is there anything that I've missed that you think I should know about your placement story, or in the back of your mind that you'd like to tell me about?	Q9. Do you feel like you are a dietitian NOW? Do you feel like you belong to the profession of dietetics?
			Q10. Is there anything else we haven't talked about that you think I need to know about being a new dietitian, your experience along the way, and new to the profession?

Note. Adapted from (Grossoehme & Lipstein, 2016, p.3).

## C.4.2 Semi-structured interview guide

### **Script for Students**

#### **Small group interviews**

#### **Pre placement and minor changes to tense for post placement**

#### **Welcome**

Help yourself to tea, coffee, and have a seat. Some food on the table, please serve yourself, don't be shy etc. Still waiting for a few people etc.

Please do a name tag with your first name or preferred name

Do information sheet with a couple of questions about yourself (demographics)

#### **Introduction**

I'm Helen and I will be facilitating this group discussion and Robynne will be taking notes

Thank you, we really appreciate you for coming along and participating!

The purpose today to get a better understanding of your thoughts and feelings on a couple of things.

We are interested in finding out about your experience of working with peers and factors that influence your ability to be part of team. We'll ask about your expectations of placements, what you think you will be doing and what you think will be the challenges and issues for you.

#### **HK**

Its pretty informal, we want everyone to have the opportunity participate, and say what they think and feel etc

If you haven't already, please put your phones on silent

The session will be recorded, and transcribed, and you will be able to check the transcript.

We will only use first names, confidentiality is important

Only one person to speak at a time, introduce yourself when you speak

There are some trigger questions about the topic to start the discussion going

Different views are good, we want to hear all opinions, there is not a right answer, and we don't have to reach an agreement or decision

**Rapport and general chat**

So, placements will be starting soon... How are you feeling about that?

*Probe:* Nervous, excited, looking forward to it

**Questions**

Q1. What do you think is going to be the best part of placements?

*Probe:* What are you most looking forward to?

Q2. What sort of things do you think you will be doing on a day-to-day basis on your placement?

*Probe:* What have you been told you will be doing?

Q3. Who or what do you think will have the biggest influence on your placement experience?

*Probe:* Supervisor, student peers, other health professionals or members of the team, atmosphere at the site or the environment

Q4. What do you think you will need to do to help you in the role, as you make the transition from being a student?

*Probe:* Which skills and knowledge from uni will you draw on?

What about reflection, support from supervisor/s, peer/s, mentor

Q5. Which aspects of the placement do you think will be the most challenging?

*Probe:* Communication, working with peers

Q6. I'm thinking about teams you will be part of during the placement, and wondering what do you think the role of the dietitian will be in the team?

*Probe:* Communicate plans for care, meetings, documentation

Working with clients or patients, other health professionals or team members.

Any particular health professionals?

Q7. Do you see yourself being able to fulfill these roles, in the teams?

*Probe:* Have you had opportunity in your course to prepare you for these roles?

Do you feel prepared?

Q8. What does it mean to you, to belong to the profession of dietetics?

*Probe:* What would it take for you to feel you are a dietitian?

Q9. Is there anything that I've missed that you think I should know about your placement, or is in the back of your mind that you'd like to tell me about?

**Script for Graduates**

**Individual and small group interviews**

**One year and two years after course completion**

**Welcome**

Firstly, thank you, you for joining me and participating!

Make yourself comfortable, make sure you've got everything you need. Some water, a snack or phone charger.

**Introduction**

I'm really pleased to have this opportunity to speak with you again, it's been about a year since we caught up.

You might remember, I have some trigger questions about the topic to start the discussion going. There are no right or wrong answers, this is just to tease things out a bit and get a better understanding of the issues.

In this instance, I'd like hear about your work experiences, what it's been like working with colleagues, being part of the team. I'd like to hear about the challenges and what the issues were for you, and your role as a dietitian providing health services and nutrition programs.

I'm most interested in the past year, ie the most recent year, the year just gone, and what if anything has changed for you, as you've become more experienced.

**HK**

This is pretty informal, there's just you and me, a couple of housekeeping things before we get going:

The session will be recorded, and transcribed, and you will be sent a private link when it is finished. Confidentiality matters and I'll do my best to remove identifying features such as names and places but of course if you have any concerns about any part of it, just let me know. I'd like to have your comments on it and I'm more than happy to fix things.

Finally, and most importantly, as this is just audio, I won't be able to see you if you are nodding your head in agreement or want to catch my eye to say something or whatever. Feel free to interrupt me, to comment if you agree or disagree, or whatever.

**Rapport and general chat**

To help me, can you give me a brief summary of what you have been doing since you left uni and what its been like for you? I'm most interested in the past year although will need some background.

*Probes:* Relieved, excited, great to have a break/ work/ money

**Questions**

Q1. What has been the best part of the last year?

*Probes:* Getting job, feeling more confident in the role. What was the highlight, for you?

Q2. Thinking about specifically about your work, particularly the last year.

What sort of things do you do on a day-to-day basis? Is there a typical day?

*Probes:* It this what you thought you would be doing?

Q3. Who or what do you rely on most now, to help you in your role of being dietitian? Who do you turn to for support? It can be personal or professional?

*Probes:* What knowledge or skills from uni do you use most?

What about support from manager/ mentor/ colleague? Reflection?

Q4. Who or what do you think have been the biggest influence on your work now? Has that changed?

*Probes:* Placement experience, manager, dietitian colleagues and peers, other health professionals or members of the team, atmosphere at the site or the environment. Has it changed over time or the position? Anything else?

Q5. Which aspects of the work have been (and maybe still are?) are the most challenging for you?

*Probes:* Relationship with manager, communication with other health professionals/ members of the team, working with colleagues

Q6. I'm thinking about teams you are part of, and your role as the dietitian in the team. What sort of teams have you been involved in? Who or what professions are in the team?

*Probes:* Communicating plans for care, services program or project plans to others, meetings, documentation? Working with clients or patients, other health professionals or team members? Anyone in particular?

Q7. Are you comfortable in the role in these teams?

*Probes:* Were you prepared for these roles? Any other comments about the role?

Q8. Looking forward, what is ahead for you in the year ahead?

*Probes:* What are you thinking about for work, travel etc?

Q9. Do you feel like you are a dietitian NOW? Do you feel like you belong to the profession of dietetics?

*Probes:* Connected to the profession? Is this separate from DAA? What would it take for you to feel that?

Q10. Is there anything else we haven't talked about that you think I need to know about being a new dietitian, your experience along the way, and new to the profession?

### C.4.3 Teleconference general instructions

#### **General Instructions and tips for participants in teleconference groups and interviews**

##### **Before the teleconference**

- Please ensure the phone you are using is adequately charged and you will be in a good reception area.
- Please review the Redback conferencing instructions before participating in the teleconference to be sure you know how to dial-in and troubleshoot any issues that might occur.
- Consider the acoustics of where you will be sitting. Don't sit near noisy machinery (e.g. Air conditioning).
- Close windows if there is likely to be traffic or roadworks noise.
- Try keeping anything that may clatter loudly on the recording, away from the recording microphone.
- Keep paper shuffling near to the recording microphone to a minimum.

##### **During the teleconference**

- Please start the dial-in process 5 minutes before the start time. This will allow time to progress through the Redback login procedure and allow a small amount of time to sort through any technical issues you might have.
- Mention first name (only) before responding to questions or other participants' comments.
- Try not to speak when another person is speaking.
- Press the mute button on your phone or press \*6 to mute/ unmute your individual line.
- Try to avoid
  - Turning away from the microphone when speaking
  - Muffled or indistinct speech
  - Table tapping, chair rocking, etc
- Press \*0 for operator assistance if you have any technical problems during the teleconference.

Robynne Snell mobile number is 0411136398, please sms if you have questions.

Thank you

#### C.4.4 Example of diary notes

##### **Debrief from <participant ID removed> and <recording ID removed>**

<first name removed> and <date removed>

##### **What was happening for me**

Early morning start – I said 10am to her but meant 10am my time. It was 8am my time, not too early but not much time to spare that I could over think. I am still a little concerned that I may be speaking too much rather than letting them talk

##### **Summary of the interview**

She took a job at <removed> dept and stayed there for about 8 months, and kept applying for clinical positions. Got this job in a small rural hospital as a clinical dtm and loves it. Great variety of work and has lots of support from dtms and the medical teams

Uni didn't prepare her for the other things she needs to do in the job like service audits but knows she can ask anyone if she needs help.

Feels let down by DAA and doesn't get much from them for all the money paid on fees. Disappointed in their work with media & may not keep her membership if/ when more experienced. They (DAA) don't have the same values as she has re environment, sustainability, organics and so on. Example given was the amount of fast food funding at the recent DAA conference.

Said she wishes she had known how important placements were for getting jobs in the future. She thought it was about doing as well as she could rather than building relationships and networking with people who might give her a job or get her to an interview.

##### **RS notes**

Position is a generalist role, patients have a reasonable length of stay and has time to get the full social and medical picture

Works with the medical team and other allied health professionals – named speechies as being the closest, and with also works closely physio, OT and mental health nurses. Shares an office with diabetes educator and she helps with her things like insulin

No problems asking questions of anyone on the team, and has had great support from her mentor with things like how get rapport, and another dtms at the hospital, as well as other community dtm in the area. Shares house with one.

Always has access to people for information or advice or to discuss patient care.

Challenges have been time management

Ethics issues have come up for her such as using/ stopping nasogastrics and prognosis, dtms role and if she is being too conservative going against the need to feed, she thinks pts QoL is important.

Doesn't take pts not following her advice personally, she just provides pathways. Other challenges are the workload and that work doesn't finish when out of hours. Sometimes talks with colleagues about pts when not working and aware this is a confidentiality issue. These discussions can give her another perspective and as a result, she may change what she does/ actions

Contract runs out in Jan (she is doing mat leave cover) and not sure if it will be renewed again, or what will happen. Might go to the UK and do locum work for a while and come back

### **RS thoughts**

Seems comfortable in the role and doesn't seem to have had too many issues settling into it. Very articulate about the place of dietetics in her life, and why she does what she does.

A very interesting aspect of the interview was towards the end when she spoke about not feeling like she really belonged and she wasn't as passionate as some other dtns she knew who were really into DAA. On probing it seems the question of belonging to the profession and being a dtn were inter-related or even confused with membership of DAA. I don't know if this applies to all??

### **What was she trying to tell me**

Teams she is in work well as a professional relationship because she knows them outside of work and has friendships with many of them outside of work, socialise.

Many of the people she works with are her age and communication is easier.

Profession of dietetics is not forever for her, likely to have another career

### **Anything NEW or DIFFERENT from this interview**

Admits *not passionate about being a dtn*, very happy doing what she is doing at the moment but doesn't have a burning ambition to do more or bigger and better *DAA's values* are not the same as hers – others have talked about getting money for money from the membership

At first I would have said she is client focused but she explained feels she is *giving to the individual and back the rural community* that she is part of, and will do more because of this. As well as for the people she works with because they are her friends.

## Appendix D              Large Tables

### D.1.1              Codes, descriptions, and definitions

Shown on following page in landscape layout.

<b>Code</b>	<b>Description</b>	<b>Definition</b>
advocate	need to 'speak' for the person/ client; promote or support for their care	publicly support or suggest an idea, development, or way of doing something
allied health	any allied health professional; as a collective or individual practitioner	health professionals not including drs and nurses
assessment	the assessment of performance or competencies in placement	the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences
attitude	an approach to things based on a fixed way thinking or feeling and this shows in behaviour	a psychological construct, a mental and emotional entity that inheres in, or characterizes a person
availability of work	commentary on ease or difficulty of getting work as a dtm	
belonging	addresses the feeling of belonging to the community or profession as a dtm; feeling included; aligning with or not aligned with the profession	acceptance as a member or part of - the profession; a feeling of connection to others and a connection to place
changes	recognition that an internal change has occurred; internal e.g. changes in practice or thinking (ie knowledge & skills) or attitude; external changes and life transitions e.g. things like a baby, PhD, studying other than dietetics	to become different
clients	patients or clients, used interchangeably here although there are differences	patient is recipient of health care services, often ill or injured and in need of treatment; sometimes client is preferred to denote a collaborative relationship rather than a hierarchical one; sometimes client implies a paying relationship
communication	communicating with others, oral or verbal and written documentation such as medical notes	it is a process of transmitting and sharing ideas, opinions, facts, values etc. from one person to another or one organisation to another
compassion	caring and understanding; doing things to alleviate another person suffering incl physical mental or emotional	empathy refers more generally to the ability to take the perspective of and to feel the emotions of another person, compassion goes one step further and includes the desire to take actions that will alleviate another person's distress.
competitive	behaving as if it is a contest with winners and losers; ambitious and wanting to be successful	having a strong desire to win or be the best at something
confidence	belief in themselves and their ability to do what is needed	a state of being certain either that a hypothesis or prediction is correct or that a chosen course of action is the best or most effective
competencies	DAA National Competency Standards (NCS) for dietitians in Australia	NCS reflect the major work roles for dietitians. There is an emphasis on the professional attributes required for dietitians to work across multiple contexts in the increasingly complex health system

<b>Code</b>	<b>Description</b>	<b>Definition</b>
DAA	specific reference to DAA by participant, all concepts; the professional association, self regulation	Dietitians Association of Australia
demographic & other useful info	age, uni attended, type of work, had a baby, started phd, etc	socioeconomic characteristics of a population expressed statistically, such as age, sex, education level, income level, marital status, occupation, religion, birth rate, death rate, average size of a family, average age at marriage
doctors	all categories of doctors, general and specialist e.g. medical staff consultants registrars gps	
feelings	feelings about something, a felt sense; being self-reported rather than observed; emotions and feelings are different but used interchangeably in the coding	an emotional state or reaction; Emotions are event-driven, while feelings are learned behaviors that are usually in hibernation until triggered by an external event. Unlike happiness for example (a feeling), joy (an emotion) involves little cognitive awareness
employment	anything about employment mostly dietetics but not necessarily	the state of having paid work
environment	atmosphere or tone in the surrounding team, department, colleagues etc	the aggregate of social and cultural conditions that influence the life of an individual or community
expectations	future plans, may or may not be realistic	belief about what is going to happen or that something will or should be a certain way
experience	have or havent done this before (inexperience); can be a positive or negative experience	knowledge or skill in a particular job or activity, which was gained because that job or activity has been done before
family	a specific group of people caring for each other	a collection of individuals related by marriage, adoption, partnership, or friendship
financial	covers monetary aspects of income, salary, payment & arrangements as contractor	the finances or financial situation of an organisation or individual
funding	financial resources for dtns position or grant or contract from an external source e.g. govt or agency; not ongoing but fixed term and fixed amount \$	money provided, especially by an organisation or government, for a particular purpose
useful quote	quotable pieces of text to demonstrate code or node or illustrate a point; interesting examples that are typical or well worded	
imposter	not legitimate, fraudulent or pretending to be something they're not; a separate and significant point about (not) belonging	Impostor (syndrome) refers to an internal experience of belief they are not as competent as others perceive, and usually applied to intelligence and achievement, it has links to perfectionism and the social context

<b>Code</b>	<b>Description</b>	<b>Definition</b>
influence	who or what had an effect on practice as a dtm, think or philosophical positions e.g. people, environment, clients	the capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself
internal conflict	conflict within the self, can be personal or professional; internal challenges and other difficulties; captures some of the personal conflicts, dissonance and dissatisfaction in the role	mental struggle arising from opposing demands or impulses
IPE	education activities with two or more ah professions	Interprofessional education (IPE) occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care (CAIPE)
isolation	professional isolation; lacking collegial support; specifically refers to professional isolation no immediate dietetic colleagues	professional isolation refers to a sense of isolation from professional peers. It can result in a sense of estrangement from your professional identity and practice currency, or feel like there is 'no one to turn to' to discuss and share professional issues and ideas
knowledge	knowing things; theoretical; applying clinical reasoning; knowledge learnt from dietetics course	facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject
mentor	APD or other professional mentor; separate from supervisor	a more experienced or more knowledgeable person helps to guide a less experienced or less knowledgeable person
motivation	drivers or reasons to be a dtm; things that are rewarding or satisfying in the role of dtm; features of the work that are enjoyable	a reason or reasons for acting or behaving in a particular way
networking	making mutually beneficial relationships or connections; making contacts with people dtms need to connect with e.g. for referrals	the action or process of interacting with others to exchange information and develop professional or social contacts
naturopaths and celebrity nutritionists	naturopaths, celebrity nutritionists, chefs, personal trainers, clinical nutritionists and other practitioners believed to be practising in non-EBP paradigm	Integrating the best available research evidence with clinical expertise and the patient's unique values and circumstances.
nurses	all categories of nursing roles e.g. midwife, RN	
nutrition myths and fallacies	misinformation and misbeliefs about nutrition, diets and food	a fallacy is false reasoning and a myth is a story that has no base of evidence to support it
peer	dietetics student partner for px; after graduation this refers to dietetics colleagues at similar level but not higher	peer indicates a person of the same quality or background
politics	interpersonal dynamics, strategic aspects and positioning, power issues; behaving with unknown agendas; using or exploiting hierarchy of the system	activities aimed at improving someone's status or increasing power within an organisation

<b>Code</b>	<b>Description</b>	<b>Definition</b>
preparedness	readiness for action; to get going and being prepared for what is ahead; being prepared covers knowledge skills and emotional	the state of being fully prepared for something
public image	how dtns are perceived by the public or are presented to the public	the opinion that many people have of a person or group or organisation
qualification	being awarded for successful completion of the course as a dtn	pass an examination or an official completion of a course, especially one conferring status as a recognised practitioner of a profession or activity
real world	difference between what was taught and what was seen/experienced on placement or in the workforce; contradiction or contrast between theoretical version and reality	the actual experience, as opposed to the abstract, theoretical, or idealised sphere of the classroom, laboratory, etc
recognition	dtns profession and role is recognised and respected; can be about professional practice, behaviour or beliefs	acknowledgement of the existence, validity, or legality of something
reflection	thinking about something that has been done and learning from it; includes clinical reasoning, aspects of critical thinking or own practice	to consider deeply something that might not otherwise be given much thought in order to learn
research	research in or related to dietetics; specific project activities, includes audits and quality improvement	careful and organised study or gathering of information about a specific topic
responsibility	ownership and autonomy	the state or fact of being accountable or to blame for something
role model	someone to look up to and aspire to be like; a dtn who is admired; can be positive or negative role model	a person others look up to in order to help determine appropriate behaviours
role of dtn	scope of practice of dtn; work or activities or tasks a dtn would usually do or generally be considered part of the role; dietetic practice or the process of being a dtn	is a set of connected behaviors, rights, obligations, beliefs, and norms as conceptualised by people in a social situation
sick people	overtly sick people; noticeably unwell or in distress	affected with disease or ill health
skills	refers to skills developed from doing the dietetics course e.g. counselling, documentation, time management etc	ability to do something
social media	Instagram; LinkedIn; Facebook; Twitter	websites and applications with the purpose of creating and sharing content, and to participate in social networking using dedicated websites and applications to interact with people similar interests
stereotypes	over-generalised and simplified belief about a particular category of people; referring to stereotypes of dtn	specific beliefs about a group, such as descriptions of what members of a particular group look like, how they behave, or their abilities

<b>Code</b>	<b>Description</b>	<b>Definition</b>
supervisor	clinical or community or food service or university clinical educator for students on placement; line manager for dtns after graduation; supervisors may or may not have assessment responsibility	a person who directs and oversees the work and who makes sure that the work is done correctly and according to the rules
who to turn to	people who can help the dtn to do what is needed; people who will listen, give honest feedback and encouragement; reliable and available when needed	a network of people who provide an individual with practical or emotional support
team	working with a group of others with the common purpose of patient care	a group of people with a full set of complementary skills required to complete a task, job, or project
turnover	changes in the team and other ahp; people leaving and being replaced with newcomers; sometimes positions are vacant prior to the newcomer arriving	the rate at which employees leave a workforce and are replaced
university classroom	lectures and tuts at uni	
work life balance	the balance of time needed between personal and professional life	Work–life balance is the lack of opposition between work and other life roles
workload	the actual amount that the dtn is expected to be able to accomplish; the individual's perception of the workload may be different to the actual e.g. being slower because its new and still learning, often used as a negative	the amount of work to be done by someone

D.1.2 Themes, codes, and examples of coding

Shown on following page in landscape layout.

Theme/ parent code	Codes	Example of coding	Source
<b>Dietetic practice</b>			
Attributes	Compassion	That not showing sympathy isn't beneficial for you or the patient rather you can be empathetic So learning Yeah trying not to show sympathy and really feel sorry for them and get really affected yourself	#1 prep px
	Confidence	I guess you, yeah, gain confidence over time, and you know, learn from sort of trial and error in a way, sort of how best to, you know, practise in that sort of setting.	#14 two yrs
	Experience	Yeah, I think, it's hard to truly know, because I suppose I felt, we didn't have a lot of practical work experience throughout our degree. So, in that sense you don't have quite, not a great picture of what it's like to be a working dietitian in that sense.	#14 two yrs
	Responsibility	I was given a lot more freedom than I thought I would be allowed by my supervisors. They really all just watched me do my thing, saw that I was competent, gave me a few notes and then they really just allowed me to work by myself, which was, which was encouraging and I think that's a really good way for people to learn, or for myself, it was good for me to learn by myself because I didn't have the pressure of my supervisor over my shoulder. So I got a lot more freedom than I thought that I would and I saw a larger variety of cases than I thought I would be allowed to deal with.	#20 post px
Reality	Funding	I suppose again it goes back to funding and where, as far as aged care facilities go, we're kind of right down there on the bottom of the pile [laughs] when it comes to who they need to access with what funds they've got available.	#1 one yr
	Politics	I think one of the biggest like political sort of issues that I came across was that the, so I think they had an example of where someone in [name city] had designed a nutrition education resource for infant feeding, but it was meant to be directed for the indigenous population, but they'd piloted it in two places in the metro areas and then one place in a rural area and they chose [name town], which is a few hundred kilometres, I think, north of [name town]. And it just, it wasn't really, it wasn't useable for that community.	#17 one yr

	Real world	The food services manager was a little bit difficult at times. He was obviously very concerned about the budget, but we would make suggestions and he would just completely disregard them and come up with other things, and we'd say no, we've already gone down that path, that doesn't meet the requirements for the hospital menu.	#19 post px
	Work life balance	Yeah. I kind of had that but it was good. I still had, like, I really enjoyed having my social networks outside of work. So, I think that was so important to me. I actually intentionally tried to not always hang out with people from work on weekends and that, it was more other friends. So, I think that was really important for me. Yeah.	#13 two yrs
	Workload	Definitely the time demands and the heavy workload. I probably would say that was definitely the biggest thing because just having so much to do with not a lot of time, I did find that a bit hard and that did mean that quite often I worked a lot of overtime. So, yeah, I did find that, particularly towards the end, was taking its toll on me a bit. Even though I'm naturally a hard worker, I still found that it did mean that I got home late and was reasonably tired sometimes	#13 two yrs
Doing the work	Advocacy	And I got the impression from those lectures that the dietitians in those teams had to [emphasis] push for certain things That they sort of had to be proactive within the team to sort of push for what they wanted Like it wasn't always just accepted that what they were saying is what was going to happen	# 9 pre px
	Research	there was very much a strong focus on, so while they weren't necessarily actively participating in research, it was that thing of research being a strong, you know, being evidence-based and being up-to-date was something I felt that all the dietitians really were onboard with and enjoyed, I guess.	#19 post px
	Role of dtm	And the other the thing is I was dealing with cystic fibrosis and liquid cancers both groups require specific dietary input So it involved not only going and seeing the client but you pretty much had to do a diet history for each person and for the CF patients organise particular meals from the diet kitchen	#7 post px
Emotions	Feelings	So excited, to actually do what we've been training to do for the last four years I think, that's the thing I'm most excited about	#19 post px

Hopes and dreams			
Getting a job	Availability of work	Yeah, yep. So the first, yeah, the first few months, because obviously once we graduated it took us all quite a long time to get into work. So in that time, I think it took me about eight months, nearly.	#17 two yr
	Competitiveness	So, basically, after I graduated, I, well, as I've heard most dietitians say, that it is very competitive to get work as a clinical dietitian	#13 two yrs
	Employment	Mm. And I know how lucky I've been to actually get this job, I mean, I wasn't expecting to get a job immediately, especially not, you know, where I was living to start with, so that was very, very lucky.	#22 one yr
	Financial	No, just one is non dietetics, that's the [name company]. So that's just call centre work and I'm finally guaranteed just 1 day a week there, which I'm hanging onto because it's the only place where I have guaranteed money	#9 one yr
Looking ahead	Changes	Well I, yeah, I needed to do that for my sanity [laughs] because you spend so much time dedicated to study and dietetics is your life, that it felt really bizarre just to cut it off after a final exam.	#1 one yr
	Expectations	Yeah, I wasn't really sure what to expect in the community and food service placements, so I sort of didn't really have any expectations, but the clinical placement was definitely what I thought it would be like	#22 post px
	Internal conflict	And I just, it just felt like such a waste for this guy who was, he knew that perhaps he wasn't looking after his body and he wanted to do differently, then we send him back out into the world with diet companies and different pills and miracle solutions and things. And I think oh he's just, its just such a shame.	#9 one yr
Work ready	Assessment	I thought it was hard being assessed at the same time as you're trying to learn I would rather master it Get it as good as I can get it and then be assessed But being assessed while you suck at something is not I don't enjoy that [small laugh]	#2 post px
	Knowledge	Yeah Well I think for me completing my degree is a big part of it. Knowing I've got that background knowledge and understanding I think And I find like a personal accomplishment	#14 pre px
	Preparedness	Like, you know, probably, I don't think that any of us really left uni with great skills in the elderly and dementia.	#1 two yrs
	Skills	I was thinking of the motivational interviewing and counselling and that stuff. Yeah, that stuff was definitely a big help.	#9 one yr
	University classroom	Its not the [emphasis] classroom environment and its supposedly structured but Yeah I don't know We'll see	

Support	Family	In terms of personal, yeah, I've got a really supportive family, and my boyfriend's always, you know, happy to listen, if I am concerned about anything, or if, you know, I've had a bad day or anything like that, so yeah, I've been really lucky in the sense that I do have that really close support network, if something does go wrong.	#22 one yr
	Isolation	Mm, mine is being a sole clinician, so mine is feeling like I don't have anybody directly to go to, and I don't have that support, and just somebody you can bounce ideas off or yeah, so we have the greater body of dietitians that we all get together for a meeting every three months and, by email and phone and all that, that we can contact.	#7 one yr
	Mentor	So a senior dietitian here that I would work with, if I have questions or I wanted to go over a case that I just taught through how I'd dealt with it and are there other things I maybe could have done or who I, who else was in the community I might have been able to refer onto or something like that. So I would use a mentor for that type of situation.	#14 one yr
	Who to turn to	And if I didn't know something I felt very comfortable asking the interns if they could explain something to me Or anyone in the allied health if I had any further questions on a patient I could just go to chat to them about it So I found that was very [emphasis] supportive and very good for me	#7 post px
<b>Teamwork</b>			
The team	Allied health professionals	I've found that because there's only, I've found allied health don't necessarily work great together in their regional areas, not because they don't want to I don't think, but because they can be quite spread out, it's hard to talk about one client, you can't necessarily just get together in one room and talk about it. So there's less of a group approach. You might work closely, say, with just the OT, but really, then you'd want to be tying in the speech pathologist and the physio, but you can't get your hands on them or things like that, so very individual, especially from a dietetics point of view. I even have my own patient notes, whereas everybody else's are integrated, so just quite different on that front.	#17 one yr
	Doctors	Yeah, definitely, though, you do notice that, well, particularly the GPs, I did find it the most challenging to work with. There were a few GPs that sometimes didn't go with my suggestions. Say, for example, refeeding, they didn't really believe in that and they were a bit more old school. So, yeah, they were probably the group of doctors that were the most challenging to work with. But definitely, the ones that were more hospital-based, were definitely mostly good.	#13 two yrs

	Nurses	But definitely, I mean, fantastic nurses and I think probably that was something I found that, that was probably one of the first relationships I built up because I felt, and I mean maybe, this is funny because it's a bit of reflection on what we think, but you thought of yourself more as an equal, you know, I wasn't as scared of the nurses, so you probably built up a relationship more quickly and you relied on them for a lot.	#19 one yr
	Peers	The other student you go with [emphasis] does have a big impact as well I think more so Especially if you happened to get a student who was a different kind of personality to you and or You know Clashes in some areas I think that could have a pretty massive affect on your experience You know You want to be able to feel really comfortable around that person and collaborate with them	# 1 pre px
	Teams	Yeah. It was really wonderful that way. Like, I definitely still felt that teamwork, that strong kind of team atmosphere through meetings. Like, we had weekly meetings with the multidisciplinary team and also had medical meetings so that we could discuss cases with nursing staff and journey boards as well, and just general allied health meetings. So, yeah, it definitely was great. I definitely felt there was a good connectedness amongst the team	#13 two yrs
Working together	IPE	We did that IPE thing we did face-to-face where they had all students from different allied health faculties and we had a case that we were all working on together But that's my only experience And that's was similar to what we've just discussed Advocating for your perspective on that person's total care	#13 pre px
	Attitude	That your personal attitude on the days which are [emphasis] influences by all those things And people that that will affect your attitude of the experience so that will have a fairly key role for me	#19 pre px
	Communication	But when I actually went up on the day, there was no handover to the RN that was [emphasis] there to say that this was happening. It was just, like, Oh, You're here on a Sunday? So yeah, sometimes the communication breaks down and it isn't well followed through.	#1 two yrs
	Networking	the people within your job, so it's getting to know your other, especially when you're a sole clinician and you're covering seven different regions there's a lot of different people to know, because it is all about connections and who you get your referrals from, and who you're referred to and all that sort of thing. So I found a lot of it to do with network building and just getting to know the people and the job, not so much the dietetic content of it.	#17 two yr

	Turnover	No, they're usually fairly stable. Yeah. Within aged care it's usually the same speechies. Every now and again I see one I haven't seen before, but through the notes, Yes, that's [name]. Yes. I've never met [name], but I've seen her notes many times.	#1 two yrs
<b>The profession</b>			
Being seen as a dtm	Public image	I'm a little bit concerned or quite a lot concerned actually about how the public might view us or start viewing us in the future. And that's simply through how we are often portrayed in the media. But then I suppose all professionals in any sphere are portrayed in a certain way. Lawyers, for example, are often considered corrupt but that's not necessarily the truth, that's certainly not the truth in most cases.	#20 post px
	Recognition	And that they came to you, I think, would be a professional, kind of, acknowledgement that they came to you and asked for your opinion, they followed your advice, and I guess your role was respected as the nutrition expert. It was respected.	#1 two yrs
	Stereotypes	Yeah, there's definitely a lot of judgement, and even the people I work with will say, oh well the dietitian before, she wouldn't eat anything, and this and that, and oh that's a big portion. And yeah, it's really, sometimes I'm just looking at them like, are you guys serious? [laugh]	#7 two yrs
My people	Belonging	I think so, yeah. Yep. I hadn't really thought about it, but yeah. Definitely, yeah. It used to be like, oh, I'm a student, I'm a new grad. And now I feel like I can say I'm a dietitian.	#22 two yrs
	Motivation	I think ... well, definitely finding the clinical role is the highlight, after so long searching, and especially one that suits me really well in the rural community, a beautiful little rural community. I definitely really enjoy coming to work every day.	#20 two yrs
Regulation	DAA	Well, potentially yes, because a lot of dietitians are quite young and DAA keeps them on their toes when they have to continually update their practice and their knowledge.	#19 pre px
	Competencies	Well for me it was actually having a clear understanding of the DAA competencies And again it's the one Its something we've done this week Its been clearly identified to be a dietitian you at [emphasis] least have to have this And you need to provide or look for experiences where you can have a go at showing that or that you know that you can do that	#2 pre px

The science	Naturopaths & celebrity nutritionists	That's what's come up from other people around. One person who was in private practice in another state, so we're not, you know, crossing over anything here. Said that naturopaths were for her, in her referral system, quite a frequent I guess direct competition, you know, people would almost [small emphasis] rather see a naturopath than a dietitian, and I guess we ended up saying Well, who's regarded as the nutrition expert? Is it the naturopath or the dietitian?	#17 two yrs
	Nutrition myths and fallacies	And basically every client asks "Isn't this too much carbohydrates? I'm worried your, my portions are too big, you're overfeeding me." And I think to myself, oh no. Everybody has this idea that carbs are bad and so they'll still questioning the person who's qualified in diet and they'll still be like "oh, I don't think this is right, I shouldn't be eating this much carbs".	#9 one yr
	Social media	And I think that as a young person, or just as any person, I do have good access to social media and how to use it and how to use it is in my advantage and I do now use Facebook to promote the role of dietitians and healthy eating habits as much as I can without annoying everyone in my news feed	#20 post px
The ticket	Imposter	Something I've been thinking about ties in with that Its not [emphasis] faking it Feeling like you legitimately have a valid reason to be there sort of Basically not feeling like a fake Feeling like you know you, you do [emphasis] know some stuff, sort of	#9 pre px
	Qualification	You know, I've completed my degree and sort of have the qualification to be a dietitian, I think that's a big part of it	#1 pre px
Other			
	Demographic and other useful info	No trouble. So yeah, I finished December 2014 and then in February 2015 I started a locum position at [name hospital]. That was a part-time, it started as part-time for 3 months. I was working, it was 16 hours a week but I was doing 4 half days, is how we did it. And I was working, so obviously in paediatrics and I worked in what we called kind of the general team, so doing surgical, cardio, allergy.	#19 one yr
	Useful quote	But it's not what I, I didn't get into it to only see people for 10 minutes or a moment. I wanted to stop people getting sick and make it easy to be healthy and all that side of things.	#9 one yr

Abbreviations: Dtn = dietitian, px = placement, yr = year

## Appendix E              Copyright Permissions

### E.1.1              Thesis copyright log

Shown on following page in landscape layout.

## Thesis copyright log

Third party content Citation in thesis	Location in thesis	Publisher	Open license	Permission obtained
<b>Figure 2.1 Infographic of mentoring for provisional APD program</b> <i>Note. From (Dietitians Association of Australia, 2016).</i>	Page 43	Dietitians of Australia	No	Bree Murray General Manager Regulatory Service Dietitians Australia <a href="mailto:regulation@dietitiansaustralia.org.au">regulation@dietitiansaustralia.org.au</a> Yes
<b>Figure 3.2 Flow of the method in a longitudinal convergent model.</b> <i>Note. Adapted from: (Plano Clark et al., 2014, Figure 4, p. 308).</i>	Page 64	Sage Publications	No	<a href="https://marketplace.copyright.com/rs-ui-web/mp">https://marketplace.copyright.com/rs-ui-web/mp</a> Yes Permission may not be required This use is covered under SAGE's Pre-Approved Permissions policy This policy allows you to use up to 3 figures/tables or a total of 400 words from a SAGE book or journal in a dissertation or thesis, as long as it will not be hosted on a commercial platform. You must provide a full citation and the permission does not include any third-party material.
<b>Table 3.3 Range of scores for categories of attitudes for University of West England Interprofessional Questionnaire.</b> <i>Note. Adapted from (Pollard et al., 2006).</i>	Page 78	Blackwell Publishing	No	A decision was made to remove the notation "adapted from" for this figure as some text from the body of the article was used in the table rather than reproduction or adaptation of a figure. Attributed in the body of the thesis.

<b>Table 3.4 Categories of interview question.</b>  Note. Adapted from (Grossoehme & Lipstein, 2016, p.3). Also used in: <b>Appendix C.4.1 Map of categories for interview questions with the purpose and timepoints.</b>	Page 81	Springer Nature	Yes	A decision was made to remove the notation “adapted from” for this figure as some text from the body of the article was used in the table rather than reproduction or adaptation of a figure. Attributed in the body of the thesis.
<b>Figure 3.4 Items and dimensions of information power.</b>  Note. From (Malterud et al., 2016, Figure 1, p. 1756).	Page 353	Sage Publications	No	<a href="https://marketplace.copyright.com/rs-ui-web/mp">https://marketplace.copyright.com/rs-ui-web/mp</a> Yes Permission may not be required  This use is covered under SAGE's Pre-Approved Permissions policy This policy allows you to use up to 3 figures/tables or a total of 400 words from a SAGE book or journal in a dissertation or thesis, as long as it will not be hosted on a commercial platform. You must provide a full citation and the permission does not include any third-party material.
<b>Figure 3.5 Sample individual and longitudinal analysis matrix.</b>  Note. Adapted from (Grossoehme & Lipstein, 2016, Tables 2 and 3, p. 4). Also used in: <b>Table 4.20 Example of matrix for timepoint: pre placement.</b>	Page 101	Sage Publications	No	<a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a> Open access articles are made available under the <a href="https://creativecommons.org/licenses/by/4.0/">Creative Commons Attribution (CC-BY)</a> license, which means they are accessible online without any restrictions and can be re-used in any way, subject to proper attribution (which, in an academic context, usually means citation).
<b>Table 4.21 Example of matrix for individual: four participants.</b>	Page 103	Springer Nature	Yes	
	Page 138			
	Page 139			

<b>Figure 3.6 Procedures and products of data collection, analysis and integration for convergent model.</b>  Note. Adapted from (Creswell & Plano-Clark, 2018, Figure 3.4, p. 93).	Page 105	Sage Publications	Yes	<a href="https://marketplace.copyright.com/rs-ui-web/mp">https://marketplace.copyright.com/rs-ui-web/mp</a> Yes Permission may not be required This use is covered under SAGE's Pre-Approved Permissions policy This policy allows you to use up to 3 figures/tables or a total of 400 words from a SAGE book or journal in a dissertation or thesis, as long as it will not be hosted on a commercial platform. You must provide a full citation and the permission does not include any third-party material.
<b>Appendix C.1 Method map for the mixed methods convergent model</b>  Note. Adapted from (Yin, 2006, p. 42). Also used in: <b>Table 3.1 Summary of method map for the mixed methods convergent model.</b>	Page 341  Page 61	Original publisher was Mid-South Educational Research Association Sage Publications	Unknown	A decision was made to remove the notation "adapted from" for this figure as some text from the body of the article was used in the table rather than reproduction or adaptation of a figure. Attributed in the body of the thesis.
<b>Chapter 2, Literature Review.</b>  The scoping review was published during candidacy (Snell et al., 2020).  Snell, R., Fyfe, S., Fyfe, G., Blackwood, D., & Itsopoulos, C. (2020). Development of professional identity and professional socialisation in allied health students: A scoping review. <i>Focus on health professional education</i> , 21(1), 29. <a href="https://doi.org/10.11157/fohpe.v21i1.322">https://doi.org/10.11157/fohpe.v21i1.322</a>	Page 16	Australian & New Zealand Association for Health Professional Educators (ANZAHPE)	No	Jill Romeo Executive Officer <a href="mailto:executive@anzahpe.org">executive@anzahpe.org</a> Australian & New Zealand Association for Health Professional Educators  No "The Committee of Management of ANZAHPE (the publisher of Focus on Health Professional Education) does not allow waiving of copyright to allow authors to deposit on institutional websites electronic copies of articles that have been published in FoHPE". Open access from February 2021.



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