Pro Vice-Chancellor's Office, Faculty of Health Sciences

Embedding interprofessional education in an Australian university: An exploration of key leadership practices

Margo L. Brewer

This thesis is presented for the Degree of
Doctor of Philosophy (Supplication)
of
Curtin University

March 2017

Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signed:

Date: March 13, 2017

Abstract

Governments and leading authorities, including the World Health Organization and the Institute of Medicine, have proposed greater coordination and integration of services to improve health outcomes. Enhanced collaboration between health professionals—interprofessional practice—has been identified as a health workforce priority. Embedding of interprofessional education into health education and training is required for the development of the capabilities for interprofessional practice. Recent audits of Australian universities, however, revealed interprofessional education is patchy and systematic change to health curricula is yet to occur. Effective leadership is essential to advancing the progress of interprofessional education for the 21st century health workforce.

This thesis provides a scholarly synthesis of eight publications which aimed to deepen the tertiary sector's understanding of how to effectively lead interprofessional education. The thesis makes a significant contribution to the field through researching the influence of leadership practices on expanding interprofessional education in an Australian university. To date, no body of work has systematically explored effective leadership practices for interprofessional education. Instead, much of the focus has been on individual 'champions' and formal structures (e.g. dedicated offices or centres). Specifically, this research examined the leadership practices of visioning (creation of a vision), sensemaking (making sense of a phenomenon), empowering, and disseminating. The central research objectives was *to explore the role of leadership practices in facilitating embedding interprofessional education in an Australian university.*

In the absence of validated measures for leadership in interprofessional education, the research adopted a pragmatic paradigm and mixed methods methodology which allowed for the exploration of intervention outcomes, shared meanings, and joint action. The research was undertaken between 2011 and 2015. The first paper outlines the development of an interprofessional capability framework which provides the *direction*—the vision and goal—for interprofessional education and facilitates the process of sensemaking in relation to interprofessional practice. The next two papers present evidence of academics and students' *alignment* and *commitment* with this direction and vision in two contrasting contexts while the fourth paper examined

whether the leadership practices of visioning and sensemaking facilitated embedding interprofessional education in the curriculum.

The next phase of the research aligned with the belief that a critical aspect of leadership is not to develop followers but to develop more leaders. The practices of empowering and disseminating were employed to develop these leaders. To ensure this phase was based on contemporary research, a scoping review of the literature on leadership in the interprofessional field was undertaken. This review highlighted a general failure to define, conceptualise or theorise leadership. A leadership training program for academics and practicing health professionals was developed and the outcomes achieved outlined. An interprofessional education conference, informed by the diffusion of innovation theory, was convened as part of a broader dissemination strategy. Post-conference evaluations indicated the impact of this design was favourable for participants. A second dissemination initiative was publication of a guide for team-based interprofessional placements. The guide provides a critique of the current research on interprofessional education in practice settings followed by a summary of the key lessons learned in establishing Curtin's multi-award winning interprofessional student placement program.

The thesis concludes with a model of leadership based on the direction-alignment-commitment leadership ontology. The outcomes of the research provide current and future leaders with insight into how to effectively lead interprofessional education within the higher education context. This insight will assist them to overcome the multitude of barriers that have, up to now, limited the expansion of interprofessional education in health education curricula.

Acknowledgements

Driven by the desire for our graduates to be 'work ready' for interprofessional practice I took on the leadership of interprofessional education in Curtin University's Faculty of Health Sciences in August 2009. Whilst the early phase in this leadership journey influenced much of my later thinking and practice of leadership, it was the shift from viewing myself as holding a leadership position to being a researcher of leadership that forms much of the work within this thesis. I would like to take the opportunity to acknowledge several important people who joined me on this journey.

I am grateful to Jill Downie and Sue Jones who entrusted me with the leadership of interprofessional education at Curtin. I acknowledge other great women I have had the pleasure of working closely with whilst immersed in this PhD including: Cassandra Doherty, Brooke Sanderson, Michelle Donaldson, Sandie Pritchard, Alison Kelly, and Linley Lord. Special thanks to Helen Flavell for the time she spent shaping my thinking and academic writing. I thank Lorna Rosenwax and Neville Hennessey for their advice on the development of my final exegesis.

I am grateful to members of the global interprofessional movement who generously shared their knowledge and experience. A special thanks goes to the staff at the University of Toronto's Centre for Interprofessional Education and to Emeritus Professor Hugh Barr, my mentor, sage and friend. Many opportunities I have enjoyed were facilitated by Hugh.

I wish to acknowledge the love and support of my friends and family who have encouraged me along the way. My father, mother, sisters Cathy, Julie and Lysa have shown me support and love throughout my life. My sons Nick, Alex and Josh have been the centre of my life for many years. They are kind, compassionate men of whom I am proud. I thank them for their help in running the home while I was preoccupied with this research.

Finally, this thesis represents me embodying collaboration, a central element of interprofessional education. As such, I have collaborated with colleagues in much of the research undertaken. I would like to thank my co-authors Helen Flavell, Sue Jones, Franziska Trede, Megan Smith, Melissa Davis, Courtenay Harris, Katherine Bathgate, Ted Stewart-Wynne, and Hugh Barr.

Abbreviations

CAIPE	Centre for the Advancement of Interprofessional Education
Curtin	Curtin University
IPE	Interprofessional education
IPP	Interprofessional practice
UK	United Kingdom
US	United States

Key definitions and terms

Term	Definition
Appreciative inquiry	"The cooperative co-evolutionary search for the best in people, their organizations, and the world around them. It involves the discovery of what gives 'life' to a living system when it is most effective, alive, and constructively capable in economic, ecological, and human terms" (Cooperrider, Whitney, & Stavros, 2008, p. 3)
Capability	"An integration of knowledge, skills, personal qualities and understanding used appropriately and effectively ... in response to new and changing circumstances" (Oliver, 2010, p. 16)
Collaborative leadership	"The capacity to engage people and groups outside one's formal control and inspire them to work toward common goals—despite differences in convictions, cultural values, and operating norms" (Ibarra & Hansen, 2011, p. 73)
Collective leadership	"A dynamic leadership process in which a defined leader, or set of leaders, selectively utilize skills and expertise within a network, effectively distributing elements of the leadership role as the situation or problem at hand requires" (Friedrich, Vessey, Schuelke, Ruark, & Mumford, 2009, p. 933)
Competence	"The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and communities being serve" (Epstein & Hundert, 2002, p. 226)
Competency based education	"An approach to prepare physicians for practice that is fundamentally orientated to graduate outcome abilities and organized around competencies derived from analysis of societal and patient needs" (Frenk et al., 2010, p. 636)
Framework	"A basic structure underlying a system, concept, or text" (Oxford Dictionaries [onine])
Interprofessional education	"Two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010, p. 7)
Interprofessional field	This terms encapsulates both interprofessional education and practice

Interprofessional practice	"Two or more professions working together as a team with a common purpose, commitment and mutual respect" (Freeth, Hammick, Koppel, Reeves, & Barr, 2005, p. xiv-xv)
Leadership	"The process of influencing others to understand and agree about what needs to be done and how it can be done effectively, and the process of facilitating individual and collective efforts to accomplish the shared objectives" (Willumsen, 2006 p. 404)
Ontology	"A set of concepts and categories in a subject area or domain that shows their properties and the relations between them" (Oxford Dictionaries [online])
Organisational change	"A systematic approach to reshaping organisations in line with their future goals, aims, vision and philosophy" (Day & Shannon, 2015, p. 295).
Relational leadership	"A social influence process through which emergent coordination (i.e. involving social order) and change (i.e. new values, attitudes, approaches, behaviours, ideologies, etc.) are constructed and produced" (Uhl-Bien, 2006, p. 668)
Sensemaking	"Placing stimuli into some kind of framework … that enables us …to comprehend, understand, explain, attribute, extrapolate, and predict" (Starbuck & Milliken, 1988, p. 51)
Student training ward	A ward (or section of a ward) where students, under the supervision of qualified practitioners, plan and deliver interprofessional care for patients
Visioning	"The action required to achieve the vision" (Kakabadse, Kakabadse, & Lee-Davis, 2005, p. 243)

Publications included in the thesis

Brewer, M. L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health, 42*, e45–e49. (*Q3, SJR=0.316, H index=24, Google Scholar citations=23).

Brewer, M., Flavell, H., Davis, M., Harris, C., & Bathgate, K. (2014). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability, 5*, 29–46. (Peer reviewed teaching and learning journal established in 2010, *Google Scholar citations=1).

Brewer, M. L., & Stewart-Wynne, E. G. (2013). An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities. *Journal of Interprofessional Care, 27*, 482–488. (*Q1, SJR=0.819, H index=50, 2015 Impact factor=1.645, Google Scholar citations=30, Journal page views=952).

Brewer, M. L. (2016). Exploring the potential of a capability framework as a vision and 'sensemaking' tool for leaders of interprofessional education. *Journal of Interprofessional Care, 30,* 574-581. (*Q1, SJR=0.819, H index=50, 2015 Impact factor=1.645, Journal page views=137).

Brewer, M. L., Flavell, H. L., Trede, F., & Smith, M. (2016). A scoping review to understand 'leadership' in interprofessional education and practice. *Journal of Interprofessional Care, 30,* 408-415. (*Q1, SJR=0.819, H index=50, 2015 Impact factor=1.645, Google Scholar citations=6, Journal page views=507).

Brewer, M. L., Flavell, H., Trede F., & Smith, M. (2017). Creating change agents for interprofessional education and practice: A leadership programme for academic staff and health practitioners. *International Journal of Leadership in Education,* Published online March 22, 2017. (*Q2, SJR=0.455, H index=25, Impact factor=0.648).

Brewer, M. L. (2016). Facilitating the dissemination of interprofessional education and practice using an innovative conference approach to engage stakeholders. *Journal of Interprofessional Education and Practice, 2*, 33–38. (Peer reviewed

journal established in 2015 by National Academies of Practice, No impact factor as yet).

Brewer, M. L., & Barr, H. (2016). Interprofessional education and practice guide no. 8: Team-based interprofessional practice placements. *Journal of Interprofessional Care, 30,* 747-753. (*Q1, SJR=0.819, H index=50, 2015 Impact factor=1.645, Journal page views=243).

*data accurate as of February 22, 2017

Additional publications relevant to the thesis

Brewer, M. L., Flavell, H., & Jordon, J. Interprofessional team-based placements: The importance of space, place and facilitation. *Journal of Interprofessional Care, Published online May 3, 2017.*

Trede, F., Smith, M., & **Brewer, M.** (2016). Learning about leadership and collaboration in interprofessional education and practice. In A. Croker, J. Higgs, & F. Trede (Eds.), *Collaborating in healthcare: Reinterpreting therapeutic relationships* (pp. 261-268). Rotterdam, The Netherlands: Sense Publishers.

Brewer, M. L., & Rosenwax, L. (2016). What is occupational therapy? *Australian Occupational Therapy Journal, 63,* 221–222.

Brewer, M., & Jones, S. (2014). A successful university-community engagement and leadership model. In D. Forman, M. Jones, & J. Thistlethwaite. (Eds.), *Leadership for developing interprofessional education and collaboration* (pp. 85-104). London, UK: Palgrave Macmillan.

Brewer, M. L., Tucker, B., Irving, L., & Franklin, D. (2014). The evolution of faculty-wide interprofessional education workshops: A leadership model for success. In D. Forman, M. Jones, & J. Thistlethwaite. (Eds.), *Leadership for developing interprofessional education and collaboration* (pp. 206-227). London, UK: Palgrave Macmillan

Ritchie, C., Gum, L., **Brewer, M.**, Sheehan, D., Burley, M., Saunders-Battersby, S., Evans, S., & Tucker, L. (2013). Interprofessional collaborative practice across Australasia: An emergent and effective community of practice. *Focus on Health Professional Education: A Multi-disciplinary Journal, 14,* 71-80.

Barr, H., & **Brewer, M.** (2012). Interprofessional practice-based education. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede. (Eds.), *Practice-based education: Perspectives, and strategies* (pp. 199-212). Rotterdam, The Netherlands: Sense Publishers.

Marles, K., Lawrence, J., **Brewer, M.**, Saunders, R., & Lake, F. (2012). Interprofessional education in the residential aged care setting. *International Journal of Aging in Society, 1*.

Brewer, M., Franklin, D., & Lawrence, J. (2011). Brightwater care group interprofessional placement. *Journal of Professional Management, 5*(2).

Forman, D., Jones, M., & **Brewer, M.** (2011). Interprofessional sharing. *International Journal of Professional Management, 5*(2).

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., & White, S. (2009). Assessment of interprofessional competencies for health professional students in fieldwork education placements. In J. Milton, C. Hall, J. Lang, G. Allan, & M. Nomikoudis. (Eds.), *ATN Assessment conference 2009: Assessment in different dimensions Conference proceedings.* Melbourne: RMIT University.

Note: The link between these publications and the papers included in the thesis has been outlined in Appendix A. In addition, a list of the conference presentations relevant to this thesis is provided in Appendix B.

I warrant that I have obtained, where necessary, permission from the copyright owners to use any third-party copyright material reproduced in the thesis, or to use any of my own published work (e.g. journal articles) in which the copyright is held by another party (e.g. publisher).

Awards

A number of key elements of the interprofessional education curriculum described in this thesis have attracted awards as outlined below:

- Winner, International Best Practice Competition, Business Capability Congress, Auckland, New Zealand, 2012.
- Winner, Australian Office of Learning and Teaching Award for Programs that Enhance Learning, 2012.
- Runner up, Curtin University's Vice Chancellor Award for Excellence and Innovation for Facilitating Partnerships and Engagement, 2011.
- Winner, Curtin University's Vice Chancellor Award for Excellence and Innovation for Programs that Enhance Learning Innovation in Curricula, Learning and Teaching, 2011.
- Winner, Curtin University's Faculty of Health Sciences Excellence in Teaching Award for Educational Partnerships and Collaborations with Other Organisations, 2011.
- Winner, Curtin University's Faculty of Health Sciences Excellence in Teaching Award for Innovation in Curricula, Learning and Teaching Innovation in Curricula, Learning and Teaching, 2010.

Table of contents

Chapter 1: Introduction

> *"Health systems worldwide are struggling to keep up, as they become more complex and costly, placing additional demands on health workers. Professional education has not kept pace with these challenges, largely because of fragmented, outdated, and static curricula that produce ill-equipped graduates"*
>
> (Frenk et al., 2010, p. 1923)

This chapter presents the background and context for the research, the purpose and significance of the studies undertaken, and the objective of the research. Clarification of key terminology adopted is provided. The chapter concludes with an overview of the structure of the thesis.

1.1 Background to the research

As highlighted in the opening comment from the global commission on the education of health professionals for the 21st century cited above (Frenk et al., 2010), health systems are struggling to meet the needs of the community. Furthermore, the lack of collaboration between health professionals—even those caring for the same people within the same organisation—has been raised as a concern by many, including The Commonwealth Fund Commission on a High Performance Health System in the US (Shih et al., 2008) and the World Health Organization (2010). Interprofessional education provides one solution to the preparation of a 21st century workforce with the capabilities to work collaboratively to improve health outcomes. The World Health Organization (2010) defined interprofessional education as occurring "when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010 p. 7). An array of terms are used to describe collaboration between health professionals, and issues which will be briefly unpacked in section 1.3. For the purposes of this research the term 'interprofessional practice' has been adopted.

The complexity of the operational and cultural change required to embed interprofessional education into curricula has been a focus of discussion for many years. Recent reviews of the literature by Lawlis, Anson, and Greenfield (2014), and Sunguya,

Hinthong, Jimba, and Yasuoka (2014), identified a multitude of barriers to interprofessional education which included: limited financial resources, contrasting calendars of the courses involved (e.g. different lengths of degrees and different class timetables), rigid and condensed curriculum, differences in assessment requirements, high workload demands, limited knowledge about other health professions, poor understanding of interprofessional education, limited staff development programs, negative staff attitudes, existing bias towards own profession, 'turf' or professional battles, lack of respect towards other health professions and lack of rewards for staff involved in interprofessional education. Similar barriers have been reported elsewhere (Barker, Bosco, & Oandasan, 2005; Gilbert, 2005; Glen & Reeves, 2004; Hall, 2005; Pecukonis, Doyle, & Bliss, 2008).

Many of these resource, curricula, accreditation, staff development, workload, and cultural issues stem from the history of health professions and of higher education more broadly. In the context of the health professions, the *Journal of Interprofessional Care* recently dedicated a special edition to the examination of health and social care from a range of historical perspectives. Professional boundary disputes (Khalili, Hall, & DeLuca, 2014), inequities in occupational status (Bell, Michalec, & Arenson, 2014) and adversarial relationships particularly between medicine and nursing (Price, Doucet, & McGillis Hall, 2014) were just some of factors highlighted as limiting collaboration between professions. In the context of higher education, Kezar and Lester's (2009) critique of collaboration raised several issues which compound the complex history of health professions described above. First, higher education has historically supported individualisation rather than collaboration leading to increased specialisation and heightened professional differences. In response to this specialisation and professionalisation, knowledge production has become more discrete and siloed; organised within separate administrative structures (e.g. departments). Second, increased vertical and bureaucratic organisation of universities has further limited horizontal collaboration. Third, the impact of individualistic reward systems (e.g. teaching evaluations, awards and promotions) reduce staff motivation to engage in collaborative initiatives. Similar disquiet about the impact of specialisation and professionalisation

have been raised specifically in relation to health education (e.g. Cashman, Reidy, Cody, & Lemay, 2004; George, Frush, & Michener, 2013; MacMillan & Reeves, 2014).

Numerous organisations and researchers have called for greater leadership to address the entrenched structural, process and cultural issues limiting the adoption of interprofessional education [and practice] (Barr, 2011; Blue, Mitcham, Smith, Raymond, & Greenberg, 2010; Borduas et al., 2006; Clark, Cott, & Drinka 2007; Ansari, 2012; Department of Health and the Centre for the Advancement of Interprofessional Education, 2007; Greer & Clay, 2010; Oandasan & Reeves, 2005; Reeves, MacMillan, & van Soeren, 2010; World Health Organization, 2010). These calls may explain growing interest in leadership in the interprofessional field in recent years. A search of Google Scholar conducted on January 20, 2017, using the terms 'interprofessional education', 'leadership' and 'health', revealed an increase in results from 292 in 1996 to 6,860 in 2016 (see Figure 1). Of most interest was the exponential growth in the past decade.

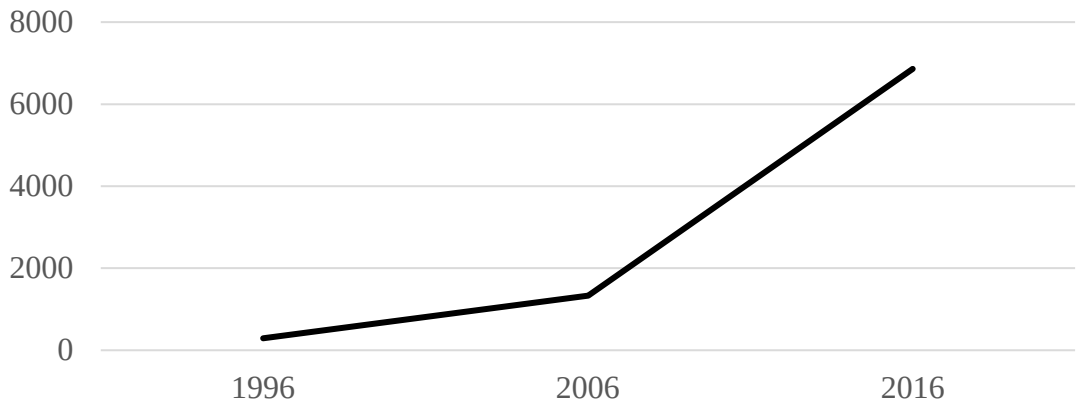


Figure 1. Google scholar results for interprofessional education leadership in health

This growth within Google Scholar aligned with the academic literature. A search using the phrase 'interprofessional education AND leadership AND health' in Cumulative Index to Nursing and Allied Health Literature (CINAHL**)** grew from four results in 1996-2006 to 74 results in 2006-2016. The same search in Medline showed a similar pattern with eight results in 1996-2006 and 116 in 2006-2016.

Despite this growth in publications little information is available to inform the leadership practices of academic staff. Instead, much of the published literature is

limited in either detail or in the context in which leadership is examined. For example, Royeen, Jensen, and Harvan's (2009) book, dedicated to leadership of interprofessional health education, captured several issues leaders need to address (e.g. assessment, faculty development, working with professional accreditation agencies), along with examples of rural health initiatives. Little, if any, reference was made by the authors to the leadership models or practices adopted. In one of the later chapters, Lyons (2009) suggested the use of transactional leadership theories. No explanation of these theories or how to apply them to embedding interprofessional education was provided. Forman, Jones, and Thistlethwaite (2014 & 2015) also edited books dedicated to the topic of leadership in the interprofessional field. These books captured stories of interprofessional initiatives from across the globe. Both texts discussed an array of leadership approaches including shared, collaborative, empowering, adaptive, servant, and transformational leadership (or a combinations of these). Whilst a summary of key leadership 'aspects' was provided by the editors, many of these related to interprofessionalism (e.g. communication, shared decision making, teamwork, professional identity, resilience, motivation) rather than to leadership per se. Overall, the stories featured in Forman et al. (2014 & 2051) illuminated the complexity of organisational change needed, and the trial and error approaches adopted in leading this change.

In contrast to the diversity of settings captured in these books, much of the research in the peer reviewed literature has focused on leadership of interprofessional education and/or practice within narrow contexts. Some researchers have focused on student teams (Copley et al., 2007; Ekmekci et al., 2013). Others, whilst making reference to interprofessional leadership, focused only on a single discipline (Eiser & Connaughton-Storey, 2008; Frederickson & Nickitas, 2011; Pecukonis et al., 2013; Pressler & Kenner, 2012). Still other publications concentrated on formal leadership structures such as the dedicated offices or centres of interprofessional education in many Canadian universities (Chen, Williams, & Gardner, 2013) and the national centre in the US (Brashers, Owen, & Haizlip, 2015). Formal infrastructure, accompanied by substantial funding, has advanced interprofessional education in these contexts. However, this has provided little to inform the leadership practices of academic staff.

Compounding the shortcomings of published research on leadership within the interprofessional education, are limitations in the literature on leadership in higher education more broadly. These limitations include the underdeveloped definitions of leadership (Yielder & Codling, 2004), the high degree of variability in conceptualisations of what leadership is and how it should be practiced (Bolden, Petrov, Gosling, & Bryman, 2009), the lack of clarity between management and leadership (Bryman, 2007), and the focus on the present (e.g. addressing gaps and fixing immediate problems) rather than on change and the future (Parker, 2008). Vilkinas, Leaks, and Rogers (2007) argued leadership in the higher education context is both under-theorised and simplistically prescriptive. Research into how academics enact leadership is limited (Hofmeyer, Sheinglad, Klopper, & Warland, 2015), and formal preparation for leadership roles in higher education rare (Bradley, Grice, & Paulsen, 2017).

As a result of the limited examination of leadership in interprofessional education many questions remain unanswered. These include questions about how leadership should be defined, theorised and conceptualised in the context of interprofessional education, and which leadership practices facilitate embedding interprofessional education within the curriculum. Seeking answers to these questions, this research emerged through a process of analysis and reflection on my 'lived experience' as a leader embedding interprofessional education in an Australian university; or, as Ladkin (2010) described, through my experience of 'leadership from the inside'. This experience arose following Curtin University's Faculty of Health Sciences' executive establishing their vision for interprofessional education: *to be international leaders in interprofessional education, developing new health workforce models for the future*. A dedicated leadership position was created in 2009 to ensure the achievement of this vision, a position I was appointed to in August of that year. Early in this leadership journey I developed a leadership and engagement model. This model combined three areas of research: Kotter's (1995) eight step change process, transformational leadership theory (Boseman, 2008; Stone, 2003), and research on effective teams (Gratton & Erickson, 2007). Akin to traditional conceptualisations of leadership, the model focused on the steps a leader takes to engage, develop and support followers. Following a more in depth examination of the leadership literature, it became

evident this model lacked alignment with the shift in emphasis from the leader to leadership. Furthermore, several contemporary researchers including Crevani, Lindgren, and Packendorff (2010) have called for a closer examination of leadership processes, practices and interactions. In response to such calls, the research problem investigated, and the significance of this to the interprofessional education field, will now be described.

1.2 Research problem investigated

To advance the leadership of interprofessional education in higher education, the principle research objective was *to explore the role of leadership practices in facilitating embedding interprofessional education in an Australian university.*

The first phase related to the leadership practices of visioning and sensemaking. To begin, an interprofessional capability framework for the local Australian context was developed. This framework was designed to provide the direction (goals and objectives) and vision for the desired change; the embedding of interprofessional education within the curriculum. The selection of a competency framework was driven by the popularity of competency-based education in both health education (Reeves, Fox & Hodges, 2009) and interprofessional education (Barr, 1998).

Next, exploration of the utilisation of this framework in the design, implementation and evaluation of interprofessional education was undertaken to determine whether staff had aligned their work and commitment with the framework. Further to this, the outcomes of students' interprofessional education experience was examined. To allow for contextual differences this examination took place in both a first year classroom/online unit and a final year fieldwork placement. The development of the first student training ward in the southern hemisphere to host this final year placement was a critical step in this phase of the research.

Having established the framework had been utilised by staff, and students had made positive gains as a result of their learning experience, a targeted exploration of the visioning and sensemaking leadership practices was conducted. The goal was to determine whether visioning and sensemaking had played a role in assisting staff to embed interprofessional education in the curriculum. This exploration took place in

several contexts: two first year units, simulation activities, case-based workshops and fieldwork placements.

The next phase of the research focused on the leadership practice of empowering others. This involved the development of a 'volunteer army' (Kotter, 1996) of both academic and practicing health professionals to ensure broad based engagement in, and leadership of, interprofessional education. This process began with a review of the literature to determine what is known (and not known) about leadership in the interprofessional field. Informed by the findings of this review, a leadership development program was designed, implemented in two contrasting contexts and evaluated.

Staying with the goal of developing interprofessional education leaders, two dissemination initiatives were undertaken. First, the leadership program along with several other successful interprofessional education initiatives were disseminated via a conference held at Curtin. Second, a guide to leading the implementation of interprofessional student placements was published.

1.3. Significance of the research

This study is significant because universities in Australia, as in other regions of the globe, are experiencing difficulty embedding sustainable interprofessional education within health curricula (Abu-Rish et al., 2012; Cahn, 2014; The Interprofessional Curriculum Renewal Consortium Australia, 2013; MacMillan & Reeves, 2014). Leadership at all levels of higher education institutions is required to ensure high quality interprofessional education is provided for the health workforce of the 21st century. However, as set out earlier, a number of critical issues present obstacles for institutions wishing to embed interprofessional education; two of which are particularly relevant to this research. The first issue is the lack of clarity over terminology in the interprofessional field. This situation has made it difficult for both educators and researchers to establish a shared understanding of interprofessional practice and leadership. The second issue is the overreliance on either individual 'heroic' champions or dedicated infrastructure to support interprofessional education. This narrow focus is out of touch with contemporary, post-heroic views of leadership where leadership practices and the outcomes achieved, are at the forefront of the debate. By exploring

leadership practices within a large Australian university this research provides future leaders with a guide on how to approach leadership to successfully embed interprofessional education within their institution.

This doctoral thesis offers an original contribution to the interprofessional education literature in four key areas. First, a number of important gaps in the literature specific to leadership in the interprofessional field are highlighted by the scoping review undertaken. Informed by the findings of this review, a framework to assist future researches address these gaps and enhance our understanding of leadership was developed. The second, and probably major contribution of this thesis, are the new ways of thinking about leadership offered. This innovative thinking includes the examination of direction-alignment-commitment leadership ontology (Drath et al., 2008) and its alignment with the leadership practices of visioning, sensemaking, empowering and disseminating. Drath and colleagues (2008) claimed it is direction-alignment-commitment which indicate the presence of leadership. The third contribution of the research is the description of a replicable, tested, staff training program to develop future leaders of interprofessional education and interprofessional practice. The fourth contribution is the description and testing of an innovative, theoretically based approach to dissemination in the interprofessional field. The fifth contribution is the published guide for the development, implementation and evaluation of team-based interprofessional placements. Given long held concern over the quantity and quality of practice-based interprofessional education, this guide will be of value to many in the field. Finally, the lessons learned from the research journey culminate in a leadership model provided within the discussion chapter.

Prior to describing the structure of this thesis it is important to clarify three key terms adopted and the reason for their selection.

1.4 Key terminology

An array of terms exist in the literature to describe collaboration between health professionals, often used interchangeably (Goldman, Zwarenstein, Bhattacharyya, & Reeves, 2009). These terms include: collaborative practice, interprofessional collaborative practice, interprofessional care' and interprofessional collaboration. As mentioned previously, for the purpose of this thesis the term 'interprofessional practice'

has been adopted. Interprofessional practice was defined by Freeth, Hammick, Koppel, Reeves, and Barr (2005) as occurring when "two or more professions working together as a team with a common purpose, commitment and mutual respect" (p. xiv-xv).

In contrast to the multitude of terms used to describe interprofessional practice, two definitions of interprofessional education are frequently cited in the literature. The earlier and most cited has been the Centre for the Advancement of Interprofessional Education's definition which states interprofessional education as occurring "when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (Centre for the Advancement of Interprofessional Education, 2002). More recently, the World Health Organization (2010) defined interprofessional education as occurring "when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (World Health Organization, 2010 p. 7). Whilst these two definitions are very similar, the World Health Organization definition was selected for this thesis because of its focus on health outcomes rather than 'care'. This broader focus aligns with the context of this thesis as many professions within Curtin's Faculty of Health Science are not involved directly in the delivery of health care.

A brief justification for the decision to develop a 'capability' framework rather than the more common 'competency' framework is also warranted. Competence has been defined as "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individuals and communities being serve" (Epstein & Hundert, 2002, p. 226). Whilst competency based education is popular within health, concerns have been raised about the competency movement's adoption of a reductionist approach focused on lists of tasks and outcomes. In their commentary on the competency movement in health, Reeves and colleagues (2009) highlighted how the complex processes entailed in professional practice are often neglected when a reductionist approach is adopted. Oliver (2010), in her extensive research on graduate employability, also raised concern over the narrow focus of the term competence. Oliver recommended higher education move instead to focus on 'capability' which she defined as "an integration of knowledge, skills, personal qualities and understanding used appropriately and effectively ... in

response to new and changing circumstances" (Oliver, 2010, p. 16). Oliver highlighted the breadth of the term capability which embraces competence but is also forward-looking and concerned with the realisation of potential. Several years earlier, Fraser and Greenhalgh (2001) argued for a shift from competence to capability on the basis that capabilities are focused on adaptation, the generation of new knowledge, and improvements in performance. Note: At the term competence is used more frequently in the interprofessional literature it has been used at times during this thesis.

Multiple definitions of leadership have been proposed, a situation captured by Bass (1990), a leading researcher in leadership, who stated "there are almost as many different definitions of leadership as there are persons who have attempted to define the concept" (Bass, 1990 p.11). This volume of definitions was evident in a search of Google conducted on April 22, 2016 using the phrase 'leadership definition' which yielded 464 million results. Searches using the same phrase within academic databases yielded far less but still multiple results. CINAHL yielded 331 results and Medline 440 results. The online version of the *Oxford Dictionary* defines leadership as "the action of leading a group of people or an organization, or the ability to do this." Like many traditional definitions the focus here is on the leader with leadership as a process done to people (Pye, 2005). In contrast, Yukl (2006) defined leadership as "the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives" (p. 8). A decade later, Northouse (2016) defined leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 6). In contrast to the dictionary definition, Yukl (2006) and Northouse (2016) illuminated four central aspects of leadership. First, leadership is not a trait or characteristic possessed by an individual but a bidirectional process or transaction where the leader is affected by, and effects, followers. Second, leadership is a process of influencing others rather than utilising power over them. Viewing leadership in relation to influence allows leadership to occur beyond those with positional power. Northouse (2016) also claims that such definitions mean that without influence leadership does not exist. The third aspect to arise from the definitions of Yukl (2006) and Northouse (2016) is that leadership happens not within the individual but within the group. Finally,

leadership focuses on the attainment of goals shared by the leader(s) and their followers; the group must share a common, mutually agreed purpose.

Moving from defining leadership to defining the term 'leader', the online *Oxford Dictionary* again provides a very traditional definition of a leader as "the person who leads or commands a group, organization, or country." In contrast, Margaret Wheatley (2009) provides a very inclusive definition of a leader as "anyone willing to help, anyone who sees something that needs to change and takes the first steps to influence that situation" (Wheatley, 2009, p. 144). Wheatley's definition aligns with the frequently cited leadership quote attributed to John Quincy Adams, the president of the United States from 1825 to 1829: "If your actions inspire people to dream more, learn more, do more and become more, you are a leader."

1.5 Thesis structure

Building on the background information provided in this chapter, Chapter Two provides an overview of the literature related to interprofessional practice and education, and leadership literature of relevance to interprofessional education. A brief overview of the research methodology is provided in Chapter Three, followed by Chapter Four which is comprised of the eight published peer-reviewed journal papers. Chapter Five lays out an integrative critical examination of the findings and outcomes from the papers in light of current research and their implications for practice and research. A model of leadership is proposed based on Drath el's (2008) leadership ontology and the findings of the research. Chapter Five also adds further detail of the original contribution of this research to the interprofessional education literature. This chapter closes with the key strengths and limitations of the research, suggestions for further research and the final conclusions.

Chapter 2: Overview of the literature

"Leadership is one of the most widely talked about subjects and at the same time one of the most elusive and puzzling"

(Wren, 1995, p. 27).

Having established embedding interprofessional education is a global issue within health education but little is known about how to approach leading this change, Chapter Two sets the scene for future leaders by reviewing the key drivers for interprofessional models of practice and education; knowledge which provides the 'sense of urgency' needed to trigger organisational change (Kotter, 2014). An overview of the global and local progress in embedding interprofessional education and the barriers follows. Allowing for the gaps in research on leadership within interprofessional education and higher education, the review then shifts to the mainstream leadership literature. A brief overview of the history of leadership research is summarised to illuminate how this has changed, particularly in recent years. Several leadership theories which align with the principles of interprofessional education and examples of leadership models focused on organisational change and health are then reviewed. The chapter concludes with a brief examination of the common leadership practices of visioning, sensemaking, empowering, and disseminating.

Before providing this overview it is important to note this research has been informed by several bodies of literature: interprofessional education, interprofessional practice, leadership in the interprofessional field, leadership in health education, and leadership in the mainstream (mainly business and higher education) literature. A range of databases were utilised to ensure breadth including CINAHL**,** ProQuest**,** Medline**,** PsycInfo, Scopus, and Business Source Complete. In addition, searches of the grey literature were conducted to source key reports and documents by key bodies (e.g. World Health Organization, Institute of Medicine, Centre for the Advancement of Interprofessional Education, Australian government) to provide additional insight into critical issues of leadership in interprofessional education.

2.1 Drivers for change to the health system

Health systems across the globe face unprecedented pressure to change (Clark, 2011; Frenk et al., 2010; Kreitzer, Kligler, & Meeker, 2009) for a multitude of reasons including: the frequency of adverse events (e.g. medical errors), reduplication of services, and poor patient experiences (Shih et al., 2008); concern over the focus on acute, episodic models health care which fails to meet the needs of people with chronic conditions (Frenk et al., 2010; Nolte & McKee, 2008); and inequities in health status and health care services in some socioeconomic population groups (Ferré et al., 2014).

Mirroring the global situation, Australia is under pressure to adapt its health system as a consequence of increasing demand leading to escalating cost, health workforce shortages, and gaps in service provision, to name but a few drivers for change. Total population projections of growth from 23 million in 2012 to around 48 million in 2061 (Australian Bureau of Statistics, 2012) is a critical issue facing the Australian government. Of the changes projected to occur in our population, ageing is considered the most dramatic with the population aged 65 years and over to increase from 14% in 2012 to 20% by 2040 (Australian Bureau of Statistics, 2012). Moreover, in the same time frame, the number of people aged 85 years and over is projected to triple (Australian Bureau of Statistics, 2012). These population demographics align with predicated changes in the rates and/or proportions of numerous chronic conditions and their associated costs. In 2012 one in five Australians reported being affected by more than one chronic disease (Australian Institute of Health and Welfare, 2015). This rate of disease can be seen in cost predictions. For example, from 2003 to 2033 expenditure on diabetes is projected to increase by 436%, dementia by 364%, Parkinson's disease by 334%, and digestive and sense disorders by 237% (Gross, 2008). Beyond these particular conditions, the overall cost of health care in Australia continues to grow as evidenced by a near doubling of expenditure from $77 billion in the 2000 to 2001 financial year to $130 billion in 2010 to 2011 (Australian Institute of Health and Welfare, 2012).

Alongside these demand and cost issues are concerns in Australia over the ageing health workforce, and health workforce shortages particularly in outer metropolitan, rural and remote locations and Indigenous communities (National Health

Workforce Taskforce, 2010). This national taskforce also highlighted service access issues for people with disabilities, mental health and aged care.

Population, cost, workforce and access issues are further exacerbated by the number of adverse events in health care, an issue highlighted last century in the Institute of Medicine's seminal report *To Err Is Human* (Institute of Medicine, 1999). In this document the Institute reported 98,000 preventable deaths take place in US hospitals each year due to medical errors. The estimated cost of these errors (encompassing additional health care expenses, loss of income and disability) was between 17 and 29 billion dollars US per annum. Similarly, in the UK, the Chief Medical Officer of the National Health Service estimated rates of patients who suffer serious disability or death due to health care intervention varies from 60,000 to 250,000 (Department of Health, 2000). Medical errors are also a concern in Canada where a study of several acute hospitals revealed 24,000 preventable deaths in 2001 alone (Baker et al., 2004). Closer to home, a review of adverse events in Victorian hospitals revealed 7% of patients experienced at least one adverse event. As a result these patients averaged 10 additional days of hospital stay compared to patients who had not experienced such an event. The cost associated with these adverse events was estimated to be over $460 million, adding 19% to the total hospital budget in that state in a twelve month period (Ehsani, Jackson, & Ducket, 2006).

Closely related to these safety issues are concerns about quality in health care, particularly with increased consumer knowledge and expectations (Australian Commission on Safety and Quality in Health Care, 2010). An Australian study of over 25,000 health 'encounters' revealed only 57% of people received care in line with either evidence-based or consensus-based treatment guidelines (Runciman et al., 2012).

Addressing the growing and complex issues faced by individuals, families, communities and organisations requires substantial change to the health system. Best and colleagues (2012) proposed that, by adopting a complex adaptive system lens, we can consider how change to the behavior of individual 'actors' within this system can lead to transformation of the system itself. The attitudes, perceptions, knowledge and skills of such individuals is the focus of this thesis.

2.2 Interprofessional practice: An innovative solution

Interprofessional practice has been seen as a key innovation to increase the efficiency and effectiveness of the health system, thereby helping to address demand and cost issues (Kreitzer et al., 2009; Morrison, Goldfarb, & Lanken, 2010; Nandan & Scott, 2014; Nolte & McKee, 2008; Shih et al., 2008; World Health Organization, 2010). Current evidence highlights a number of benefits of interprofessional practice for individuals, teams and organisations within the health system. These benefits include: reduction of service duplication, minimisation of unnecessary medical interventions, improvement in clinical effectiveness, increased patient achievement of daily goals and satisfaction, improved health outcomes for people with chronic diseases, increased adherence to evidence-based guidelines, reduced communication failures, reduced adverse events, decreased length of hospital stay, decreased hospital admissions and outpatient visits, improved motivation among team members, improved retention and recruitment of staff, and reduced staff sick leave (Barrett, Curran, Glynn, & Godwin, 2007; Costello, Clarke, Gravely, D'Agostino-Rose, & Puopolo, 2011; Harris et al., 2013; Hogg et al., 2009; Mickan, Hoffman, & Nasmith, 2010; Strasser et al., 2005; World Health Organization, 2010; Zwarenstein & Bryant, 2000). It should be notes that while the volume of evidence to support interprofessional practice is mounting, concern over the quality of this evidence has been raised (Barrett et al., 2007; Hammick, Freeth, Koppel, Reeves, & Barr, 2007; Kent & Keating, 2012; Lapkin, Levett-Jones, & Gilligan, 2013; Reeves et al., 2008).

Interprofessional practice is not yet the norm in health care (Cuff et al., 2014; Weiss, Tilan, & Morgan, 2014). As stated earlier, the literature is rife with commentary on the barriers to interprofessional practice with the structural and cultural history of health cited as important limiting factors (Kitto et al., 2014; McNeil, Mitchell, & Parker, 2013; Reeves, MacMillan, & van Soeren, 2010). Another barrier to the wide spread adoption of interprofessional practice is the lack of clarity over what interprofessional practice is, particulary as distinct from multidisciplinary practice. The World Health Organization (2010) highighted this issue in their framework for action. The authors stated that many health professionals believe themselves to be practicing interprofessionally when they work alongside colleagues from other professions. It

seems reasonable to suggest that this lack of clarity acts as a barrier to embedding interprofessional education, an intervention which aims to build peoples capacity for interprofessional practice.

Interest in interprofessional practice as a health system solution in the Australian context has grown in recent years as demonstrated in key reports by the National Health and Hospitals Reform Commission (2009) and the National Health Workforce Taskforce (2010). The recommendations contained in these reports included: improved management for patients with chronic disease, enhanced continuity and integration of care (particularly for people with multiple and complex conditions), and ensuring a culture of interprofessional practice in the Australian health system. The development of a workforce with the capabilities for interprofessional practice and interprofessional education is discussed next.

2.3 Interprofessional education: The status globally

Recognition of the need for transformative changes to health professional education is not new. The Institute of Medicine (1972) called for changes in the 1970s and again in 2001 in their report *Crossing the Quality Chasm* (Institute of Medicine, 2001). This latter report established five core competencies for all health professionals, one of which is the ability to work effectively in interprofessional ('interdisciplinary') teams. Similarly, Roy Romanow (2002), in his report for the Commission on the Future of Health Care in Canada, recommended sweeping changes to ensure the long-term sustainability of their health system. Romanow's recommendations included health professionals be educated interprofessionally if they are to practice interprofessionally. The World Health Organization also published several reports, including *Working Together for Health* (World Health Organization, 2006), which called for more collaborative models of care and for the preparation of graduates for this approach. In 2007, the World Health Organization formed a study group comprised of international experts to examine data on interprofessional practice from forty-two countries. The result was the publication of their seminal report, the *Framework for Action on Interprofessional Education and Collaborative Practice* (World Health Organization, 2010). The report implored policy makers, educators, health workers, community leaders and global health advocates to embed (or influence the embedding of) interprofessional

models of education and practice. Other researchers have joined the global call for collaborative, client-centred, interprofessional teams to improve health outcomes (e.g. Bainbridge, 2010; Blue et al., 2010; Frenk et al., 2010; Horsburg, Lamdin, & Williamson, 2001; McNair, 2005; Morrsion, Goldfarb, & Lanken, 2010; Suter & Deutchlander, 2010).

Whilst recogniton of the need for change has been apparent for some time, the evidence base for the long-term effectiveness of interprofessional education and its impact on health outcomes, is still being developed (Reeves, 2016). Studies have shown interprofessional education can result in: increased participant knowledge of the role of other professions; improved communication (including listening) between professions; improved knowledge about the priorities for other professions; improved screening or illness prevention services; improved recording risk factors for cardiovascular disease; strengthened insight into the role of one's own profession and the roles of the other professions; and increased valuing of teamwork within health care and the contribution of other professions to patient care (Falk, Hult, Hammar, Hopwood, & Dahlgren, 2013; Faresjo, Wilhelmsson, Pelling, Dahlgren, & Hammar, 2007; Forte & Fowler, 2009; Hammick et al., 2007; Jakobsen, 2016; Jakobsen & Hansen, 2014; Pelling, Kalen, Hammar, & Wahlstrom, 2011; Reeves, Freeth, McCrorie, & Perry, 2002). Situating interprofessional education for students within health care settings, such as the well-known Leicester model, has also been shown to not only impact positively on students (Anderson, Manek & Davidson, 2006; Anderson, Thorpe, Heney, & Petersen, 2009), but also the health professionals working in these settings, and the patients they provide care for (Anderson & Thorpe, 2014). The sustainability of many of these interprofessional education outcomes remains questionable with few longitudinal studies to date (Curran, Sharpe, Flynn, & Button, 2010; Lapkin et al., 2013; Remington, Foulk, & Williams, 2006). One such longitudinal study was undertaken at Sweden's Linkoping University's which established an interprofessional education curriculum many years ago. The results of this study by Hylin, Nyholm, Mattiasson, and Ponzer (2007) indicated graduates from Linkoping reported increased confidence in working collaboratively as a result of their interprofessional education experiences at university. This positive attitude towards

interprofessional education and confidence to collaborate was sustained in their early years in the workforce.

Interprofessional education has progressed internationally, particularly over the past ten years (Reeves, 2016). Evidence from four countries illustrates this progress. Significant investment by Health Canada in interprofessional education resulted in many higher education institutions in Canada embedding interprofessional education within their curriculum (Ho et al., 2008). The establishment of the Canadian Interprofessional Health Collaborative in 2006 to promote collaboration in health care and health education was one key initiative (Gilbert, 2010). Interprofessional education has also grown in the US, supported by its National Centre for Interprofessional Practice and Education (Chen, Delnat, & Gardner, 2015). Greer, Clay, Blue, Evan, and Garr's (2014) review of sixty-eight universities in the US revealed 85% of respondents offered interprofessional education within their courses. Furthermore, the majority (60%) of these universities had an office, centre or similar infrastructure to support interprofessional education. The government in Japan also invested in interprofessional education. Like Greer and colleagues (2014), Ogawa, Takahashi, and Miyazaki's (2015) surveyed 284 universities in Japan to ascertain the level of interprofessional education offerings. The results indicated 103 (64%) universities had implemented an interprofessional education program. The substantial progress made in the UK was highlighted in the recent review by Barr, Helme, and D'Avray's (2014) covering the period 1997 to 2013. This review indicated approximately two thirds of universities with courses in health and social care had embedded interprofessional education within their curriculum.

Whilst these reviews provide evidence of the interprofessional movement globally, the progress to date has been described as a 'series of isolated events' which lacks any strategic approach (Poirier & Newman, 2016). Further to this, several reviews have raised concern over the quality and sustainability of interprofessional education. For example, Rodger and Hoffman's (2010) global environmental scan of interprofessional education in 41 countries uncovered activities were generally voluntary and lacked explicit learning outcomes. Further to this, the learning was not assessed and formal evaluation was not conducted. Similarly, Abu-Rish and colleagues (2012)

reviewed 83 interprofessional education programs across 43 countries. The results indicated 60% of the interprofessional education activities had occurred only once. Reeves, Tassone, Parker, Wagner, and Simmons (2012) review of interprofessional education over three decades found programs were most commonly delivered to qualified health professionals in their workplaces as a voluntary experience. While some programs were targeted at students in their pre-qualifying years, few programs included in the review led to formal academic accreditation (Reeves et al., 2012).

Another area of concern in the interprofessional field is the lack of examination of the outcomes of competency frameworks which have gained popularity in recent years (Reeves, 2012). National interprofessional competency frameworks have been published in Canada (Wood, Flavell, Vanstolk, Bainbridge, & Nasmith, 2009) and the US (Interprofessional Education Collaborative Expert Panel, 2011). A similar framework was published earlier by two UK universities (Walsh et al., 2005). As part of this research, a search of the literature for studies on the outcomes associated with these frameworks yielded few results. Armitage, Connelly, and Pitt (2008) provided the only peer reviewed publication on the UK framework found. The authors utilised the framework to develop the learning outcomes for a national interprofessional education project. Unfortunately, evidence of the outcomes of this project were not provided. MacKenzie and Merritt (2013), and Newton et al. (2015), reported on interprofessional initiatives aligned with the competencies in the Canadian framework. Once again, detail of the student outcomes in relation to these competencies was not provided. Several references were found to the US competency framework; not surprising given the rapid growth of interprofessional education in the US in recent years. Like the UK and Canadian studies most papers made reference made to the framework but failed to provide evidence of outcomes (e.g. Addy, Browne, Blake, & Bailey, 2015; Murphy, & Nimmagadda, 2015). Only two studies were found which did include outcome data. Sheppard and colleagues (2015) designed their post-experience student perception survey based on the US competencies. Rotz Duenas, Grover, Headly, and Parvanta (2015) based their first year interprofessional education experience on the US competences and examined the outcomes against these competencies via student focus groups. The results of this literature search support Reeves (2012) call for a critical

examination of interprofessional frameworks, a task undertaken in phase one of this thesis.

2.4 Interprofessional education: The status in Australia

Interprofessional education has gained prominence in Australia in recent years. The key reports by the National Health and Hospitals Reform Commission (2009) and the National Health Workforce Taskforce (2010) mentioned previously highlight the need for education and training to move to an interprofessional approach. In addition to these reports, several government funded national projects have been conducted including The Interprofessional Curriculum Renewal Consortium Australia (2013) project which grew from the Learning and Teaching for Interprofessional Practice, Australia (2009) project. Both projects aimed to increase the capacity of the Australian higher education sector to produce graduates with interprofessional practice capabilities. The recommendations from these projects included: a national approach to leadership, promotion of interprofessional education as a health workforce priority, development of nationally accepted interprofessional practice capabilities, a coordinated approach to interprofessional education, professional development for interprofessional education, and inclusion of interprofessional education outcomes and interprofessional practice standards in all health professional accreditation requirements.

Akin to the findings of the global reviews described earlier, are the outcomes of two local reviews. Lapkin, Levett-Jones, and Gilligan (2012) conducted a national audit of universities in Australian and New Zealand who teach medicine, nursing or pharmacy. Interestingly, 80% of the 31 respondents stated they offered interprofessional education to their students. However, closer examination of these educational experiences revealed only 24% meet the definition of interprofessional education; most involved students learning alongside each other during lectures or tutorials. Published one year later was a national audit of Australian universities conducted as part of The Interprofessional Curriculum Renewal Consortium Australia (2013) project. A total of 70 interprofessional education activities were identified across several universities. Less than half (41%) were integrated into a course or module. Over half of the activities (55%) had been implemented for only two years. One third were evaluated with a strong focus on student satisfaction/reactions (72%), attitudes (54%) or knowledge (49%). Few

activities attempted to measure changes in student behaviour (25%), or impact on patient care (12%). It was evident from this audit that a significant proportion of interprofessional education in Australian universities had not been embedded within curricula over an extended period of time, and failed to align with good practice guidelines (e.g. Barr & Low, 2011; Reeves et al. 2011; Rodger & Hoffman, 2010)

As highlighted earlier, issues of quality and sustainability in interprofessional education link closely to the leadership required to overcome barriers to implementation. While individual 'champions' can facilitate some change within their institution (Clark, 2013), progress made is vulnerable when they move on (Reeves, 2016). Instead, large scale change at multiple levels of institutions is needed for wide spread adoption of interprofessional education. Change such as this requires effective leadership (Borduas et al., 2006; Frenk et al., 2010; Kotter, 2012; Malloch & Melynk, 2013; Newhall, 2012). Endorsement for the critical role of leadership was eloquently articulated by West, Eckert, Steward, and Pasmore (2014) in their report on developing collaborative leadership in healthcare: *"the most important determinant of the development and maintenance of an organisation's culture is current and future leadership. Every interaction by every leader at every level shapes the emerging culture of an organisation"* (West et al., p. 4). An exploration of the lenses through which leadership can be understood and negotiated follows.

2.5 Mainstream leadership research

Interest in leadership has spanned more than 2000 years (Kezar, Carducci, & Contreras-McGavin, 2006), yet Avolio, Reichard, Hannah, Walumbva, and Chan (2009) claimed leadership research only emerged in the early twentieth century. Historically leadership research studies were dominated by the fields of business and management. More recently this has broadened to include other fields including psychology and social sciences. Leadership research was traditionally grounded in the objective, positivist and quantitative paradigm. This paradigm strongly influenced leadership being leader-centred and conceptualised as individualistic, hierarchical, privileging particular traits or characteristics of the leader, and focused on the power of the leader over their followers. As a result of this paradigm, far more is known about the leader than leadership (Jones, Harvey, Lefoe, & Ryland, 2012). The rise of social constructivism, critical, and

postmodern paradigms in the later part of the twentieth century led to a shift in the way leadership was viewed (Day, Fleenor, Atwater, Sturm, & McKee, 2014; Ladkin, 2010). Many contemporary theories see leadership as process-centred, collective, nonhierarchical, situational, and focused on mutual power and influence (Kezar et al., 2006). This shift in conceptualisation flowed into increased studies into leadership practices; the 'what' and 'why' (Karp, 2012), or 'lived experience' (Endrissat & von Arx, 2013) of leadership.

The shift in research paradigms and leadership conceptualisations aligned with the shift from traditional trait theories to contemporary social theories. Bolden, Gosling, Marturano, and Dennison (2003), Nahavandi (2003), and more recently Day and colleagues (2014), provided useful reviews of this history. Trait theory, prominent from the late 1800s to the mid-1940s, focused on the essential characteristics of successful leaders under the assumption leaders were born not made; often referred to as the 'great man' or 'heroic' theory. A key problem with this approach was that a consistent set of leader traits or characteristics could not be identified and proved difficult to measure. The 'trait' period was followed by behavioural theory, prominent from the mid-1940s to the 1970s, which saw a shift in focus from leader characteristics to what leaders do. During this period leadership was viewed as something which could be taught, thus research examined patterns of behaviour which were categorised as leadership styles. The 1960s saw consideration of the context emerge within leadership. For example, situational and contingency theories focused on examining which styles of leadership were most successful in particular contexts. These theories led to the privileging of cognitive and behavioral aspects of leaders with leadership viewed as a process done to people rather than as a mutually constructed process (Pye, 2005). The next group of theories to emerge added a focus on followers which raised interest in the social or relational aspects of leadership. The most cited of these were transactional and transformational theories (Burns, 1978; Bass & Avolio, 1990). Transactional theory focused on the relationship between the leader and followers as a form of contract (transaction) with mutual benefits. Transformational theory centred on change and the role of leadership in this process. Theories focused on relational aspects of leadership

also included primal (Goleman, Boyatzis, & McKee, 2002), resonant (McKee, Boyatzis, & Johnston, 2008), and relational (Fairhurst & Uhl-Bien, 2012) leadership.

Other contemporary theories can be grouped around notions of leadership within organisations and systems such as adaptive leadership (Heifetz, Grashow, & Linsky, 2009), complexity leadership (Fairhurst & Connaughton, 2014), and leadership frames (Bolman & Deal, 1997). Several theories focused to the structural arrangement of leadership including shared (Pearce & Conger, 2002), distributed (Gronn, 2002), dispersed (Ray, Clegg, & Gordon, 2004), and collaborative (Chrislip & Larson, 1994) leadership.

The contested nature of leadership, highlighted earlier in Bass' (1990) quote that there are as many different definitions of leadership as there are persons who have attempted to define this concept, remains evident two decades on. Dinh and colleagues' (2014) review of the leadership literature found over 60 different domains of leadership theory. Dionne et al.'s (2014) critique was more conservative with 29 categories of leadership described. Whilst reaching agreement on a single definition or concept of leadership applicable in all contexts may well be impossible, establishing some level of shared understanding is important because how we define leadership has implications for how we practice leadership (Grint, 2005). Perhaps a realistic goal would be to establish a shared definition of what we mean by leadership within the context of interprofessional education in higher education.

Before examining leadership theories and models of relevance to the interprofessional field, it is important to ensure any such theory or model aligns with the core principles and values interprofessional education. To inform this selection process the core principles and values for interprofessional education published by the Centre for the Advancement of Interprofessional Education in the UK (Barr & Low, 2011) were drawn upon. These values and principles included equality, respect, participation, and optimising the shared experience and expertise of participants. Given the close alignment of these principles and values with collective/collaborative and relational leadership they are the focus of the subsequent discussion on leadership theories.

2.6 Leadership theories relevant to interprofessional education

Having narrowed the focus of the leadership literature to collective/collaborative and relational leadership theory, it is important to clarify what is meant by these terms. Unfortunately, the lack of clarity in terminology highlighted in the mainstream leadership literature continues to present a challenge within the context of collective and collaborative leadership. Friedrich, Vessey, Schuelke, Ruark, and Mumford (2009) defined collective leadership as "a dynamic leadership process in which a defined leader, or set of leaders, selectively utilize skills and expertise within a network, effectively distributing elements of the leadership role as the situation or problem at hand requires" (Freidrich et al., 2009, p. 933). Contractor, DeChurch, Carson, Carter, and Keegan (2012), drawing on the work of Friedrich et al. (2009), described the key assumptions of collective leadership as: (1) team members bring diverse skills and expertise so the team should not be viewed as homogenous; (2) information sharing is the vector by which leadership is distributed among the collective; (3) leadership is not static; rather it is a process which may involve a single leader, multiple people sharing the leadership role, or shifts in the roles each individual takes over time depending on the demands of the situation; and (4) leadership is a pattern of effects and a system of interactions. An additional assumption by Friedrich et al. (2009) was that leadership needs to be both shared (horizontal) and vertical (hierarchical) with someone taking accountability for the functioning of the group.

Interestingly, although 'collaborative leadership' is discussed in the literature, definitions of this proved difficult to source. The health leadership framework *Health LEADS Australia,* published by Health Workforce Australia (2013), stated it provides a foundation for "promoting collaborative inter-professional leadership development and clinical practice" (Health Workforce Australia, 2013, p. 6). However, the document failed to define what was meant by collaborative leadership. Other sources outside health are available. On their website, the Leadership Development National Excellence Collaborative (2012), defined collaborative leadership as "a process in which people with differing views and perspectives come together, put aside their narrow self-interests, and discuss issues openly and supportively in an attempt to solve a larger problem or achieve a broader goal." Kezar and Eckel (2002), in their study of change

strategies in higher education, defined collaborative leadership as "a process where the positional and non-positional individuals throughout the campus are involved in the change initiative from conception to implementation" (Kezar & Eckel, 2002, p. 440). Raelin (2006) provided the following guiding principles for collaborative leadership: (1) people need to have a stake in the venture for their commitment to be assured, (2) dialogue must be from a stance of nonjudgmental inquiry, (3) ideas and views are submitted to the critical scrutiny of others, and (4) collaborators need to hold the view that something new or unique may arise from the process of mutual inquiry, and what arises could reconstruct their view of reality.

Both collective and collaborative leadership theories stem from social constructionism. Fairhurst and Grant (2010), published a guide on the social construction of leadership. They described leadership from this paradigm as "a product of sociohistorical and collective meaning making, and negotiated on an ongoing basis through a complex interplay among leadership actors, be they designated or emergent leaders, managers, and/or followers" (Fairhurst & Grant, 2010, p. 172). Descriptions of collective and collaborative leadership such as these make it difficult to separate them. Both focus on the processes of sharing information, expertise and leadership across multiple people with positional and non-positional authority. To add to this confusion other terms such as shared, distributed, team, participative, dual and informal leadership (Ulhoi & Muller, 2014) are used, often without clarity or attention to their similarities and differences.

Akin to collective and collaborative views of leadership, relational theories recognise leadership as a socially constructed phenomenon (Cunliffe & Ericksen 2011; Fairhurst & Connaughton, 2014; Fulop & Mark, 2013; Gronn 2002). Central to this is the assumption leadership is co-constructed during social interactions that enable groups of people to work together to produce the desired outcomes. In other words, leadership arises from the connections and interdependencies of organisations and their members. Hence, leadership is the responsibility of the collective not just individual leader(s). Kezar et al. (2006), in their critique of leadership theories, described the key assumptions of relational leadership as: inclusive of people and points of view, empowering, ethical, and focused on building commitment towards a common purpose.

Uhl-Bien (2006), a leading proponent of this approach to leadership, described relational leadership theory as viewing knowledge as socially constructed and distributed; knowing as a process of relating, and relating as a process of meaning making which enables the creation of common or shared understandings. Whilst a very different context to health education, Cunliffe and Ericksen's (2011) study of federal security leaders provides direction for relational leaders with several practices described including: (1) creating open dialogue by building coalitions and developing partnerships; (2) accepting responsibility for recognising and addressing difference by being responsive to others and engaging in dialogue that is questioning, challenging, answering, extending and agreeing; (3) understanding the importance of relational integrity which encompassed being accountable to others, acting in ways that others can rely on, and being able to explain decisions and actions to others and themselves; and (4) sensing and responding in the present by looking, listening and anticipating. These descriptions of collective, collaborative and relational leadership align well with interprofessional practice where leadership, by nature of the context, is built on collaborative relationships between members of a team or group.

Collective/collaborative and relational leadership approaches are emerging concepts and therefore not well understood (Fairhurst & Uhl-Bien, 2012; Grint, 2010). A more established area of research is leadership for organisational change. Given the need for significant organisational change to embed interprofessional education within curricula, research into the leadership of organisational change is of relevance to interprofessional education leaders.

2.7 Organisational change leadership models

A number of leadership models focus specifically on organisational change, most from the field of business. Whilst differences between the context of business and health have been raised (Mickan & Rodger, 2000), the integration of research across disciplines is seen as essential to progress our understanding of leadership (Fairhurst & Connaughton, 2014; Kupers, 2013). The models summarised next have all been utilised within the research undertaken; either to inform the larger organisational change strategy at Curtin (Brewer & Jones, 2014; Brewer, Tucker, Irving, & Franklin, 2014), or within specific studies such as the leadership development program described in the fifth paper.

One of the most influential leadership models focused on organisational change has been Harvard Professor John Kotter's eight step process model (Kotter, 1995 & 1996) as seen in Table 1 below. Kotter's approach to leadership has been described as the "most popular study on leading change" (Bucciarelli, 2015); popularity most likely arising from its practicality (Todnem By, 2005). Applebaum, Habashy, Malo, and Shariq's (2012) review of the change management literature found support for most steps of Kotter's (1996) model.

Table 1. Kotter's change leadership model

Step	Kotter's (1995) eight steps
1	Establish a sense of urgency
2	Create the guiding coalition
3	Develop a change vision
4	Communicate the vision for buy-in
5	Empower broad based action
6	Generate short term win
7	Never let up
8	Incorporate change into the culture

Kotter's original eight step model has been applied in a range of contexts including health and education. For example, Bucciarelli's (2015) examination of organisational change in an Italian higher education institution found Kotter's model was effective in achieving the desired change. Similarly, Martin and Voynov (2014) described the successful implementation of electronic medical records in one US medical centre, while Silver (2014) recommended Kotter's (1996) model to guide the implementation of a university staff development program in Canada. Chappell et al. (2016) described Kotter's model in relation to implementing a health workplace initiative while Small et al. (2016) successfully implemented hospital bedside handovers using his model to inform the change management process. Teixeira, Gregory and Austin (2017) described changes to pharmacists practice in Ontario using Kotter's model. Guzman et al. (2011) outlined the successful implementation of a clinical assessment system in a dental school in Souyth America using Kotter's eight step process. Calegari, Silbey, and Turner (2015) also used this model to increase staff engagement in accreditation within a US university. Whilst Kotter's (1996) model holds appeal due to their clarity and step-by-step approach with desirable behaviours identified, this approach has been criticised for its overly simplistic and unrealistically

linear view of organisational change (Teixeira et al. (2017). In response to this criticism Kotter (2014a) recently updated his model to eight accelerators of change as seen in Figure 2 below.

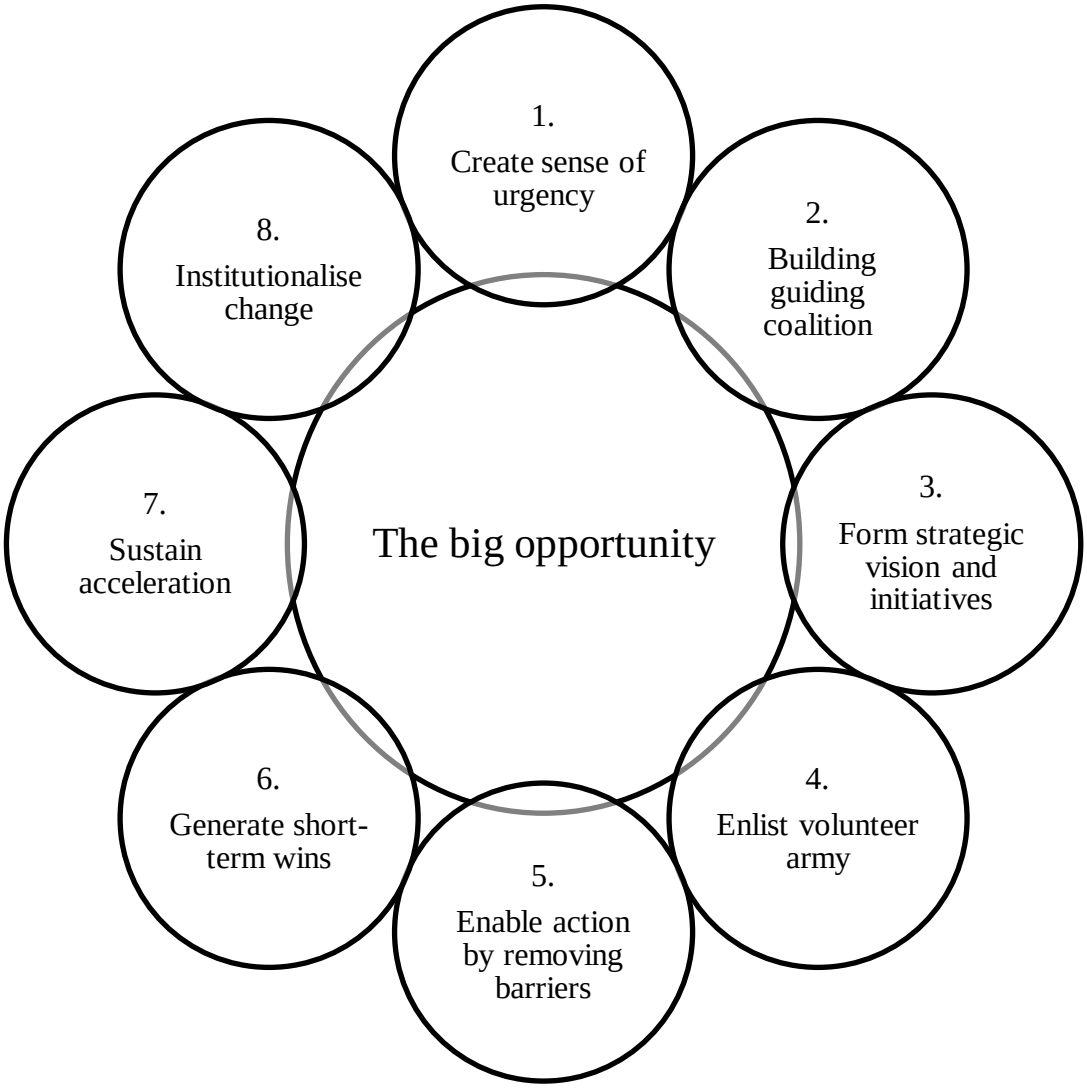


Figure 2. Kotter's (2014a) updated leadership model

One of the key changes Kotter made to his early linear model was the shift to viewing change as an ongoing process that typically occurs at multiples stages at any one time. The organisational system within which this change occurs was updated to a 'dual operating system' (Kotter, 2014a) comprised of two elements. The first element was the people organised and operating within an organisation's traditional hierarchies; "reliable, efficient and stability-creating" hierarchies (Kotter, 2014b, p. 34). These

hierarchies are responsible for the leadership and management of the organisation. The second element was the people who operate within networks. Kotter (2014a) claimed it is networks that provide the creativity and innovation which facilitates change. However, to be successful networks must be connected with the traditional hierarchical structure to facilitate a constant, two-way flow of information and activity. Therefore, effective organisations require both vertical (hierarchical) leadership and leadership within networks. Stephenson's (2009) summary of the key features of hierarchies and networks appears below (Table 2).

Table 2. Key features of hierarchies and networks (Stephenson, 2009).

Features	**Hierarchy**	**Network**
Relationship	Authority	Teamwork
Exchange	Routine	Repetitive
Focus	Vested interest	Personal interest
Rate of change	Slow and incremental	Rapid and radical
Knowledge management	Policies	Commitments

It is apparent from Kotter's change models, particularly the updated version (Kotter, 2014a), that it contains elements of collaborative leadership. This is particularly evident in stage two, the creation of the guiding coalition; a group of people who work as a team to lead the change. In addition, his model of hierarchical (positional) and horizontal (non-positional) leadership aligns with the work of Friedrich et al. (2009) on collective leadership, and Kezar and Eckel (2002) on collaborative leadership discussed previously. It should be noted, while Kotter (1995 & 2014a) views leadership as focused on mobilising people towards the vision the relational aspects of leadership receive little attention in his change models. While Kotter focuses on the cognitive, emotional and behavioural responses to change, unlike several contemporary views of leadership the relational aspects of leadership are not explored in any detail. The combination of Kotter's simple model with a more complex and relational model of leadership is worthy of consideration.

One leadership model which has been applied successfully to leading change that has strong roots in relational leadership is appreciative leadership (Whitney, Trosten-Bloom, & Rader, 2010). This approach has been adapted from appreciative inquiry. Grounded in the social constructionist paradigm, appreciative inquiry emphasises the social construction of language, assuming meaning is central in our lives. This meaning

emerges from our experiences and shared culture and is created in our conversations (Schlombs, Howard, De Long, & Lieberman, 2015). Appreciative inquiry focuses on the positive aspects of current practice within an organisation to understand the factors contributing to success and how to build and capitalise on these (Ghaye et al., 2008). Cooperrider, Whitney, and Stavros (2008) defined appreciate inquiry as "the cooperative co-evolutionary search for the best in people, their organizations, and the world around them. It involves the discovery of what gives 'life' to a living system when it is most effective, alive, and constructively capable in economic, ecological, and human terms" (Cooperrider et al., 2008, p. 3). Appreciative leadership has been defined as "the relational capacity to mobilize creative potential and turn it into positive power" (Whitney et al., 2010, p.3.). Both appreciative inquiry and appreciative leadership take into account the collaborative and relational aspects of leadership while focusing on using questions to facilitate change. The four 'D' cycle shown in Figure 3 is a critical element of the appreciate inquiry process (Cooperrider et al., 2008).

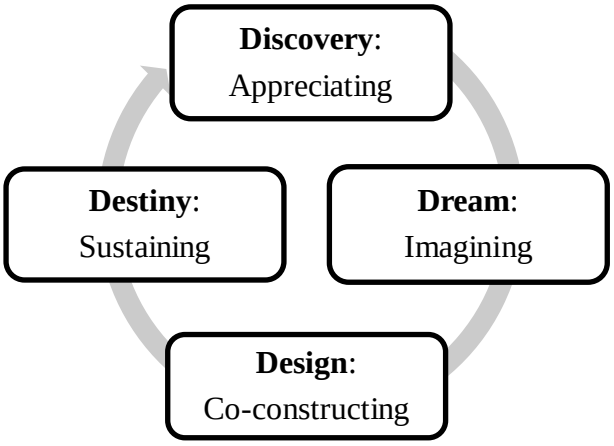


Figure 3. Appreciative inquiry's 4D cycle (Cooperrider et al., 2008).

As with other views of leadership as a socially constructed process, appreciative leadership sees leaders as both shaping and being shaped by their context through a process of mutual influence (Whitney et al., 2010). Whitney and colleagues (2010) proposed five core strategies or practices as essential to appreciative leadership: inquiry, illumination, inclusion, inspiration, and integrity. A detailed discussion of these is provided in Whitney et al.'s (2010) book on appreciative leadership.

Appreciative inquiry has been widely used in the literature but references to appreciative leadership per se are limited. Dewar and Cook (2014) described an appreciative leadership program for nursing staff in Scotland. As a result of the program participants reported increased self-awareness as leaders and enhance relationships with patient, families and colleagues. Similarly, Lewis et al. (2006) utilised appreciative leadership to address conflict within a hospital surgical unit. Six months post-intervention employee satisfaction levels were significantly elevated and all staff agreed the unit was a "great place to work". McNeill and Vanzetta (2014) reported on a large scale appreciative leadership program involving 500 participants. Significant improvements were reported in relation to the use of values-based language, positive inquiry to engage others, having meaningful conversations, and using powerful or challenging questions.

Both Kotter's (1996) and Whitney et al.'s (2010) leadership models are from the field of business. Two leadership approaches specific to education have been included to add to the interdisciplinary nature of this exploration of the leadership literature. Lee Bolman, a prominent researcher on leadership in higher education, developed a multidimensional leadership model, with Terrance Deal (Bolman & Deal, 1997 & 1999). This model was based on their studies of educational administrators and corporate managers. The model views effective leaders as focused on the whole system with leaders viewing situations through four frames which determine the actions they take. The central elements of this model are summarised in Table 3.

Table 3. Bolman and Deal's (1999) model of leadership

Frame	**The leader is a…**	**Key leadership processes**
Structural	Social architect	Analysis and design
Human resource	Catalyst, servant	Support and empowerment
Political	Advocate	Advocacy and coalition building
Symbolic	Prophet, poet	Inspiration, framing/sensemaking

The structural frame emphasises bureaucracy with the leader focused on policies and procedures, and the goals of the organisation. The human resource frame emphasises meeting humans' needs with the leader focused on facilitation, empowerment and the provision of a suitable work environment. The political frame sees conflict for scarce resources as inevitable and thus a central element of any organisation. Political leaders

focus on creating coalitions and negotiating compromises. The symbolic frame emphasises the culture and values of the organisation. Symbolic leaders recognise and promote rituals, ceremonies, myths and other symbolic representations of the organisation's culture and values.

Whilst not adopted on the scale of Kotter's leadership model a number of papers describe the implementation of Bolman and Deal's (1999) model. For example, Farnsworth et al. (2015) examined senior leader interest in and perceptive progress with interprofessional education through the four frames. Leaders reported the political dimensions of interprofessional education to be the most advanced and the structural the least advanced. Interestingly the study found a strong correlation between all four frames and the progress made in implementing interprofessional education within curricula. Lyons et al. (2014) described curricula reform in dentistry using Bolman and Deals' model. The authors attributed the use of the frames to successfully overcoming challenges inherent in major curricular reform initiative, and move towards constructive change and positive outcomes. Thompson et al. (2008) found limited use of the political frame in their study within pharmacy education while Lieff and Albert (2010) found the majority of medical educators studied used all four frames but they showed a strong preference for the human resource, symbolic and political frames.

Kezar and colleagues research in higher education (Kezar & Lester, 2009; Kezar & Elrod, 2012) informed their development of a model for collaboration featuring three stages: mobilisation, implementation and institutionalisation. Mobilisation involves building a commitment to collaboration through the use of external pressure, values, learning and networks. Implementation focuses on the commitment to change through the development of a mission and vision, a network of change agents and rewards. The third stage of institutionalisation is about sustaining collaboration through integrating structures, rewards, resources, staff recruitment processes, and the formalisation of the network. Interestingly one model of leadership specific to interprofessional education proposed by Clark (2013) draws on the work of Kezar and colleagues. In their adaptation, Clark (2013) provided a number of key recommendations for each phase. For example, to mobilise change Clark (2013) described the need for: (1) an attitude of openness and flexibility in regards to structures and processes, (2) a circle of champions,

and (3) rewards for staff who engage in interprofessional education. This model, and the strategies contained, is a welcome addition to the literature on interprofessional education leadership. One study that tested the alignment of Kezar and Lester's (2009) model for collaboration was conducted by Harris (2010). He examined the strategies employed for interdisciplinary research within 21 research intensive US universities and found close alignment with the Kezar and Lester (2009) model.

The need to look beyond the traditional leader-follower ontology (Bennis, 2007) featured in the leadership models discussed to date has been raised. Drath et al. (2008) developed an ontology of leadership focused on collective outcomes. These authors claimed direction-alignment-commitment indicates the presence of leadership, that is, the outcomes of leadership are direction, alignment, and commitment within the collective. Direction involves widespread collective agreement on the overall vision, goals and objectives of the organisation. The collective may be a team, group, organisation or system. Alignment involves the coordination and integration of people, knowledge, skills, work, structures, processes and systems within the group to produce the shared direction. Commitment involves the willingness of the group members to subsume their own interest and benefits to make the success of the collective their priority. How the collective produces direction-alignment-commitment depends on leadership beliefs and practices. Leadership beliefs are comprised of the beliefs individuals and the group hold about why and how to best produce direction-alignment-commitment. Whilst these include beliefs about leader and follower characteristics, Drath et al.'s (2008) framework views leadership beliefs from a holistic perspective where beliefs can be about anything that produces direction-alignment-commitment. Leadership practices, on the other hand, are the observable patterns of behaviours that arise from beliefs. It is these leadership practices that produce direction, alignment and commitment. These practices are analogous to leader and follower behaviours found in the traditional individualistic leader-follower ontology as discussed (Bennis, 2007). In contrast to this individualistic focus, Drath et al. (2008) proposed leadership practices need to be understood as 'collective enactments'.

The framework below (Figure 4) outlines the essential elements of Drath and colleagues conceptualisation of leadership and attempts to capture the two-way process by which the elements influence, and are influenced by, each other.

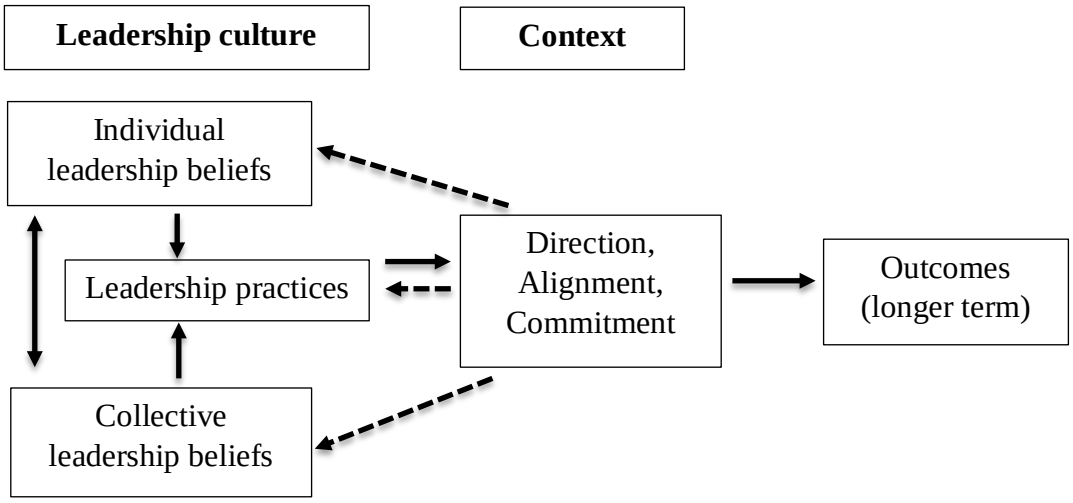


Figure 4. Drath et al.'s (2008) Direction-Alignment-Commitment framework

Synergies between these leadership models are evident with the leader involved as a designer, catalyst and maintainer of the desired change. Each model highlights the critical role of collaboration. Whilst Kotter's (1996 & 2012) models hold appeal due to their clarity and step-by-step approach with desirable behaviours identified, this approach has been criticised for its overly simplistic and unrealistically linear view of organisational change (Teixeira et al. (2017). Kotter does focus on the cognitive, emotional and behavioural responses to change but unlike several contemporary views of leadership the dynamic and relational aspects of leadership are not explored in any detail. Bolman and Deals' (1999) model, like Kotter's, considers cognition, affect and behaviour, but also allows the leader to view the same situation in several different ways. This use of multiple frames or lenses within the same and different situations aligns with the complex and dynamic nature of organisational change and leadership of this. Kezar and Lester (2009) and Kezar and Elrod (2012) add a welcome focus on collaboration within higher education, a critical element of leadership of interprofessional education. Similarly, the Drath et al. (2008) model shifts the focus outcomes; even more than this collective outcomes as are need within the

interprofessional context. Combining change approaches and relational leadership behaviours has been shown to be critical in studies on successful change leadership (e.g. Higgs & Rowland, 2005).

Several conceptualisations of leadership have been presented, including a selection of models, which in keeping with contemporary, post-heroic views of leadership focus on leadership practices rather than the leader per se. The following section describes the four specific leadership practices of visioning, sensemaking, empowering, and disseminating explored in this thesis. These practices are evident across the models presented and provide a useful exploration of leadership within the scope of this research. The decision to examine leadership practices was based on two interrelated factors. First, key texts on leadership in interprofessional education (e.g. Forman et al., 2014 & 2015) have focused on structural leadership arrangements (e.g. shared or team leadership), or the individual leader (e.g. servant or transformational leadership). Whilst models which involve sharing the leadership role align with the principle of collaboration in interprofessional education, research into shared and team leadership draws on historic views of leadership as individualised and hierarchical with unidirectional influence or power of the leader over others (D'Innocenzo, Mathieu, & Kukenberger, 2016). Second, in contrast to much of the literature on leadership in the interprofessional field described above, contemporary theories focus on leadership as a multidirectional, dynamic and relational process. As a result, these theories focus on the processes or practices of leadership (e.g. Kouzes & Posner, 2012; Whitney et al., 2010) rather than individual leaders and their characteristics or behaviours.

2.8 Visioning, sensemaking, empowering and disseminating

Visioning has been defined as "the action required to achieve the vision" (Kakabadse, Kakabadse, & Lee-Davis, 2005, p. 243). The importance of a vision within leadership and organisational change has received much attention to date. Bennis and Nanus (2007) interviewed 90 leaders about their leadership practices. They identified four common practices which can successfully transform organisations. The first of these was the development of a clear vision that provides an image of the future; a vision which must be appealing, realistic, believable, simple, understandable, beneficial, and energy creating (Bennis & Nanus, 2007). Along similar lines, Kouzes and Posner (2012)

conducted interviews with over 1,300 ‘exemplary’ leaders who were asked to reflect on their optimum leadership experience. This research generated five practices of exemplary leaders. The first practice—inspire a shared vision—links closely with the other practices: model the way, challenge the process, enable others to act, and encourage the heart. As described earlier, other leading researchers in leadership also highlight the pivotal role of an inspiring vision in leadership and change (Bolman & Galos, 2011; Kotter, 2012 & 2013; Kezar & Lester, 2009; Whitney et al., 2010).

In her book titled *Rethinking Leadership,* Ladkin (2010) described the concept of visioning as the starting point for aligning meaning among members of an organisation. Furthermore, the author claimed the process of creating a vision requires someone to take the lead to ensure collective sensemaking occurs. This link between the creation of a vision and the leadership practice of sensemaking has also been supported by others including Deborah Anacona (2011), the Director of the Massachusetts Institute of Technology’s Leadership Centre.

Sensemaking is a less familiar concept than visioning for many. Karl Weick (1995) introduced the term ‘sensemaking’ last century. Weick described this in many ways but a key concept was that sensemaking involved the organisation of stimuli into a framework. Additionally, Weick (1995) described these frameworks as the ‘seeds’ from which people develop a larger sense of what is occurring. In generating an understanding of a previously unfamiliar concept people are then able to act on this. Wieck (1995) felt sensemaking was particularly important in giving structure to unfamiliar or non-routine work. Starbuck and Milliken (1998) claimed these frameworks enable people to understand, explain, attribute, extrapolate and predict. Their description aligns with Bennis and Nanus (2007) description of sensemaking as the process by which leaders develop images, metaphors and models that provide a focus for attention within an organisation. Anacoda (2012) endorsed this view of sensemaking as directing and correcting the action of individuals. Daniel Goleman (2013) described this process of directing the collective attention of individuals as ‘focus’; a task he stated was critical to effective leadership. Bolman and Gallos (2011), in their discussion of leadership in the academic context, attributed sensemaking as at the ‘heart of leadership’. They proposed the sensemaking process comprised three basic steps: (1) notice something, (2)

decide what to make of it, and (3) determine what to do about it. Grint (2010), like Ladkin (2010), noted sensemaking was not a fully democratic process; formal leaders are the primary 'sense makers', engaging in choices about how they frame and interpret their world.

As leadership shifted from control to a process which includes the development of others, the importance of empowering employees emerged in the leadership literature (Kanter, 1977). Amundsen and Martinsen (2014) identified eight empowering leadership behaviours: delegating, coordinating and information sharing, inspiring, encouraging initiative, encouraging a focus on goals, modeling and guidance. Many of these behaviors overlap with leadership practices in the leadership theories and models discussed previously. Specific to empowering staff, Kouzes and Posner (2012) found 'enabling others to act' to be a key practice of exemplary leaders. Bolman and Deal (1999) also made reference to empowerment within their human resource frame. Empowerment has been linked to success in interprofessional education (Steinert, 2005), including in the application of appreciative inquiry (De Matteo & Reeves, 2011). In relation to this thesis, the practice of empowering focused on building the capacity of others to lead.

Dissemination links to the other three leadership practices. Communicating the vision for the organisation using sensemaking tools is critical to engaging the focus and commitment of staff within the organisation. Further to this, disseminating information, ideas and success stories empowers staff through the behaviours including inspiring, encouraging, modeling and guiding outlined above (Amundsen & Martinsen, 2014). Disseminating, like the other three leadership practices, can be seen in many change leadership models. For example, Kotter (2014a) described the need to form a vision for the desired change and communicate this to enlist the broad-based support needed to achieve this vision. Similarly, Kouzes and Posner (2012) described envisioning the future and enlisting others to this shared vision through communication. Similarly, Whitney and colleagues' (2010) strategies of illumination, inclusion and inspiration link to sharing stories of success to create awareness of the possibilities and momentum for change. While few interprofessional education dissemination strategies are described in the literature, networks (Liaskos et al., 2009), and events such as health team challenges

(Newton et al., 2015) and conferences (Hoffman, Rosenfield, & Nasmith, 2009; Schmitt et al., 2013) are evident. Having briefly justified the selection of leadership practices of visioning, sensemaking, empowering and disseminating, an overview of the research methodology and the eight published papers follows.

Chapter 3: Research methodology overview

Most research does not fit into one category. The best often combines features of each … neither quantitative not qualitative research is superior to the other

(King, Keohane, & Verba, 1994 p. 5)

Given details of the methodology is included in each paper, Chapter 3 provides only an overview of this. To begin, the overarching aim and phases of the research are reiterated. This is followed by an overview of the research context, the participants, the data collection and analysis undertaken. A brief discussion of the issues with existing measurement tools for interprofessional education is also included. The chapter concludes with some important ethical considerations and their management.

3.1 Research aim

As stated earlier, the aim of this thesis was to explore the role of leadership practices in facilitating embedding interprofessional education in an Australian university. The research was structured into four phases which commenced in early 2011 and ended in late 2015. The research, whilst described sequentially, was often undertaken concurrently (Table 4).

Table 5. Overview of the four research phases

Phase	Research activity	Paper(s)
1	Visioning and sensemaking	
	Development of a capability framework	Paper 1
	Aligning employees' commitment with the direction	Paper 2 (first year unit) Paper 3 (hospital ward)
	Exploration of the leadership practices visioning and sensemaking	Paper 4
2	Literature review	
	Review of the leadership literature to inform the next phases of the research	Paper 5
3	Empowering	
	Development and testing of a leadership program	Paper 6
4	Disseminating	
	Development and evaluation of a dissemination event	Paper 7
	Development of a guide for interprofessional student placements	Paper 8

3.2 Research context

The research was undertaken at Curtin University, located in metropolitan Perth, Western Australia. At the time of the research approximately 11,000 students were enrolled in 26 courses within the Faculty of Health Sciences. These courses were organised within seven schools: (1) nursing, midwifery and paramedicine, (2) psychology and speech pathology, (3) physiotherapy and exercise science, (4) occupational therapy and social work, (5) pharmacy, (6) public health which includes dietetics, health information management, health promotion, etc. and (7) biomedical sciences which includes oral health, laboratory medicine, etc.

As described earlier, the Faculty of Health Sciences established the vision of 'being international leaders in interprofessional education, developing new health workforce models for the future' in 2009. Following establishment of a dedicated position to lead interprofessional education, a number of initiatives or activities were implemented. For example, the suite of workshops offered to students was expanded to include new topics and additional professions. An interprofessional first year curriculum for all health science students was developed in 2010 for implementation in 2011. This curriculum included a number of units for first year students; five units with an interprofessional education focus taken by all students (approximately 2,600 per unit), eight optional units taken by at least two professions, and one profession specific unit within each semester (see Figure 5 below). Over subsequent years a number of interprofessional simulation activities (e.g. clinical handover communication exercise) were added to the curriculum. The third major element of the interprofessional education curriculum was the Interprofessional Practice Program; a program that stemmed from five pilot placements in 2009 (Brewer & Jones, 2014). This program grew to comprise several interprofessional team-based fieldwork placements which involved students delivering interprofessional health services within Western Australian. The context of these placements included primary schools, aged care facilities and a hospital ward.

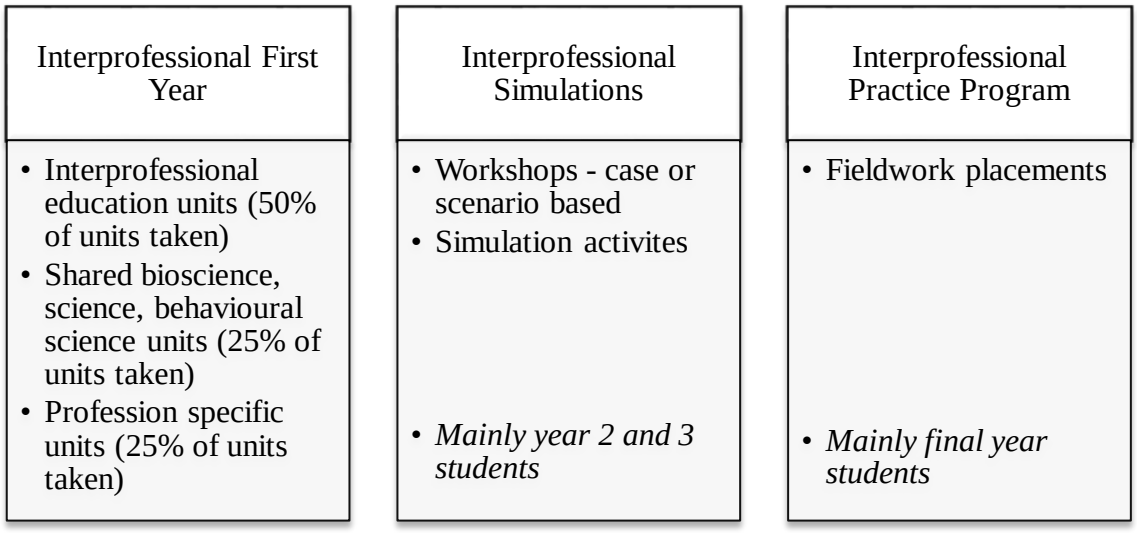


Figure 5. Key components of Curtin's interprofessional education curriculum

Curtin's interprofessional education curriculum has received several teaching excellence awards at the state and national level, and won the Best Practice Competition at the World Business Capability Congress in 2012. In 2015, this large scale curriculum provided interprofessional learning experiences for over 3,000 students from first to final year.

3.3 Research participants

The participants varied across the studies as summarised in Table 6. Participants were not involved in Paper 1 (development of the framework), Paper 4 (literature review), or Paper 8 (guide to team-based placements).

Table 6. Overview of the study participants.

Paper	Participants	Organisation(s)	Number
2	First year students	Curtin University	105
3	Final year students	Curtin University and The University of Western Australia	70
	Interns (pharmacy)	Royal Perth Hospital	9
	Clients	Royal Perth Hospital ward patients	47
4	Academic staff	Curtin University	11
6	Academic and practicing health professional staff	Curtin University, Charles Sturt University, South Metropolitan Health Service, Albury-Wodonga Health	53
7	Students, academic and industry/community staff	Curtin University, other Western Australian universities, public	100

Given the small numbers in most studies, detailed biographical data was not collected as this would have compromised the assurance of anonymity given, where possible, to participants. Participants represented a range of backgrounds. Gender differed in some studies quite markedly from 1% males in Papers 6 and 7 to 52% males in Paper 3. Age range data showed variation from 17 to 51 years for students, and in Paper 3 from 17 to 98 years for the clients. At least fifteen different professions were represented across the papers. The majority were from occupational therapy, physiotherapy, nursing, pharmacy, speech pathology and medicine. Smaller numbers of staff were from social work, nutrition, dietetics, health promotion, health information management, exercise science, midwifery, psychology and dental hygiene. The vast majority of students were from Curtin University but the other Western Australian universities were also represented. The majority of academic staff were from Curtin with staff from Charles Sturt University included in Paper 6. Four staff from other Western Australian universities participated in the study featured in Paper 7. Practicing health professionals were well represented in Papers 6 and 7.

3.4 Data collection and analysis

Whilst this thesis supports a social constructivist view of leadership—leadership as a social construct developed through interaction—a pragmatic approach to the research was taken. Morgan (2007) described this pragmatic paradigm as focusing on problem solving and exploring the impact of an intervention or shared meaning and joint action.

Both quantitative and qualitative data were utilised across this body of work. This approach aligns with the shift from traditional educational research (based on an empirical objective scientific model) to more qualitative, naturalistic and subjective methods. It also aligns with the pragmatic paradigm adopted. The first and last papers were conceptual (development of a framework and a guide to team-based placements) so neither quantitative nor qualitative methods were employed. In addition, the fifth paper was a literature review. Whilst some descriptive statistics were reported in this review paper, these have been omitted from the summary table below (Table 7). Three papers

adopted mixed methods to utilise the strengths of both quantitative and qualitative methods (Creswell, 2012; Onwuegbuzie & Leech, 2005). Two of the papers employed only qualitative methods (essays and interviews), common tools in qualitative research. Interviews and focus groups were conducted in a semi-structured manner to encourage participants to speak 'in their own words' (Packer, 2011). Open ended questions were typically used at the conclusion of a set of quantitative questions to allow further exploration of participants' experiences and knowledge. Overall, the emphasis of the research was on qualitative methods as seen in the table below.

Table 7. Summary of the measurement tools and analysis

Paper	Methods	Data Analysis
2	Reflective essays	Thematic analysis (deductive)
3	Satisfaction ratings (student and client) on a 4 point Likert scale	Descriptive statistics
	Interprofessional Socialization and Valuing Scale	Independent samples *t*-tests
	Interprofessional Capability Assessment Tool using a 4 point Likert scale	Descriptive statistics
	Open ended questions	Thematic analysis (deductive)
4	Interviews (semi-structured)	Thematic analysis (deductive)
6	Satisfaction ratings on a 5 point Likert scale	Descriptive statistics
	Knowledge ratings on a 5 point Likert scale	Paired samples t tests
	Open ended questions	Thematic analysis (deductive)
	Focus groups (semi-structured)	Thematic analysis (deductive)
7	Satisfaction ratings on a 5 point Likert scale	Descriptive statistics
	Open ended questions	Thematic analysis (deductive)

The emphasis on qualitative research was driven by two key factors: support from the literature, and the lack of quality quantitative measurements available. Parry, Mumford, Bower, and Watts' (2014) review of 25 years of leadership research found qualitative research had gained momentum due to several factors: its flexibility in following unexpected ideas during the research process; its sensitivity to contextual factors; its ability to study social meaning and symbolic dimensions; the opportunities it provides to develop new ideas and theories which are empirically supported; and its

relevance to, and interest for, practitioners. In addition, Carroll, Levy, and Richmond (2008) highlighted the value of qualitative methods in allowing the study of meaning and the exploration of unexpected ideas with a view to revealing new insights and understandings; a major gap in the literature on leadership of interprofessional education.

The second key factor, concern over the quality of outcome measures available in the interprofessional field (Carpenter & Dickinson, 2008), has been supported by several recent studies. Thannhauser, Russell-Mayhew, and Scott's (2010) review of interprofessional education tools found most were designed for assessing collaboration within specific relationships (e.g., nurse-doctor), or for established health care teams. Hence, their suitability for use in the studies of students and staff from diverse professions undertaken in this research was questionable. A more recent review by Deutschlander and Mallison (2014) found 128 unique tools from 136 articles, the majority of which relied on self-assessment. Another concern raised by these authors was many tools failed to measure what they purported to. For example, most measures of behaviours (capabilities) were actually measures of attitudes, awareness and satisfaction. In another study, Lie, Fung, Trial, and Lohenry (2013) undertook a comparative study of the Readiness for Interprofessional Learning Scale (Parsell & Bligh, 1999) and the Interdisciplinary Education Perception Scale (Luecht, Madsen, Taugher, & Petterson, 1990), two popular tools in the interprofessional education literature. 271 students from medicine, pharmacy and physician assistants across various year groups participated in the study. Based on their findings the authors claimed both tools lacked sensitivity as they were only able to detect the difference between no exposure to interprofessional education and any exposure, whether slight, moderate or high. More recently, Oates, and Davidson (2015) published a comprehensive review of 140 interprofessional education outcome tools; all of which relied on self-report other than the Interprofessional Collaborator Assessment Rubric (Curran et al., 2011). Their review involved an analysis of the tools against the Standards for Education and Psychological Testing. The only tool that met all criteria in relation to these standards was the Interprofessional Socialization and Valuing Scale (King, Shaw, Orchard, &

Miller, 2010). This finding supports the use of this tool in the student training ward (Paper 3).

3.5 Key ethical considerations

Ethical approval for each study was obtained from Curtin University's Human Research Ethics Committee. The conduct of the research was consistent with the National Health and Medical Research (2007) statement on ethical conduct of human research, as well as Curtin University's policy for surveying students and staff. In the case of the study in the student training wards (Paper 3), involving students from a different university, reciprocal ethics was obtained from their university. All participants were assured their involvement in the research was entirely voluntary. The process for obtaining consent varied by study. In Paper 2 students provided written consent to participate in the research through submission of a signed consent form to a secure depository at the student administration centre. In Papers 3, 6 and 7 completion of the online survey, or return of the hard copy survey, was taken as consent. In Paper 4 staff signed and returned a written consent form. All data was de-identified to ensure anonymity and stored in a secure location. Other specific ethical considerations are outlined in each paper.

Chapter 4: The papers

Paper 1

Brewer, M. L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health, 42*, e45–e49.

▲ An Interprofessional Practice Capability Framework Focusing on Safe, High-Quality, Client-Centred Health Service

Margo L. Brewer, BAppSc (Speech & Hearing)
Sue Jones, BAppSc (Physio)

This paper describes an interprofessional capability framework which builds on the existing interprofessional competency and capability frameworks from the United Kingdom, Canada, and the United States of America. Existing published frameworks generally make reference to being client-centred and to the safety and quality of care, and locate interprofessional collaborative practice as the central theme or objective. In contrast, this framework interlinks all three elements: client-centred services, safety and quality of services, and interprofessional collaborative practice. The framework is clear and succinct with an accompanying visual representation that highlights all key features. The framework has informed curriculum which incorporates a common first-year, case-based educational workshops and practice placements within a large complex health sciences faculty of approximately 10,000 students from 22 disciplines. The articulation of these key elements of health practice has facilitated students, academic staff, and community health professionals to develop a shared understanding of interprofessional education and practice. The design, implementation, and evaluation of learning outcomes, learning experiences, and assessments have been transformed with the introduction of this framework, which is highly applicable to other contexts. J Allied Health 2013; 42(2):e45–e49.

INTERPROFESSIONAL education is increasingly viewed as an important strategy to address health workforce reform and safety and quality issues (Health Workforce, 2011; McPherson, Headrick and Moss, 2001; Thompson and Tilden, 2009; World Health Organization [WHO], 2010). High quality interprofessional education, defined as occurring when members (or students) of two or more professions learn with, from, and about one another to improve collaboration and the quality of care (Centre for the Advancement of Interprofessional Education, 2002), must be built on a solid foundation. A curriculum framework provides such a foundation and expresses the knowledge, skills, values and attitudes that students are expected to demonstrate and are described as a series of learning outcomes (Alderson and Martin, 2007). Institutions then ensure that their learning and teaching programs provide opportunities for students to achieve the outcomes identified. The design of such a framework is challenging but the greatest challenge lies in its implementation. To ensure the 'buy in' of staff, the framework and the learning outcomes it contains must link not only to current good practice but also recognise the drivers for change.

This paper describes Curtin University's Interprofessional Capability Framework, which is based on current literature in the field and is consistent with the key actions proposed by WHO (2010) as it provides a common vision, purpose, and outcomes for interprofessional practice in higher education. The key innovations of Curtin University's interprofessional framework include its broad view of health, its central focus on the client, safety, and quality and the provision of levels of achievement to assist with the assessment of student interprofessional capabilities.

Review of Current Frameworks

The development of the interprofessional capability framework for use at Curtin University began in 2010 with a review of the two interprofessional competency/capability frameworks most commonly cited in SCOPUS. The review was conducted by the Director of Interprofessional Practice and the Dean of Teaching and Learning in the Faculty of Health Sciences. The first reviewed was the National Interprofessional Competency Framework (CIHC) (Bainbridge et al., 2010). This framework identified 39 competencies organised into six domains: role clarification; team functioning; patient/client/family/community-centred care; collaborative leadership; interprofessional communication; and interprofessional conflict resolution. The second framework reviewed during the development process was the Interprofessional Capability Framework (Combined Universities Interprofessional Learning Unit [CUILU],

Ms. Brewer is Director of Interprofessional Practice, and **Ms. Jones** is Associate Professor and Dean, Teaching and Learning, Faculty of Health Sciences, Curtin University, Perth, Australia.

PP01235—Received Sep 4, 2012; accepted Dec 14, 2012

Address correspondence to: Ms. Margo Brewer, Faculty of Health Sciences, Curtin University, GPO Box U1987, Perth, WA 6845, Australia. Tel +61 8 9266 928. m.brewer@curtin.edu.au.

TABLE 1. Interprofessional Competency/Capability Framework Comparison.

Frameworks	Strengths	Limitations
CIHC Competency Framework (2010)	• Each competency had a series of descriptors and explanation. • Developed for use with educators, leaners, regulators, practitioners/ employers & accreditors. • Patient-centred. • Encompassed patient/client, family and community view. • Complexity of the situation & the context of practice were considered. • Quality improvement underpinned the framework. • Acknowledged the interconnectedness of the competency domains.	• Client safety and quality not explicit. • The levels of achievement are not included making it difficult to measure acquisition of the competencies across the range of users. • Competencies are at a post-qualification level so some are not applicable to entry level students. • Refers to interprofessional collaboration as enabling optimal health outcomes but there is no reference to this in the model provided. • Diagram is complex and difficult to understand which reduces its applicability.
CUILU Capability Framework (2011)	• Adopted a patient/client-centred approach. • Acknowledged development of capabilities as a continuum—describes clear levels of achievement. • Capabilities aimed at the entry to practice.	• Capabilities written as complex, lengthy statements which have multiple components making them difficult to interpret. • Client safety and quality not explicit. • No diagram included, only detailed text.
IECEP (2011)	• Encompasses the patient, family, community and population view • Simple, easily understood diagram • Addresses the safety, timeliness, efficiency, effectiveness and equitable delivery of care	• The overall focus on the health professionals rather than the client. • Levels of achievement are not included making it difficult to measure acquisition of the competencies across the range of users. • Some benchmarks are set high and appear to be beyond entry to practice.

2011), which identified sixteen capabilities, with three levels of achievement for each, organised into four domains: ethical practice; knowledge in practice; interprofessional working; and reflection. Although not available at the time of development of Curtin's framework, the Core Competencies for Interprofessional Collaborative Practice (Interprofessional Education Collaborative Expert Panel [IECEP], 2011) is also worthy of inclusion in this discussion as it was developed by a national panel of experts in the US. This model provides a list of 38 competencies, rather than a framework, organised into four domains: values/ethics for interprofessional practice; roles/responsibilities; interprofessional communication; and teams and teamwork. The table below summarises the key strengths and limitations highlighted in the review of current interprofessional frameworks (Table 1).

As Curtin has a health science faculty consisting of 23 disciplines with diverse curricula, it was clear that the existing frameworks were not appropriate. Despite having a number of strengths, neither reviewed in the development phase met the four criteria deemed essential for an interprofessional curriculum framework which suited Curtin University's context and specific needs: (1) a central focus on the client rather than health professionals, (2) an explicit focus on safety and quality, (3) levels of achievement of the capabilities to allow for measurement, and (4) a broad view of health that included disciplines that work with not just individuals but also families, communities, and organisations. As a result, it was decided to develop an Interprofessional Capability Framework (Brewer and Jones, 2011) to reflect Curtin's particular context and needs. The following section describes the process used to develop the framework.

CURTIN UNIVERSITY'S INTERPROFESSIONAL CAPABILITY FRAMEWORK

Utilising the evidence from the literature review, the authors developed the visual representation that is central to the framework (Figure 1) which places the client at the centre within the context of safety, quality, and collaborative practice. Five interprofessional capabilities inform the framework (in purple): reflection, communication, team function, conflict resolution, and role clarification. The successful implementation of a framework requires the engagement of stakeholder groups. Wide scale consultation was undertaken, which resulted in its endorsement by key stakeholders: staff, students, and industry partners. The consultation process involved well-known international experts in the field of interprofessional education (including two from the Centre for the Advancement of Interprofessional Education), and several Faculty committees: the

Interprofessional Education Group, the Faculty of Health Sciences' Executive and Teaching and Learning Committees, and the Interprofessional First Year Design Steering Committee. The Interprofessional Education Reference Group included students and local health industry representatives, whilst the First Year Design Steering Committee had representatives from the Health Consumers Council and students. As a result, a range of stakeholders provided feedback on the framework throughout its development and application to curricula.

Constructs and Pedagogical Assumptions

The framework is built on two guiding principles: (i) that the client must be at the centre of interprofessional education/practice and (ii) that the ultimate goal of collaborative practice is to ensure the client receives a safe, high quality service. Significantly, the term "client" is used very broadly here to refer to the individual, the family, and/or the community. This was necessary to meet the needs of diverse professions such as physiotherapy, nursing, and psychology who frequently work with individuals; health promotion and environmental health scientists who work with communities; and food and biomedical science graduates who mainly work in a laboratory environment.

A number of pedagogical assumptions underpin this framework. The first is that interprofessional education occurs on a continuum from early exposure through collaborative practice in clinical or field settings. The second assumption is that a student moves through levels of performance at different rates according to what they bring to the learning environment. The final assumption is that a student's capacity to demonstrate interprofessional capabilities in different settings will be influenced by their comfort level, familiarity, and skill set. The three levels of achievement developed equate approximately with the following: (1) the novice student at the completion of the first year of an undergraduate degree; (2) the intermediate student at the end of the second or third year of an undergraduate degree or at the completion of the first year of a graduate entry master's degree; and (3) the entry level student at the end of the final year of an undergraduate or entry level master's degree and who is ready to commence professional practice.

The Framework Components

Element 1: Client-Centred Service

Support for taking a client-centred approach comes from the work of many including Buring et al. (2009), who state that the ultimate goal of interprofessional education should be the ability to identify and achieve a common "patient" goal. Others go further to include the client as an integral member of the interprofessional team and propose that services should be aligned with the needs of the service recipients (Hammick et al., 2009). This move to the client being at the centre of interprofessional education not only led to it being the first element of the framework but also its depiction at the central point of the framework model (Figure 1).

Figure 1. Curtin University's Interprofessional Capability Framework model (Brewer, 2011[7]; courtesy of Curtin Univ.).

Element 2: Client Safety and Quality

The focus on safety and quality in health education and service has been driven by a number of enquiries and royal commissions which have highlighted that adverse events caused by human error and team and system failures pose a significant threat to patient safety and place a financial burden on health funding bodies and governments (Department of Education and Skills 2005; Clinical Excellence Commission, 2009). In response, the Australian Safety and Quality Framework for Health Care (2010) aims to ensure that patient safety is at the forefront of all actions and decisions in health services. The emphasis on the safety and quality of the health service as the ultimate goal of interprofessional collaborative practice resulted in its selection as the second element of the framework, another key innovation.

Element 1: (Interprofessional) Collaborative Practice

The third major element, collaborative practice, is based on published literature in the field which demonstrates that safe, high quality, client-centred services can be best achieved through effective interprofessional collaboration (Canadian Medical Association, 2007; D'Amour & Oandasan, 2005; WHO, 2010). Furthermore, the inclusion of collaborative practice at this level emphasizes the impor-

tance, and interconnectedness, of the associated capabilities (communication, team functioning, role clarification, conflict resolution and reflection) in enabling the health practitioner to work effectively with other health professionals to achieve the goals of interprofessional practice. Significantly, the collaborative practice capabilities were developed and adapted from Barr et al. and Hammick et al.

The five underpinning and interconnected collaborative practice capabilities [(1) communication; (2) team function; (3) role clarification; (4) conflict resolution; and (5) reflection] were established by a critical analysis of: the competencies/capabilities contained within the two frameworks reviewed, those deemed to be essential for collaborative practice (Barr, 1998; Buring et al., 2009; Suter et al., 2009; Verma et al., 2006 & 2009), and the employability capabilities required of higher education graduates (Oliver, 2010)

Framework Structure

The visual representation of the framework was used to inform a comprehensive yet simple and easy-to-use booklet that provides the background to the framework and the interprofessional capabilities elements (Brewer, 2011). A brief description of the element or capability is provided with a set of descriptors which clarify what is expected of an effective collaborative worker. This is followed by a brief description of the desired levels of achievement for students at the three levels: novice, intermediate and entry level.

Implementation

This framework was important in the change management process required for the large scale implementation of interprofessional education at Curtin University. The interprofessional capabilities within the framework were embedded in learning outcomes, learning experiences and assessments in three key initiatives: (1) the interprofessional first year curriculum, delivered to over 2,300 students each year, (2) a suite of case based interprofessional education workshops delivered to over 1,000 students each year, and (3) the Interprofessional Practice Placement Program, which has provided placements for over 1,000 students (Brewer & Franklin, 2011). All staff and students engaged in these activities were provided with the framework to inform how the learning experience is structured and the expected outcomes.

As well as guiding the development of student learning experiences, the framework informed the design and development of the interprofessional education evaluation undertaken within the faculty. This included the qualitative questions utilised in staff and student interviews, focus groups and surveys. The framework also informed the key assessment measure, the Interprofessional Capability Assessment Tool (Brewer et al., 2011), which has been used to evaluate students' achievement of the interprofessional practice capabilities in clinical and fieldwork settings over the past three years.

Discussion and Conclusion

The issue of client-centred care which is safe and of high quality is central to the need to reform the health workforce and thus health education. Higher education institutions that wish to undertake this reform may consider developing a competency based curriculum. This direction has been taken in the United Kingdom, Canada and the United States.

In keeping with Greiner and Knebel's (2003) recommendation for the development of a competency-based curriculum, Curtin University's Interprofessional Capability Framework outlines the knowledge, skills, attitudes, and values graduates need to be prepared for the health workforce. It provides a model for facilitating student learning and assessing the capabilities required to become a collaborative practice-ready health professional who can work effectively and efficiently in an interprofessional team to provide safe, high quality service/care to clients, families and communities.

One potential limitation of the capability framework is the absence of leadership. The decision to omit this was based on the work of Oliver (2010) whose identification of key graduate attributes in the literature excluded leadership. However, in recognition that leadership is important within an effective interprofessional team "Facilitates effective team interactions and provides leadership when appropriate" was included at entry level collaborative practice capabilities.

In contrast to other frameworks the simplicity, clarity and succinctness of Curtin University's framework with its accompanying model has enabled all stakeholders to internalise the objective of safe, high quality, client-centred services through effective interprofessional collaborative practice (McPherson, Headrick and Moss, 2001). The framework, and its accompanying visual representation, has greatly facilitated a shared understanding and language which has enabled stakeholders to work together to ensure that the desired objectives are met. In addition, the focus on the client, safety, and quality has been critical to the applicability of the framework to diverse disciplines and settings which has in turn ensured its large scale adoption in the Faculty and practice settings.

Future directions for research will focus on evaluating the framework's implementation in the first-year curriculum, case-based educational workshops, and practice placements.

The alignment of Curtin's Interprofessional Capability Framework with the local, national, and international emphasis on client safety and quality will ensure graduates develop the knowledge, skills, and attitudes required for collaborative practice that delivers safe, high quality, client-centred care. This in turn will ensure a high level of employability for Curtin's graduates and, most importantly, better outcomes for clients.

The authors gratefully acknowledge Dr. Helen Flavell's editorial input.

References

1. Alderson, A., Martin, M. (2007) Outcomes based education: Where has it come from and where is it going? *Iss Educ Res, 17,* 161–182.
2. Australian Commission on Safety and Quality in Healthcare. (2010). Australian Safety and Quality Framework for Health Care. Available from: http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/C774AE55079AFD23CA2577370000783C/$File/32296-Australian-SandQ-Framework.PDF. Retrieved Apr 19, 2011.
3. Bainbridge, L., Nasmith, L., Orchard, C., Wood, V. (2010). Competencies for interprofessional collaboration. *J Phys Ther Educ, 24*(1), 6–11.
4. Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *J Interprof Care, 12*(2), 181–187.
5. Barr, H., Koppel, K., Reeves, S., et al. (2005). *Effective interprofessional education: argument, assumption and evidence*. Oxford: Blackwell.
6. Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park: Addison-Wesley.
7. Brewer, M. (2011). Curtin University's Faculty of Health Sciences Interprofessional Capability Framework. (Perth: Curtin University of Technology). Available from: http://healthsciences.curtin.edu.au/local/docs/IP_Capability_Framework_booklet.pdf.
8. Brewer, M., Gribble, N., Robinson, P., et al. Interprofessional collaboration in practice: The assessment of students' interprofessional capabilities in clinical placements. Presented at the Collaborating Across Borders III Conference, Tucson, Arizona, Nov 2011.
9. Brewer, M., Franklin, D. (2011). Building interprofessional education and practice capacity in industry partners. Presented at the Collaborating Across Borders III Conference, Tucson, Arizona, Nov 2011.
10. Brewer, M., Jones, S. (2011). Client centred care: The foundation for an interprofessional capability framework. Presented at the European Interprofessional Education Conference, Ghent, Belgium, Sep 2011.
11. Buring, S. M., Bhushan, A., Broeseker, A., et al. (2009). Interprofessional Education: Definitions, Student Competencies, and Guidelines for Implementation. *Am J Pharm Educ*, 73(4), Article 59, 1–8.
12. Canadian Medical Association. (2007). Putting patients first: Patient-centred collaborative care a discussion paper. Available at: http://fhs.mcmaster.ca/surgery/documents/CollaborativeCareBackgrounderRevised.pdf.
13. Carraccio, C., Benson, B. J., Nixon, J., Derstine, P. L. (2008). From the educational bench to the clinical bedside: translating the Dreyfus developmental model to the learning of clinical skills. *Acad Med,* 83(8), 761–767.
14. Centre for the Advancement of Interprofessional Education. (2002). Available from: http://www.caipe.org.uk/about-us/defining-ipe/?keywords=definition. Retrieved Aug 31, 2008,
15. Clinical Excellence Commission. (2009). *Clinical Incident Management in the NSW Public Health System*, Sydney. Available from: http://www.cec.health.nsw.gov.au/_documents/publications/incident-management-2009_01to06.pdf. Retrieved June 25, 2012.
16. Combined Universities Interprofessional Learning Unit. (2010. Interprofessional Capability Framework 2010 mini-guide. (London: Higher Education Academy). Available from: http://www.cuilu.group.shef.ac.uk/capability_framework.pdf. Retrieved June 25, 2012.
17. D'amour, D., Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *J Interprof Care,19*(2), 8–20.
18. Department for Education and Skills. (2005). *Every Child Matters: Change for Children–Children's Workforce Strategy*. (London: Department for Education and Skills). Available from: http://www.education.gov.uk/consultations/downloadableDocs/EveryChildMatters.pdf. Retrieved June 25, 2012.
19. Epstien, R. M., Hundert, E. M. (2002). Defining and assessing professional competence. *JAMA, 287*(2), 226–235.
20. Greiner, A., Knebel, E. (Eds.) (2003). Health professions education: A bridge to quality. (Washington, DC: Institute of Medicine of the National Academies)
21. Hammick, M., Olckers, L., Campion-Smith, C. (2009). Learning in interprofessional teams: AMEE Guide no 38. *Med Teach, 31*(1), 1–12.
22. Hammick, M., Freeth, D., Copperman, J., Goodman, D. (2009). *Being interprofessional*. Cambridge: Polity Press.
23. Health Workforce Australia. (2011). National health workforce innovation and reform strategic framework for action. Available from: http://www.hwa.gov.au/wir/strategy. Retrieved April 19, 2011.
24. Interprofessional Education Collaborative Expert Panel. (2011). Core competencies for interprofessional collaborative practice: Report of an expert panel. (Washington, D.C.: Interprofessional Education Collaborative). Available from http://www.aacn.nche.edu/education-resources/IPECReport.pdf. Retrieved June 25, 2012.
25. McPherson, K., Headrick, L., Moss, F. (2001). Working and learning together: good quality care depends on it, but how can we achieve it? *Qual Health Care* 10, ii46–53.
26. Oliver, B. (2010). Australian Learning and Teaching Council Teaching Fellowship: Benchmarking partnerships for graduate employability. Available from: http://www.olt.gov.au/resource-benchmarking-partnerships-oliver-curtin-2010. Retrieved June 25, 2012.
27. Reeves, S., Goldman, J., Burton, A., Sawatzky-Girling, B. (2010). Synthesis of systematic review evidence of interprofessional education. *J Allied Health, 39*(3), 198–203.
28. Suter, E., Arndt, J., Arthur, N., et al. (2009). Role understanding and effective communication as core competencies for collaborative practice. *J Interprof Care, 23*(1), 52–57.
29. Thompson, S.A., Tilden, V.P. (2009). Embracing quality and safety education for the 21st century: Building interprofessional education. *J Nurs Educ, 48*(12), 698–701.
30. Thorkildsen, K., Raholm, M. (2010). The essence of professional comptence experienced by Norwegian nurse students: a phenomenological study. *Nurse Educ Pract, 10*(4), 183–188.
31. Verma, S., Paterson, M., Medves, J. (2006). Core competencies for health care professionals: what medicine, nursing, occupational therapy, and physiotherapy share. *J Allied Health, 35*(2), 109–115
32. Verma, S., Broers, T., Paterson, et al. (2009). Core Competencies: The Next Generation Comparison of a Common Framework for Multiple Professions. *J Allied Health, 38*(1), 47–53.
33. World Health Organization. (2010). Framework for action on interprofessional education & collaborative practice. (Geneva: World Health Organization). Available from: http://www.who.int/hrh/resources/framework_action/en/. Retrieved June 25, 2012.

Paper 2

Brewer, M., Flavell, H., Davis, M., Harris, C., & Bathgate, K. (2014). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability*, *5*, 29–46.

Journal of Teaching and Learning for Graduate Employability

Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula

Margo Brewer[1], Helen Flavell[1], Courtney Harris[1], Melissa Davis[1], Katherine Bathgate[1]

M.Brewer@curtin.edu.au; H.Flavell@curtin.edu.au; C.Harris@curtin.edu.au; m.davis@curtin.edu.au; K.Bathgate@curtin.edu.au

[1]Curtin University

Abstract

Curtin University introduced an interprofessional first year curriculum in the Faculty of Health Sciences in 2011. This curriculum, now delivered to over 3,300 first year health science students annually, consists of five common compulsory units, eight optional units (specific to several courses) and one discipline specific unit for each course. Significantly, the learning outcomes are informed by an Interprofessional Capability Framework (Brewer & Jones, 2013). This paper reports on a study which aimed to analyse the use of the capability framework in supporting the development of the desired interprofessional capabilities.

This qualitative study was based on data from student reflective journals in one of the large common units. The sample consisted of 105 of the 411 students enrolled in one of the common units (response rate 25.6 percent) in the second major teaching period (semester two) in 2011. The data was analysed via NVivo8© to provide a holistic view of the content of the reflections as they related to the Interprofessional Capability Framework. The results indicate that the use of the Interprofessional Capability Framework in structuring the learning outcomes has influenced student learning. This is evidenced by the correlation between the themes which emerged during the coding of the data and the Interprofessional Capability Framework. For example, 'Client-centred' was the most frequently coded theme, followed by Collaboration, Team Function, and Quality Care, all of which are reflected in the Framework. The major finding of the study is that the framework did have an impact in guiding the development of the foundational interprofessional unit; the learning outcomes included key elements of the framework, the learning experiences were designed to meet these outcomes, and the assessment utilising a reflective journal was designed to measure the development of novice interprofessional capabilities.

Keywords: curriculum framework, interprofessional, graduate capabilities, constructive alignment

Introduction

Graduate employability has, for some time, been core business for higher education and is often manifested through the identification of generic key graduate attributes (Barrie, 2012; Bridgstock, 2009). However, the extent to which graduate outcomes are achieved is uncertain particularly in the area of generic outcomes as measuring graduate abilities is difficult, time-consuming and, in some cases, impossible (Oliver, 2011). Additionally, many

academics lack a shared understanding of what is meant by graduate attributes (Barrie, 2012) and the confidence to teach generic capabilities, instead preferring their own disciplinary content (de la Harpe et al., 2009). Despite these challenges and complexities, there is growing emphasis worldwide on demonstrating student learning outcomes with universities increasingly scrutinised by quality assurance organisations (Krause, Barrie, Scott, Sachs & Probert, 2012).

In the education of health professionals there are parallel pressures to ensure that graduates have not only their discipline specific knowledge, but also generic capabilities which will enable health services to meet the demands of future health and social care needs. The World Health Organization (WHO), for example, argues that due to changes in population demographics there is a growing need for graduates with the capabilities to work collaboratively in interprofessional teams to deliver high quality, safe client care (World Health Organisation, 2010). Interprofessional education has been identified as the mechanism to prepare graduates who can demonstrate these interprofessional collaborative capabilities and has been defined by the WHO as *occur[ing] when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes* (2010).

There is considerable debate and contestation regarding graduate outcome terminology including, for example, competency versus capability and how graduate attributes and employability are defined (Barrie, 2012; Eraut, 1998; Stephenson, 1994). However, Yorke's conceptualisation of graduate attributes is well accepted as it portrays a complex set of integrated skills, characteristics and abilities that aid employability. Yorke defines graduate attributes as *the skills, understandings and personal attributes that make an individual more likely to secure employment and be successful in their chosen occupations to the benefit of themselves, the workforce, the community and the economy* (Yorke, 2006, p. 8). His definition of 'graduate attributes' is particularly pertinent to the field of interprofessional education as he clearly links the development of graduate outcomes with workforce and community needs, a major focus of interprofessional education. Health workers who are better prepared to work collaboratively with other health professionals—with a focus on client needs rather than the goals of the professional—are more likely to impact positively on client outcomes (Barrett, Curran, Glynn & Godwin, 2007). Interprofessional capabilities, therefore, extend well beyond discipline knowledge and understanding. The capabilities identified for an effective interprofessional health worker including communication, reflective skills, team function, conflict resolution and client-centred care (Barr, 1998; Walsh, Gordon, Marshall, Wilson & Hunt, 2005; Wood, Flavell, Vanstolk, Bainbridge & Nasmith, 2009), align well with the vision of an employable graduate needing a sophisticated, integrated set of capabilities that encompass more than discipline specific knowledge, skills and understandings.

Interprofessional Education

Interprofessional education has emerged as an area of focus in higher education for many reasons including the need to modify negative attitudes and perceptions, and to redress issues of trust and communication between professions (Carpenter, 1995). Barr (2002) hypothesised that pre-licensure interprofessional education might have both a preventative function (mitigating the risk of developing prejudices and negative stereotypes) and a preparatory function (laying the foundation for subsequent interprofessional learning and practice). Early introduction of regular and sustained interprofessional education continues to find support one decade on (Reeves, Tassone, Parker, Wagner, & Simmons, 2012). In keeping with this, and the desire to deliver the practice-ready health workers of the future, Curtin University introduced an interprofessional first year curriculum in the Faculty of Health Sciences in 2011. This curriculum, delivered now to over 3,300 first year health science students annually, consists of five common compulsory units, eight optional units (specific to several courses) and one discipline specific unit for each course. This curriculum ensures

that 75 percent of first year student learning experiences have an element of interprofessional education. This is most explicit in the common units which are taught by interprofessional teaching teams to interprofessional student groups (Bathgate & Harris, 2012). Significantly, the learning outcomes of the common first year units (as well as other interprofessional education experiences offered by the Faculty) are informed by an interprofessional capability framework (Brewer & Jones, 2013). This paper presents qualitative data from the analysis of student reflective journals in one of the large common interprofessional first year units to demonstrate how the use of a capability framework to inform the curriculum design is supporting students in the development of the interprofessional graduate capabilities deemed essential for future health workers. Utilising Knight and Yorke's (2002) USEM model of employability—as a set of capabilities which extend beyond skills and knowledge—the paper illustrates how the unit learning outcomes, which are in alignment with the framework, are supporting first year students to develop crucial interprofessional graduate attributes. In fact, qualitative data analysis suggests there is evidence that first year students are demonstrating what Knight and Yorke identify as 'efficacy beliefs and metacognition' at the novice level (as defined by the Interprofessional Capability Framework). The study adds to the body of literature on interprofessional education and, more specifically, contributes to the limited evaluative research on the implementation of interprofessional frameworks (Reeves, Zwarenstein, Goldman, Barr, Freeth, Koppel & Hammick, 2010).

Knight and Yorke's (2002) USEM Model of Graduate Employability

Knight and Yorke's USEM model was developed based on 'capability' as defined by Stephenson, as well as the literature on employability and insights from cognitive and social psychology (Knight & Yorke, 2002, p. 264). According to Stephenson (1998), *capability is a necessary part of specialist expertise, not separate from it. Capable people not only know about their specialisms, they also have confidence to apply their knowledge and skills within varied and changing situations and to continue to develop their specialist knowledge and skills…* (cited in Knight & Yorke, 2002, p. 264). In other words, capability in this context implies that graduates with the capabilities that count for employability know much more than their discipline or specialist knowledge, they are able to effectively manage changing circumstances and respond appropriately.

USEM (Knight & Yorke, 2002, p. 264) is an acronym which represents a complex and rich theory of graduate employability and stands for:

Understanding
Skills (subject specific and generic)
Efficacy beliefs (and self-theories generally)
Metacognition (including reflection)

According to the authors, curricula have a tendency to focus on Understanding and Skills with little attention to personal qualities or Efficacy beliefs and Metacognition. This appears consistent with research into graduate attributes which suggests most Australian universities struggle to effectively embed the generic capabilities implied by graduate attributes (Barrie, Hughes & Smith, 2009). In keeping with the theory of interprofessional education (Barr, 2012; Colyer, Helme & Jones, 2005; Hean, Craddock & Hammick, 2012), Knight and Yorke argue that students' personal qualities (including self-theories and efficacy beliefs) colour everything the student/graduate does. Their model, therefore, takes into account the impact of personal qualities and beliefs on student learning. This approach to graduate capability and employability is highly applicable to an interprofessional education context, where professional identity and role understanding have the capacity to significantly hinder or facilitate the development of interprofessional collaborative practice capabilities (Coster, Norman, Murrells, Kitchen, Meerabeau, Sooboodoo & d'Avrey 2008; Forte & Fowler, 2009;

Wackerhausen, 2009). As will be illustrated, the Interprofessional Capability Framework used to inform the common interprofessional first year units emphasises the E and M of Knight and Yorke's USEM Model and appears to assist first year students to begin their journey towards developing interprofessional practice capabilities. These capabilities align well with many of the 'soft' generic attributes desired for all university graduates including communication, teamwork, critical reflection and conflict resolution (Precision Consulting, 2007).

The Interprofessional Capability Framework

The competency movement in interprofessional education began to gain prominence in the late 1990s (Barr, 1998). Since that time a number of lists of key interprofessional competencies and competency frameworks have been published (Bainbridge, Nasmith, Orchard & Wood, 2010; Barr, 1998; Interprofessional Education Collaborative Expert Panel, 2011; Walsh et al., 2005; Wood et al., 2009). Such frameworks define educational outcomes based on the knowledge, skills, attitudes and values underpinning the competencies for practice (Curran et al., 2008). The movement to competency based education is not without its critics. Reeves, Fox & Hodges (2009) raised concerns about not only the process for developing such frameworks, but also the need to be cautious in their implementation as they shape education, regulation and practice. At the same time, there is inconsistency within the movement towards frameworks with debate about the value of competencies versus capabilities. Competence can be defined as the *habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community served* (Epstein & Hundert, 2002, p. 226). Capability on the other hand refers to *the ability to change, generate knowledge and continuously improve performance* (McNair, 2005, p. 460). As capability infers ongoing adaption (Cooper, Spencer-Dawe & McLean, 2005) it was utilised in Curtin's framework (Brewer, 2011, p. 5) which operates with several assumptions including:

- Collaborative practice is critical to client safety and quality of service or care;
- Interprofessional education occurs on a continuum from early exposure to other professions through to collaborative practice in teams in the practice setting;
- The learner will move through the levels at different rates according to their personal and professional experiences;
- A student's capacity to demonstrate interprofessional capabilities in different settings will be impacted by their comfort level, familiarity and skill set within that context.

The framework consists of three core elements: client-centred service, client safety and quality, and collaborative practice; which are underpinned by five interprofessional practice capabilities: communication, team function, role clarification, conflict resolution and reflection (see Table 1).

The practice capabilities are interdependent and developmental on a three phase continuum: novice, intermediate and entry to practice. Key terminology in the framework is viewed with a broad understanding to ensure a high level of inclusivity. Significantly, the use of 'client' rather than 'patient' was the result of the Interprofessional Capability Framework needing to speak to a broad range of health science professions where, in some instances, 'patient' was not appropriate. The term 'client' includes the family and the community and 'safety' includes the physical, psychological, environmental and cultural aspects of health care. Thus the focus on client-centred care is strongly related to safety and quality and supports the provision of culturally responsive service delivery through emphasising client needs over the health professional's interests and needs.

The framework is provided in the form of a booklet to all students and teaching staff within the interprofessional first year units. The booklet provides key background information,

definitions, the underlying assumptions, an overview of each element along with a set of descriptors and capabilities at each level. The capability framework provided staff with an opportunity to design learning experiences that emphasise observable abilities that can be assessed in terms of development milestones (Frank, Mungroo, Ahmad, Wang, de Rossi & Horsley, 2010).

Table 1: Curtin University's Faculty of Health Sciences IPE Curriculum Model

<table>
<tr><td>Interprofessional Capability Framework</td><td colspan="3">Vision</td></tr>
<tr><td> 
</td><td colspan="3">To provide high quality interprofessional education experiences that ensure Curtin's health science graduates have the collaborative practice capabilities to deliver safe, effective health services</td></tr>
<tr><td>Authenticity</td><td>Level</td><td>Learning Experiences</td><td>Complexity</td></tr>
<tr><td>High</td><td>Entry</td><td>Fieldwork placements
Case-based workshops</td><td>High</td></tr>
<tr><td>Medium</td><td>Intermediate</td><td>Case-based workshops and simulation
Interprofessional focus in profession specific units</td><td>Medium</td></tr>
<tr><td>Low</td><td>Novice</td><td>Interprofessional first year</td><td>Low</td></tr>
</table>

Context of the Study: Foundations for Professional Health Practice

Foundations for Professional Health Practice is one of the five common units in Curtin's interprofessional first year curriculum which was informed by the Interprofessional Capability Framework. The unit was designed by an interprofessional team from across the Faculty of Health Sciences and aims to assist student health professionals to develop an understanding of professional practice requirements such as ethical decision making; academic standards; safety and quality of client-centred service; Australian and international health care systems, and diversity in interprofessional practice.

The unit was delivered via a weekly, three hour workshop in conjunction with online materials in a blended learning model. Each workshop comprised 50 students from different schools across the Faculty facilitated by two interprofessional tutors teaching collaboratively. Typically, students from biomedical science, nursing, midwifery, occupational therapy, pharmacy, physiotherapy, psychology, public health, social work and speech pathology would participate in the workshops. The purpose of the interprofessional teaching team was

to model collaborative practice and provide students with an opportunity to learn 'about, from and with' teaching staff from professions other than their own.

The Foundations of Professional Health Practice curriculum, like all common first year units, was constructively aligned with the Interprofessional Capability Framework. Each week one of the three core elements or five interprofessional practice capabilities provided the theme for the learning experiences for each workshop and reflected the novice level required of first year students. In fact, all of the workshop experiences were aimed to assist students to develop interprofessional practice skills at the novice level. The capability themes would be explored through interprofessional group work activities, watching videos, YouTube clips, short podcast lectures, case studies, completing online activities, quizzes, and completion of workbook activities. Additionally, assessment tasks including oral presentations, written assignments and reflection pieces required students to use content related to the Interprofessional Capability Framework.

Consistent with the interprofessional capabilities, reflective practice was introduced within the unit with students required to reflect on their development of health professional practice capabilities as a major assessment task (worth 20 percent of the final mark). The students were required to write a 500 word reflection on their professional code of ethics, standards and obligations, and their perceptions of the value of working in interprofessional teams. Students were also required to submit with their reflection, evidence of their development of the interprofessional education core capabilities of team function, role clarification, client-centred service, communication and conflict resolution (see Table 1).

Reflective Practice

Reflective practice is frequently described as an essential attribute of competent health care professionals (Mann, Gordon & MacLeod, 2009). Boyd and Fales (1983) defined reflective practice as *the process of internally examining and exploring an issue of concern, triggered by an experience, which reacts and clarifies meaning in terms of 'self' and which results in a changed conceptual perspective* (p. 100). As with many forms of learning, reflective practice is cited as critical to effective interprofessional education and practice (Barr, 2012; Clark, 2009; Morison, Johnston & Stevenson, 2010). The use of structured journals, self-assessment and reflective papers are considered to be effective methods to provide the necessary conditions for developing reflective skills (Clark, 2009). The ability to engage in critical reflection will facilitate graduates *to develop a shared understanding of the world and ways of working together based on creating shared dialogue within communities of practice that will enhance the experience of service users* (Karban & Smith, 2006, p. 11). Much like other areas of competence or capability, reflection is a developmental process as seen in Moon's (2013) five step process from noticing to transformative learning or Findlay, Dempsey & Warren-Forward's (2010) seven levels from non-reflector to critical reflector. The decision to include a reflective journal within Foundations for Professional Health Practice was aimed at assisting students to develop their reflective practice skills consistent with what is expected of first year (novice) students. Level 1 of reflection is outlined in the Interprofessional Capability Framework as: 'Reflects on own contributions to teamwork experiences, and reflects on own learning and progress in developing interprofessional capabilities'. The reflective journal also ensured effective assessment of the unit's learning outcome: 'Describe the key elements of ethical and professional standards and behaviours in health which impact on the safety and quality of client-centred service / care'.

Method

Participants

The sample consisted of 105 of the 411 students enrolled in Foundations of Professional Health Practice within the Faculty of Health Sciences at Curtin University (response rate

25.6 percent) in the second major teaching period (semester two) in 2011. Students ranged in age from 17 to 51 years, with 63.8 percent of the sample aged 21 years or younger. Students represented 14 different discipline/profession areas from all of the seven Schools within the Faculty, with the majority studying either a generic Health Sciences degree (24.8 percent) or Nursing (39 percent).

Materials and Procedure

Ethics approval to conduct the research was obtained from the University's Human Research Ethics Committee and the conduct of the study was consistent with the National Health and Medical Research (2007) statement on ethical conduct of human research as well as Curtin University's policy for surveying students.

All students enrolled in the unit were invited to participate in the research via a Participant Information Sheet posted on the Learning Management System site. Students were assured that participation in the research was entirely voluntary and that their responses would be de-identified for analysis. Students provided written consent to participate in the research through submission of a signed consent form to a secure depository at the student administration centre. At the end of the semester, the written reflections of consenting students were downloaded from students' electronic portfolios by administrative staff, none of whom were involved in grading student work. No identifying information was attached to the reflections, which were imported into NVivo8© to manage and organise the data (Bazeley, 2007). The data set was then analysed via NVivo8© to provide a holistic view of the content of the reflections as they related to the Interprofessional Capability Framework.

Thematic analysis (Ryan & Bernard, 2003) was chosen to identify recurrent patterns of responses across student reflections and allow the investigators to explore the data using the Interprofessional Capability Framework that underpinned teaching and learning in this unit. The initial analysis was conducted by one investigator soon after the reflections had been submitted. The investigators took a deductive 'top-down' approach to the thematic analysis, using the Interprofessional Capability Framework as a scaffold for exploring patterns in the data (Creswell, 2012). In addition, the investigators were responsive to concepts in the students' reflections that related to, but were not covered by, the framework. An audit trail was maintained in the form of individual and group discussion notes throughout the analysis.

The investigators began by conducting several readings of each transcript in order to familiarise themselves with the data and make notes of initial impressions. The coding process involved an initial stage of open coding where each transcript was scanned for key ideas, phrases or words and codes were then collapsed into broader categories. Through a closer inspection of the categories and relationships between them, and with reference to the underlining theory, these categories were further developed and refined into overarching themes and associated subthemes (Ryan & Bernard, 2003). Thematic maps were created to display relationships between themes and based on discussion between investigators, the interpretations of and relationships between these themes were continually modified as the data was synthesised. The number of items coded for each of the nodes in the NVivo8© analysis was also mapped in order to provide information about the most frequently occurring themes in the reflections (Bryman, 2012).

To enhance the credibility of the study, the investigators engaged in a process of peer debriefing whereby a third independent investigator selected a random 10 percent of the total codes (n=6) to confirm coding strategies and interpretations. Each of the six codes was crosschecked for whether the data contained within was homogenous, whether the code name accurately represented the included data, and whether that code was appropriately situated in reference to all other codes (Bryman, 2012). No disagreements were identified but the peer debriefing process was used to clarify names of sub-themes and inform

descriptions for the write-up of the findings. Respondent validation was not conducted as, based on the nature of the project, the reflections were de-identified prior to the research team receiving them. Finally, three of the investigators read all of the reflections and extracted illustrative quotes corresponding to the core elements of the Interprofessional Capability Framework.

Results

The results indicate that aligning the Interprofessional Capability Framework with the learning experiences has influenced students' development (at a novice level) of the key elements of the Framework. For example, 'Client-centred' was the most frequently coded theme within the students' reflective papers, followed by Collaboration, Team Function, and Quality Care. This demonstrates the weighting given to the central aspects of the Interprofessional Capability Framework (see Table 1). The achievement (as evidenced below) of the key interprofessional capabilities outlined in the framework is significant, in that it indicates the attainment of important graduate capabilities, which typically are not well embedded into curricula. According to Knight and Yorke (2002) curricula tends to pay little attention to personal qualities and self-theories which are crucial to employability as they underpin the ability to persist in the face of conflict and failure, as well as the disposition to use initiative and get things done. Results from this study indicate that students were demonstrating novice level ability in Communication, Team Function and Conflict Resolution (Understanding and Skills). More importantly, however, these first year health science students also demonstrated evidence of capabilities related to Role Clarification (Efficacy beliefs and self-theories) and Reflection (Metacognition) at novice level. Knight and Yorke (2002) clearly view the graduate capabilities linked to Efficacy and Metacognition as more complex capabilities and essential to employability. Knight and Yorke (2002) argue that including Efficacy and Metacognition development in curricula leads to more employable graduates who are less fixed in their attitudes, are malleable, and able to commit to life-long learning. This approach is consistent with interprofessional education—as conceptualised by the Interprofessional Capability Framework at Curtin—which sees the attainment of interprofessional capabilities as part of a continuum of development. Evidence of year one student achievement of the interprofessional capabilities is provided below and aligned with the USEM model (in parenthesis).

Client-Centredness (Understanding)

Client-centred service is the central principle of the Interprofessional Capability Framework and it is expected that novice level collaborative workers will *acknowledge the need to be client-centred in providing safe and high quality service/care* (Brewer, 2011, p. 6). Hobbs' (2009) review of the literature evidences that client-centredness is a multidimensional concept, and different dimensions of the concept were demonstrated in students' reflections. At the most simple level, students' understandings of the meaning of client-centredness referred to a focus on the client, as opposed to a focus on the service or service-provider.

> *Client-centred is giving them a high quality and safe health services. It is doing what is best for them and providing them with the best we can …*
>
> *… A patient centred practice for me means that the health care system should work for the patient, instead of the patient having to work out the health care system*.

Some students' reflections evidenced an understanding of the importance of respecting each client as an individual, with attention to their unique needs.

> *I now realise how much we perceive health practice as a 'cook book' or a certain way of doing things which completely ignores differences and subtleties in clients*.

I … not only need to listen to them but also understand their meanings and what they want.

Some students recognised that part of working with each client as an individual required health workers to view clients holistically, for example:

… not only consider the patient or client's physical health, but their mental and emotional health.

Others recognised the importance of the client's background and unique characteristics, including culture, for example:

Client-centred care is the care of a patient with strong consideration regarding their cultural traditions, personal experiences and morals and in the long run following a course of treatment that will be most beneficial to the patient.

I need to understand what their cultural values are, to ensure they feel safe and comfortable.

A final dimension of the concept of client-centredness referred to the client being an active participant in the decision making and service-process, as evidenced by comments such as:

… making the client part of the healing process so that we can stop having the attitude that we know what is best for the client.

… the client-centred service ideology has taught me how important it is for clients to not only have a team of professionals that are willing and able to talk to each other and discuss options but that the patient is also an integral part of the team.

Being a good professional doesn't just mean dispensing your expert opinion and having it taken as an order … Working with clients can be just as important as working with other professionals.

As a health professional it is important to form a partnership with the client and help guide them and inform them of options so that they can make the best decision for themselves.

Our job as a health professional is to work in partnership with our client to provide a service or care that is purely client-centred … sometimes in reality what we think what is in best interest for the patient might go against what they think is best for them.

Although the student statements quoted above provide evidence of their understanding of client-centred care, they also imply an element of metacognition through demonstration of a self-awareness of their professional identity formation and its potential impact on their role in health service delivery. For example, several statements above imply a self-awareness of, or critical reflectiveness about, their traditional professional culture which places the health provider as 'expert' often at the expense of the client's input into decision making.

Collaborative practice capabilities

Communication (Skills)

At the end of the undergraduate year, novice collaborative workers are expected to demonstrate developing skills in effective listening and oral and written communication skills, to respect others, and to make a contribution to team discussions (Brewer, 2011).

Many students recognised the importance of good communication skills to their team work in the classroom and explicitly referred to the importance of appropriate communication for facilitating and demonstrating respect for others.

> *I learnt that communicating effectively is necessary to establish trust, to show respect to others and set up productive relationships with people*.

There was also evidence from students' reflections of their skill development and recognition of the importance of confidence when participating in group discussions.

> *Working cooperatively with other people who are from different health domains has given me the skills to work as a group, allowing me to build my own confidence in contributing to group discussions*.

> *… it has also made me realise that I am not confident enough. I need to speak louder when in a group and not just let others make the decisions. If I am going to have to work in a team in the future, I need to start participating more strongly now*.

The cultural diversity of the cohort provided rich authentic learning opportunities related to intercultural communication and this was highlighted as a particularly valuable learning experience as well as a key challenge for students.

> *Being put into teams also challenged my communication skills … being in a group with others who did not speak English as a first language challenged me to listen to myself speak and often reword my jumble so that it made sense to someone other than myself. … I would like to continuously improve my communication skills for dealing with a variety of people different to myself*.

The experience of teamwork in the classroom highlighted to students the importance of both verbal and non-verbal communication. In particular, one student commented on the importance of appreciating non-verbal aspects of communication.

> *…there are many verbal and non-verbal cues that can dramatically affect the way you communicate with your co-workers and patients. This made me think about how much of communication is non-verbal, which a lot of is done subconsciously*…

Some students' reflections extended beyond their learning in the classroom to demonstrate their appreciation of the importance of effective communication skills in the workplace for effective teamwork and ultimately high quality client care/service.

> *…addressing the issues in a professional manner allows for better communication between the other health professionals … and helps to avoid any misunderstandings and conflict that may arise if addressed in a non-professional manner*.

> *… the chain to a client's recovery is not restricted to each health professional's consultation but also the effective communication between each health professional, a lack of communication resulting in breaking the chain and adversely affecting the client*.

> *Communication is vital in order for an interprofessional team to be successful. If there is a lack of communication skills in a team it will affect the client's care* …

Team function (Understanding)

Brewer (2011) described novice-level capabilities in team functioning as being able to describe the process of group/team development, participating in the exchange of knowledge and shared decision-making, and demonstrating effective teamwork skills including respecting team ethics. As discussed earlier, students' reflections highlighted the close relationship between communication skills and team function. Many students reflected on the importance of good teamwork during their university experience, as well as an appreciation of their teamwork experiences as a microcosm of future teamwork in the workplace.

Many students referred to important elements of forming and working as a functional group, including respect, acknowledging differences of opinion and individual strengths and weaknesses, for example:

> …*from the beginning we were open with each other about our own strengths and weaknesses and were willing to complement each other so as to establish functional roles for each of us*.
>
> *I found that while working in these teams, communication and respect are essential, as we all study different courses, have different ethics and knowledge, we learnt to work together and resolve issues as if we were health professionals in an interprofessional team*.
>
> … *by accepting or acknowledging everyone's opinion you can avoid any form of conflict and misunderstanding within the group*.

The importance of all members' contributions for effective teamwork was highlighted in the following student's comment:

> *In our team we needed everyone to put in 110 percent, as we will in our future careers. As a health professional, being in control of people's lives and well-being it isn't okay to put in half the effort*.

Conflict resolution (Understanding)

Positive and constructive conflict resolution is noted in the Interprofessional Capability Framework as an important collaborative practice capability. Novice-level collaborative workers are expected to be able to describe potential sources of conflict within interprofessional teams and identify suitable strategies to avoid or address conflict as well as to employ effective communication skills to promote positive interactions within the team (Brewer, 2011). Issues related to this element of the framework were mentioned the least frequently by the students. However, some students demonstrated knowledge of factors that can contribute to conflict within teams, for example:

> …*conflict among teamwork can be easily avoided if each health professional is aware of the factors that could cause conflict, such as power, communication and goal differences* ….

Many students referred to the importance of good communication and teamwork skills as important for avoiding and resolving conflict, for example:

> *I have learnt from this experience that there is an existence of power struggles and different goals and it requires the acceptance that we all have different expertise and skills*

Other students referred to the importance of retaining a focus on the client/service-recipient(s) in order to facilitate resolution of issues. One student referred to a real-life application of a strategy learned during his/her coursework experience in terms of seeking assistance from a supervisor or manager if team members are not able to resolve a conflict between themselves.

> *A real world example of when I would later use this skill is if perhaps I have an issue with a co-worker, if we try everything and still can't resolve it between ourselves I would have to go to the supervisor/management above us*.

Role clarification (Efficacy beliefs and self-theories)

According to the Interprofessional Capability Framework, novice-level capabilities related to role clarification include demonstrating a developing knowledge of one's own and other professions and effectively communicating their point of review (Brewer, 2011). There is evidence that interprofessional education can provide a very helpful context for clarifying one's own professional role in collaboration with others from different professions (Pirrie, Hamilton & Wilson, 1999) and this was supported by students' reflections, for example:

> *When I was explaining why I chose to do nursing to other members, I thought it was a really worthwhile activity, because it helped clarify my thinking and learned more about myself in the process*.

There was significant evidence of students' demonstrating capabilities in role functioning that exceeded novice-level expectations and approached the intermediate level capability of demonstrating and understanding the importance of role clarification for client care/service provision (Brewer, 2011). This is exemplified by one students' reflection on the analogy between the experience of a group assignment and a workplace team task:

> *Role clarification also showed important when preparing for our oral presentations because if that didn't happen, some things may not have been done and others would have been done multiple times. This reflects the health workforce as all tasks need to be completed once and to the greatest ability possible.*

One student also related role clarification to ethical practice, which represented a sophisticated reflection for a novice-level student.

> *The exercise also reinforced the importance of not performing tasks outside my scope of practice as this can be easily avoided and can be highly dangerous*.

Reflection (Metacognition)

Novice-level capability in reflection is characterised by reflecting on one's own contribution to teamwork as well as on one's own development of interprofessional competencies (Brewer, 2011). Many students' reflections exemplified the attainment of this capability by demonstrating an awareness of the benefits of interprofessional education and their own strengths, weaknesses and areas for development.

> *I used to assume that … being a good health professional meant … knowing what is best for the patient and help them. After what I have learnt, my assumption was incorrect*.

> *It made me question, how well do I work in a team environment? I found perhaps my strength was that I could easily help organise my group members, however a weakness was trying to find the line between talking change and also allowing everyone to have equal input*

Collaborative practice and client-centredness for client-safety and quality

Many students' reflections indicated that upon commencing their university course, they were focused on their chosen course/career and had not considered the broader context of the environment in which they would engage in professional practice. Working in interprofessional teams during the unit had opened their eyes to the importance of collaborative practice for client-centred service/care:

> *Working with other professionals from different fields simply wasn't something that had occurred to me. However I can see how integral it is in healthcare fields and how important it is for so many professional fields*.

Several students showed a sophisticated level of reflection about their learning, related to collaborative practice capabilities, by explicitly acknowledging how the elements of the framework come together to enhance service provision/client care.

> *It is easy to see how things can go wrong with this type of health care system and it is a much safer and more effective system if health professionals work together. In saying that, it is also important to include the patient in this team so they are empowered and play a role in the decision making*.

> *I think the most important thing I learnt in this unit was the need to develop inter-professional relationships. …because if the health professionals are not communicating then the patients may not be getting the best treatment for them as an individual and this all ties back to the idea of client-centred care*.

Limitations

Although the study had a reasonable response rate of 25.6 percent and included students from all of the Faculty's seven schools, due to the timing of the study most of the students were predominately from two programs of study: the generic Health Sciences degree and Nursing. Consequently, the results show greater development of Team Function, Collaboration, Communication, and less on Role Clarification and Conflict Resolution. A lack of emphasis on Role Clarification is not surprising as students were in their first semester of study in their first year with many undertaking a general health science course and hence were not aligned with a specific health profession. Class activities were directed toward building teams and developing communication skills to connect students to the course, university, other students and support student retention. This emphasis on connection and cohesion within the context of the first year experience combined with the difficulty many people have in recognising the value and normality of conflict likely explains why conflict resolution was the least mentioned capability.

Students who participated in the study self-selected, which had the potential to influence the findings; it may well be that students who were most engaged in their study felt more confident in submitting their reflective journal which raises questions about how effective the unit had been in achieving the desired outcomes for less engaged students.

Discussion

Across the 105 participants, there was certainly evidence of the attainment of novice level interprofessional capabilities. Students' reflections demonstrated varying levels of sophistication with some referring directly to their experiences in the classroom, some referring to the Interprofessional Capability Framework more abstractly, and some showing evidence of how their classroom experiences will be relevant to their future workplace practice. Given that they were first semester, first year students and thus their ability for reflective practice emergent and their experience and understanding of health practice

limited, the evidence of novice level interprofessional capabilities suggests that alignment of the interprofessional first year curriculum with the Interprofessional Capability Framework is delivering the desired outcomes: that is, students are beginning their journey to developing the interprofessional practice capabilities identified as crucial for future health workers.

Interprofessional socialisation exposes students to the roles and functions of other professions and assists with the development of their professional and interprofessional identity. Despite the increasing acceptance of the value of this socialisation a review of curricula in Canada (Arndt, King, Suter, Mazonde, Taylor & Arthur, 2009) found little evidence of this being embedded with any consistency. In keeping with the Canadian review recommendations, this foundational unit embeds significant interprofessional socialisation enabling students to begin building their interprofessional capabilities early in their training. In addition to role clarification, early interprofessional socialisation has been identified as a mechanism to improve communication, respect and trust, and reduce prejudice and negative attitudes (Barr, Koppel, Reeves, Hammick & Freeth, 2005).

The literature shows that early embedding of interprofessional education is, in itself, not sufficient. Learning experiences must be aligned with good practice in interprofessional education curriculum design. The Foundations of Professional Health Practice unit captures all three elements of the accepted definition of interprofessional education: about, from and with, by utilising trained co-teachers from different professions, providing a range of activities including case-based discussions, joint projects and presentations (Bainbridge & Wood, 2013). A strong emphasis on adult learning theory in the unit's implementation ensures that cooperative, collaborative, reflective and socially constructed learning takes place within each weekly workshop (Barr, 2012).

The Foundations of Professional Health Practice unit provides a basis on which other elements of Curtin's interprofessional education curriculum are built and students are able to draw on the interprofessional connections established in first year. Students are provided with opportunities to apply their emerging understanding of client-centred service, safety and quality in health, and collaborative practice in a range of other experiences including interprofessional case-based workshops (Brewer, Tucker, Irving & Franklin, 2014) and interprofessional fieldwork placements (Brewer & Jones, 2014). Reflection is an integral competency for professional practice (Wald, Borkan, Scott Taylor, Anthony & Reis, 2012) and particularly relevant to interprofessional education where students need to reflect to effectively learn 'with, from and about each other'. According to Zarezadeah, Pearson & Dickinson (2009) *reflection on the role and importance of 'others' leads to better understanding and a more reinforced acquaintance, which, in turn, lessens prejudice and breaks stereotypes* (p. 8). Whilst Foundations of Professional Health Practice provides a starting point, more opportunities to develop reflective skills are recommended with greater guidance on reflective practice provided in an ongoing, scaffolded manner throughout the curriculum. It is thus recommended that efforts be made to fully vertically integrate authentic interprofessional learning experiences for all health science students to deliver Curtin's vision of health science graduates having the collaborative practice capabilities to deliver safe, effective health services. Further research is also required to determine whether this interprofessional curriculum is achieving the desired collaborative practice capabilities (Zarezadeah et al., 2009).

Conclusion

Curtin's Interprofessional Capability Framework can function effectively as a curriculum design tool through its alignment with the learning outcomes, experiences and assessments to assist students to develop an understanding of interprofessional collaboration. As described in Brewer and Jones (2013) the framework guided the constructive alignment of this foundational unit (Biggs, 2003); the learning outcomes included key elements of the

framework, the learning experiences were designed to meet these outcomes, and the assessment utilising a reflective paper was designed to measure the impact of the unit on the student's development of novice interprofessional capabilities.

Beyond their application to the health professions these results indicate that the unit aligns well with Yorke and Knight's (2002) USEM model of employability with students evidencing all four elements of this model within their reflective journals. This early focus on the higher order graduate capabilities of Efficacy and Metacognition should provide students with a foundation on which to continue their journey to employability in its broadest sense; that is, beyond discipline knowledge.

Acknowledgements

The authors would like to acknowledge the contribution of Candice Leeder and Lorenz Wolf for the NVivo© analysis, and Emma Penman for assistance in presenting the analysis.

References

Arndt, J., King, S., Suter, E., Mazonde, J., Taylor, E. & Arthur, N. (2009). Socialization in Health Education: Encouraging an integrated interprofessional socialization process. *Journal of Allied Health, 38*, 18–23.

Bainbridge, L., Nasmith, L., Orchard, C. A. & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education, 24*(1), 6–11.

Bainbridge, L. & Wood, V. I. (2013). The power of prepositions: A taxonomy for interprofessional education. *Journal of Interprofessional Care, 27*(2), 131–136.

Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *Journal of Interprofessional Care, 12*(2), 181–187.

Barr, H. (2002). *Interprofessional education today, yesterday and tomorrow*. Commissioned by the Learning and Teaching Support Network of the Health Sciences and Practice from the UK Centre for the Advancement of Interprofessional Education. London: CAIPE.

Barr, H. (2012). Toward a theoretical framework for interprofessional education. *Journal of Interprofessional Care,* 27(1), 4–9.

Barr, H., Koppel, K., Reeves, S., Hammick, M. & Freeth, D. (2005). *Effective interprofessional education: Argument, assumption and evidence*. Oxford: Blackwood.

Barrett, J., Curran, V., Glynn, L. & Godwin, M. (2007). *CHSRF Synthesis: Interprofessional collaboration and quality primary health care.* C. H. S. R. Foundation (Ed.) Retrieved from http://www.cfhi-fcass.ca/Migrated/PDF/SynthesisReport_E_rev4_FINAL.pdf

Barrie, S. (2012). A research-based approach to generic graduate attributes policy. *Higher Education Research & Development, 31*(1), 79–92.

Barrie, S., Hughes, C. & Smith, C. (2009). The National Graduate Attributes Project: Integration and assessment of graduate attributes in curriculum. Sydney: Australian Learning and Teaching Council.

Bathgate, K. & Harris, C. (2012). The impact of eLearning tools on the interprofessional learning experience in a first year foundations health unit. In A. Herrington, J. Schrape & K. Singh (Eds.), *Engaging students with learning technologies* (pp. 209–222). Perth, Australia: Curtin University.

Bazeley, P. (2007). Qualitative data analysis with NVivo qualitative project book. Thousand Oaks, California: Sage.

Boyd, E. M. & Fales, A. W. (1983). Reflective learning: Key to learning from experience. *Journal of Humanistic Psychology, 23*(2), 99–117.

Brewer, M. (2011). Curtin University's Faculty of Health Sciences Interprofessional Capability Framework. Perth: Curtin University. Retrieved from http://healthsciences.curtin.edu.au/faculty/ipe_publications.cfm

Brewer, M. & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client-centred health service. *Journal of Allied Health, 42*(2), e45–49.

Brewer, M. & Jones, S. (2014). A university-community engagement and leadership model. In D. Forman, M. Jones & J. Thistlethwaite (Eds.), *Leadership development for interprofessional education and collaborative practice* (pp. 85–104). Basingstoke, Hampshire and New York: Palgrave MacMillan.

Brewer, M., Tucker, B., Irving, L. & Franklin, D. (2014). The evolution of faculty-wide interprofessional education workshops. In D. Forman, M. Jones & J. Thistlethwaite (Eds.), *Leadership development for interprofessional education and collaborative practice* (pp. 206–227). Basingstoke, Hampshire and New York: Palgrave MacMillan.

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development, 28*(1), 31–44.

Biggs, J. (2003). *Aligning teaching and assessing to course objectives.* Paper presented at Teaching in Higher Education: New Trends and Innovations. Portugal: University of Aveiro.

Bryman, A. (2012). *Social research methods* (4th ed.). New York: Oxford UP.

Carpenter, J. (1995). Doctors and nurses: Stereotypes and stereotype change in interprofessional education. *Journal of Interprofessional Care, 9*(2), 151–161.

Clark, P. G. (2009). Reflecting on reflection in interprofessional education: Implications for theory and practice. *Journal of Interprofessional Care, 23*(3), 213–223.

Colyer, H., Helme, M. & Jones, I. (2005). *The theory-practice relationship in interprofessional education*. London: HEA, (Occasional paper No 7).

Cooper, H., Spencer-Dawe, E. & McLean, E. (2005). Beginning the process of teamwork: Design, implementation and evaluation of an inter-professional education intervention for first year undergraduate students. *Journal of Interprofessional Care, 19*(5), 492–508.

Coster, S., Norman, I., Murrells, T., Kitchen, S., Meerabeau, E., Sooboodoo, E. & d'Avray, L. (2008). Interprofessional attitudes amongst undergraduate students in health professions: A longitudinal questionnaire survey. *International Journal of Nursing Studies, 45*(7), 1032–1041. doi:10.1016/j.ijnurstu.2008.02.008

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston: Pearson.

Curran, V., Casimiro, L., Banfield, V., Hall, P., Lackie, K., Simmons, B., …Oandasan, I. (2008). Research for interprofessional competency-based evaluation (RICE). *Journal of Interprofessional Care, 23*(3), 297–300.

de la Harpe, B., Radloff, A., Scoufis, M., Dalton, H., Thomas, J., Lawson, A., . . . Girardi, A. (2009). *The B factor project: Understanding academic staff beliefs about graduate attributes*. Final Report. Surry Hills: Australian Learning and Teaching Council.

Epstein, R. M. & Hundert, E. M. (2002). Defining and assessing professional competence. *Journal of American Medical Association, 287*(2), 226–235.

Eraut, M. (1998). Concepts of competence. *Journal of Interprofessional Care, 12*(2), 127–139.

Findlay, N., Dempsey, S. & Warren-Forward, H. (2010). Validation and use of the Newcastle Reflective Analysis Tool: A three-year longitudinal study of RT students' reflective journals. *Reflective Practice, 11*(1), 83–94.

Forte, A. & Fowler, P. (2009). Participation in interprofessional education: An evaluation of student and staff experiences. *Journal of Interprofessional Care, 23*(1), 58–66.

Frank, J. R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S. & Horsley, T. (2010). Toward a definition of competency-based education in medicine: A systematic review of published definitions. *Medical Teacher, 32(*8), 631–637.

Hean, S., Craddock, D. & Hammick, M. (2012). Theoretical insights into interprofessional education. *Medical Teacher, 34*, 158-160.

Hobbs, J. L. (2009). A dimensional analysis of patient-centered care. *Nursing Research, 58*(1), 52–62.

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel.* http://www.aacn.nche.edu/education-resources/IPECReport.pdf

Karban, K. & Smith, S. (2006). *Developing critical reflection within an interprofessional learning programme*. Leeds: Leeds Metropolitan University.

Knight, P. T. & Yorke, M. (2002). Employability through the curriculum. *Tertiary Education and Management, 8*(4), 261–276.

Krause, K-L., Barrie, S., Scott, G., Sachs, J. & Probert, B. (2012). *Mapping learning and teaching standards in Australian higher education: An issues and options paper.* Paper

presented at the Higher Education Evaluation Roundtable 2012. Sydney: University of Western Sydney.

Mann, K. V., Gordon, J. & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Sciences Education, 14*, 595-621.

McNair, R. (2005). The case for educating health care students in professionalism as the core content of interprofessional education. *Medical Education, 39*, 456–464.

Moon, J. A. (2013). *Reflection in learning and professional development: Theory and practice*. Hoboken: Taylor and Francis.

Morison, S., Johnston, J. & Stevenson, M. (2010). Preparing students for interprofessional practice: Exploring the intra-personal dimension. *Journal of Interprofessional Care, 24*(4), 412–421.

Oliver, B. (2011). Assuring graduate outcomes. *ALTC Good Practice Reports*. Strawberry Hills, NSW: Australian Learning and Teaching Council.

Pirrie, A., Hamilton, S. & Wilson, V. (1999). Multidisciplinary education: Some issues. *Educational Research, 41*(3), 301–314.

Precision Consulting. (2007). *Graduate employability skills*. Melbourne: Business, Industry and Higher Education Collaboration Council.

Reeves, S., Fox, A. & Hodges, B.D. (2009). The competency movement in the health professions: Ensuring consistent standards or reproducing conventional domains of practice? *Advances in Health Sciences Education, 17 June*. doi: 10.1007/s-10459-009-9166-2

Reeves, S., Tassone, M., Parker, K., Wagner, S. J. & Simmons, B. (2012). Interprofessional education: An overview of key developments in the past three decades. *Work 2012, 41*, 233–245.

Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Koppel, I. & Hammick, M. (2010). The effectiveness of interprofessional education: Key findings from a new systematic review. *Journal of Interprofessional Care*, *24*(3), 230–241.

Ryan, G. W. & Bernard, R. H. (2003). Techniques to identify themes. *Field Methods, 15*(1), 85–109.

Stephenson, J. (1994). Capability and competence: Are they the same and does it matter? *Capability, 1*(1), 3–4.

Wackerhausen, S. (2009). Collaboration, professional identity and reflection across boundaries. *Journal of Interprofessional Care, 23*(5), 455–473.

Wald, H. S., Borkan, J. M., Scott Taylor, J., Anthony, D. & Reis, S. P. (2012). Fostering and evaluating reflective capacity in medical education: Developing the REFLECT rubric for assessing reflective writing. *Academic Medicine, 87*(1), 41–50.

Walsh, C. L., Gordon, M.F., Marshall, M., Wilson, F. & Hunt, T. (2005). Interprofessional capability: A developing framework for interprofessional education. *Nurse Education in Practice, 5*(4), 230–237.

Wood, V., Flavell, A., Vanstolk, D., Bainbridge, L. & Nasmith, L. (2009). The road to collaboration: Developing an interprofessional competency framework. *Journal of Interprofessional Care, 23*(6), 621–629.

World Health Organisation. (2010). *Framework for action on interprofessional education and collaborative practice*. WHO/HRH/HPN.

Yorke, M. (2006). Employability in higher education: What it is - what it is not. *Learning and Employability Series*. London: Higher Education Academy.

Zarezadeah, Y., Pearson, P. & Dickinson, C. (2009). A model for using reflection to enhance interprofessional education. *International Journal of Education, 1*(1), 1–18.

Paper 3

Brewer, M. L., & Stewart-Wynne, E. G. (2013). An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities. *Journal of Interprofessional Care, 27*, 482–488.

Journal of Interprofessional Care

http://informahealthcare.com/jic
ISSN: 1356-1820 (print), 1469-9567 (electronic)

J Interprof Care, 2013; 27(6): 482–488
 DOI: 10.3109/13561820.2013.811639

informa healthcare

An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities

Margo L. Brewer[1] and Edward G. Stewart-Wynne[2]

[1]Teaching and Learning, Faculty of Health Sciences, Curtin University, Perth, Australia and [2]Clinical Services, Royal Perth Hospital, Perth, Australia

Abstract

Royal Perth Hospital, in partnership with Curtin University, established the first interprofessional student training ward in Australia, based on best practice from Europe. Evaluation of the student and client experience was undertaken. Feedback from all stakeholders was obtained regularly as a key element of the quality improvement process. An interprofessional practice program was established with six beds within a general medical ward. This provided the setting for 2- to 3-week clinical placements for students from medicine, nursing, physiotherapy, occupational therapy, social work, pharmacy, dietetics and medical imaging. Following an initial trial, the training ward began with 79 students completing a placement. An interprofessional capability framework focused on the delivery of high quality client care and effective teamwork underpins this learning experience. Quantitative outcome data showed not only an improvement in students' attitudes towards interprofessional collaboration but also acquisition of a high level of interprofessional practice capabilities. Qualitative outcome data from students and clients was overwhelmingly positive. Suggestions for improvement were identified. This innovative learning environment facilitated the development of the students' knowledge, skills and attitudes required for interprofessional, client centred collaborative practice. Staff reported a high level of compliance with clinical safety and quality.

Keywords

Client-centred practice, collaborative competence, interprofessional education, interprofessional evaluation

History

Received 21 September 2012
Revised 27 May 2013
Accepted 2 June 2013
Published online 17 October 2013

Introduction

A number of key Australian government reports (Bennett, 2008; Garling, 2008) promote a greater emphasis on health care being delivered by teams comprised of a range of professions. Interprofessional education, ''occurs when students from two or more professions learn with, from and about each other to improve collaboration and quality of care'' (Centre for Advancement of Interprofessional Education, 2002), and has been endorsed for many years as a method of improving health professionals' ability to work within interprofessional teams. The ultimate aim is improved client outcomes (Barr, Koppel, Reeves, Hammick, & Freeth, 2005; Meads, Jones, Harrison, Forman, & Turner, 2009; World Health Organization, 2010). While the benefits of interprofessional education are recognised by many higher education institutions the challenge of implementing this in the practice setting remains (Piterman, Newton, & Canny, 2010).

The concept of an interprofessional student training ward is well established (Faresjo, Wilhelmsson, Pelling, Dahlgren, & Hammar, 2007; Hansen, Jacobsen, & Larsen, 2009; Lidskog, Lofmark, & Ahlstrom, 2009; Ponzer et al., 2004; Walhstrom & Sanden, 1998). Operating since 1986, Linköping University, Sweden has three wards and one community nursing home setting. Similarly, the Karolinska Institutet, Sweden has three orthopaedic wards. Denmark and the United Kingdom have since successfully introduced training wards. Generally these involve interprofessional groups of students undertaking a 2- to 3-week full time placement under the supervision of qualified health professionals.

Empirical work undertaken to date of these training wards have focused on student, staff and client satisfaction and changes in attitudes. A study of 348 graduates found that 2 years post-placement participants reported this experience had a positive impact on the development of their professional role and identity, their independence and self-esteem, and their ability to work in a team with other professions (Hylin, Nyholm, Mattiasson, & Ponzer, 2007). Another study found that 1 year post-placement students viewed the experience as providing increased insight into other professions' roles, increased knowledge of client care and increased understanding of interprofessional teamwork (Reeves, Freeth, McCrorie, & Perry, 2002). Similarly, follow-up studies of medical graduates from Linkoping University's training ward found that they have consistently reported significantly higher levels of confidence in their interprofessional skills and their ability to cooperate with students from other faculties and professions in Sweden (Faresjo et al., 2007). A smaller study found that following a training ward placement all students viewed doctors as more ''caring'' and more ''subservient'' while the other three professions (nursing, physiotherapy and occupational therapy) were viewed as less ''subservient'' (Jacobsen & Lindqvist, 2009). Another study, reporting on client outcomes, found that the

Correspondence: Ms. Margo L. Brewer, Teaching and Learning, Faculty of Health Sciences, Curtin University, Perth 6845, Australia. E-mail: m.brewer@curtin.edu.au

training ward clients were more satisfied with their care than the comparative group who received care from qualified staff (Reeves et al., 2002).

While participants report high levels of satisfaction and positive changes in their attitudes following these placements there is insufficient evidence to show any measurable change in the students' clinical practice. Potential changes can, however, be captured within a university learning experience through assessment tasks aimed at measuring students' demonstration of interprofessional practice capabilities. Capability in this context is used to describe the integration of knowledge, skills, personal qualities and understanding used appropriately and effectively in response to new and changing circumstances (Oliver, 2010).

This article outlines the establishment of an interprofessional student training ward (STW) in Western Australia based on best evidence from Europe. A number of quantitative and qualitative studies have been undertaken over the past 3 years but the focus in this article is on understanding whether a training ward placement is sufficient for students' to develop interprofessional practice capabilities. A key focus of this research therefore was on the assessment of the students' collaborative practice capabilities while on the training ward. These were judged by qualified health professionals based on their observations of the students delivering client centred care. Additional evaluative data is provided which reaffirms the positive impact of the training ward on students and clients.

Background

Establishing the training ward

In establishing the first interprofessional training ward in Australia, Royal Perth Hospital and Curtin University (Curtin) undertook a number of important steps to ensure the ward was built on best practice and good governance. This began with visits to successful training wards in Europe. Analysis of documentation, interviews with staff, students and clients, and reviews of qualitative and quantitative evaluation data were undertaken. A steering committee was established to develop key documentation and quality management procedures, including a memorandum of understanding, a risk management plan, an operational procedure manual and a detailed project plan incorporating the evaluation process.

A 6-week trial, conducted in late 2010, consisted of three rotations for nursing and allied health students from Curtin joined by medical students from the University of Western Australia (UWA). The ward was located in a six bed section within a 26-bed general medical ward. Each team of final year students was comprised of two nursing, one medical, and one each from physiotherapy, occupational therapy, pharmacy and social work. The students arrived at the ward at 7.00 am each weekday for 2 weeks to receive handover from the night shift staff. The students then undertook all ward duties as an interprofessional team with a handover to the afternoon shift staff at 3.00 pm. The learning experiences consisted of profession specific tasks (e.g. shared client care tasks such as dispensing medications, showering and wound dressing), facilitated group learning sessions, and reflective sessions. A registered nurse supervised the students for the entire shift. This interprofessional facilitation was supplemented by staff from each of the other professions who supervised the students for a minimum of 1.5 hours per day. Each day concluded with a half hour team debrief facilitated on a roster system by either the facilitator or one of the profession specific supervisors. Peer learning (Ladyshewsky, 2010) was actively encouraged with students educating each other to highlight their professional expertise. Following this successful trial the ward continued throughout 2011 with only minor changes: the placement length increased from 2- to 3-weeks to fit more closely with clinical rotations; the number of medical students per rotation was increased to two as the students in the pilot reported that the workload on the ward was difficult to manage; the range of professions increased to include dietetics and medical imaging; and pharmacy students were substituted with pharmacy interns.[1]

The learning objectives for the students focused on interprofessional capabilities, to:

(1) describe one's own professional knowledge, skills, attitudes and values and limitations relevant to these
(2) describe the contribution of other professions to health service/care
(3) demonstrate effective communication with clients, relatives, students, health professionals and relevant staff to ensure safe, high quality service/care;
(4) work in partnership with the client and other professionals to plan, implement and evaluate evidence-based service/care including referring on as appropriate;
(5) facilitate effective team interactions, manage conflict and provide leadership when appropriate;
(6) evaluate the outcomes of interprofessional team collaborations, one's own contribution to these, and suggest improvements.

Training ward innovations

A number of innovations were introduced in this training ward guided by Curtin University's Interprofessional Capability Framework (Brewer & Jones, 2013). This framework outlines the key capabilities expected of Curtin health science graduates. These capabilities are organised into the following three core elements:

Students' collaborative practice

The major innovation was the formal assessment of the students' collaborative practice capabilities utilising the Interprofessional Capability Assessment Tool (Brewer, 2012a).

Client-centred care

To ensure a client centred approach the students were instructed to include the client, and where possible their family, in care planning. To further facilitate this client centredness, two client advocate volunteers were recruited from the Health Consumer Council, a not-for-profit community based organisation, representing the consumers' voice in health policy, planning, research and service delivery (Health Consumers' Council WA (Inc.), 2013). The advocate's role was to share their experience of the health system with the students, to interview clients on their experience in the ward, to discuss the outcomes of these interviews with the students, and suggest ways they could improve the care they were providing to ensure that the clients were satisfied.

Client safety and quality

Client handover is a high-risk situation and integral to the delivery of safe client care (Jorm, White, & Kaneen, 2009). Consequently, the ''iSoBAR'' clinical handover tool was employed where ''I'' is identify, ''S'' is situation, ''O'' is observations, ''B'' is background, ''A'' is agree to a Plan and ''R'' is readback (Porteous, Stewart-Wynne, Connolly, & Crommelin, 2009). This tool provided a clear structure for students and staff to ensure that all critical information was communicated at each handover. Rather

[1]Interns are referred to as ''students'' for the purpose of this article.

than rely on the medical notes, the student team was required to engage in face-to-face discussions regarding client care.

Methods

This study collected quantitative data using a validated attitudinal scale, capability assessment ratings drawn from Curtin's Interprofessional Capability Assessment Tool, and short surveys. These data were verified by qualitative data from questionnaires and the same capability assessment tool. The data collection focused on measuring the outcomes of the three key elements of the Interprofessional Capability Framework: students' attitude toward, and ability to, report effective interprofessional collaborative practice, client centredness, and the quality of the clients' experience.

Measures

Student collaborative practice outcomes

The interprofessional facilitators observed the student teams engaged in interprofessional teamwork for a total of 75 h per team. During this period the students' collaborative practice capabilities were noted and then a final assessment was undertaken by the facilitator at the conclusion of the placement. The measure used was Curtin University's Interprofessional Capability Assessment Tool designed for use with final year students (Brewer, 2012a). This tool organises a range of interprofessional capabilities within four domains: communication, professionalism, collaborative practice and client-centred care. These practice capabilities (knowledge, skills, attitudes and values) were graded on a 4-point scale: 1 = ''unsatisfactory''; 2 = ''developing''; 3 = ''at the required standard'' and 4 = ''excellent''. A marking rubric guided this process (Brewer, 2012b). For example, for the domain collaborative practice a grade of ''at the required standard'' was described in the rubric as:

> Consistently establishes effective, collaborative working relationships & evaluates collaborative capabilities with little support .... Demonstrates good understanding of team processes. Engages actively with team members & contributes to their knowledge. Resolves conflicts with little support. Refers clients to other professions appropriately.

This assessment tool required the facilitator to provide specific supporting evidence, that is, examples of the capabilities observed along with general comments related to each domain. Students also completed this assessment as a self-reflective activity. The results of the assessment were then discussed with the students.

The students' also completed an attitudinal pre and post placement questionnaire which consisted of three sections: (1) the Interprofessional Socialization and Valuing Scale (King, Shaw, Orchard, & Miller, 2010), a 34-item quantitative tool designed to measure participants' attitudes and values towards interprofessional collaboration; (2) a set of quantitative questions related to the students overall learning experience, such as the learning environment, the relevance to future practice, feedback received, and the assessments undertaken, utilising a 5-point Likert-type scale from ''very poor'' to ''excellent''; and (3) open ended questions related to the students' concerns, perceived gains, least and most useful experiences, as well as the opportunity to make general comments and suggestions for improvement. To ensure student anonymity this survey allowed students to generate a unique code for matching pre and post placement questionnaires.

Client outcomes

Client feedback was captured through a 48-item client satisfaction survey, based on an existing Royal Perth Hospital tool, and modified to include elements specific to the training ward. The tool utilised a 5-point Likert-type scale from ''very dissatisfied'' to ''very satisfied'' with space for general comments. For the purposes of this research, only the subsection of the survey directly related to their experience on this ward was examined as the remaining items measured the general hospital experience.

Participants

Research participants consisted of students who were assigned to the STW placement by their university or department (pharmacy interns), clients and the patient advocates from the ward. The 79 students were from two universities: Curtin University (58%), the University of Western Australia (24%), [unspecified (6%)]. The remaining 12% were pharmacy interns. The professional distribution varied with 39% medical, 22% nursing and 42% allied health students. The age range of the students was 20 to 48 years (mean of 24) with 41 female and 24 male (2 unspecified). All students were invited to complete pre and post questionnaires. The Interprofessional Capability Assessment Tool was a required assessment so was completed for all students.

Selected clients admitted into the training ward were provided with a satisfaction survey at or following discharge. Seventy-five per cent ($n = 47$) of the surveys provided were returned. Clients ranged in age from 17 to 94 years (mean of 70) with 64% male and 36% female. Clients excluded from the survey met one or more of the following criteria: deceased, significantly cognitively impaired, non-English speaking, on the ward for less than half a day, or deemed by nursing staff to be too unwell.

Ethics

Approval for this research was received initially from Curtin University's Human Research Ethics Committee. Reciprocal ethics was then sought, and gained, from the University of Western Australia. An information sheet was provided to students and staff on the first day of the placement and in the introduction to the online survey process. Completion of the survey was taken as informed consent. An information sheet for clients on the research was provided on their first day in the ward or as soon as possible thereafter. All participation was voluntary.

Results

Student collaborative practice outcomes

The results from the major student outcome measure, the Interprofessional Capability Assessment Tool, indicated that at the conclusion of the 2- or 3-week placement the majority of students' interprofessional practice capabilities were judged by the interprofessional facilitators to be 3 or 4 on the grading rubric – see above. These high ratings were observed for all four capability domains. Communication was the area in which students excelled with the median rating close to the maximum performance level of 4 while the median rating for professionalism, collaborative practice and client-centred care was 3 (see Table 1).

Comments recorded by the facilitators on the Interprofessional Capability Assessment Tool supported these ratings of the students' capability being at or above the required standard for final year students following the two week placement. For example:

> [The student] is now more proactive in obtaining all required relevant information she needs to plan the OT role for the

patients each day. She seeks out other students to exchange/obtain assessment results + handover to allow OT treatment planning, + to allow teaching of others re the role of OT. (Capability – Communication)

[The student] demonstrates confidence with collaborating with her team members. [They] will liaise with the appropriate team member to ensure clinical issues are addressed appropriately and resolved. [The student] has also liaised with other service teams external to the STW... (Capability – Collaborative practice)

[The student] was able to inject a [sense] of hope and was consistently able to move towards empathic practice for patients and team members. Was able to enhance client's independence by sharing 'power' with patients and to equip them through information for [unknown]... (Capability – Client Centred Care)

Sixty-seven (84%) of the 79 students completed either the pre or post placement questionnaire but few completed both. This low level of matched data was likely due to two factors: the voluntary nature of the surveys during a high workload period; and use of an anonymous identification coding system meant students who did not complete the survey could not be followed up. Results from section one of the student questionnaire, the Interprofessional Socialization and Valuing Scale, were examined using parametric analysis, specifically an independent samples *t*-test to measure changes between a group of students' pre-placement ($n = 25$) sub-factor scores and another group of students' post-placement ($n = 25$) sub-factor scores. This methodology was chosen for two reasons. First, because this data was examined at subscale level, i.e. it consists of aggregate scores from related Likert-type scale items the data behaves as, and can be treated as, interval data and thus can be subjected to parametric tests (Carifio & Perla, 2007, 2008; Norman, 2010) which offer a high level of sensitivity. Second, too few matched pairs existed for any meaningful analysis using a paired sample *t*-test. Statistical significance for the independent samples *t*-test was set at 0.017 level of confidence as the alpha was adjusted for the three subfactor comparisons (Table 2). Large effect sizes were detected for the students ''ability to collaborate'' and their ''value in collaboration''. No systematic changes were detected for the ''comfort in collaboration''.

Section two of the student questionnaire, student ratings of their overall experience on the ward on a 5 point Likert scale, resulted in 38% of the respondents rating the placement as ''good'' while 41% rated it as ''excellent''. The majority also rated key aspects of the learning experience very highly (Table 3) with all median scores being either ''good'' (4) or ''excellent'' (5).

Open-ended responses in section 3 of the student questionnaire regarding the most positive and most challenging experiences were de-identified and then coded in NVivo 10 using thematic analysis (Braun & Clarke, 2006). There were a number of positive aspects of the placement included. First, students felt there was a clearer understanding of the roles, responsibilities and capabilities of other professions:

An overwhelming experience for me. It drives me to learn more and get acquainted and involve more on the patient in a holistic manner learning from other professions and from different point of view (Nursing student)

Many commented that the STW gave them the opportunity to gain a greater understanding of their own profession's role and capabilities, both discretely and within the interprofessional context:

The STW has been a really good experience to develop my understanding of my role within a team and other team members' roles (Occupational therapy student)

Another frequently mentioned benefit was the opportunity to collaborate closely with other professions:

Learning how to interlink the different health professions together e.g. Knowing when to refer to another health professionals when needed (Dietetics student)

Students also commented on the valuable practical experience this placement provided and highlighted how the greater level of responsibility and autonomy, combined with supportive and approachable facilitation created a particularly valuable and ''real'' experience:

I felt as if I was already a real nurse here in Australia because the (student training ward) set-up allowed me to function as one (Nursing student)

Students identified two key negative aspects of the placement, the conflict between their profession specific and their interprofessional commitments, and the length and hours of the rotations. Many felt that there was often a conflict between the

Table 1. Summary of interprofessional capability assessment tool 4 point Likert-type scale data.

Domain	Median	Interquartile range
Communication scores	4	1
Professionalism scores	3	1
Collaborative practice scores	3	1
Client centred care scores	3	1

Table 2. Summary of interprofessional socialization and valuing scale results.

Domain	*df*	*t*	*p* (two-tailed)	*d*
Ability to collaborate	48	−3.168	0.003	0.90
Value in collaboration	48	−3.093	0.003	0.84
Comfort in collaboration	48	−1.69	0.098	0.48

Table 3. Median and IQR of experience rating scale items.

Item	Median	Inter-quartile range
Overall experience	4	1
Overall learning environment	5	1
Relevance to future practice	5	1
Relevance & timing of feedback	4	2
Assessment of your professional capabilities	4	1
Assessment of your interprofessional capabilities	4	0
Knowledge of your professional roles and competencies	5	1
Understanding of others professional roles and competencies	4	1
Knowledge of the patients role in healthcare	4	1
Knowledge of the importance of communication for safe high quality care	5	1

commitments they had to their own workload and to interprofessional work. This was especially true of doctors, though other professions also expressed this opinion:

> During the first week I spent a significant amount of time participating in nursing activities such as showering patients, changing bed linen etc. This gave me an appreciation of what nurses do, however I felt that I was missing out of doing medicine specific tasks (Medical student).

Another complaint from a small number of students of varied professions was that the hours were too long. This tended to be associated with another complaint which was that some students felt that some end of day debriefs were unnecessary:

> Seven AM start was energy sapping for irrelevant information (Medical student)
> To be honest the debriefs were not needed after the first week. I feel all relevant issues/concerns were dealt with during the day (Physiotherapy student)

Client outcomes

Forty-seven of the 63 clients (75%) completed the satisfaction survey. These yielded a median response of 5 (*highly satisfied*) with all items rated as *satisfied* or *high satisfied* (Table 4).

Comments included in the survey were also positive. For example: ''This is the best ward I have ever been in'' (Client), ''Was shown more kindness and respect in room 'G' than either of the other wards. Many thanks'' (Client).

Discussion

This article presented a 2- or 3-week placement in an interprofessional training ward which not only enhanced students' value of interprofessional collaboration but also enabled them to demonstrate interprofessional collaborative practice capabilities. These capabilities were judged by qualified interprofessional facilitators following 75 hours of observation of the students' practice. Clients also perceive the training ward experience in a very positive light.

Table 4. Client ratings of student training ward experience.

Item	Median	IQR
Courtesy of students when you arrived on the ward	5	1
How well the students communicated with you	5	0
Courtesy shown to you by the students	5	0
Promptness in students responding to your requests	5	1
How well the students kept you informed	5	1
The effort made by students to include you in decisions about your care	5	1
Time the students spent with you	5	1
Communication between the students regarding your care	5	1
Communication between the staff and the students regarding your care	5	1
Effort made by the students to involve your family in your care	5	1
Respect shown by the students for your emotional/spiritual needs	5	1
Students showed concern for your privacy	5	1
How would you rate your overall experience in the student training ward?	5	1
The students were courteous and treated you with respect	5	0
The patient advocate was helpful and assisted you during your admission	5	1

As recommended in the literature (Barr et al., 2005; Pollard, 2009; Reeves, Goldman, Burton, & Stawatsky-Girling, 2010), the key focus of this study was measuring changes in student behaviour; specifically, their acquisition of interprofessional practice capabilities. The 2- or 3-week placement provided students from eight professions with the opportunity to develop interprofessional practice capabilities within the domains of communication, professionalism, collaborative practice and client centred care. These findings support the research by Jacobsen & Lidskog (2009) and Faresjo et al. (2007). The capability domain in which students achieved the highest ratings was communication. The strong relationship between communication and effective interprofessional collaboration has been identified by many. For example, Ponzer et al. (2004) in their large scale training ward study which found that students rated the importance of communication very highly.

The students' high level of interprofessional capability was achieved under the training ward's innovative model of supervision where students were facilitated for the majority of the placement by an interprofessional facilitator with limited input from a profession specific supervisor. All staff were encouraged to adopt the facilitation style found to be most effective in the Danish training wards, that is, staff ''standing back'' but still taking an active role in the students' learning in way that encouraged the students/interns to make decisions and implement the resulting actions (Jakobsen, Larsen, & Baek Hansen, 2010). This style of interaction established a culture of trust and respect where students and staff asked questions freely and provided constructive feedback when invited to do so.

This facilitation approach combined well with the need for the facilitators to undertake formal assessment of the student's collaborative practice. This assessment was constructively aligned (Boud & Falchikov, 2006) with the learning outcomes which were clearly focused on: interprofessional practice, a learning experience that was relevant to the achievement of these outcomes, and an assessment process that provided feedback to the students on their attainment of the assessment criteria. This ensured that the facilitators developed specific strategies to achieve the desired student outcomes.

Previous studies have found that too many competing learning objectives and a lack of clarity in the expectations of the students were two key factors that negatively impacted on their STWs (e.g. Lidskog et al., 2009; Jacobsen & Linqvist, 2009; Reeves et al., 2002). To address these issues one set of learning objectives which emphasised the interprofessional practice aspects of the learning experience was provided for all students. This interprofessional focus was made very explicit to the students at the first orientation session and was reinforced in the debriefing sessions where students were required to reflect on their team collaboration and how they could improve on this. These unifying learning objectives were supplemented by staff making the expectations of the placement explicit to all students both within the provided handbook and at the face to face orientation session. It would appear that these strategies were successful with students engaging well in collaborative team practice during the placement.

The formal assessment of the students' capabilities appears to have ensured that the students focused on demonstrating effective interprofessional collaborative practice in the STW. All students worked as a collaborative team to undertake client care activities from the point of handover from the night shift to their handover to the afternoon shift. For example, nursing and occupational therapy students showered clients together during which they undertook their profession specific assessment and medical and physiotherapy students took client observations together.

The students' self-reported value of, and ability to, work in an interprofessional team showed a statistically significant increase. This aligns well with their high level of interprofessional capability as judged by the IPE Facilitators. Previous studies have generated similar results (e.g. Ponzer et al., 2004; Jacobsen & Linqvist, 2009). Despite this increase in their value and willingness to collaborate the student cohort showed no statistically significant change in their level of comfort in working collaboratively. There may be a number of reasons for this. It may be that more than 2 weeks is required to significantly impact on their perceived comfort with interprofessional collaboration. Alternatively, it may be that the tool used was not a sensitive measure of their comfort level, that the change was too small to measure, or that their comfort level was high to start with. However, as no research is currently available on the use of this tool it is not possible to comment definitely on this discrepancy in the students' attitudinal changes.

When asked to rate the key aspects of the placement the highest ratings were for the overall learning environment, the relevance of the experience to their future practice, their knowledge of their own profession's role in health care, and the importance of communication in client safety. This finding aligned closely with the key themes that emerged from their qualitative comments: clarification of the role of the other professions involved as well as the role of their own profession, the benefits of interprofessional collaboration, and the overall value of this practice based learning experience. Previous STW studies (Hylin et al., 2007; Jacobsen & Linqvist, 2009; Lidskog et al., 2009; Reeves et al., 2002; Pelling et al., 2011) have also found similar themes in student feedback. Perhaps, these themes emerge within this context as a result of the students being required to take responsibility for the care of the clients (under appropriate supervision). For many professions this is different from their traditional clinical placements where they perform activities under direction of their supervisor. This high level of responsibility for patient care as an interprofessional team may highlight to the students the benefits of interprofessional collaboration and the high degree of relevance of this learning experience to their future practice. The third key theme, clarification of professional roles, may emerge as a result of the high level of negotiation about their roles in the delivery of all aspects of the client care during their placement.

The benefits of interprofessional collaboration were not only reflected in the students' comments but also in the high level of satisfaction reported by the clients both in the survey and to the client advocate. It may be that having the patient advocate in the ward had two key benefits: first, they were able to guide the students to ensure the care they were delivering was client-centred and, second, the weekly feedback on this care to the students provided timely reinforcement of the benefits of their interprofessional collaboration.

The other two key innovations employed on the STW which were focused on client centredness, safety and quality also had positive outcomes. The use of the clinical handover tool iSoBAR, critical to client safety, was found to facilitate the communication within and between student and staff teams. Ward staff reported that the students provided most of the essential information in their clinical handover. As a result the afternoon shift staff did not need to seek further detail. The stipulation that the care provided was to be client centred, which was supplemented by the inclusion of a client advocate on the ward, was a useful strategy to facilitate the students' communication more effectively with clients and their relatives. These two aspects of effective communication were supported by all clients surveyed reporting a high level of satisfaction with the care they received from the student teams and 94% rating the advocate as useful to them.

In keeping with previous studies (Ponzer et al., 2004; Reeves et al., 2002) a number of students from different professions commented that undertaking general care tasks such as showering client or changing beds limited the time they were able to spend on profession specific activities in the ward and was not relevant to their future practice. This was particularly noted during the initial pilot; to address this, students were encouraged to work in interprofessional pairs so that one completed a profession specific task while the other observed. During these sessions, students articulated what they were doing and why. This explicit sharing may have contributed to the students' rating their understanding of the role of their own and the other professions so highly. These pairs were rotated throughout the placement which added to the peer learning opportunities in the ward. Staff reported that students raised concerns less frequently about undertaking the tasks of another profession following the introduction of this pairing system.

The other theme that emerged as an area of concern for students, again from a variety of professions, was the repetitiveness of the daily debrief sessions. Anecdotally this concern was raised more by high functioning than low functioning teams. This was addressed by adapting the debrief session so that they were not just a general reflective discussion but also included educational topics related to issues that were relevant to existing clients in the ward. Staff requested more guidance from the university on how to structure an effective debriefing session. A set of guiding principles and questions is being developed to enhance this process.

A number of important lessons were learned during the 6-week trial in 2010 and the larger scale implementation in 2011. The success of this initiative required a high level of collaboration between the lead partners Royal Perth Hospital and Curtin University. Significant time and resources were invested particularly in the quality management of the program. The improvements have resulted in a substantial increase in the number of rotations through the ward in 2012 and an increased level of inter-organisation collaboration with four local universities currently placing students on the ward.

The major limitations of this study are that: first, one of the key measures, the Interprofessional Capability Assessment Tool, is not a validated instrument. The process to validate the tool is currently underway. Secondly, the study lacked longitudinal data to measure the transfer of the students' interprofessional capabilities to their future practice.

Concluding comments

As described by Wilhelmsson et al. (2009) interprofessional skills cannot be taught by others, but instead must be learnt in interaction with others. The Royal Perth Hospital-Curtin University training ward provided an authentic, practice-based learning environment where health science students developed interprofessional capabilities by engaging in collaborative practice with their peers and the clients. All key priorities in the development of the first Australian student training ward were achieved. The governance and operational requirements allow replication of the ward to other health settings in Australia and internationally. The ward provided not only an operational boost for interprofessional education in the hospital but also an interprofessional education experience that was viewed as best practice within the university. Requests have been received from several universities and health service organisations within Australasia to assist them with the development of training wards in their context. While dissemination has begun via several international and local conference presentations further dissemination including within the hospital is desirable. Research has

begun to analyse the handover process in the ward. Future research to measure the impact of this experience on the practice of the diverse range of students from the training ward post qualification is needed. It would also be worthwhile to investigate the lack of change in the students' comfort with interprofessional collaboration.

Acknowledgements

The authors gratefully acknowledge the time and effort given by staff, students and clients who participated in the training ward, Lorenz Wolf's assistance with data analysis, and Associate Professor Garry Allison and Dr Helen Flavell's editorial input.

Declaration of interest

The study was supported by funding from Curtin University and Royal Perth Hospital. The authors declare no conflict of interest. The authors alone are responsible for the writing and content of this article.

References

Barr, H., Koppel, K., Reeves, S., Hammick, M., & Freeth, D. (2005). *Effective interprofessional education: argument, assumption and evidence*. Oxford: Blackwell.

Bennett, C. (2008). A healthier future for all Australians: Interim Report. Retrieved from http://www.health.gov.au/internet/nhhrc/publishing.nsf/Content/1AFDEAF1FB76A1D8CA257600000B5BE2/$File/Final_Report_of_the%20nhhrc_June_2009.pdf.

Boud, D., & Falchikov, N. (2006). Aligning assessment with long term learning. *Assessment and Evaluation in Higher Education*, *31*, 399–413.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*, 77–101.

Brewer, M. (2012a). Curtin University's Interprofessional Capability Assessment Tool Final Year Students. Retrieved January 30 from http://healthsciences.curtin.edu.au/faculty/so-module.cfm.

Brewer, M. (2012b). Guide to Completing the ICAT Final Year Student Version. Retrieved January 30 from http://healthsciences.curtin.edu.au/faculty/so-module.cfm.

Brewer, M.L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health*, *42*, 45–49E.

Carifio, J., & Perla, R. (2007). Ten common misunderstandings, misconceptions, persistent myths and urban legends about Likert scales and Likert response formats and their antidotes. *Journal of Social Sciences*, *3*, 106–116.

Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and misuing Likert scales. *Medical Education*, *42*, 1150–1152.

Centre for Advancement of Interprofessional Education. (2002). Defining IPE. Retrieved March 5, 2012, from http://www.caipe.org.uk/about-us/defining-ipe/.

Faresjo, T., Wilhelmsson, M., Pelling, S., Dahlgren, L.O., & Hammar, M. (2007). Does interprofessional education jeopardize medical skills? *Journal of Interprofessional Care*, *21*, 573–576.

Garling, P. R. (2008). Final Report of the Special Commission of the Inquiry into Acute Care Services in NSW Public Hospitals. Retrieved from http://www.lawlink.nsw.gov.au/Lawlink/Corporate/ll_corporate.nsf/pages/attorney_generals_department_acsinquiry.

Hansen, T.B., Jacobsen, F., & Larsen, K. (2009). Cost effective interprofessional training: An evaluation of a training unit in Denmark. *Journal of Interprofessional Care*, *23*, 234–241.

Health Consumers' Council WA (Inc.).). Health Consumers' Council WA (Inc.) Retrieved February 28, 2013, from http://www.hconc.org.au/home/.

Hylin, U., Nyholm, H., Mattiasson, A., & Ponzer, S. (2007). Interprofessional training in clinical practice on a training ward for healthcare students: A two-year follow-up. *Journal of Interprofessional Care*, *21*, 277–288.

Jacobsen, F., & Lindqvist, S. (2009). A two-week stay in an interprofessional training unit changes students' attitudes to health professionals. *Journal of Interprofessional Care*, *23*, 242–250.

Jakobsen, F., Larsen, K., & Baek Hansen, T. (2010). This is the closest I have come to being compared to a doctor: Views of medical students on clinical clerkship in an interprofessional training unit. *Medical Teacher*, *32*, e399–406.

Jorm, C.M., White, S., & Kaneen, T. (2009). Clinical handover: critical communications. *The Medical Journal of Australia*, *190*, 108–109.

King, G., Shaw, L., Orchard, C.A., & Miller, S. (2010). The Interprofessional Socialization and Valuing Scale: A tool for evaluating the shift twoard collaborative care approaches in health care settings. *Work*, *35*, 77–85.

Ladyshewsky, R.K. (2010). Building competency in the novice allied health professional through peer coaching. *Journal of Allied Health*, *39*, 77–82.

Lidskog, M., Lofmark, A., & Ahlstrom, G. (2009). Learning through participating on an interprofessional training ward. *Journal of Interprofessional Care*, *23*, 486–497.

Meads, G., Jones, I., Harrison, R., Forman, D., & Turner, W. (2009). How to sustain interprofessional learning and practice: Messages for higher education and health and social care management. *Journal of Education and Work*, *22*, 67–79.

Norman, G. (2010). Likert scales, levels of measurement and the ''laws'' of statistics. *Advances in Health Science Education*, *15*, 625–632.

Oliver, B. (2010). ALTC Teaching fellowship: Benchmarking partnerships for graduate employability. Retrieved from: http://www.olt.gov.au/resource-benchmarking-partnerships-oliver-curtin-2010.

Pelling, S., Kalen, A., Hammar, M., & Wahlstrom, O. (2011). Preparation for becoming members of health care teams: Findings from a 5-year evaluation of a student interprofessional training ward. *Journal of Interprofessional Care*, *25*, 328–332.

Piterman, L., Newton, J.M., & Canny, B.J. (2010). Interprofessional education for interprofessional practice: does it make a difference? *The Medical Journal of Australia*, *193*, 92–93.

Pollard, K. (2009). Student engagement in interprofessional working in practice placement settings. *Journal of Clinical Nursing*, *18*, 2846–2856.

Ponzer, S., Hylin, U., Kusoffsky, A., Lauffs, M., Lonka, K., Mattiasson, A., & Nordstrom, G. (2004). Interprofessional training in the context of clinical practice: Goals and students' perceptions on clinical education wards. *Medical Education*, *38*, 727–736.

Porteous, J.M., Stewart-Wynne, E.G., Connolly, M., & Crommelin, P.F. (2009). iSoBAR-a concept and handover checklist: The national clinical handover initiative. *The Medical Journal of Australia*, *190*, s152–s156.

Reeves, S., Freeth, D., McCrorie, P., & Perry, D. (2002). 'It teaches you what to expect in future': Interprofessional learning on a training ward for medical, nursing, occupational therapy and physiotherapy students. *Medical Education*, *36*, 337–344.

Reeves, S., Goldman, J., Burton, A., & Stawatsky-Girling, B. (2010). Synthesis of systematic review evidence of inteprofessional education. *Journal of Allied Health*, *39*, 198–203.

Walhstrom, O., & Sanden, N.I. (1998). Multiprofessional training ward at Linkoping University: Early experience. *Education for Health*, *11*, 225–231.

Wilhelmsson, M., Pelling, S., Ludvigsson, J., Hammar, M., Dahlgren, L.O., & Faresjo, T. (2009). Twenty years experiences of interprofessional education in Linkoping - ground-breaking and sustainable. *Journal of Interprofessional Care*, *23*, 121–133.

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice.* World Health Organization (WHO) Retrieved from WHO/HRH/HPN/10.3.

Paper 4

Brewer, M. L. (2016). Exploring the potential of a capability framework as a vision and 'sensemaking' tool for leaders of interprofessional education. *Journal of Interprofessional Care, 30,* 574-581.

Journal of Interprofessional Care

ISSN: 1356-1820 (Print) 1469-9567 (Online) Journal homepage: http://www.tandfonline.com/loi/ijic20

Exploring the potential of a capability framework as a vision and "sensemaking" tool for leaders of interprofessional education

Margo Brewer

To cite this article: Margo Brewer (2016): Exploring the potential of a capability framework as a vision and "sensemaking" tool for leaders of interprofessional education, Journal of Interprofessional Care, DOI: 10.1080/13561820.2016.1182969

To link to this article: http://dx.doi.org/10.1080/13561820.2016.1182969

Published online: 17 Jun 2016.

JOURNAL OF INTERPROFESSIONAL CARE
http://dx.doi.org/10.1080/13561820.2016.1182969

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Exploring the potential of a capability framework as a vision and "sensemaking" tool for leaders of interprofessional education

Margo Brewer

Faculty of Health Sciences, Curtin University, Perth, Western Australia, Australia

ABSTRACT

Creating a vision (visioning) and sensemaking have been described as key leadership practices in the leadership literature. A vision provides clarity, motivation, and direction for staff, and is essential particularly in times of significant change. Closely related to visioning is sensemaking (the organisation of stimuli into a framework allowing people to understand, explain, attribute, extrapolate, and predict). The application of these strategies to leadership within the interprofessional field is yet to be scrutinised. This study examines an interprofessional capability framework as a visioning and sensemaking tool for use by leaders within a university health science curriculum. Interviews with 11 faculty members revealed that the framework had been embedded across multiple years and contexts within the curriculum. Furthermore, a range of responses to the framework were evoked in relation to its use to make sense of interprofessional practice and to provide a vision, guide, and focus for faculty. Overall the findings indicate that the framework can function as both a visioning and sensemaking tool.

ARTICLE HISTORY
Received 20 June 2015
Revised 23 March 2016
Accepted 22 April 2016

KEYWORDS
Capability; competency; framework; interprofessional education; leadership

Introduction

Leadership is critical to the global interprofessional movement (Barr, 2011; El Ansari, 2012; Reeves, MacMillan, & van Soeren, 2010). A recent review of the literature on leadership in the field highlighted increased interest in leadership, but raised concern over the lack of shared understanding of how leadership is defined, conceptualised and theorised in interprofessional education (IPE) and interprofessional practice (IPP) (Brewer, Flavell, Trede, & Smith, 2016). This lack of clarity has the potential to hinder understanding of the practice of leadership and thus the advancement of the interprofessional movement. As a key principal of interprofessional collaboration is to draw on the expertise of others, perhaps examining the practices of leadership in other fields will advance understanding of leadership for IPE.

In their recent review of leadership theory across top-tier journals from fields including management, organisational science, and psychology, Dinh et al. (2014) noted the inclusion of the creation of a vision (also referred to as "visioning"), as a key leadership practice in several leadership approaches: transformational, servant, charismatic, entrepreneurial leadership, and leadership for creativity and change. Kotter (2012), a highly influential proponent of leadership for organisational change, defines a vision as "a picture of the future" (p. 71). This picture clarifies the general direction for change and thus functions to motivate people to act in unison to achieve that vision. Ladkin (2010) described the concept of visioning as the starting point for aligning meaning amongst members of an organisation. This process requires someone to take the lead to ensure that collective understanding occurs.

Significantly, Weick (1995) introduced the term "sensemaking" as the process of creating a shared understanding, which he described as the organisation of stimuli into a framework. Such frameworks enable people to understand, explain, attribute, extrapolate and predict (Starbuck & Milliken, 1998). Shared meanings gained through this process of sensemaking are important to organisational culture (Dinh et al., 2014) as people need a common way to encode and talk about a topic or experience. The sensemaking process is particularly important in giving structure to unfamiliar or non-routine work (Weick, 1995) or ambiguous events (Brown, Colville, & Pye, 2015). Given that leadership for IPE requires capacity for systemic change, and IPE and IPP are unfamiliar (and perhaps ambiguous) concepts to many in health education and practice, the creation of a vision (what could be) and sensemaking (what is) are potentially important considerations for achieving quality, sustainable IPE. As has been noted, effective leadership of change requires both visioning and sensemaking practices (Anacoda, 2012). How then might visioning and sensemaking be used as strategies to progress IPE and IPP, and what form might they take?

While multiple terms are used to describe the practice that IPE aims to develop (World Health Organization (2010), this article defines IPP as "two or more professions working together as a team with a common purpose, commitment and mutual respect" (Freeth, Hammick, Reeves, Koppel, & Barr, 2005, pp. xiv–xv). IPE, on the other hand, is defined as "when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (Freeth et al., 2005, pp. xiv–xv).

Within the field of IPE, several frameworks have been developed to inform the desired interprofessional learning

CONTACT Margo Brewer m.brewer@curtin.edu.au Practice and Interprofessional Education, Curtin University—Pro-Vice Chancellor's Office, Level 4, Building 400, GPO Box U1987, Perth, WA 6845, Australia.

Colour versions of one or more figures in the article can be found online at http://www.tandfonline.com/ijic.

outcomes (Bainbridge, Nasmith, Orchard, & Wood, 2010; Interprofessional Education Collaborative Expert Panel (2011). Frameworks are described as either "competency" or "capability" in different contexts. Curtin has adopted the term capabilities, as defined by Oliver (2010, p. 16) as this "embraces competence but is also forward-looking, concerned with the realisation of potential". Such frameworks are designed to establish the capabilities—the knowledge, skills, values and attitudes—required to prepare graduates for practice (Curran et al., 2008). McCray (2003) described these tools as providing a "frame of reference" and an "approximation of reality" (p. 393). Along similar lines, Thistlethwaite and colleagues (2014) describe frameworks as providing a shared lens through which disciplines can "understand, describe, and implement team-based practices" (p. 869), and a "blueprint for optimal performance" (p. 870). Carraccio and Englander (2013) also focus on frameworks as a means of standardising the language in an area of practice and providing a mental model of the trajectory to becoming an "expert". Such descriptions are predicated on the framework under discussion being an accurate representation of practice. These descriptions of capability frameworks resonate with the notion of sensemaking described earlier, suggesting that a capability framework can provide a coherent way of thinking and talking about IPE and/or IPP, thus facilitating a shared understanding of these. Given the link between sensemaking and visioning (Anacoda, 2012), a capability framework may also have the potential to assist leaders to create a vision for IPE within their organisation.

While it has been claimed that capability frameworks have facilitated the inclusion of IPE into health curricula, (MacKenzie and Merritt (2013) research to examine the impact of such frameworks is lacking. Recently studies have begun to emerge that make reference to the application of interprofessional capability frameworks (Brewer, Flavell, Davis, Harris, & Bathgate, 2014; Buhr et al., 2014; De Los Santos, McFarlin, & Martin, 2014; Pittenger, Westberg, Rowan, & Schweiss, 2013). To date, however, these focus only on a description of how the framework's capabilities were used to inform the learning experiences. Further evidence is needed to show how such frameworks support IPE (Dow, DiazGranados, Mazmanian, & Retchin, 2014). To achieve the desired IPE outcomes, faculty involved in the design and delivery of the curriculum must understand the capability framework, its key elements, how it can be implemented, and the capabilities assessed.

To assist leaders of IPE understand the potential use of a capability framework as a visioning and sensemaking tool, this article examines the impact of a capability framework on faculty involved in different components of an IPE curriculum based at Curtin University, Australia. Specifically, the research aimed to answer the following questions: (1) Can a capability framework function as a sensemaking tool facilitating faculty to understand IPE and IPP (what is)? (2) Can a capability framework function as a visioning tool to clarify the direction faculty take in implementing IPE (what could be)?

Methods

This study utilised a qualitative exploratory case study design (Yin, 2014) to explore participants' use of, and perspectives on, the Curtin University's interprofessional capability framework.[1] This emphasis on qualitative methodology is recommended by Weick (1995), the originator of sensemaking, and also Rubin and Rubin (1995) who recommend interviews to gain an understanding of the meanings people attach to frameworks. Furthermore, semi-structured interviews allow all question areas to be covered while allowing participants to talk freely (Barker, Bosco, & Oandasan, 2005).

The case study context was Curtin University's Faculty of Health Sciences. Curtin has a large-scale IPE curriculum (Table 1) that consists of a range of initiatives starting with an interprofessional first year for over 2,600 students from 24 professions (The Interprofessional Curriculum Consortium, 2013). The interprofessional component of the first year (75% of first year) is comprised of five core units undertaken by all students, and eight option units undertaken by two or more professions. In addition, students undertake one unit per semester (25% of first year) specific to their discipline or course. First year is followed by a range of interprofessional simulations, case-based workshops, and fieldwork/clinical placements provided to many, but not yet all, students in the middle and/or final year of their course.

This curriculum is underpinned by Curtin University's Interprofessional Capability Framework (Brewer & Jones, 2013) which describes key capabilities required for effective IPP in a booklet format (Brewer, 2011). These capabilities, represented in a simple diagram (see Table 1), provide the basis for aligning learning outcomes with relevant learning activities which are then assessed. The framework also forms the basis for the Faculty's vision for IPE: providing high-quality IPE experiences that ensure Curtin's health science graduates have the collaborative practice capabilities to deliver safe, effective health services.

Participants

Health science faculty involved in the design and implementation of Curtin University's IPE curriculum were invited to participate. Eleven faculty from three different cohorts opted to participate (Table 2), thus providing representation from all three levels (novice, intermediate and entry level) of the curriculum as outlined above.

The first cohort consisted of four core unit coordinators and the coordinator of the Interprofessional First Year—the novice level of the IPE curriculum. The former are responsible for leading the design, implementation, and evaluation of two units, along with the professional development and management of the interprofessional teams of tutors who teach in these units. These IPE units, as indicated previously, are compulsory for all first-year students (over 2,600 students per year), and are comprised of 84 hours of classwork (one hour of online lectures and two hour face-to-face workshops each week) per unit. Each unit is run twice per year. While other units are provided to interprofessional groups of students, the two units included in this study were targeted in the

Table 1. Curtin University's faculty of health sciences IPE curriculum model.

Interprofessional capability framework	Vision
	To provide high-quality interprofessional education experiences that ensure Curtin's health science graduates have the collaborative practice capabilities to deliver safe, effective health services

Authenticity	Level	Learning experiences	Complexity
High	Entry	Clinical/fieldwork placements Case-based workshops	High
Medium	Intermediate	Simulations and case-based workshops	Medium
Low	Novice	Interprofessional first year	Low

curriculum design phase as featuring the most explicit links to Curtin's interprofessional capability framework. This process was expected to facilitate integration between units across semesters while avoiding overuse of the framework explicitly. The first-year coordinator is responsible for the leadership of all 13 units that comprise the Interprofessional First Year.

The second cohort consisted of one of the two simulation coordinators responsible for leading the design, implementation and evaluation of 7,500 hours of IPE simulation for over 3,800 students in 2014. These simulations were conducted in a range of contexts at the novice and intermediate level of the curriculum.

The third cohort consisted of four faculty (from a pool of seven) who coordinate the practice-based IPE programme (IPE Coordinators) and one (of two) responsible for the leadership of this programme. This programme involves mostly students in the final year of their course, i.e. the entry level of the curriculum. The IPE Coordinators are responsible for the design of the placement, facilitation of the students' IPE, and oversight of the services delivered by students in four community health sites where they undertake clinical/fieldwork placements. In 2014, these placements delivered over 5,000 days of IPE for approximately 300 students. The practice-based IPE leader has oversight of the placement programme, line management of the IPE Coordinators, and had been directly involved in the case-based IPE workshops. Ten of the faculty participants were female and one male. The range of experience teaching in IPE and/or working in an interprofessional healthcare team varied from 2 to 6 years. The professions represented were nutrition, psychology, speech pathology, physiotherapy, occupational therapy, and dietetics.

Table 2. Faculty participants overview (n = 11).

Curriculum level	Cohort	Number of faculty	Number of students in 2014
Novice	Unit coordinators from 2 core interprofessional first-year units	4	2,660
	Interprofessional first-year coordinator	1	
Intermediate	Simulation coordinator	1	3,871
Entry level	Practice-based IPE coordinators	4	298
	Practice-based IPE leader	1	

Data collection

Individual semi-structured interviews were conducted between February and May 2015 at the participants' workplace. Two research assistants, independent of the study, conducted the interviews. The interviews followed a guide which scripted an introduction to the study and its objectives, followed by questions to gain information on the participants' current position, role within the IPE curriculum, and years of experience with IPE and/or IPP. Participants were then asked to reflect on the capability framework, if and how it had informed their understanding of IPP, and if and how they used the framework in the design of IPE experiences for students. Sample probe questions were provided in the guide. The interviews, typically 15–25 minutes in length, were audio-recorded to ensure accuracy and transcribed for analysis. These transcripts were then checked against the audio-recordings.

Data analysis

Data from the interviews were thematically analysed using a realist method which allows the reporting of participants' meanings (Braun & Clarke, 2006). The following process was applied to the transcripts using the six phases of Braun & Clarke's structured protocol: (1) become familiar with

the data, (2) generate the initial codes, (3) search for themes, (4) review the themes, (5) define and name the themes, and (6) produce the report. Deductive analysis was selected as it enabled the researcher to not only respond to the specific questions in this study but also to engage with the relevant literature to enhance sensitivity to more subtle features of the data. The initial analysis was undertaken by the author and then checked by a research assistant. The level of analysis was at the semantic level where explicit or surface meanings within the data were examined, i.e. no attempt was made to look beyond what the participants' had said. Braun and Clark's guide to what constitutes a theme was adopted: a theme was a patterned response or meaning within the data set; its inclusion was based both on frequency and on whether it captured something important in relation to the two research questions. During analysis meaning units were identified, grouped and coded into themes. Discrepancies in coding were identified and resolved through discussion. Finally to ensure the quality of the analysis, Braun & Clarke's quality checklist was adhered to by both the author and research assistant involved in the data analysis.

Ethical consideration

All faculty were informed that participation was voluntary. The study was approved by the University's human ethics committee.

Results

All 11 faculty in the study reported they were familiar with the framework. Nine of the 11 participants responded that the framework had informed their understanding of IPP, while the other two participants stated it "reinforced" or "confirmed" their understanding. Ten faculty in the study used the framework as a teaching and learning tool within the curriculum. The other participant oversaw the use of the framework but was not directly involved in its implementation. Their understanding and use of the framework is discussed in relation to the framework's utility as a visioning and sensemaking tool.

Table 3. Themes related to the framework as a sensemaking tool.

Common themes	Subthemes	Frequency count
What IPP is	Visual or semantic representation	33
	Facilitating (own & others) understanding	23
Why teach IPE/IPP	Vision, purpose	13
How implement IPE/IPP	Strategies, structure	30
	Guide, roadmap, foundation	24
	Outcomes, standard, benchmark	18
What to attend to in teaching and learning	Reminder, prompt	51

How the framework informed IPP understanding

When discussing how the framework informed their understanding of IPP, i.e. functioned as a sensemaking tool, four key themes emerged (see Table 3).

The first overarching theme related to understanding the *what* of IPP. Here faculty described the framework as a tool to establish a shared understanding or common way to describe or represent IPP or to explain it to others. Two subthemes were evident within this theme. The first subtheme was that the framework provided a means for representing IPP, i.e. the framework provided an "explanation" or "detail" for IPP. For example some faculty focused on the visual aspect the framework:

> Visually represents what you're trying to describe. [occupational therapist]

Other faculty focused on the verbal aspect of the framework such as

> (The framework) details the three core elements of what we believe is an effective health practitioner. [speech pathologist]

The second subtheme was the usefulness of the framework for facilitating both their own and others' understanding of IPP. Faculty working in across the range of learning contexts highlighted this sensemaking role of the framework:

> I found that the framework actually put the pieces of the puzzle together in a way and then you could actually say "this is what it is" … it actually gave a meaning to what I had previously experienced professionally. [dietician]

> But I think the good thing about having frameworks is it helps your understanding, so if we can show the students there's components and these are the areas they need to work on then it helps to understand it … I think personally there's still a lack of understanding of what interprofessional practice is. [occupational therapist]

> And to try and get that message across to other people is really, really hard but when you've got a model or a framework and it's been researched and researched some more it starts to give some validity and a bit more kind of power, in terms of that being a reliable way of doing things. [physiotherapist]

The second theme saw a shift from *what* IPP is to the *why* of IPE and IPP. Here faculty described the framework's utility in establishing either the goal of the IPE curriculum or the goal of IPP:

> It's a framework that in a sense defines our vision for Curtin graduates … breakdowns exactly what we're trying to achieve as a faculty. [speech pathologist]

The third theme related to the *how*; the implementation of IPE/IPP. Here faculty described how the framework's elements and descriptive detail provided: (1) the strategies or structure, (2) a guide, roadmap or foundation, and (3) the outcomes, standards or benchmark for teaching/implementing IPE and IPP:

> (The framework) forms the foundation of any interprofessional activity we develop. [speech pathologist]

> The framework for me was a really nice roadmap that I went to last year when I needed some guidelines or a roadmap, um, to guide the design of interprofessional teaching resources. [occupational therapist]

> The framework essentially dictates those key skills we want our students to be able to take away from their experiences of interprofessional practice. [speech pathologist]

The framework was also used to guide the health service that the students provided in the practice context:

> It's a holistic framework which does guide our particular practices so that actually it's the framework for the Curtin services we provide at the two sites. [dietician]

> Use the framework as a model of care for how we're running the services out of this centre. [physiotherapist]

Interestingly the most frequently mentioned subtheme across the study related to *focus*, that is, the framework's function in focusing attention and work. This was described as either a general reminder/prompt for faculty, or more specifically as focusing faculty's attention on either what to teach or what students need to work and reflect on:

> It keeps me on task. [occupational therapist]

> I use the framework to help bring me back to what is it we're working on. [dietician]

> Bring all their (students) questions around client care back to this (the framework). [physiotherapist]

How the framework informed the IPE experiences

All 11 faculty in the study reported the framework was used to structure the students' learning experiences, suggesting that the framework was useful in providing faculty with a vision of what could be, a direction for how to implement IPE in different contexts. This use of the framework was described in three themes as shown in Table 4.

Examples of how the framework was used within one of the first-year core IPE units included students being allocated to interprofessional teams in week one. The framework was then described and discussed. In weeks ten to fourteen of semester key capabilities from the framework were explicitly taught through case studies. Students were then assessed on their interprofessional team's case presentation and on their written reflection related to the framework. In the second core unit, the framework was used less explicitly; instead it was used to underpin the design of a number of activities and teaching strategies, building on the experiences in the first unit. The use of the framework in first year was exemplified by the quote:

> The first activity will be …what is role clarification? So we talk about what this is and then we'll do some form of activity getting them to actually learn skills related to that component. [occupational therapist]

Table 4. Themes related to how the framework was utilised.

Theme	Frequency count
To shape the learning experience	32
To facilitate student learning	35
To assess student learning outcomes	18

The framework was also embedded within specific case-based workshops, and interprofessional simulations were designed using the framework both as a key component of the resources provided to faculty in the form of an eBook, and as the foundation of the students' experiences:

> It's (the framework) a really sound place to go and build learning outcomes, content and design teaching and learning resources around that. [occupational therapist]

> It does the hard work for you; you just pick out the objectives that you want to achieve with students and then from there you're able to quite easily map on the particular learning activity that will achieve those goals. [speech pathologist]

The practice-based IPE experiences provided students with opportunities to develop and demonstrate the framework's IPP capabilities within work settings. The link between the framework and the placement was made overt for students and faculty with the image (as shown in Table 1) displayed in faculty and student meeting and treatment rooms. The framework was also used in promotional materials for the health services the students provide, on the front cover and throughout the programme manual. Along with its physical presence, the framework was woven through the students' learning in most sites: discussed with students at orientation; used to guide debriefing and reflection sessions; and feedback was provided to students on their proficiency in demonstrating the capabilities throughout the placement with formal assessment at the mid and end point. This use of the framework as a guide, a reflective or diagnostic/problem solving tool was captured in the following comments:

> I see my role as encouraging them (students) to reflect personally and as a team on those elements of the framework. [speech pathologist]

> When a student will say to me oh, I had this interaction and it's not quite right. Then I go back to the framework to try and break down which element of the framework isn't going as well as it should be going, and sometimes it's more than one element; it could be like team function and conflict resolution. I try and use the framework to keep bringing students back to if somethings not going well. [dietician]

Other faculty commented on the need to ensure students have opportunities to develop the framework's capabilities as these were assessed by faculty at the middle and end of the placement:

> So you'll be using it all the time to create the right environment or to create the right activity so the students can then demonstrate that particular skill whether it be client-centred care or it be collaborative practice or whether it be being able to communicate effectively. [speech pathologist]

Interestingly some faculty described the framework as a reference point for their own practice. Not surprisingly this was particularly evident in the practice-based learning context:

> I use it (framework) as a guide to make sure I'm role modeling those aspects of the tool (framework) as well. [dietician]

Discussion

The findings of this study add to the literature by providing an account of the utility of a capability framework within a

large university-based IPE curriculum. The provision, by the leader of IPE at Curtin University, of a clear framework that describes IPP for faculty (and students) impacted on both faculty's understanding of IPP and their implementation of IPE. All 11 faculty interviewed were able to describe how the framework informed the rationale, goals, implementation, and assessment of interprofessional learning experiences within the health science curriculum; evidence previous lacking in the interprofessional literature (Reeves, 2012).

The most frequent response by faculty related to the usefulness of the framework as a tool to prompt or remind them of what to attend to in the design and assessment of the students' learning experience. This finding supports the claim that a leader's ability to focus the collective attention and action (work) of staff in a clear, united direction is critical to an organisation being able to achieve the desired vision for change (Goleman, 2013; Kotter, 2012). This ability to mobilise staff to work towards a shared purpose or goal has also been identified elsewhere in the IPE literature (Baker, Reeves, Egan-Lee, Leslie, & Silver, 2010; Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011).

The second most frequent responses from faculty related to the framework's conceptual representation of IPP, with both the visual and semantic aspects of the framework highlighted. This result was pleasing given that much thought had been applied to the visual design and wording of the framework (Brewer & Jones, 2013). This representation helped faculty to either clarify or consolidate their understanding of IPP; understanding being a critical element of the sensemaking process (Starbuck & Milliken, 1998). The simplistic design of the framework, along with the comprehensive information booklet (Brewer, 2011), were highlighted by several faculty, suggesting that these were important to the sensemaking process. Utilising this representation or shared meaning, faculty were able to explain IPP to others (colleagues, students, teachers, care workers); another critical process in sensemaking (Anacoda, 2012; Starbuck & Milliken, 1998).

The role of the framework in helping faculty "make sense" of IPP lends support to claims in the literature that such frameworks provide an approximation of reality (McCray, 2003), or the standards of practice (Reeves, Fox, & Hodges, 2009). The shared meanings established through this sensemaking process were important to the organisation's culture (Dinh et al., 2014) as they provided faculty with a common way to encode and talk about a topic, experience or concept; in this case, IPP. Perhaps recognition of the value of these shared meanings goes some way to explain the recent interest in sensemaking in the interprofessional literature. For example, Manojlovich (2010) proposed that sensemaking holds promise as both an alternative lens through which to view IPP and as the basis for training to overcome communication barriers and thus improve patient safety. Thomas, Reedy, and Gill (2014) discussed the application of sensemaking to an interprofessional patient simulation course for undergraduate medical and nursing students. In contrast, Fox and Gilbert (2015) reported on an observational study of interprofessional communication dynamics to explore "interprofessional sensemaking" during ward rounds in an acute care teaching hospital in Canada. These studies demonstrate the value of sensemaking in the context of interprofessional communication rather than in the context of leadership of IPE as was the focus of this study.

Building on the shared understanding of IPP established by the framework, several faculty commented on the framework's function as a visioning tool with spontaneous use of the word "vision" noted on several occasions. While the term "visioning" is not typically used, consideration of the need to create a vision has been present in the interprofessional literature for many years (e.g. Brashers, Peterson, Tullmann, & Schmitt, 2012; Drake, Torkelson, Terrell, Westberg, & Bogolub, 2013; George, MacDonnell, Nimmagadda, Murphy, & Dollase, 2015).

The shared understanding of IPP established also appeared to generate a sense of ownership of the framework and its purpose. Faculty referred not only to "our framework" but also to "our benchmark/standard", and "our vision". This sense of ownership, an important aspect of sensemaking (Pye, 2005), along with the framework's utility in providing a vision or image of the future (what could be) facilitated a commitment to embedding IPE. This commitment was demonstrated by all faculty in the study describing how they, or the faculty they managed, had used the framework to design the students' learning experience and the assessment of the learning outcomes. Faculty used the framework from the first contact with students (induction, orientation, week one of class) through to the students' final assessment. These results contrast with a review of the IPE literature which found a lack of consistency in describing learning outcomes and their assessment (Thistlethwaite & Moran, 2010).

The results of this study showed the framework had promise as tool for leaders to use to facilitate the processes of visioning and sensemaking. Given that it was an exploratory case study, some limitations were evident. The major limitation was that the research targeted key faculty within the University's IPE curriculum who were likely to be familiar with and use the capability framework. This familiarity was essential to examining the impact of the framework. However, this cohort was not representative of the whole faculty as IPE has not been embedded across curricula. An additional limitation was the small number of participants. While they represent a significant proportion of the faculty involved in the design, implementation and evaluation of IPE across the curriculum, caution must be taken in generalising these findings.

Concluding comments

This study has highlighted the need for leaders of IPE to engage with the literature on leadership and, specifically, address how they can facilitate both sensemaking (what is) and visioning (what can be) to motivate faculty to implement IPE within curricula. One tool available to leaders is a capability (or competency) framework. Curtin University has used such a framework to facilitate the process of sensemaking, that is, to establish a shared understanding and means of encoding IPP. From this shared understanding, Curtin's faculty have been able to focus their attention and energy on the design, implementation and assessment of IPE for across multiple disciplines and contexts. Other leaders may wish to consider the application of a

capability framework as both a visioning and sensemaking tool to facilitate change within their organisation. The design of such a framework needs to incorporate simplicity for ease of use and interpretation (sensemaking).

Notes

1. The research report in this article is part of a larger study examining the impact of the framework on the students' learning experience, and their understanding and application of interprofessional practice.

Acknowledgements

Thanks to the faculty who participated to this study and the research assistants, Michelle Broughton and Michelle Donaldson, for their contribution. Thanks also to Helen Flavell for her editorial comments.

Declaration of interest

The author reports no conflicts of interest. The author alone is responsible for the content and writing of this article.

Funding

While no funding was received for the research presented here, the simulation and practice-based placements were partially funded by the Australian government.

References

Anacoda, D. (2012). Sensemaking: Framing and acting in the unknown. In S. Snook, N. Nohria, & R. Khurana (Eds.), *The handbook of teaching leadership: Knowing, doing, and being* (pp. 3–20). Thousand Oaks, CA: Sage Publications.

Bainbridge, L., Nasmith, L., Orchard, C., & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education*, *24*, 6–11.

Baker, L., Reeves, S., Egan-Lee, E., Leslie, K., & Silver, I. (2010). The ties that bind: A network approach to creating a programme in faculty development. *Medical Education*, *44*, 132–139. doi:10.1111/med.2010.44.issue-2

Barker, K. K., Bosco, C., & Oandasan, I. (2005). Factors in implementing interprofessional education and collaborative practice initiatives: Finings form key informant interviews. *Journal of Interprofessional Care*, *19*, 166–176. doi:10.1080/13561820500082974

Barr, H. (2011). Engaging with the global challenge. *Journal of Interprofessional Care*, *25*, 319–320. doi:10.3109/13561820.2011.584831

Brashers, V., Peterson, C., Tullmann, D., & Schmitt, M. (2012). The University of Virginia interprofessional education initiative: An approach to integrating competencies into medical and nursing education. *Journal of Interprofessional Care*, *26*, 73–75. doi:10.3109/13561820.2011.636846

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*, 77–101. doi:10.1191/1478088706qp063oa

Brewer, M. (2011). *Interprofessional Capability Framework*. Retrieved January 15, 2015 from http://healthsciences.curtin.edu.au/faculty/ipe_publications.cfm

Brewer, M., Flavell, H., Davis, M., Harris, C., & Bathgate, K. (2014). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability*, *5*, 29–46.

Brewer, M. L., Flavell, H., Trede, F., & Smith, M. (2016). A scoping review to understand "leadership" in interprofessional education and practice. *Journal of Interprofessional Care*, *30*, 408–415. doi:10.3109/13561820.2016.1150260

Brewer, M. L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health*, *42*, e45–49.

Bridges, D. R., Davidson, R. A., Odegard, P. S., Maki, I. V., & Tomkowiak, J. (2011). Interprofessional collaboration: Three best practice models of interprofessional education. *Medical Education Online*, *16*, 1–10. doi:10.3402/meo.v16i0.6035

Brown, A. D., Colville, I., & Pye, A. (2015). Making sense of sensemaking in organization studies. *Organization Studies*, *36*, 265–277. doi:10.1177/0170840614559259

Buhr, G. T., Konrad, T., Pinheiro, S., Pruitt, J., Poer, C., Shock, L., . . . Heflin, M. T. (2014). An interprofessional education collaborative (IPEC) competency-focused workshop to enhance team performance. *Journal of Post-Acute and Long-Term Care Medicine*, *15*, b10–b11.

Carraccio, C., & Englander, R. (2013). From Flexner to competencies: Reflections on a decade ahead. *Academic Medicine*, *88*, 1067–1073. doi:10.1097/ACM.0b013e318299396f

Curran, V., Casimiro, L., Banfield, V., Hall, P., Lackie, K., Simmons, B. … Oandasan, I. (2008). Research for interprofessional competency-based evaluation (RICE). *Journal of Interprofessional Care*, *23*, 297–300. doi:10.1080/13561820802432398

De Los Santos, M., McFarlin, C. D., & Martin, L. (2014). Interprofessional education and service learning: A model for the future of health professions education. *Journal of Interprofessional Care*, *28*, 374–375. doi:10.3109/13561820.2014.889102

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *The Leadership Quarterly*, *25*, 36–62. doi:10.1016/j.leaqua.2013.11.005

Dow, A. W., DiazGranados, D., Mazmanian, P. E., & Retchin, S. M. (2014). An exploratory study of an assessment tool derived from the competencies of the interprofessional education collaborative. *Journal of Interprofessional Care*, *28*, 299–304. doi:10.3109/13561820.2014.891573

Drake, D., Torkelson, C., Terrell, C., Westberg, S., & Bogolub, C. (2013). A model for integrative women's health in an interprofessional and academic setting: Vision, implementation, and sustainability. *Global Advances in Health and Medicine*, *2*(suppl), 29A. doi:10.7453/gahmj.2013.097CP.S29A

El Ansari, W. (2012). Leadership in community partnerships: South African study and experience. *Central European Journal of Public Health*, *20*, 174–184.

Fox, S. J., & Gilbert, J. H. (2015). Mapping collective sensemaking in communication: The interprofessional patient case review in acute care rounds. *Health & Interprofessional Practice*, *2*, 1–20. doi:10.7710/2159-1253

Freeth, D., Hammick, M., Reeves, S., Koppel, I., & Barr, H. (Ed). (2005). *Effective interprofessional education: Development, delivery & evaluation*. Oxford, UK: Blackwell Publishing.

George, P., MacDonnell, C., Nimmagadda, J., Murphy, J., & Dollase, R. (2015). Designing interprofessional education curriculum using multiple conceptual frameworks. *Annals of Behavioral Science and Medical Education*, *21*, 9–13. doi:10.1007/BF03355303

Goleman, D. (2013). *Focus: The hidden driver of excellence*. New York, NY: Harper Collins.

The Interprofessional Curriculum Renewal Consortium, Australia. (2013). *Curriculum renewal for interprofessional education in health*. Canberra, Australia: Department of Education.

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Retrieved from http://www.aacn.nche.edu/education-resources/IPECReport.pdf

Kotter, J. P. (2012). *Leading change*. Boston, MA: Harvard Business Review Press.

Ladkin, D. (2010). *Re-thinking leadership: A new look at old leadership questions*. Northampton, MA: Edward Elgar Publishing.

MacKenzie, D., & Merritt, B. K. (2013). Making space: Integrating meaningful interprofessional experiences into an existing curriculum. *Journal of Interprofessional Care*, *27*, 274–276. doi:10.3109/13561820.2012.751900

Manojlovich, M. (2010). Nurse/physician communication through a sensemaking lens: Shifting the paradigm to improve patient safety. *Medical Care*, *48*, 941–946. doi:10.1097/MLR.0b013e3181eb31bd

McCray, J. (2003). Leading interprofessional practice: A conceptual framework to support practitioners in the field of learning disability. *Journal of Nursing Management*, *11*, 387–395. doi:10.1046/j.1365-2834.2003.00430.x

Oliver, B. (2010). *Australian Learning and Teaching Council teaching fellowship: Benchmarking partnerships for graduate employability*. Retrieved from http://www.olt.gov.au/resource-benchmarking-partnerships-oliver-curtin-2010

Pittenger, A. L., Westberg, S., Rowan, M., & Schweiss, S. (2013). An interprofessional diabetes experience to improve pharmacy and nursing students' competency in collaborative practice. *American Journal of Pharmaceutical Education*, *77* (9), 197. doi:10.5688/ajpe779197

Pye, A. (2005). Leadership and organizing: Sensemaking in action. *Leadership*, *1*, 31–49. doi:10.1177/1742715005049349

Reeves, S. (2012). The rise and rise of interprofessional competence. *Journal of Interprofessional Care*, *26*, 253–255. doi:10.3109/13561820.2012.695542

Reeves, S., Fox, A., & Hodges, B. D. (2009). The competency movement in the health professions: Ensuring consistent standards or reproducing conventional domains of practice? *Advances in Health Sciences Education*, *17*, 451–453. doi:10.1007/s10459-009-9166-2

Reeves, S., MacMillan, K., & van Soeren, M. (2010). Leadership of interprofessional health and social care teams: A socio-historical analysis. *Journal of Nursing Management*, *18*, 258–264. doi:10.1111/jnm.2010.18.issue-3

Rubin, H. J., & Rubin, I. S. (1995). *Qualitative interviewing: The art of hearing data*. Thousand Oaks, CA: Sage.

Starbuck, W. H., & Milliken, F. J. (1998). Executive perceptual filters: What they notice and how they make sense. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers* (pp. 35–66). Greenwich, Connecticut: JAI Press.

Thistlethwaite, J. E., Forman, D., Matthews, L. R., Rogers, G. D., Steketee, C., & Yassine, T. (2014). Competencies and frameworks in interprofessional education: A comparative analysis. *Academic Medicine*, *89*, 869–875. doi:10.1097/ACM.0000000000000249

Thistlethwaite, J., & Moran, M. (2010). Learning outcomes for interprofessional education (IPE): Literature review and synthesis. *Journal of Interprofessional Care*, *24*, 503–513. doi:10.3109/13561820.2010.483366

Thomas, L., Reedy, G., & Gill, E. (2014). Learning to work together: How interprofessional simulation enables undergraduate medics in their understanding of interprofessional practice. *BMJ Simulation and Technology Enhanced Learning*, *1*, a80–a81.

Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Retrieved from http://www.who.int/hrh/resources/framework_action/en/

Yin, R. K. (2014). *Care study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

Paper 5

Brewer, M. L., Flavell, H. L., Trede, F., & Smith, M. (2016). A scoping review to understand 'leadership' in interprofessional education and practice. *Journal of Interprofessional Care, 30,* 408-415.

Journal of Interprofessional Care

ISSN: 1356-1820 (Print) 1469-9567 (Online) Journal homepage: http://www.tandfonline.com/loi/ijic20

A scoping review to understand "leadership" in interprofessional education and practice

Margo L. Brewer, Helen Louise Flavell, Franziska Trede & Megan Smith

To cite this article: Margo L. Brewer, Helen Louise Flavell, Franziska Trede & Megan Smith (2016) A scoping review to understand "leadership" in interprofessional education and practice, Journal of Interprofessional Care, 30:4, 408-415, DOI: 10.3109/13561820.2016.1150260

To link to this article: http://dx.doi.org/10.3109/13561820.2016.1150260

JOURNAL OF INTERPROFESSIONAL CARE
2016, VOL. 30, NO. 4, 408–415
http://dx.doi.org/10.3109/13561820.2016.1150260

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

A scoping review to understand "leadership" in interprofessional education and practice

Margo L. Brewer[a], Helen Louise Flavell[a], Franziska Trede[b], and Megan Smith[c]

[a]Faculty of Health Sciences, Curtin University, Perth, Western Australia, Australia; [b]Education for Practice Institute, Charles Sturt University, Sydney, New South Wales, Australia; [c]School of Community Health, Charles Sturt University, Albury Wodonga, New South Wales, Australia

ABSTRACT

This scoping study examined how "leadership" is referred to and used in interprofessional education and practice. A total of 114 refereed articles were reviewed to determine how leadership is defined, conceptualised, and theorised. The review also examined what capabilities were identified for effective interprofessional leadership. The majority of papers were empirical studies undertaken by researchers based in North America. The majority of articles did not refer to a specific leadership approach, nor did they define, describe, or theorise leadership. Moreover, "leadership" capabilities were rarely identified. Articles generally focused on health practitioners and educators or students as leaders with little exploration of leadership at higher levels (e.g. executive, accrediting bodies, government). This review indicates the need for a more critical examination of interprofessional leadership and the capabilities required to lead the changes required in both education and practice settings. The goal of this article is to stimulate discussion and more sophisticated, shared understandings of interprofessional leadership for the professions. Recommendations for future research are required in both education and practice settings.

ARTICLE HISTORY
Received 13 March 2015
Revised 2 December 2015
Accepted 31 January 2016

KEYWORDS
Interprofessional education; interprofessional practice; leadership; scoping review

Introduction

Leadership in government, regulatory, healthcare and education domains is needed to address the entrenched healthcare processes and structures that limit interprofessional education (IPE) and practice (e.g. Barr, 2011; Oandasan & Reeves, 2005; Reeves, MacMillan & van Soeren, 2010). Despite this understanding, little has been published on what effective leadership in IPE and interprofessional practice (IPP) entails. Historically, research on "leadership" has been grounded in objective, positivist and quantitative paradigms with leadership being conceptualised as leader centred, individualistic and hierarchical (Kezar, Carducci & Contreras-McGavin, 2006). As a consequence, particular traits or characteristics have been privileged along with a focus on the power of the individual leader. More recently, social constructivist, critical and postmodern paradigms have shifted the conceptualization of leadership (Ladkin, 2010) to a process centred, collective, non-hierarchical, situational viewpoint focused on mutual power and influence (Kezar et al., 2006). This contemporary view of leadership involves multiple individuals interacting through a variety of formal and informal structures (Yammarino, Salas, Serban, Shiieffs, & Shuffler, 2012).

Contemporary leadership theories are now being applied to the healthcare context. For example, the UK's National Health Service (NHS) framework for leadership development of all staff in health and healthcare is based on a collective paradigm where leadership occurs at all levels of the organization, and leader's and followers' roles change dependent on the situation (The King's Fund, 2011). Further to this shared or distributed leadership model is the suggestion that healthcare services within the NHS would be improved if delivered by staff working interprofessionally, sharing their knowledge and skills (McComb, 2013). Another example of a contemporary leadership theory in healthcare is the recent publication by Weiss, Tilin and Morgan (2014) dedicated to the application of relational leadership. The model proposed focuses on staff working within interprofessional teams where leadership is based on reciprocal interactions between leaders and followers, and the leader functions as a learner, coach, partner, catalyst, and ecologist. These examples suggest that the healthcare sector is recognizing that new models of leadership – in line with collaborative practice – are required to meet future needs. Along similar lines, recent books on leadership for IPE/IPP (Forman, Jones, & Thistlethwaite, 2014, 2015) draw on the experience of leaders from across the globe. Multiple leadership models are promoted, many based on "transformational" leadership, and a few on more contemporary models including "shared", "collaborative", and "adaptive" leadership.

While it is not necessary to adopt a "one size fits all" model of leadership for IPE/IPP (Forman et al., 2015), some clarity over how leadership is currently conceptualised and theorised, and the capabilities required will assist the development of effective leadership models for the varied contexts in which IPE and IPP occur. Clarity is particularly relevant in the interprofessional field with its history of poor conceptualization, multiple definitions, and the inconsistent application of theory (Reeves et al., 2011). In keeping with Goldman, Zwarenstein, Bhattacharyya and Reeves' (2009) recommendation that scoping reviews are needed to guide future IPE/IPP research, this article reports on a scoping review aimed to improve our understanding of how researchers in the fields of IPE

CONTACT Margo L. Brewer m.brewer@curtin.edu.au Pro-Vice Chancellor's Office, Curtin University, Faculty of Health Sciences, GPO Box U1987, Perth, WA 6845, Australia.

and IPP conceptualise leadership. The key practical and research implications of these findings are outlined.

Method

A scoping review of the literature was undertaken. This type of review aims to map the key concepts underpinning an area of research and the main sources of evidence available; they allow an examination of the extent, range, and nature of research activity (Arksey & O'Malley, 2005). This scoping review utilised conceptual mapping to underpin the scoping review, which focuses on terminology rather than the research (and its quality) conducted on a particular topic (Rumrill, Fitzgerald, & Merchant, 2010). This methodology aligns with the aim to understand how "leadership" has been used and represented in the literature. Scoping studies are particularly relevant in fields like IPE and IPP where emerging evidence makes it difficult to undertake systematic reviews (Levac, Colquhoun, & O'Brien, 2010).

The study adhered to Levac and colleagues (2010) recommendations for ensuring the quality of scoping reviews: (1) a multidisciplinary team of researchers from health and humanities; (2) a transparent and replicable process with regular team meetings; (3) review of full articles for inclusion; and (4) a descriptive numerical summary of the evidence. The research process is outlined in accordance with Arksey and O'Malley's (2005) scoping review framework.

Step 1. The research questions

The research questions that drove this article were the following. First, in the past two decades, how have researchers in the field of IPE and/or IPP within the healthcare sector defined, conceptualised and theorised leadership? Second, what leadership capabilities for IPE and/or IPP have been identified in the literature? Finally, what education and practice contexts and target groups are identified in this literature?

Step 2. Identify the relevant studies

Search strategies were designed in consultation with a senior health science librarian (see Figure 1). Although the terms "interdisciplinary", "multidisciplinary", "multiprofessional", and "interprofessional" are often used interchangeably, this scoping review focused on journal papers where the author(s) had identified the topic using the word "interprofessional". The search terms used were [leader* AND interprofessional AND health] within the title, abstract and keywords (where applicable within the database). The study examined peer reviewed publications in the decades following the establishment of the *Journal of Interprofessional Care* (1992) and one of the first text books (Leathard, 1994), *Going Interprofessional*, as they point to a key moment in the emergence of the field.

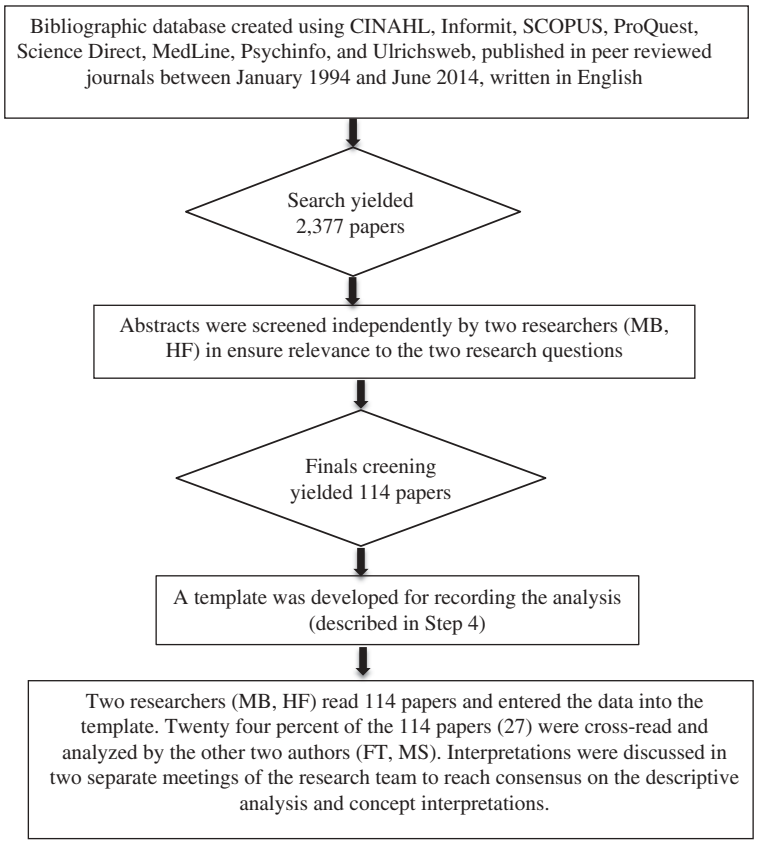


Figure 1. Paper selection flowchart.

Step 3. Study selection

Abstracts were screened independently by two of the researchers (MB, HF) to ensure they explicitly discussed leadership and/or leaders in health education or practice, made reference to IPE or IPP, and the papers were accessible. The two lead researchers met regularly (8 occasions) with two Skype sessions conducted with the remaining two authors to further discuss the screening process and analysis. The final screening for relevance yielded a total of 114 papers.

Step 4. Charting the studies

The details of each paper reviewed were entered into a template (Excel© spreadsheet) as follows: (1) biographical details, (2) brief summary, (3) inclusion of leadership definition, approach, explanation, theory, concept/model, capabilities/competencies, and (4) key focus as per the coding provided in Table 1.

Table 1. Paper type coding (adapted from Brandt, Lutfiyya, King, & Chioreso, 2014).

Classification	Description
Program	An IPE, IPP and/or interprofessional leadership program is described. No data or analysis included.
Empirical	An IPE, IPP and/or interprofessional leadership study is described. Data and analysis are included.
Conceptual	A framework or model of IPE, IPP and/or interprofessional leadership is provided.
Opinion/ position	Thoughts about IPE, IPP and/or interprofessional leadership. No research or program development presented.
Summary	Review of existing literature or research.

Results

The analysis revealed that of the 114 papers[1] examined the majority were published in interprofessional (39%), nursing (32%), and medical (20%) journals. The remaining 11 papers (9%) were from a range of profession specific journals. Although the search criteria incorporated papers from the past two decades over half (54%) were published in the period 2013 to mid-2014 (Figure 2).

As shown in Table 2 the largest share of papers reviewed were from the United States (US) (46%) followed by Canada (24%), and Australia (12%). Cross-country collaborations were evident with two papers published involving two countries, and one paper involving seven European countries. Half of the papers were empirical (50%), with opinion papers (18%), conceptual (14%), and programme (12%) papers the next most common. Few (5%) summary papers were found. Differences between regions were observed. Most regions predominately produced empirical papers, for example, Canada (75%), the UK (83%), and Australia (7%). In contrast, only half of the European papers were empirical (50%), with the US having fewer (42%). The US

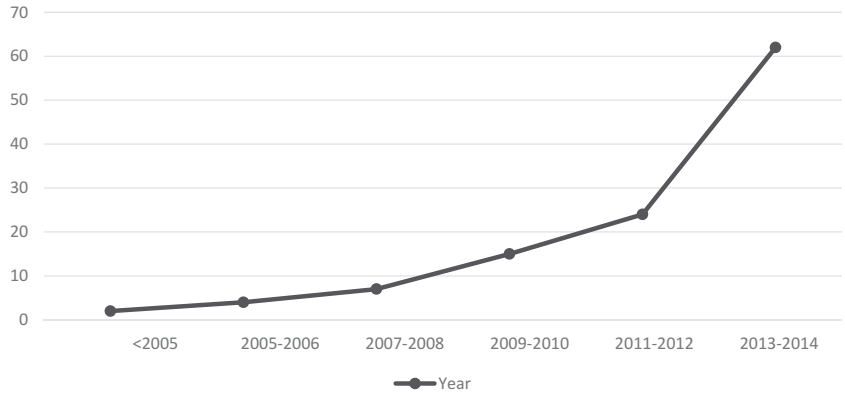


Figure 2. Year of publication for the 114 papers reviewed.

Table 2. Frequency of IPE/IPP leadership literature descriptors, 1994–2014 (n = 114).

Country	US	Canada	Australia	New Zealand	UK	Europe	Global	Nicaragua	India	Totals
Paper classification										
Program	8	1	2	1			2			***14***
Empirical	21	20	8	1	4	2	1	1		***58***
Conceptual	9	4	2		1		1			***17***
Opinion	14	3	1			2			1	***21***
Summary	1		1		1		3			***6***
Totals	53	28	14	2	6	4	7	1	1	116*
How leadership is represented										
Approach	12	3	1	2	1	2	2			***23***
Definition	4	2			1					***7***
Explanation/description	24	4	1	2	2	2	2			***37***
Theory	5	2	2		1					***10***
Concept/model	1	1			1					***3***
Capabilities	12	5	1		1	1	1			***21***

*2 papers shared by two countries so double counted.

featured the greatest proportion of opinion papers (67%), which comprised a quarter (26%) of the total papers from that region.

Examination of the 114 papers resulted in the following observations. First, over a third of the papers (39%) only briefly referred to "leaders" or "leadership", typically in reference to formal or positional leadership roles (e.g. "nurse leaders", "executive"), the importance of "champions" to lead IPE/IPP, or the impact of leaders (e.g. "leadership facilitates teamwork"). Only 15 papers (13%) had leadership as a central theme, half of which (53%) were from the US with the others from a range of regions. For example Malloch and Melnyk (2013) provided strategies for leaders of change within healthcare; Ekmecki et al. (2013) studied the impact of executive coaching and simulation on the development of leadership and collaboration in a small group of pre-qualified students. The remaining papers described leadership as an important element of IPE/IPP. For example, Fried, Begg, Bayer and Galea (2014) called for leadership training in all public health programmes. Many of the papers from nursing journals discussed the need for leadership training for nurses (e.g. Frederickson & Nickitas, 2011; Lacasse, 2013), whereas several medical journal papers focused on the need to move away from traditional medical leadership approaches (e.g. Cornthwaite, Edwards, & Siassakos, 2013; George, Frush, & Michener, 2013).

A number of papers raised interesting topics for consideration in their suggestions to shift away from traditional hierarchical, individualistic leadership. For example, Dow, DiazGranados, Mazmanian, and Retchin (2013) discussed the notion of "dynamic delegation", which aligns with contemporary situational views of leadership and with the dynamic nature of many healthcare contexts. Here leadership was viewed as dynamic and "co-produced", that is, each team member takes on a leader or follower role in response to specific clinical events. Nugus, Greenfield, Travagia, Westbrook, and Braithwaite (2010) explored the presence of both "competitive" and "collaborative" power in their study of teams within diverse health services in Australia. Competitive power was described as a clinician(s) from one profession dominating others while collaborative power involves interdependent participation (e.g. role interchangeability) and decision-making, resulting in a team atmosphere of collegiality. Examples of collaborative power include case conferences led by a doctor, a nurse or a therapist who actively encouraged participation of others and where input was self-directed, rather than invited by a doctor or chairperson. Savage and colleagues (2014) provided an overview of a healthcare leadership development programme in the US. The authors state the need for distributed leadership across professions underpinned by a model of collaborative governance.

Second, the vast majority of the papers did not define and conceptualise leadership. Less than one quarter of papers (20%) named a specific leadership approach, while only 7 papers (6%) provided a definition of leadership or of the leadership approach (es) to which they referred. One-third of papers (32%) gave an explanation or description of leadership, but these were very cursory, e.g. "we all have to take leadership roles" (Bajnok, Puddesters, MacDonald, Archibald, & Kuhl, 2012, p. 83), and "engage site leadership in a commitment to interprofessional training" (Darney, VanDerhei, Weaver, Stevens, & Prager, 2013, p. 224). Where the leadership approach was provided these represented three categories: collective, transformational, and relational. Forms of collective leadership was the most commonly mentioned approach with 26 papers making reference to these, labelled as "team" (n = 11), "shared" (n = 7), "distributed" (n = 3), and "collaborative" (n = 3). Team leadership was the most commonly defined with three papers providing definitions. For example, Leasure et al. (2013) defined team leadership as "the ability to coordinate team members" activities, ensure that tasks are distributed appropriately, evaluate performance, provide feedback, enhance the team's ability to perform, and inspire the drive for high-level performance (p. 586). Transformational (or the related altruistic' and "resonant") leadership was cited in 10 papers but was not defined. However, one paper that did describe the practices of transformational leadership was McComb (2013), who highlighted the transformational leader's emphasis on relationships, teamwork, communication, autonomy, creativity, and empowerment. A small number of other approaches were cited: "authentic" (n = 3), "servant" (n = 2); and "quantum" (n = 1).

Third, minimal use of theory was observed with only 10 of the papers (9%) having made reference to a leadership theory. For example, Baker, Reeves, Egan-Lee, Leslie, and Silver (2010) applied network theory to their IPE faculty development programme in Canada. In contrast, Montgomery (2011) applied quantum leadership theory and complex adaptive systems theory to a nursing leadership programme in the US.

Fourth, a conceptual framework or model for interprofessional leadership was provided in only 3 papers (3%) (e.g. Clark, 2013; McComb, 2013). A small number of papers provided a framework or model for IPE or IPP with passing reference to leadership (e.g. Leasure et al., 2013).

Consistent with a lack of definition, conceptualization and theorization of leadership, only 25 papers (18%) included a focus on leadership capabilities (or competencies). These leadership capabilities can be grouped into two subsets: (i) general "leadership" capabilities such as creating a vision, and stimulating interest and commitment (e.g. Baker et al., 2010; Carney, 2009), and (ii) leadership capabilities more specific to an interprofessional context such as an appreciation for the range of expertise of all team professionals, and realizing when another team member is better equipped to lead the team (e.g. Pecukonis et al., 2013).

A cursory examination of the contexts in which this research was set (Table 3) indicated that 68 papers (60%) were set in a healthcare practice setting (e.g. rehabilitation

Table 3. Frequency of specific contexts and targets (n=114).

Context	University	Practice	Other	Totals
Target				
Government		1		1
Regulation/accreditation bodies				0
Executive (senior)	2	5		7
Managers/unit leaders	7	10		17
Academics	13	0	0	13
Health practitioners	0	48		48
Students	21	4		25
Students & academics	1			1
General (e.g. model)	1		1	2
Totals	45	***68***	1	114

teams, ICU, surgical teams, maternity care, and family healthcare teams) with 48 of these papers (70%) focused on the practice of the health professionals within these teams. Four of these healthcare setting papers focused on students, generally in relation to student-led clinics. Five papers focused specifically on executive leadership, and 10 on local leadership such as ward or unit managers. Of the 45 papers set in the academic setting 47% targeted students while 29% targeted academic staff. Two papers targeted executive level leadership in academia and seven at the local level (e.g. department lead). Only one paper specially targeted government while none were specific to accreditation or regulatory bodies. The two papers categorised as "other" were Bainbridge, Nasmith, Orchard, and Wood's (2010) paper on the Canadian interprofessional competency framework and Baker and colleagues' (2010) model for faculty development.

Discussion

This scoping review of the interprofessional literature focused on mapping the concepts generated in relation to "leadership" and the implications for further research. The results indicated that interest in leadership in the interprofessional field was on the rise with over half of the 114 papers reviewed published between January 2013 and June 2014. The majority of these were across three journal types: interprofessional, nursing and medicine. Despite this emergent interest, leadership was not the primary focus of the majority of papers; instead most explored a broad range of initiatives or issues in relation to IPE or IPP with fleeting reference to leaders and/or leadership. The findings are discussed below within six sections: approaches, definitions and concepts, theories, capabilities, context, and implications for future research.

Less than one quarter of the 114 papers reviewed cited a leadership approach(es). The most common of these were collective (e.g. team, shared, collaborative, distributed), which featured a flattened hierarchy where the role of leader varied according to the situation e.g. by team, task and problem (Leasure et al., 2013). However, as these approaches were rarely explained it was difficult to ascertain how they applied in practice. Patterson and McMurray (2003) provided one of the few accounts of the practicalities of a collective leadership approach, stating the need for shared power and authority based on knowledge or expertise as opposed to role or function, where flat organizational structures encourage participation and interdependence between team members. The success of collective leadership approaches has been questioned, particularly in relation to the long history of the hierarchical structure within the health professions, professional territorialism and power (Fox & Reeves, 2015; Reeves, MacMillan, & van Soeren, 2010). Dow et al. (2013) raised concern that interprofessional team members may have conflicting perceptions of leadership structures and responsibilities. This may be particularly true for medicine where "training and practice are traditionally characterised by autonomy, hierarchy, individual achievement, and competition" (George et al., 2013, p. 1603).

The second most common approach was transformational leadership, the most studied approach in leadership research (Dionne et al., 2014). Bass (1990), a leading proponent of transformational leadership, defined this as occurring "when leaders broaden and elevate the interests of their employees, when they generate awareness and acceptance of the purposes and mission of the group, and when they stir their employees to look beyond their own self-interest for the good of the group" (p. 21). While the alignment of this approach with the need for significant ("transformational") change to health education and practice is appealing, transformational leadership is based on an individualistic, hierarchical view of leadership. The relevance of this to the principles of collaboration and equality in IPE and IPP is worthy of examination. One paper that addressed this was McComb's (2013) description of the NHS leadership framework which combined transformational and distributed leadership, thus bridging the gap between hierarchical and collective leadership.

While featured in very few of the papers, the remaining leadership approaches (authentic, servant, and quantum) have gained popularity in the broader leadership research in recent years. For example, Northouse's (2016) book on leadership features both authentic and servant leadership. Authentic leadership is defined as "a pattern of leader behavior that develops from and is grounded in the leader's positive psychological qualities and strong ethics" (p. 196). In contrast, servant leadership is defined as "the natural feeling that one wants to serve" (p. 226). Quantum leadership (aligned with quantum theory), while rarely defined, has been linked to healthcare mostly from the nursing perspective (Porter-O'Grady & Malloch, 2007). These three approaches, while offering promise in the field of IPE and IPP in healthcare, require sophisticated self-awareness and reflective skills, high levels of emotional intelligence, and in the case of quantum leadership, a high level of knowledge of the system in which the leader is operating and the ability to deal with complexity and chaos.

Definitions are important as they enable people to have a common understanding of a word or topic. As noted earlier, leadership was rarely defined in the papers reviewed. Most surprising, even when an atypical leadership approach was cited, such as quantum leadership, this was not defined. Of the few papers that did provide a definition most were of a specific leadership approach rather than leadership per se. One exception to this was Frederickson and Nikitas' (2011) paper on leadership in nursing which defined leadership as "the process of influencing others toward the attainment of one or more goals" (p. 346). This contrasts with Gabel's (2014) definition of leadership in medicine as "the appropriate and ethical influence exerted by one individual to alter, modify, or change the reactions, attitudes, or behaviors of other individuals to maintain or further core values of the health professions" (p. 848). Definitions such as this reinforce traditional hierarchical views of leadership based on power and formal roles, and hence need to be examined in light of more contemporary collaborative and relational views of leadership.

To compound this lack of definitions only one third of the papers provided a description or explanation of leadership or the terms used. Even when provided these descriptions lacked detail compounding to the readers' difficulty in gaining a clear understanding of how the concept of "leadership" was

being used. Accurate conceptualization is essential not only for knowledge development but also for measurement (Meghani et al., 2013). Evidence of the impact of this poor conceptualization can be found elsewhere in the literature. For example, Reeves and colleagues (2010) systematic review of IPE indicated that problems with the conceptualization of IPE were evident. Similarly, Lapkin and colleagues (2012), in their review of IPE in universities, found that despite the majority of respondents stating that they offer IPE experience(s) to their students, only one quarter of these were deemed to meet the definition of IPE.

Concern over a lack of theoretical models for leadership in IPE/IPP (Reeves et al., 2011) was confirmed in this review with only a small number of papers providing a description of an underlying theoretical framework. Three papers that provided a theory specific to leadership were Baker and colleagues' (2010) network theory, Montgomery's (2011) quantum leadership and complexity science, and Dow and colleagues' (2013) dynamic delegation theory. The lack of use of theoretical frameworks suggests that leadership in IPE and/or IPP remains undertheorised which limits our understanding of leadership in this context. Engagement with the broader leadership literature will assist researchers to advance their understanding.

The interprofessional field has seen much interest in capabilities/competencies over many years (Barr, 1998; Reeves, 2012). In a recent review of IPE competency frameworks Thistlethwaite and colleagues (2014) described these as providing "a common lens" through which to understand, describe, and implement practice (p. 869). This interest does not appear to have transferred to leadership with less than one quarter of papers in the field including any detail on leadership capabilities. The development of specific capabilities would add to the clarity and conceptualization of interprofessional leadership.

Some contextual differences were observed in the papers reviewed in terms of the paper type and the representation of leadership. The US had a larger portion of papers, many of which were opinion pieces, which discussed leadership specific to one profession (generally nursing or medicine). Canada's main contribution on the other hand was empirical papers with an interprofessional focus. While difficult to ascertain the reason for this perhaps the development of the national IPE competencies in the US in 2011 followed by the establishment of a national centre in 2012 triggered the interest in these opinion pieces as well as the number of papers more broadly (85% of the US papers were published from 2011 onwards). Interestingly just under half of Canada's papers were published between 2007 and 2010 the period between their working group forming to develop their national IPE competencies and these being published. The reason for the differences in how leadership was represented is less clear. While papers from the US, allowing for their proportion of total papers, were more likely than papers from any other country to provide a leadership approach, an explanation or description of leadership, and leadership capabilities, no contributing factors were identified.

The number of papers set within the practice context was almost double of those related to the university context. Not surprisingly the practice papers tended to focus on health practitioners while the university papers focused on both faculty and students. It was worth noting that few papers were focused specifically at the executive level of organizations, none on regulatory or accrediting bodies, and only one on government.

This scoping review has a number of limitations. First, the inclusion of only peer reviewed journal papers meant that textbooks and grey literature were not included. It is possible that these sources would have revealed a more expansive array of concepts in relation to interprofessional leadership. The decision to focus only on papers that used the term "interprofessional" also limited the scope of the review. This is problematic in the interprofessional field where multiple terms are used interchangeably (Goldman et al., 2009). Nonetheless the search yielded 114 papers which was deemed a suitable quantity for a scoping review. The methodological rigor of studies was not examined. However, this study succeeded in providing an overview of interprofessional leadership which can be used to inform future systematic reviews.

While collective and relational views of leadership align with the core principles of IPE and IPP (Barr & Low, 2011) including collaboration, equal status, mutual respect, and shared values, their application within IPE and IPP broadly, and within specific contexts (e.g. an emergency department versus primary care) must be examined.

The findings of this scoping review indicate the need to more critically examine the complex nature of leadership in the interprofessional field (McCallin, 2003), how it might be defined and conceptualised and the theories that inform it. Research to identify the key capabilities employed by effective leaders in the field would inform professional development to address the complex social, political, and economic conditions within healthcare (Fox & Reeves, 2015) and education (Mennin, 2013). Research is needed beyond the individual leader and team level to examine leadership at executive, regulatory/accrediting body, and government levels. In undertaking such studies researchers need to explicitly define their leadership paradigm, theory and key concepts.

Concluding comments

This scoping review has highlighted that in the interprofessional field the majority of papers using the terms "leader" and/or "leadership" do not define, conceptualise or theorise what they mean. Similarly, the capabilities required to be an effective interprofessional leader are left undefined and lack a theoretical framework. Most commonly the papers reviewed evoked "leadership" reliant on positional or formal leadership roles or made broad reference to the need for strong leaders and champions. While more sophisticated understandings of leadership are emerging in the field, with nursing the profession most engaged in contemporary leadership theories, this must be accelerated. This absence of shared theories and conceptualizations of leadership make it difficult to evaluate or share effective leadership practices.

Note

1. Full details of the 114 papers are available upon request from the corresponding author.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Funding

Support for this literature review has been provided by the Australian Government Office for Learning and Teaching [grant number LE12-2161]. The views in this project do not necessarily reflect the views of the Australian Government Office for Learning and Teaching.

References

Arksey, H. & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, *8*, 19–32.

Bainbridge, L., Nasmith, L., Orchard, C., & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education*, *24*, 6–11.

Bajnok, I., Puddster, D., MacDonald, C. J., Archibald, D., & Kuhl, D. (2012). Building positive relationships in healthcare: Evaluation of the teams of interprofessional staff interprofessional education program. *Contemporary Nurse*, *42*, 76–89.

Baker, L., Reeves, S., Egan-Lee, E., Leslie, K., & Silver, I. (2010). The ties that bind: A network approach to creating a programme in faculty development. *Medical Education*, *44*, 132–139.

Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *Journal of Interprofessional Care*, *12*, 181–187.

Barr, H. (2011). Engaging with the global challenge. *Journal of Interprofessional Care*, *25*, 319–320.

Barr, H., & Low, H. (2011). *CAIPE principles of interprofessional education*. Retrieved from http://caipe.org.uk/resources/principles-of-interprofessional-education/

Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, *18*, 19–31.

Brandt, B., Lutfiyya, M. N., King, J. A., & Chioreso, C. (2014). A scoping review of interprofessional collaborative practice and education using the lens of the Triple Aim. *Journal of Interprofessional Care*, *28*, 393–399.

Carney, M. (2009). Public health nurses perception of clinical leadership in Ireland: Narrative descriptions. *Journal of Nursing Management*, *17*, 435–445.

Clark, P. G. (2013). Toward a transtheoretical model of interprofessional education: Stages, processes and forces supporting institutional change. *Journal of Interprofessional Care*, *27*, 43–49.

Cornthwaite, K., Edwards, S., & Siassakos, D. (2013). Reducing risk in maternity by optimising teamwork and leadership: An evidence-based approach to save mothers and babies. *Best Practice and Research: Clinical Obstetrics and Gynaecology*, *27*, 571–581.

Darney, B. G., VanDerhei, D., Weaver, M. R., Stevens, N. G., & Prager, S. W. (2013). "We have to what?": Lessons learned about engaging support staff in an interprofessional intervention to implement MVA for management of spontaneous abortion. *Contraception*, *88*, 221–225.

Dionne, S. H., Gupta, A., Sotak, K. L., Shirreff, K. A., Serba, A., Hao, C. . . . Yammarino, F. J. (2014). A 25-year perspective on levels of analysis in leadership research. *The Leadership Quarterly*, *25*, 6–35.

Dow, A. W., DiazGranados, D., Mazmanian, P. E., & Retchin, S. M. (2013). Applying organizational science to health care: A framework for collaborative practice. *Academic Medicine*, *88*, 952–957.

Ekmekci, O. E., Plack, M. E., Pintz, C. P., Bocchino, J. E., LeLacheur, S. P., & Halvaksz, J. D. P. T. (2013). Integrating executive coaching and simulation to promote interprofessional education of health care students. *Journal of Allied Health*, *42*, 17–24.

Forman, D., Jones, M., & Thistlethwaite, J. (Eds.). (2014). *Leadership development for interprofessional education and collaborative practice*. Basingstoke, UK: Palgrave Macmillan.

Forman, D., Jones, M., & Thistlethwaite, J. (Eds.). (2015). *Leadership and collaboration: Further development for interprofessional education and collaborative practice*. Basingstoke, UK: Palgrave Macmillan.

Fox, A., & Reeves, S. (2015). Interprofessional collaborative patient-centred care: A critical exploration of two related discourses. *Journal of Interprofessional Care*, *29*, 113–118.

Frederickson, K., & Nickitas, D. (2011). Chief nursing officer executive development: A crisis or a challenge? *Nursing Administration Quarterly*, *35*, 344–353.

Fried, L. P., Begg, M. D., Bayer, R., & Galea, S. (2014). MPH education for the 21st Century: Motivation, rationale, and key principles for the new Columbia public health curriculum. *American Journal of Public Health*, *104*, 23–30.

Gable, S. (2014). Expanding the scope of leadership training in medicine. *Academic Medicine*, *89*, 848–852.

George, A. E., Frush, K., & Michener, J. L. (2013). Developing physicians as catalysts for change. *Academic Medicine*, *88*, 1603–1605.

Goldman, J., Zwarenstein, M., Bhattacharyya, O., & Reeves, S. (2009). Improving the clarity of the interprofessional field: Implications for research and continuing interprofesssional education. *Journal of Continuing Education in the Health Professions*, *29*, 151–156.

Kezar, A. J., Carducci, R., & Contreras-McGavin, M. (2006). *Rethinking the "l" word in higher education: The revolution of research on leadership*. Hoboken, NJ: Wiley.

The King's Fund (2011). T*he future of leadership and management in the NHS: no more heroes*. Report from The King's Fund Commission on Leadership and Management in the NHS. Retrieved from http://www.kingsfund.org.uk/publications/future-leadership-and-management-nhs

Lacasse, C. (2013). Developing nursing leaders for the future: achieving competency for transformational leadership. *Oncology Nursing Forum*, *40*, 431–433.

Ladkin, D. (2010). *Rethinking leadership: A new look at old leadership questions*. Northampton, MA: Edward Elgar.

Lapkin, S., Levett-Jones, T., & Gilligan, C. (2012). A cross-sectional survey examining the extent to which interprofessional education is used to teach nursing, pharmacy and medical students in Australian and New Zealand Universities. *Journal of Interprofessional Care*, *26*, 390–396.

Leasure, E. L., Jones, R. R., Meade, L. B., Sanger, M. I., Thomas, K. G., Tilden, V. P., & Bowen, J. L. (2013). There is no "I" in teamwork in the patient-centered medical home: Defining teamwork competencies for academic practice. *Academic Medicine*, *88*, 585–592.

Leathard, A. (1994). Interprofessional developments in Britain. In A. Leathard (Ed.). *Going interprofessional: Working together for health and welfare* (pp. 3–37). London, UK: Routledge.

Levac, D., Colquhoun, H. & O'Brien, K. K. (2010). Scoping studies: Advancing the methodology. *Implementation Science*, *5*, 69–77.

Malloch, K., & Melnyk, B. M. (2013). Developing high-level change and innovation agents: Competencies and challenges for executive leadership. *Nursing Administration Quarterly*, *37*, 60–66.

McCallin, A. (2003). Interdisciplinary team leadership: A revisionist approach for an old problem? *Journal of Nursing Management*, *11*, 364–370.

McComb, J. (2013). Is current NHS leadership sufficient or deficient? *British Journal of Health Care Management*, *19*, 342–347.

Meghani, S. H., Buck, H. G., Dickson, V. V., Hammer, M. J., Rabelo-Silva, E. R., Clark, R., & Naylor, M. D. (2013). The conceptualization and measurement of comorbidity: A review of the interprofessional discourse. *Nursing Research and Practice*, Article ID 192782, 1–10. doi:10.1155/2013/192782

Mennin, S. P. (2013). Health professions education: Complexity, teaching and learning. In J. P. Sturmberg & C. M. Martin (Eds.), *Handbook of systems and complexity in health* (pp. 755–766). New York, NY: Springer.

Montgomery, K. L. (2011). Leadership redefined: Educating the doctorate of nursing practice nurse leader through innovation. *Nursing Administration Quarterly 35*, 248–251.

Northouse, P. G. (2016). *Leadership: Theory and practice*. (7th ed.). Thousand Oaks, CA: Sage.

Nugus, P., Greenfield, D., Travaglia, J., Westbrook, J., & Braithwaite, J. (2010). How and where clinicians exercise power: Interprofessional relations in health care. *Social Science & Medicine*, *71*, 898–909.

Oandasan, I., & Reeves, S. (2005). Key elements of interprofessional education Part 2: Factors, processes and outcomes. *Journal of Interprofesssional Care*, *19*(Suppl. 1), 39–48.

Patterson, E., & McMurray, A. (2003). Collaborative practice between registered nurses and medical practitioners in Australian general practice: Moving from rhetoric to reality. *Australian Journal of Advanced Nursing*, *20*, 43–48.

Pecukonis, E., Doyle, O., Acquavita, S., Aparicio, E., Gibbons, M., & Vanidestine, T. (2013). Interprofessional leadership training in MCH social work. *Social Work in Health Care*, *52*, 625–641.

Porter-O'Grady T., & Malloch K. (2007). *Quantum leadership: A resource for health care innovation*. Sudbury, MA: Jones and Bartlett.

Reeves, S., MacMillan, K., & van Soeren, M. (2010). Leadership of interprofessional health and social care teams: A socio-historical analysis. *Journal of Nursing Management*, *18*, 258–264.

Reeves, S., Goldman, J., Gilbert, J., Tepper, J., Silver, I., Suter, E., & Zwarenstein, M. (2011). A scoping review to improve conceptual clarity of interprofessional interventions. *Journal of Interprofessional Care*, *25*, 167–174.

Reeves, S. (2012). The rise and rise of interprofessional competence. *Journal of Interprofessional Care*, *26*, 253–255.

Rumrill, P. D., Fitzgerald, S. M. & Merchant, W. R. (2010). Using scoping literature reviews as a means of understanding and interpreting existing literature. *Work*, *35*, 399–404.

Savage, G. T., Duncan, W. J., Knowles, K. L., Nelson, K., Rogers, D. A., & Kennedy, K. N. (2014). Interprofessional academic health center leadership development: The case of the University of Alabama at Birmingham's Healthcare Leadership Academy. *Applied Nursing Research*, *27*, 104–108.

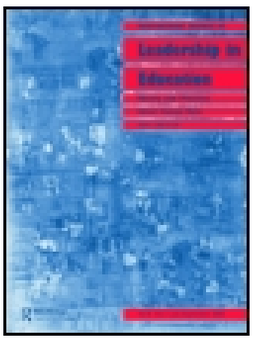
Thistlethwaite, J. E., Forman, F., Matthews, L. R., Rogers, G. D., Steketee, C. & Yassine, T. (2014). Competencies and frameworks in interprofessional education: A comparative analysis. *Academic Medicine*, *89*, 869–875.

Weiss, D., Tilin, F., & Morgan, M. (2014). *The interprofessional health care team: Leadership and development*. Burlington, MA: Jones & Bartlett Learning.

Yammarino, F. J., Sala, E., Serban, A., Shirreffs, K. & Shuffler, M. L. (2012). Collectivistic leadership approaches: Putting the "we" in leadership science and practice. *Industrial and Organizational Psychology*, *5*, 382–402.

Paper 6

Brewer, M. L., Flavell, H., Trede F., & Smith, M. (2017). Creating change agents for interprofessional education and practice: A leadership programme for academic staff and health practitioners. *International Journal of Leadership in Education,* Published online March 22, 2017.



Routledge
Taylor & Francis Group

International Journal of Leadership in Education
Theory and Practice

ISSN: 1360-3124 (Print) 1464-5092 (Online) Journal homepage: http://www.tandfonline.com/loi/tedl20

Creating change agents for interprofessional education and practice: a leadership programme for academic staff and health practitioners

Margo L Brewer, Helen Flavell, Franziksa Trede & Megan Smith

To cite this article: Margo L Brewer, Helen Flavell, Franziksa Trede & Megan Smith (2017): Creating change agents for interprofessional education and practice: a leadership programme for academic staff and health practitioners, International Journal of Leadership in Education, DOI: 10.1080/13603124.2017.1279349

To link to this article: http://dx.doi.org/10.1080/13603124.2017.1279349

INTERNATIONAL JOURNAL OF LEADERSHIP IN EDUCATION, 2017
http://dx.doi.org/10.1080/13603124.2017.1279349

Routledge
Taylor & Francis Group

Creating change agents for interprofessional education and practice: a leadership programme for academic staff and health practitioners

Margo L Brewer[a], Helen Flavell[a], Franziksa Trede[b] and Megan Smith[c]

[a]Faculty of Health Sciences, Curtin University, Perth, Australia; [b]Education for Practice Institute, Charles Sturt University, Sydney, Australia; [c]School of Community Health, Charles Sturt University, Albury Wodonga, Australia

ABSTRACT

Universities face increasing pressure not only to embed interprofessional education within health education curricula but also to prepare graduates as catalysts of change for interprofessional, team-based approaches to health care delivery. Currently, few leadership programmes exist that support the expansion of interprofessional education. This paper describes the development, implementation and evaluation of a leadership programme aimed to build faculty and health practitioners' capacity to become change agents for interprofessional education and practice. The programme was delivered by two Australian universities, each in partnership with a local health care provider. A mixed method approach was adopted to measure participants' pre- and post- knowledge, reactions to the programme, planned and reported behavioural changes, and organizational outcomes. The programme was positively evaluated and reported to increase participants' understanding of interprofessional education and practice. Follow up with participants suggested the programme had facilitated the implementation of interprofessional education and practice in both academic and practice contexts.

Introduction

Interprofessional practice is widely recognized as one of the key strategies to address global health care issues (World Health Organization, 2010). Interprofessional practice is defined as: 'two or more professions working together as a team with a common purpose, commitment and mutual respect' (Freeth, Hammick, Reeves, Koppel, & Barr, 2005, pp. xiv–xv). However, merely organizing health professionals into teams does not result in interprofessional practice. One strategy that has been shown to develop health professionals' capability for interprofessional practice is interprofessional education (Frenk et al., 2010), which is defined as 'two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes' (World Health Organization, 2010, p. 7).

Recent reviews of interprofessional education highlight the range of learning experiences provided to future health workers in the UK (Barr, Helme, & D'Avray, 2014), Canada (Ho et al., 2008), the US (Chen, Delnat, & Gardner, 2015) and Australia (The Interprofessional Curriculum Renewal Consortium, Australia, 2013). Despite the expansion of interprofessional education, studies show that many of these experiences occur only once (Abu-Rish et al., 2012), and activities are typically voluntary, not based on any explicit learning outcomes, are not assessed and no formal evaluation is conducted (Rodger & Hoffman, 2010). Even when students have been exposed to interprofessional education within the university, limited opportunities exist for interprofessional education within fieldwork/clinical placements (Davidson, Smith, Dodd, Smith, & O'Laughlan, 2008) where students transfer their learning to real-world contexts.

CONTACT Margo L Brewer m.brewer@curtin.edu.au

This situation is not surprising given the multiple structural, cultural, fiscal and curricula barriers to embedding interprofessional education (Lawlis, Anson, & Greenfield, 2014). Addressing these barriers requires significant change to organizational practices both within universities and health care providers. Wide-scale organizational change such as this requires effective leadership at the highest levels; however, change can also be generated by leaders – local champions and change agents – operating within their own networks (Kotter, 2014). To build a 'volunteer army' of change agents (Kotter, 2014), Curtin University partnered with Charles Sturt University to develop a leadership programme for both academic staff and practicing health professionals. This programme was designed to build their capacity to lead interprofessional education and/or interprofessional practice within their organization. For the purposes of this paper, and the programme under investigation, leadership is defined as: 'the process of influencing others to understand and agree about what needs to be done and how it can be done effectively, and the process of facilitating individual and collective efforts to accomplish the shared objectives' (Willumsen, 2006, p. 404). This definition is in keeping with contemporary thinking about leadership in education (Fairman & Mackenzie, 2015).

Leadership programme

The leadership programme was adapted to the Australian context from the University of Toronto's Centre for Interprofessional Education ehpic ™ programme, which has been delivered for over 10 years (Nelson, Tassone, & Hodges, 2014). The adaptation and pilot testing of the programme was funded by the Australian federal government. Many of the key elements of ehpic™ were retained as they were highly relevant to the Australian context: appreciative inquiry (Cooperrider & Whitney, 1999); a range of leadership of models including Kotter's change model (1996) and Bolman and Deal's leadership frames (1997); the use of the organizational readiness IP-COMPASS tool (Parker, Jacobson, McGuire, Zorzi, & Oandasan, 2012) and the development of a leadership action plan to facilitate the transfer of learning to practice. The programme aligned with best practice guidelines for interprofessional education leadership development: competency/capability driven; content aligned with participants' pre-existing knowledge; experiential learning; regular feedback to participants; diverse educational methods; and reflection in and on action (Hall & Zierler, 2015; Shrader, Mauldin, Hammad, Mitcham, & Blue, 2015; Steinert, 2005). The promotion of self-identity and self-awareness, critical to the development of facilitation (Howkins & Bray, 2008) and leadership capabilities (Fairhurst & Connaughton, 2014) were also retained from the original programme.

Three key changes were made as part of contextualizing the programme to Australia. First, to ensure the programme participants were supported by their organization to implement their planned changes, each university selected a partner organization directly involved in offering fieldwork/clinical placements for students. Second, following consultation with senior leaders within these organizations, the adapted programme was reduced from five days to two days to enable clinical staff to manage workload and attend. Third, the Canadian interprofessional framework was substituted by an Australian framework (Brewer & Jones, 2013) to ensure relevance to the local context. The Australian capability framework describes key elements of interprofessional practice, thus establishing the learning outcomes for interprofessional education. These elements include: a client-centred approach which is empowering, goal directed and respectful; a focus on client safety and quality where safety is viewed holistically to encompass physical, psychological, environmental and cultural aspects; and collaborative practice including interprofessional communication, role clarification, team function, conflict resolution and reflection.

The adapted programme (Table 1) was piloted in collaboration with the Canadian team to test the measurement tools, streamline the Australian elements and to build the Australian staff's capacity to facilitate the programme via a train-the-trainer approach. The final programme then ran twice facilitated by the Australian team. A detailed programme report and resources were created (Brewer, Flavell, Smith, Trede, & Jones, 2014) and disseminated via the project website (Brewer et al., 2014).

Table 1. Programme modules and learning outcomes.

Module	Title	Learning outcomes
1	Overview of programme and participants	Understand the programme aims and structure Understand the role of participants and facilitator/s
2	Setting the scene	Define both interprofessional education and interprofessional practice Demonstrate an understanding of the education/practice continuum Examine the evidence for interprofessional education and interprofessional practice
3	Practice education system	Develop an understanding of the practice education system Examine interprofessional education programmes in Australia Understand your role as a change agent
4	Interprofessional practice capabilities, assessment and evaluation	Critique the application of interprofessional practice capabilities in action Understand some key principles of assessment and evaluation of interprofessional education and interprofessional practice
5	Delivering and implementing interprofessional education and interprofessional practice	Identify the skills and abilities required to facilitate interprofessional education effectively
6	Collaborative leadership	Explore your organization's readiness for interprofessional education and interprofessional practice Understand key approaches to collaborative leadership
7	Sustainability	Create and implement an action learning plan to lead change in your context Consider the factors for sustainability of change

Given the imperative to develop leadership capability in the current and future workforce for interprofessional education and practice this study addresses the following research questions:

(1) what outcomes did the leadership programme generate?
(2) what enablers and/or challenges did participants face in leading interprofessional education and interprofessional practice in their work context?

Method

Study setting

The programme was delivered at both Curtin and Charles Sturt Universities which provided the opportunity to test it in different contexts. Curtin is an urban university with students from 26 health professions, the majority of whom are located on the one main urban campus. Curtin partnered with the South Metropolitan Health Service which provides services for a catchment of 840,000 people. Charles Sturt is a rural university with students representing 19 health professions, many of whom are located across multiple campuses. Charles Sturt partnered with Albury Wodonga Health, which has a catchment of approximately 250,000 people.

Study design

Freeth and colleagues (2005) model for evaluating the outcomes of interprofessional education was used to inform the study. This model identifies different levels of outcomes starting with the immediate reaction to the learning experience (see Table 2). The evaluation of Level 4b outcomes (capturing the benefits to patients/clients) was not within the scope of this project due to the short-term nature of the funding. A mixed method evaluation of the process and impact of the programme, in keeping with best practice guidelines (Spencer, 2014), was undertaken. The decision to adopt a mixed method approach was based on the practical aims of the research (Bryman, 2012): to judge and improve the leadership programme's capacity to increase interprofessional education and practice. Quantitative data

Table 2. Programme evaluation process.

Timing	Programme outcome	Outcome level	Method	*N* (Total = 53)
Pre and post programme	Changes in knowledge/ skills	Level 2b	19 item questionnaire with a 5 point Likert scale from novice to expert	47 (Pre) 52 (Post)
End of day 1 and 2	Reactions	Level 1	11 item questionnaire with a 5 point Likert scale from strongly agree to strongly disagree plus 4 open ended questions	52
End of day 2	Planned behavioural changes	Level 3a	Questionnaire with 5 open ended questions (combined with 11 item questionnaire above)	52
6 months post programme	Behavioural changes, and changes in organizational practice	Levels 3a & 4a	Focus groups	26
			Questionnaire with 1 closed and 3 open ended questions	28

were collected at different points before, during and following the programme to better understand the impact of the leadership development on changes in knowledge, skills and reactions, whilst qualitative data collection focused on the higher level outcomes relating to behavioural and organizational change. Table 2 provides an overview of the timing and methods of data collection as aligned with the different level outcomes (Freeth et al., 2005).

Ethics approval to conduct the research was obtained from the two Universities' Human Research Ethics Committees where the programme was delivered.

Participants

Fifty-three staff participated in the leadership programme: 19 (36%) academic staff involved in student clinical training from the two Australian universities and 34 (64%) practicing health professionals from the local health care providers. Fifty-two (98%) were female. A diverse range of professions (Nursing, Physiotherapy, Speech Pathology, Occupational Therapy, Dietetics, Social Work, Midwifery, Podiatry and Medical Imaging) and roles (heads of department, staff development educators, directors of services, project officers and clinical education directors) were represented. Participants were either selected by executive staff within their organization, based on their perceived influence as change agents for interprofessional education/practice, or volunteered to participate.

Procedure

As a key quality improvement process, the participants' evaluation of the programme was gathered using anonymous hard copy questionnaires completed by 52/53 participants at the end of day one and two. These questionnaires, adapted from another interprofessional education professional development programme (Curran, Sargeant, & Hollett, 2007), obtained feedback on the structure and content of the workshop (rated on a five-point Likert scale from strongly agree to strongly disagree) and the facilitation (rated on a five- point Likert scale from poor to outstanding).

To evaluate the impact of the programme on knowledge, and to ensure the programme was tailored to the participants' existing knowledge, a needs analysis was completed by 47/53 participants using an anonymous online questionnaire in the two weeks prior to the programme. Participants were asked to rate their knowledge on a five-point Likert scale from novice to expert. The same questionnaire was

repeated at the conclusion of the programme (Table 3). The questionnaire was developed and field tested over a 10-year period by the team of experts from the University of Toronto.

Behavioural change was evaluated using three additional methods. First, immediately post-programme 52/53 participants' responded in writing to a series of open-ended questions to identify how they felt prepared to lead change within their organization, the changes they thought they could make and what else they needed to lead change. Second, 28/53 participants completed an anonymous online questionnaire sent approximately six months post-programme focused on whether the programme had impacted on their ability to lead interprofessional education and practice, changes in their leadership practice and how their colleagues might describe their behaviour post-programme. Third, 26 participants attended the focus group held at their relevant university six months post-programme to provide an update on their action plans and how the programme had impacted on their leadership of interprofessional education and practice. The two focus groups were recorded and transcribed verbatim.

As this research was led by the programme designers, two strategies were employed to manage bias. Firstly, an external evaluator was employed to oversee the evaluation process. The evaluator attended both pilot workshops and the first focus group where participants' feedback was observed and recorded. Debriefing sessions were held to compare and contrast findings with those of the research group. Secondly, an experienced research officer was employed to conduct all initial data analyses. To enhance credibility the qualitative data was cross-checked by the lead researcher to confirm key themes (Bryman, 2012).

Analysis

Quantitative data of the Likert Scale were entered into SPSS version 22. The descriptive statistics were reported in percentage of agreement and paired sample t-test was applied to test the difference between the pre- and post- measurements. The significance level was set at 5%. Qualitative data were imported into Nvivo 10© and inductive analysis, which aligned with the exploratory nature of this research, undertaken (Thomas, 2006).

Results

The overall outcomes of the leadership programme are organized within Freeth and colleagues' (2005) model followed by the key enablers and/or challenges participants faced in leading interprofessional education and interprofessional practice in their work context. For the sake of brevity, responses to only two focus group questions are reported here.

Reaction outcomes

The programme yielded positive reactions with between 49 and 53 (94–100%) of participants having agreed or strongly agreed that the programme content and structure was relevant and facilitated their learning. All participants rated the facilitator(s) as good or outstanding on both days one and two.

Knowledge/skill outcomes

The programme demonstrated changes in participants' knowledge. Paired sample t-tests of pre- and post-programme knowledge self-ratings showed changes were statistically significant for all items (Table 3).

Table 3. Comparison of pre and post programme means (pre $N = 47$; post $N = 52$).

	Pre Mean (SD)	Post Mean (SD)	p	95%CI Lower	Upper
Principles of interprofessional education	2.37(1.047)	3.84(.721)	$p < 0.001$	−1.864	−1.066
Principles of interprofessional practice	2.42(1.139)	3.84(.785)	$p < 0.001$	−1.880	−.957
Rationale for interprofessional practice	2.64(1.144)	3.98(.680)	$p < 0.001$	−1.804	−.863
Interprofessional competencies	2.19(1.065)	3.64(.759)	$p < 0.001$	−1.872	−1.033
Programme/curriculum design	2.16(1.153)	3.21(.989)	$p < 0.001$	−1.487	−.606
Programme/curriculum implementation	2.19(1.215)	3.21(.925)	$p < 0.001$	−1.472	−.575
Patient/client-centred care	3.28(1.076)	4.21(.709)	$p < 0.001$	−1.307	−.554
Relational-centred care	2.05(1.188)	3.50(1.042)	$p < 0.001$	−2.004	−.901
Interpersonal processes and communication	3.09(1.151)	3.79(.683)	.002	−1.120	−.275
Group dynamics and interprofessional practice	2.84(1.194)	3.70(.741)	$p < 0.001$	−1.299	−.422
Dealing with conflict	3.07(1.078)	3.51(.703)	.033	−.846	−.037
Reflection as a competence	3.30(1.145)	3.81(.824)	.024	−.954	−.690
Facilitating interprofessional practice in small groups	2.42(1.096)	3.53(.827)	$p < 0.001$	−1.553	−.680
Facilitating group development	2.50(1.194)	3.81(.833)	$p < 0.001$	−1.747	−.872
Giving and receiving feedback	2.93(1.142)	3.67(.680)	.001	−1.164	−.324
Appreciative leadership	1.93(1.203)	3.42(.663)	$p < 0.001$	−1.936	−1.041
Evaluation methods for programmes/projects	2.23(1.212)	3.14(.743)	$p < 0.001$	−1.341	−.473
Assessment methods for learners in interprofessional education and practice	1.95(.950)	3.23(.751)	$p < 0.001$	−1.630	−.928
Assessment methods for teams in interprofessional education and practice	1.81(.906)	3.12(.697)	$p < 0.001$	−1.628	−.977

Behavioural/organizational outcomes

In addition to the knowledge changes, three areas of impact were evaluated qualitatively: how the programme had prepared them as leaders, what they hoped or believed that they could achieve in leading interprofessional education and/or practice (immediately post) and what they felt they had achieved (approximately 6 months post). Immediately following the programme, 52 participants (98%) reported that they felt encouraged to make changes in their practice. The most frequent comments on how they felt prepared to lead change within their organization (Table 4) related to increased knowledge and skills (98% of questionnaire respondents; 87% of total participants). A change in their attitude (e.g. 'enthusiasm', 'confidence') was also commonly cited (55% of respondent; 49% of total).

Forty-seven per cent of respondents planned to make changes related to their leadership, whilst 23% hoped to use their influence to secure support for interprofessional education/practice from their managers/executive. Just over half (53%) planned to make changes related to embedding interprofessional education/practice within their organization.

Approximately six months later, 25/28 (89%) of the questionnaire respondents reported an improved ability to lead interprofessional education/practice. The three participants who reported no such impact stated this was because they were already leading interprofessional education/practice or had changed employment. The planned changes (Table 4) were achieved for a number of participants as indicated by the results of the two focus groups where half the respondents reported increased engagement in interprofessional practice, half reported changes to patient care and half reported either increased interprofessional education activities or facilitation of interprofessional education. Only one quarter mentioned changes they had achieved that were specific to leadership (Table 5).

In both the questionnaires and focus groups, there was evidence of the programme's impact beyond the individual with a small number of changes at the team, programme and organization level in both university and health care contexts. These included: changes to patient care (e.g. the inclusion of patients and their carers in goal setting, the adoption a team approach with shared patient goals);

Table 4. Reported programme outcomes at the end of day 2 ($N = 47$).

Theme	Number of respondents	Key words and/or comments
How participants felt prepared to lead change		
Increased knowledge and skills	46	Increased knowledge of the key principles, drivers, benefits, evidence, frameworks, guidelines, tools, plans, practical examples/ideas
Changed attitude	26	Increased confidence/enthusiasm/motivation Felt inspired/empowered See self as a leader
Changes participants hoped/thought they could lead		
Engage more leaders/change agents	22	Advocate/promote/role model interprofessional education and/or practice Develop an interprofessional practice working group Inspire others
Embed interprofessional practice into work practices	13	Include interprofessional practice in meeting agendas or patient handovers
Develop an interprofessional education programme for students and/or staff	12	Develop interprofessional student orientations to the facility Embed interprofessional education into simulations Hold interprofessional education debriefs for students Establish interprofessional student placements e.g. a training ward
Secure executive/managerial support	11	Request managers undertake this programme Request dedicated interprofessional education facilitators Include interprofessional practice in key processes (e.g. performance management processes, strategic plans, service development)
What else they needed to lead change within their organization		
Executive/managerial support	36	Buy-in, commitment from executive Recognition of the value of interprofessional education and practice Leadership of cultural change within the organization Resources including staff and time allocation for interprofessional education and/or practice

increased collaboration between the health sector and the university including the establishment of a formal alliance between a university, their programme industry partner and the local medical service to provide interprofessional education to staff and students; the expansion of an allied health student working party to include nursing; radiography students with podiatry and physiotherapy students in an interprofessional clinic; the establishment of an allied health educator position to enhance interprofessional education within a health service. Two participants discussed the use of the University of Toronto's IP-COMPASS tool (Parker et al., 2012) with key executive in their organization to plan the implementation of interprofessional education and practice at a strategic level.

Key enablers

Responding to the online follow-up survey several months post-programme, participants described a number of factors which were crucial to enabling their leadership of interprofessional education and interprofessional practice in their work context. The most commonly cited (76% of participants) was the need for managerial and/or executive support to achieve their planned changes. This support took the form of the appointment of formal leaders or paid interprofessional education facilitators,

Table 5. Reported programme outcomes from follow-up questionnaire ($N = 28$).

Theme	Number of respondents	Comments
Increased knowledge	18	Greater appreciation of the differences between multidisciplinary education and interprofessional education and how to articulate these
Embedded interprofessional practice in their work	13	Increased willingness to embed interprofessional practice as part of my everyday work Intentionally including interprofessional practice in planning and reflection on incidents Being more receptive to the input of other professionals into patient care
Changes to patient care	13	Collaborating more with physiotherapists, nurses and occupational therapists rather than working in isolation Viewing the patient at the centre of the team Advocating for the patient in a non-confrontational manner
Increase in interprofessional education activities for staff and students	7	Inclusion of two or more disciplines in as many simulation sessions as possible
Interprofessional education implementation strategies and facilitation techniques	7	Application of techniques from the programme e.g. storytelling, think-pair-share
Leadership	7	Having elevator conversations with influential people Advocating for interprofessional leadership to support interprofessional practice

the establishment of governance groups such as working parties or committees and workload allocation for interprofessional education/practice. A small number of participants described the need for 'cultural change' in their organization.

These reports of several enablers to leading change aligned with the results of the two focus groups where many of the 26 participants (49% of total participants) reported progress on their action plans. Several of the key lessons learned from the implementation of their action plans related to leadership, specifically the need: to lead by example (role modelling); for constant leadership and commitment to facilitate the desired change and to continue to develop their power and influence. Additionally, the value of celebrating successes to encourage others and keep the momentum of change going was identified as important. The realization that interprofessional education was a developmental process that needed to be scaffolded across the curriculum was also a common lesson discussed. Another lesson related to both students and leadership was recognition that universities needed to develop a student leadership programme to build their capacity to function as change agents. The final most common lesson reported in the focus groups related to patients/clients. Participants commented on the importance of focusing on the patient/clients' experience and goals to facilitate the process of interprofessional practice. In addition, lessons were learned on the value of promoting (sharing) positive patient and student experiences to engage others interest in interprofessional education and/or practice.

Key challenges

Participants faced a number of common challenges in implementing the action plan they developed during the programme. The most-cited challenge related to a lack of time allocation for staff to organize and participate in interprofessional education and/or practice. This often related to scheduling issues (e.g. a lack of common time for interprofessional education) and the organization's prioritization of profession-specific professional development over interprofessional education for staff. Processes that inhibit interprofessional practice were also identified, particularly existing referral procedures which meant the majority of patients or clients were referred separately to professions and thus received separate appointments/services.

Discussion

Leadership programmes that build staff capacity for interprofessional education and practice are essential to address the transformative, structural, operational and cultural changes (Reeves, MacMillan, & van Soeren, 2010) needed to move to interprofessional health care delivery (George, Frush, & Lloyd Michener, 2013). Without increased leadership capacity in both education and practice settings, students will have little opportunity or support to build their capabilities for interprofessional practice and transfer these into their future work.

Few interprofessional leadership programmes have been published to date. The outcome data available have focused on knowledge outcomes for students (Pecukonis et al., 2013), retrospective self-reported knowledge (Newton, Wood, & Nasmith, 2012) or briefly reported reflective essays (Simmons et al., 2011). This study provides additional insights into the current knowledge of interprofessional leadership development with evidence of outcomes at all four levels of Freeth et al.'s (2005) model encompassing changes in knowledge/skills, reactions, behaviour and organizational practice. Building on a successful leadership programme from Canada, the train-the-trainer approach was successful with all participants having rated the Australian team's facilitation as good or outstanding and over 94% rating the programme's structure and content positively (level 1 outcome). More importantly, the programme impacted on participants' self-reported knowledge of interprofessional education and practice with the majority having reported increased knowledge across all areas measured (level 2a outcome).

The adapted programme was also successful in promoting the transfer of knowledge and skills to participants' work environment with increased knowledge of interprofessional education and practice (level 2b) the most commonly cited impact of the programme. Knowledge and skill changes are often cited in interprofessional education programmes (Reeves, Tassone, Parker, Wagner, & Simmons, 2012), and more broadly in literature on leadership professional development (Steinert, Naismith, & Mann, 2012). Less reported are the behavioural (level 3a outcome) and organizational (level 4a) changes observed in this study (Steinert et al., 2012). The majority (89%) of participants who completed the follow-up evaluation (47% of total participants) felt that the programme had increased their ability to lead interprofessional education and/or interprofessional practice. Other self-reported behavioural changes included: increased collaboration with other professions, increased interprofessional education activities for both staff and students and increased client/patient centred practice. Changes at the organizational rather than individual participant level were also reported. These included, but were not limited to, the inclusion of patients and their carers in meetings and goal planning, the establishment of formal working relationships between professions and organizations, the use of the IP-COMPASS tool in planning interprofessional education and practice at an executive level and embedding interprofessional practice into incident management.

A comparison of what participants hoped they could achieve (immediately post-programme) and what they felt they had achieved (several months later) indicated that they were generally more successful in progressing local-level initiatives rather than developing other change agents/leaders or obtaining greater executive/managerial support. In keeping with the interprofessional literature (Lawlis et al., 2014), the majority of challenges reported in the focus groups (scheduling issues, time allocation, and cultural change to demonstrate valuing or commitment to interprofessional education and practice) require high-level leadership and organizational change. Further to this, many of the lessons learned (e.g. the use of power and influence, leading by example, celebrating successes, raising awareness in others) relate directly to effective leadership (Kouzes & Posner, 2012). It was evident during follow up with the programme participants that gaining senior staff understanding of the change required was the biggest obstacle.

Despite the challenges faced by the participants in their work place, this programme successfully impacted on many of the participants and their organizations. The number of individuals with the knowledge, skills and leadership to assist in the wide spread adoption of interprofessional education and interprofessional practice within the local contexts increased as a consequence of participation.

This 'volunteer army' (Kotter, 2014) is essential to achieve transformational change and build collaborative partnerships between health services and higher education. An important next step is for organizations in both sectors to build an environment that nurtures these leaders (Marshall, 2006) through greater executive support (Lawlis et al., 2014). An important element of this support is the continuation of a community of practice (Laksov & Tomson, 2016). Minor changes to place even greater emphasis on the leadership aspects of the programme (e.g. appreciative inquiry and organizational change models) might address participants' difficulty in recruiting more leaders and attaining executive buy-in. The use of metaphors to explore understandings of leadership might also add value (Arnold & Crawford, 2014). Research is needed to measure the long-term impact of the programme on participants, their colleagues and organizations. This should include studies on alternative approaches such as coaching and mentoring, action learning and fellowships (Swanwick & McKimm, 2014). Based on the recommendation from a review of 25 years of leadership research (Parry, Mumford, Bower, & Watts, 2014) future studies should explore methodologies such as ethnography, case study, observation and interviews (O'Sullivan & Irby, 2014). Another important development is the adaptation of this programme for senior students to prepare them as change agents for more integrated service delivery models (Frenk et al., 2010). Embedding interprofessional education and practice in transdisciplinary settings is another key area of advancement needed in the field.

Limitations

This study has a number of limitations. First, although data were collected at several points it focused heavily on participant self-reports. Whilst self-reports are the key measure used in professional development programmes (Steinert et al., 2012), they are subject to bias due to social desirability, self-image preservation and the inaccuracy of self-assessment (Spencer, 2014). To address this bias, an external evaluator conducted an independent evaluation. Second, whilst the development of self-reported questionnaires by the study authors is common practice in professional development programmes (Steinert et al., 2012), the study may have been enhanced through the use of valid and reliable tools. Having said that, However, interprofessional leadership is a highly contextual and sociocultural phenomenon which may not lend itself to such measures. Third, the representativeness of the data from the post-programme follow-up must be questioned with only half of participants having completed the follow-up questionnaire (53%) and focus groups (47%). Finally, this study is based on a small sample size of staff who either viewed themselves as potential leaders or were viewed by their executive as potential leaders. These participants are likely to have the motivation and commitment needed to sustain the momentum for leading change. Despite these limitations, this study provides useful insights into leadership programmes for interprofessional education and practice and, more broadly, the benefit of leadership development to support collaborative partnerships between higher education and industry to achieve graduate outcomes.

Conclusion

A critical mass of leaders for interprofessional education is urgently needed if we are to advance interprofessional practice in Australia and across the globe. This paper outlines the impact of a leadership programme designed to build the capacity of both academic staff and health practitioners to lead interprofessional education and/or interprofessional practice within their organization. The data gathered at all four levels of a popular interprofessional education outcome model suggest the programme has the capacity to support change at the individual, team and organizational level. Tailored leadership development such as this is essential to remove the current reliance on individual champions to influence change in health education and practice. The provision of all programme resources on the project website for staff to adapt to their own university or healthcare context will facilitate building more agents for change to interprofessional models of healthcare delivery.

Competing interests

Support for this research project was provided by the Australian Government Office for Learning and Teaching. The views in this article do not necessarily reflect the views of the Australian Government Office for Learning and Teaching.

Acknowledgements

The authors would like to acknowledge the contribution of staff from the University of Toronto's Centre for Interprofessional Education and thank them for collaborating and sharing their resources and knowledge with the project team. Special thanks go to Dr Ivy Oandasan and Lynne Sinclair who undertook the 'train-the-trainer' role and delivered the first pilot of the programme in Australia.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by Australian Government Office for Learning and Teaching [LE12-2161].

Notes on contributors

Margo L Brewer is the director of Practice and Interprofessional Education in the Faculty of Health Sciences at Curtin University, Perth, Australia. Her work focuses on interprofessional education and practice, work integrated learning and leadership in academic and health education environments. She publishes regularly in journals of higher education and health professional education.

Helen Flavell is a senior lecturer and the coordinator of the Scholarship of Teaching and Learning in the Faculty of Health Sciences, Curtin University in Western Australia. Her work encompasses a range of topics in higher education research including the flipped classroom, students as co-creators, outbound mobility, clinical fieldwork, interprofessional education, Indigenous Australian cultural capability for non-Indigenous Australian students, and academic leadership.

Franziksa Trede is an associate professor in Higher Education at Charles Sturt University, Sydney, Australia where she leads research and scholarship in practice-based education and workplace learning. Her research focus is on educating professionals who have the capacity to act to make a difference.

Megan Smith is an associate professor and head of the School of Community Health at Charles Sturt University in Albury-Wodonga, New South Wales. Her work focuses on implementing curricula that can prepare learners for future work as entry-level practitioners in Allied Health. Her motivation is to improve health of people living in rural and remote regions through access to a highly prepared health workforce.

ORCID

Margo L Brewer http://orcid.org/0000-0001-9580-0390
Megan Smith http://orcid.org/0000-0002-9747-1014

References

Abu-Rish, E., Kim, S., Choe, L., Varpio, L., Malik, E., White, A. A., … Zierler, B. (2012). Current trends in interprofessional education of health sciences students: A literature review. *Journal of Interprofessional Care, 26*, 441–451.

Arnold, N. W., & Crawford, E. R. (2014). Metaphors of leadership and spatialized practice. *International Journal of Leadership in Education, 17*, 257–285.

Barr, H., Helme, M., & D'Avray, L. (2014). *Review of interprofessional education in the United Kingdom, 1997–2013*. London: CAIPE.

Brewer, M. L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health, 42*, e45–e49.

Brewer, M., Flavell, H., Smith, M., Trede, F., & Jones, S. (2014). *Creating a collaborative practice environment which encourages sustainable interprofessional leadership, education and practice*. Retrieved from http://healthsciences.curtin.edu.au/studying-health-sciences/interprofessional-education/leadership-programme/

Bolman, L. G., & Deal, T. E. (1997). *Reframing organizations: Artistry, choice and leadership*. San Francisco, CA: Jossey-Bass.

Bryman, A. (2012). *Social research methods* (4th ed.). New York, NY: Oxford University Press.

Chen, F., Delnat, C. C., & Gardner, D. (2015). The current state of academic centers for interprofessional education. *Journal of Interprofessional Care, 29*, 497–498.

Cooperrider, D. L., & Whitney, D. (1999). *Appreciative inquiry*. San Francisco, CA: Berret-Koehler.

Curran, V., Sargeant, J., & Hollett, A. (2007). Evaluation of an interprofessional continuing professional development initiative in primary health care. *Journal of Continuing Education in the Health Professions, 27*, 241–252.

Davidson, M., Smith, R. A., Dodd, K. J., Smith, J. S., & O'Laughlan, M. J. (2008). Interprofessional pre-qualification clinical education: A systematic review. *Australian Health Review, 32*, 111–120.

Fairhurst, G., & Connaughton, S. L. (2014). Leadership: A communicative perspective. *Leadership, 10*, 7–35.

Fairman, J. C., & Mackenzie, S. V. (2015). How teacher leaders influence others and understand their leadership. *International Journal of Leadership in Education, 18*, 61–87.

Freeth, D., Hammick, M., Reeves, S., Koppel, I., & Barr, H. (2005). *Effective interprofessional education. Development, delivery & evaluation*. Oxford: Blackwell.

Frenk, J., Chen, L., Bhutta, Z. A., Cohen, J., Crisp, N., Evans, T., … Serwadda, D. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *The Lancet, 376*, 1923–1958.

George, A., Frush, K., & Lloyd Michener, J. (2013). Developing physicians as catalysts for change. *Academic Medicine, 88*, 1603–1605.

Hall, L. W., & Zierler, B. K. (2015). Interprofessional education and practice guide No. 1: Developing faculty to effectively facilitate interprofessional education. *Journal of Interprofessional Care, 29*, 3–7.

Ho, K., Jarvis-Selinger, S., Borduas, F., Frank, B., Hall, P., Handfield-Jones, R., … Rouleau, M. (2008). Making interprofessional education work: The strategic roles of the academy. *Academic Medicine, 83*, 934–940.

Howkins, E., & Bray, J. (Eds.). (2008). *Preparing for interprofessional teaching: Theory and practice*. Oxford: Radcliffe Publishing.

Kotter, J. P. (2014). *Accelerate*. Cambridge, MA: Harvard Business Review Press.

Kotter, J. P. (1996). *Leading change*. Boston, MA: Harvard Business School Press.

Kouzes, J. M., & Posner, B. Z. (2012). *The leadership challenge: How to make extraordinary things happen in organizations*. San Francisco, CA: Jossey-Bass.

Laksov, K. B., & Tomson, T. (2016, January). Becoming an educational leader—exploring leadership in medical education. *International Journal of Leadership in Education*, 1–11. doi:10.1080/13603124.2015.1114152

Lawlis, T. R., Anson, J., & Greenfield, D. (2014). Barriers and enablers that influence sustainable interprofessional education: A literature review. *Journal of Interprofessional Care, 28*, 305–310.

Marshall, S. J. (2006). *Issues in the development of leadership for learning and teaching in higher education*. Carrick Institute for Learning and Teaching in Higher Education Occasional Paper, Sydney, Australia.

Nelson, S., Tassone, M., & Hodges, B. (2014). *Creating the health care team of the future: The Toronto model for interprofessional education and practice*. New York, NY: Cornell University Press.

Newton, C., Wood, V., & Nasmith, L. (2012). Building capacity for interprofessional practice. *The Clinical Teacher, 9*, 94–98.

O'Sullivan, P. S., & Irby, D. M. (2014). Promoting scholarship in faculty development: Relevant research paradigms and methodologies. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 375–398). Montreal, CA: Springer.

Parker, K., Jacobson, A., McGuire, M., Zorzi, R., & Oandasan, I. (2012). How to build high-quality interprofessional collaboration and education in your hospital: The IP-COMPASS tool. *Quality Management in Health care, 21*, 160–168.

Parry, K., Mumford, M. D., Bower, I., & Watts, L. L. (2014). Qualitative and historiometric methods in leadership research: A review of the first 25years of The Leadership Quarterly. *The Leadership Quarterly, 25*, 132–151.

Pecukonis, E., Doyle, O., Acquavita, S., Aparicio, E., Gibbons, M., & Vanidestine, T. (2013). Interprofessional leadership training in MCH social work. *Social Work in Health Care, 52*, 625–641.

Reeves, S., MacMillan, K., & van Soeren, M. (2010). Leadership of interprofessional health and social care teams: A socio-historical analysis. *Journal of Nursing Management, 18*, 258–264.

Reeves, S., Tassone, M., Parker, K., Wagner, S. J., & Simmons, B. (2012). Interprofessional education: An overview of key developments in the past three decades. *Work, 41*, 233–245.

Rodger, S., & Hoffman, S. J. (2010). Where in the world is interprofessional education? A global environmental scan. *Journal of Interprofessional Care, 24*, 479–491.

Shrader, S., Mauldin, M., Hammad, S., Mitcham, M., & Blue, A. (2015). Developing a comprehensive faculty development program to promote interprofessional education, practice and research at a free-standing academic health science center. *Journal of Interprofessional Care, 29*, 165–167.

Simmons, B., Oandasan, I., Soklaradis, S., Esdaile, M., Barker, K., Kwan, D., … Wagner, S. (2011). Evaluating the effectiveness of an interprofessional education faculty development course: The transfer of interprofessional learning to the academic and clinical practice setting. *Journal of Interprofessional Care, 25*, 56–157.

Spencer, J. (2014). Faculty development research: The 'state of the art' ad future trends. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 353–374). Montreal, CA: Springer.

Steinert, Y. (2005). Learning together to teach together: Interprofessional education and faculty development. *Journal of Interprofessional Care, 19*, 60–75.

Steinert, Y., Naismith, L., & Mann, K. (2012). Faculty development initiatives designed to promote leadership in medical education. A BEME systematic review: BEME guide No. 19. *Medical Teacher, 34*, 483–503.

Swanwick, T., & McKimm, J. (2014). Faculty development for leadership and management. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 53–78). Montreal, CA: Springer.

The Interprofessional Curriculum Renewal Consortium, Australia. (2013). *Curriculum renewal for interprofessional education in health*. Canberra: Department of Education.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation, 27*, 237–246.

Willumsen, E. (2006). Leadership in interprofessional collaboration—the case of childcare in Norway. *Journal of Interprofessional Care, 20*, 403–413.

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Geneva: Author.

Paper 7

Brewer, M. L. (2016). Facilitating the dissemination of interprofessional education and practice using an innovative conference approach to engage stakeholders. *Journal of Interprofessional Education and Practice, 2*, 33–38.

Journal of Interprofessional Education & Practice 2 (2016) 33–38

Contents lists available at ScienceDirect

Journal of Interprofessional Education & Practice

journal homepage: http://www.jieponline.com

Facilitating the dissemination of interprofessional education and practice using an innovative conference approach to engage stakeholders

Margo L. Brewer*

Faculty of Health Sciences, Curtin University, Pro Vice-Chancellor's Office, G.P.O. Box U1987, Perth, Western Australia 6845, Australia

ARTICLE INFO

Article history:
Received 29 April 2015
Received in revised form
29 November 2015
Accepted 1 December 2015

Keywords:
Leadership
Conference
Interprofessional education
Dissemination
Diffusion of innovation

ABSTRACT

Significant change is needed to successfully embed interprofessional education (IPE) and interprofessional practice (IPP) within health systems. Change such as this requires effective leadership, yet leadership is an underdeveloped area in IPE and IPP. To address this gap Curtin University drew on organizational change literature, particularly Kotter's (1995) [8] eight-stage change process, to inform the implementation of its large scale IPE curriculum. This paper describes the University's dissemination strategy which is informed by Roger's (2003) [9] 'diffusion of innovation' theory. The success of this strategy was tested on a local IPE conference. Two thirds of the 2014 conference participants (n = 100) completed a short post-conference questionnaire. Seventy-seven to 93 per cent of participants agreed that the conference was informative, applicable, and increased their knowledge of IPE and IPP. The results of this study suggest that 'diffusion of innovation' is a useful theory to inform the dissemination of IPE and IPP.

Introduction

The international commission titled Education for Health Professionals for the 21st Century called for a shared vision and strategy for health professional education [1]. To achieve the goals identified by the commission, transformational changes are required at the system, organization and individual levels. The question arises though as to how this change will occur. According to Barr (2011) [2], the leadership needed to transform health systems is not currently being exercised. Barr's stance has been supported by others including the Institute of Healthcare Improvement [3] which stated that fundamental changes in leadership and a steady stream of innovative solutions to problems is required to achieve the desired improvements within health care organizations. It appears that the time is right for health educators and practitioners to carefully consider how the fundamental changes will occur and what role leadership will play in embedding innovative solutions such as interprofessional education (IPE) and interprofessional practice (IPP).

Current studies of leadership for IPE and IPP, however, are not well developed. Similarly, the form of leadership and the capabilities required to successfully lead interprofessional change have not been clearly identified [4]. To achieve the transformations required it seems appropriate to consider the application of successful change leadership theories from fields beyond health [5–7]. This paper describes the evaluation of an innovative conference that was designed by an Australian university to engage stakeholders as part of a broader change management process to embed IPE and IPP. The approach to the conference—as well as the change process—was underpinned by theories of change and diffusion [8,9]. Key learnings from the experience are provided as well as the theories that were adopted, as they provided a useful structure to consciously consider how the desired changes would occur.

Curtin University's context

Curtin University in Western Australia has over 12,000 students enrolled within 24 diverse health courses including nursing, midwifery, physiotherapy, occupational therapy, social work, psychology, speech pathology, health information management, laboratory medicine, and molecular genetics. Interprofessional education was included in the Faculty of Health Sciences teaching and learning

Declaration of interest: The author reports no declarations of interest. The author is responsible for the writing and content of this paper.

* Tel.: +61 892669288.
E-mail address: m.brewer@curtin.edu.au.

http://dx.doi.org/10.1016/j.xjep.2015.12.001

plan for the first time in 2008 [10]. Since then IPE has increased in importance and scale with our current IPE curriculum providing learning experiences for over 3700 undergraduate students. This includes tutorials, simulations, case-based workshops, and clinical training placements [11]. The implementation of this curriculum required an effective change leadership framework that optimized the enablers for IPE whilst overcoming the barriers frequently cited in the literature [12]. This leadership framework, as described by Brewer and Jones (2014) [10]; was based on Kotter's (1995) [8] eight-stage process for leading change. One of the most cited leadership theories in business, Kotter' work remains relevant today [13].

Increasing the adoption of IPE

Curtin University's leadership framework included the development of a vision for IPE and IPP and a strategy to achieve this [10]. In keeping with Kotter's (1995) [8] change process a critical step in this process was dissemination to garner the broad-based support required to embed IPE within the culture of the University. Dissemination was broadened to include the key organizations within the state of Western Australia, the context within which many of Curtin's students undertake clinical training and employment.

As IPE is still viewed by many as an innovation in health education, Rogers' 'diffusion of innovation' (2003) was selected to inform our strategy. The application of this theory to IPE is supported by the literature [14].

Rogers first proposed his theory in 1962, however it continues to be commonly cited with approximately 5000 publications in the social science literature by 2004 [15]. Rogers (2003) [9] defined diffusion as the process by which an innovation is communicated among members of a social system. This process involves participants creating and sharing information with one another to ensure mutual understanding is established. This process involves five stages: knowledge, persuasion, decision (to adopt or reject), implementation, and confirmation [9].

Whilst both Kotter's (1995) [8] and Rogers' (2003) [9] theories describe a linear process (Table 1) the complex nature of change is likely to result in several stages occurring simultaneously [16].

A key learning from Curtin's experience developing a leadership approach for IPE was that it is essential to foreground the innovative characteristics of an interprofessional approach. The five characteristics of an innovation are relative advantage, compatibility, complexity, trialability, and observability [9]. Rogers describes these as follows:

- relative advantage is the degree to which the innovation is perceived to be better than what it supersedes;
- compatibility is how consistent the innovation is with existing values, past experiences and needs;
- complexity, as the name implies, is the level of difficulty in understanding and using the innovation;
- trialability is degree to which the innovation can be tested or trialed; and
- observability is visibility of the innovation's results.

Table 1
Theories underpinning Curtin University's leadership for IPE framework.

Eight-stage change process [8]	Diffusion of innovation process [9]
1. Establish a sense of urgency	1. Knowledge
2. Create a guiding coalition	
3. Develop a vision and strategy	
4. Communicate the vision	2. Persuasion
5. Empower broad-based action	3. Decision (adopt or reject)
6. Generate short term wins	4. Implementation
7. Consolidate gains and produce more change	
8. Anchor new approaches in the culture	5. Confirmation

The key dissemination event

An important element of Curtin's dissemination strategy for IPE and IPP is the Health Interprofessional Education (HIPE) conference. This began as an annual event in 2009 and in 2012 changed to a biannual event. The objective of the conference since inception has been to communicate widely Curtin's vision for IPE and IPP (step 4 in Kotter's change process), and to facilitate the sharing of successful IPE and IPP innovations ('wins' in step 6 of Kotter's process). It wasn't until the 2014 that the conference was grounded in the diffusion of innovation theory.

The 2014 HIPE conference ran over 4 hours. The event was promoted to students and staff at all five universities in Western Australia and to other related organizations in an effort to empower broad-based action (step 5 in Kotter's process). In keeping with the necessity for a framework to inform change leadership, the conference program was designed to optimize the adoption of innovation through incorporating the key diffusion characteristics identified by Rogers (2003) [9]. For example, the Pro Vice-Chancellor of health sciences presented the *relative advantage* of IPE and IPP in his opening address. This was followed by a panel comprised of international experts sharing their opinions on the state of IPE and IPP within their country (Canada, United States and Australia) and a local panel comprised of a senior academic, a senior health industry leader, and two final year health science students. The panel members reinforced the relative advantage of an interprofessional approach and highlighted how IPE aligned with their personal and professional values, experiences and the needs of key stakeholders in their particular context. The inclusion of opinion leaders such as this has been shown to play a key role in the diffusion process [17]. The conference program then changed to multiple parallel oral paper sessions. Pre-conference instructions for these presenters were designed to encourage consideration of the diffusion of innovation characteristics, particularly complexity, trialability and observability. Presenters were asked to include examples to illustrate pertinent points, specific ideas or information that the audience could benefit from and a key interprofessional message(s) that they wanted to audience to take home.

To address the lack of literature critically evaluating interprofessional events [18] this paper reports on the evaluating data for the 2014 conference. Data collected from 100 students, academics and local health practitioners who participated in the conference is analyzed according to Rogers (2003) [9] theory to determine whether the conference assisted in the diffusion (dissemination) of IPE and IPP.

Method

Study design

All conference attendees were invited to participate in the research via an information sheet included with the conference program. Return of a short questionnaire at the conclusion of the event was taken as consent to participate. Ethics approval to conduct the research was obtained from the University's Human Research Ethics Committee.

The questionnaire consisted of two sections. The qualitative section featured three open ended questions to ascertain their conference experience and the likely impact of this dissemination event: (1) "What sessions had the most impact on you and why?,"

(2) "What sessions did you find yourself discussing with other conference attendees the most and why?," and (3) "The key message(s) I took away from this conference is …" The quantitative section asked participants to rate their level of agreement with seven statements related to the conferences' relevance, whether it increased their understanding of IPE/IPP, and whether it improved their understanding of IPE/IPP implementation. A five point Likert scale from 1 (Strongly Agree) to 5 (Strongly Disagree) was utilized. Space for general comments was included.

Participants

The study sample consisted of 100 of the 161 conference attendees (response rate of 63%). Approximately half were students (54%) while the remainder were health practitioners (23%), health educators (15%), and others (7%) comprised of volunteers and staff from private businesses and the health promotion sector. Almost all students were from Curtin University (98%) whilst staff were spread with 71% from Curtin and 29% from three other local universities. A range of organizations were represented including government, not for profit, and private industry. Delegates came from non-health professions such as architecture and education (i.e. primary education and vocational training). Seventeen different professions were represented with Occupational Therapy by far the largest group (37%). Nursing (15%) and Speech Pathology (11%) were also well represented. Other professions including pharmacy, psychology, health promotion and social work had 5 or fewer participants. Some respondents (10%) didn't provide details of their professional background.

Data analysis

Qualitative data was transcribed into text documents and imported into Nvivo 10© for thematic analysis to identify key aspects of the participants' experience of the conference. The initial analysis was conducted by one investigator but to enhance the credibility of the study the data was cross-checked by another investigator to confirm the key themes [19].

Table 2
Participants' perceptions of IPE conference ($N = 100$).

Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Missing
Conference was informative & useful	29	61	10	0	0	0
Conference was relevant & applicable to my work/study	26	61	12	0	0	1
I have an improved understanding of IPE/IPP	25	60	11	2	0	2
I became more interested in IPE/IPP	33	44	17	3	0	3
I have an improved sense of how IPE/IPP can be implemented	26	58	14	1	0	1
I have a plan to support the expansion of IPE/IPP	15	36	39	7	1	2
Conference is likely to result in positive changes in IPE/IPP in WA[a]	34	59	7	0	0	0

[a] WA = Western Australia.

Results

The results indicated that the design of this dissemination event had a positive impact on the students and staff who attended (Table 2). The results and the key themes that emerged, are outlined below in relation to the diffusion of innovation theory [9].

Relative advantage

Many participants recognized the relative advantage of an interprofessional approach following the conference. Three quarters (77%) reported an increased interest in IPE/IPP as a result of the conference, with many expressing an increased energy and enthusiasm as seen in comments such as:

> "I personally found the whole conference and parallel sessions to be very educational, informative, inspiring and professionally presented by the IPP team of Curtin. I will recommend my peers attend the next one." (Speech pathology student)

Other themes related to the relative advantage of an interprofessional approach included those at the *system* level with participants recognizing that IPE and IPP are innovative approaches needed in the health system. The need to move IPE from the university into health service delivery was also identified by many, as were the benefits to health services when students function as part of the health care team. Another theme closely tied to relative advantage was the stakeholder benefits identified including: increased staff knowledge and understanding of roles; improved working environment as a result of increased respect, sense of value, support and reduced workload; improved patient outcomes and satisfaction; reduced medical errors; more holistic care; and value to student learning.

General comments added support for an increased perception of the relative advantage of IPE and IPP such as:

> "Interprofessional training and delivery of services is the only way clients will receive the best outcomes. It is the future of all care and needs to be implemented across the board and supported by government and local government/councils as a holistic practice." (Nurse practitioner)

Compatibility

Many participants recognized the compatibility of an interprofessional approach with their existing values, past experiences and needs with 87% agreeing that the conference was relevant and applicable to their own work or study. The conference had a very strong student theme with 15 out of 19 of the abstracts describing an initiative involving students. As 55% of attendees were students it was not surprising that the sessions about student led health services were amongst those described as having the most impact. The reasons for this impact related to both the level of passion of the presenter and the relevance/applicability of the session to the participants' own profession, interest or area of practice as evidenced by comments on the most impactful session such as:

> "Opening panel session —"finally" IP collaboration is being promoted & put into practice! This is how health care should have been all along!" (Nursing practitioner)

> "The music therapy in a dementia specific unit, as I am currently on an aged care placement. I found that the information was

relevant to my current placement and gave me ideas of what I could possibly implement." (Occupational therapy student)

Complexity

The importance of the level of complexity in understanding and using an innovation was supported by the data. Ninety percent agreed that the conference was informative and useful while 85% reported an increased understanding of IPE and IPP. Perhaps more importantly 84% reported an increased understanding of how to implement these innovations. Comments that supported this included:

"As a health professional you're always striving to improve patient care but the idea of having a patient advocate involved in helping guide teaching and learning within a team environment gave me ideas on where else this strategy could be utilised." (Pharmacy practitioner)

Not all comments were positive, with change being identified as difficult but worthwhile (having emerged as a key theme). Interesting comments also arose that present a challenge for the future such as:

"As a student for the past 18 months and a nurse for over 30 years I believe that medical dominance discourse in lecturers is destructive to IPP – I believe it is time to move on from this. The lecturers would do everyone a favour if they recognised how this socialisation process retards IPP." (Nursing student)

Trialability

The highest rating (93%) related to participants indicating that the conference was likely to result in positive changes in IPE and IPP in Western Australia. This was supported by a number of subthemes within the theme of leadership including: everyone needs to, or can be, a leader; a shared vision and goal is important; working together staff can overcome the barriers to IPE and IPP; knowing the evidence for IPE and IPP is important in leading and advocating for this; and students are the future leaders. This focus on leadership and change was also demonstrated by the number of participants who rated the session on leadership as the one that had the most impact on them (16 of the 26 who attended this session), and was common in the feedback received such as:

"Everyone needs to be a leader is a lasting message I will take with me." (Occupational therapy student)

Others focused more directly on the application of IPE to their own context:

"I will ensure my students have opportunities to observe & work with allied health while on placement." (Occupational therapy practitioner)

In contrast to this high rating for the conference being likely to advance IPE and IPP, the lowest rating (51%) to the quantitative questions was in response to participants being asked to identify if they have a plan (of action) as a result of the conference.

Observability

The use of stories of success and examples of outcomes was key to the observability of the innovation. For example the presentation on an international student led initiative excelled at highlighting the results through narrative and images which generated a high level of impact (22 participants of the study attended this session and 21 commented that this was the session that had the most impact on them) such as:

"The Go Global [international interprofessional clinical fieldwork program] presentation was amazing. To hear the stories and see evidence of the impact this project has was truly inspiring!" (Curtin academic)

Further evidence for the success of including stories and examples was evident in this session being judged by participants as the best presentation.

Discussion

The embedding of IPE within health education has had some success to date [20–22]. However IPE is yet to be viewed as a core element of curricula [23] and even with dedicated centers for IPE the challenges are many [24]. Increasing the adoption of IPE, like all significant change, requires effective leadership that incorporates strategy for dissemination [8].

Lessons learned

Leaders of IPE have much to gain from the application of successful change theories from other fields including business and social science. The use of Kotter's (1995) [8] eight-stage change process to guide the implementation of IPE has been successful in a large, complex health science faculty at Curtin University in Western Australia. A critical factor in this change process was the development of a dissemination strategy to communicate the vision and empower action (Kotter's stages four and five). Whilst Kotter's work proved useful in informing Curtin's IPE leadership as to *what* to do in facilitating change, the addition of Rogers (2003) [9] diffusion of innovation theory provided a useful framework for *how* to facilitate the adoption of this change. This *how* underpinned our IPE dissemination strategy and the key dissemination event our annual/biannual IPE conference.

Dissemination initiatives such as a conference are typically structured to allow the sharing of knowledge. The results of the post-conference questionnaire utilized in this study indicated that the vast majority of participants rated the event as informative, relevant and applicable to their own work or study, and having increased their knowledge of IPE and IPP, thus achieving the dissemination of *knowledge*, Roger's first stage in the diffusion process.

Beyond the sharing of knowledge though IPE leaders need to consider the key characteristics of the innovation being promoted (IPE or IPP) and how these characteristics can be highlighted to increase the persuasiveness of the presenters and thus the likelihood of adoption. Structuring the conference program to showcase the relative advantage, compatibility, (manageable) complexity, trialability, and observability of IPE was important to the success of our 2014 conference. This was evidenced by three-quarters of participants having reported an increased interest in IPE and IPP as a result of the conference and the vast majority of participants indicating that the conference was likely to result in positive changes in IPE and IPP in Western Australia; support for *persuasion*, step two in the diffusion process, being achieved.

Further support for the utilization of these characteristics in the design of the conference program was found in the participants' feedback. The four presentations deemed to have the greatest impact for participants were clustered into two areas: (1)

leadership, and (2) IPE or IPP in action described via compelling stories. For example, the presentation describing the development and piloting of a change leadership program aligned with several diffusion characteristics: (1) *compatibility:* the empowering, strengths based core principles of the program seemed to have aligned with the existing values of the audience and their past experiences as well as their need for professional development in IPE and IPP leadership; (2) *complexity*: the program framework was simple; (3) *trialability*: three pilots were described; (4) *observability*: evidence of the positive outcomes from these pilots was provided. This leadership session was one of the most discussed by the participants with a number of comments about the importance of this and recognition that leadership is not a topic often explored in health. Several commented that the conference inspired them to think of themselves as leaders, and that the necessity to consider not just what needs to be changed but also how they can make this happen.

The other group of presentations deemed to have the most impact were all examples of IPE or IPP in action, two which were student led and one which was staff led. These presenters were described as portraying a high-level of passion for their innovation and their sessions were inspiring and illuminating. The key characteristics of the innovations presented were: (1) *observability*: explicit, positive outcomes for the clients, staff and/or students involved were provided; (2) *complexity*: the presenters provided clear examples and strategies for successful implementation; and (3) *compatibility*: these initiatives generated a high level of attendance and discussion. As indicated earlier, the use of compelling stories and examples were highlighted by participants as the reason for the high impact of these presentations.

In the future, dissemination events such as this conference would benefit from more explicit information on Rogers' theory being provided to presenters. This should include suggestions that they focus on highlighting the following:

1) the advantage of an interprofessional approach over current practice;
2) the alignment of the core values and principles of an interprofessional approach with stakeholders' values, past experiences and needs;
3) successful implementation strategies for their IPE/IPP initiative that demonstrate how the complexity of IPE/IPP has been reduced to an manageable level;
4) suggestions on ways to “test drive” (trial) the innovation;
5) the outcomes achieved.

Not surprisingly the greatest challenge for the participants at the conclusion of the conference was generating a plan for the *implementation* of IPE and IPP. Only half reported that they had a plan of action as a result of the conference, step four in the diffusion process. This low rating may be attributable to a number of factors. Firstly, more than half the participants were students who may perceive they have little influence to action IPE and IPP. Secondly, participants probably required time to reflect on what was learned before being able to apply this to their practice. Similarly, given Rogers (2003) [9] normal distribution curve from early adopters to laggards, a significant number of the participants were likely to still be *deciding whether to adopt or reject* IPE and IPP, step three in the diffusion process. Future conferences could incorporate a workshop at the conclusion of the knowledge sharing to facilitating participants to generate an IPE implementation plan. Students, academics and health practitioners might be grouped separately to ensure this discussion is relevant to them, but their ideas then shared across groups to foster the spread of knowledge across contexts [25], and gain the broad-based action needed for successful change [26].

Study limitations

This exploratory study had a number of limitations. Given the lack of studies on such events in the field it was not possible to use a validated measurement tool. To increase response rates, and reduce the load on the participants, the questionnaire utilized was limited in scope. The study also relied solely on self-reported data which whilst quick and easy to administer has issues with validity. Whilst respondents represented a range of sectors, professions and roles, the majority were from occupational therapy and students. Finally, the use of convenience sampling and the voluntary nature of the process suggest that the individuals who responded may have been those with stronger opinions, both positive and negative, whilst those with less strong experiences may have been less motivated to share their views.

Further research is needed to examine which, if any, of the characteristics of IPE and IPP are most important in particular contexts (relative advantage, compatibility, complexity, trialability or observability). Longitudinal studies are needed to determine if events such as this encourage more leaders in this emerging field and/or an increased adoption of IPE and IPP. Also, studies that examine change agents and opinion leaders and how they engage with potential adopters would also help inform the field, as would studying the specific messages that facilitate or inhibit adoption.

Conclusion

Achieving the desired transformational changes to the health system which integrate an interprofessional approach in both education and practice requires strong, effective leadership. Engagement of the necessary stakeholders in this change process depends on establishing a clear and compelling vision for a better future that is disseminated globally. The results of this study support the use of Rogers' (2003) [9] diffusion of innovation theory to inform the design of IPE and/or IPP dissemination within a broader leadership framework; in this case Kotter's eight-stage change process. The conference provided an opportunity to celebrate successful local initiatives and facilitated sharing knowledge and expertise through stories to inspire others.

Acknowledgment

The author wishes to thank all of the staff and students who participated in this study including the members of the expert panel: Hugh Barr, Lynne Sinclair, Amy Blue, Monica Moran, Sue Jones, Lee Musumeci, Laghima Dhar and Raphael Patterson. The author would like to acknowledge the contribution of Helen Flavell to the editorial process and Lorenz Wolf to the data analysis.

References

1. Frenk J, Chen L, Bhutta ZA, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. A Global Independent Commission. *Lancet*. 2010;376:1923–1958.
2. Barr H. Engaging with the global challenge. *J Interprof Care*. 2011;25(5):319–320.
3. Kabcenell A, Nolan TW, Martin LA, Gill Y. *The Pursuing Perfection Initiative: Lessons on Transforming Health Care*. IHI Innovation Series White Paper. Cambridge, Massachusetts: Institute of Healthcare Improvement; 2010.
4. Brewer, M., Flavell, H., Trede, F. & Smith, M. Critically mapping ‘leadership’ in interprofessional education and practice: a review of the literature. Manuscript under review.
5. Clark PG. Toward a transtheoretical model of interprofessional education: stages, processes and forces supporting institutional change. *J Interprof Care*. 2013;27(1):43–49.
6. Dow AW, DiazGranados D, Mazmanian PE, Retchin SM. Applying organizational science to health care: a framework for collaborative practice. *Acad Med*. 2013;88(7):952–957.

7. Yasinksi L. Authentic leadership: develop the leader within. *ORNAC J*. 2013;32(1):35–38.
8. Kotter JP. Leading change: why transformation efforts fail. *Harv Bus Rev*. 1995;73(2):59–67.
9. Rogers E. *Diffusion of Innovations*. New York, NY: The Free Press; 2003.
10. Brewer M, Jones S. A successful university-community engagement and leadership model. In: Forman D, Jones M, Thistlethwaite J, eds. *Leadership for Developing Interprofessional Education and Collaboration*. London: Palgrave Macmillan Ltd; 2014.
11. The Interprofessional Curriculum Renewal Consortium Australia. *Interprofessional Education: A National Audit*. Sydney: University of Technology Sydney; 2013. Retrieved from: http://www.hwa.gov.au/sites/uploads/IPE%20Audit%20report%20Jan%202013.pdf.
12. Lawlis TR, Anson J, Greenfield D. Barriers and enablers that influence sustainable interprofessional education: a literature review. *J Interprof Care*. 2014;28(4):305–310.
13. Appelbaum SH, Habashy S, Malo J, Shafiq H. Back to the future: revisiting Kotter's 1996 change model. *J Manag Dev*. 2012;31(8):764–782.
14. Suter E, Goldman J, Martimianakis T, Chatalalsingh C, DeMatteo DJ, Reeves S. The use of systems and organizational theories in the interprofessional field: findings from a scoping review. *J Interprof Care*. 2013;27(1):57–64.
15. Haider M, Kreps GL. Forty years of diffusion of innovations: utility and value in public health. *J Health Commun*. 2004;9(suppl 1):3–11.
16. Kotter JP. *Accelerate: Building Strategic Agility for a Faster-moving World*. Boston: Harvard Business Review Press; 2014.
17. Dearing JW. Improving the state of health Programming by using diffusion theory. *J Health Commun*. 2004;9(suppl 1):21–36.
18. Barr H. An anatomy of continuing interprofessional education. *J Contin Educ Health Prof*. 2009;29(3):147–150.
19. Bryman A. *Social Research Methods*. 4th ed. New York: Oxford UP; 2012.
20. Cook DA. Models of interprofessional learning in Canada. *J Interprof Care*. 2005;19:107–115.
21. Lapkin S, Levett-Jones T, Gilligan C. A cross-sectional survey examining the extent to which interprofessional education is used to teach nursing, pharmacy and medical students in Australian and New Zealand Universities. *J Interprof Care*. 2012;26:390–396.
22. Ogawa S, Takahashi Y, Miyazaki T. The current status and problems with the implementation of interprofessional education in Japan: an exploratory study. *J Res Interprof Pract Educ*. 2015;5:1–15.
23. Abu-Rish E, Kim S, Choe L, et al. Current trends in interprofessional education of health sciences students: a literature review. *J Interprof Care*. 2012:1–8. Early Online.
24. Chen F, Delnat CC, Gardner D. The current state of academic centers for interprofessional education. *J Interprof Care*. 2015:1–2. Early online.
25. Erickson T, Shami NS, Kellogg WA, Levine DW. Synchronous interaction among hundreds: an evaluation of a conference in an Avatar-based virtual environment. In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York: NY: Association for Computing Machinery; 2011.
26. Kotter JP. *Leading Change*. Boston, MA: Harvard Business Review Press; 2012.

Paper 8

Brewer, M. L., & Barr, H. (2016). Interprofessional education and practice guide no. 8: Team-based interprofessional practice placements. *Journal of Interprofessional Care, 30,* 747-753

Journal of Interprofessional Care

ISSN: 1356-1820 (Print) 1469-9567 (Online) Journal homepage: http://www.tandfonline.com/loi/ijic20

Interprofessional Education and Practice Guide No. 8: Team-based interprofessional practice placements

Margo L. Brewer & Hugh Barr

To cite this article: Margo L. Brewer & Hugh Barr (2016) Interprofessional Education and Practice Guide No. 8: Team-based interprofessional practice placements, Journal of Interprofessional Care, 30:6, 747-753, DOI: 10.1080/13561820.2016.1220930

To link to this article: http://dx.doi.org/10.1080/13561820.2016.1220930

Published online: 31 Oct 2016.

JOURNAL OF INTERPROFESSIONAL CARE
2016, VOL. 30, NO. 6, 747–753
http://dx.doi.org/10.1080/13561820.2016.1220930

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Interprofessional Education and Practice Guide No. 8: Team-based interprofessional practice placements

Margo L. Brewer[a] and Hugh Barr[a,b]

[a]Faculty of Health Sciences, Curtin University, Perth, Western Australia, Australia; [b]Centre for the Advancement of Interprofessional Education (CAIPE), Fareham, UK

ABSTRACT

Whilst interest in interprofessional learning (IPL) in practice contexts has grown in recent years, the complexities involved have led many universities to rely on IPL in the classroom, online, and/or simulated contexts. Curtin University's Faculty of Health Sciences has successfully implemented a multi-award winning, large-scale Interprofessional Practice Programme. This programme, which began with five small pilots in 2009, provides team-based interprofessional practice placements for over 550 students from nine professions per annum. Drawing on both the literature and Curtin University's experience, this Interprofessional Education and Practice Guide aims to assist university and practice-based educators to "weigh the case" for introducing team-based interprofessional placements. The key lessons learned at Curtin University are identified to offer guidance to others towards establishing a similar programme for students during their prequalifying courses in health, social care, and related fields.

ARTICLE HISTORY
Received 30 March 2016
Revised 26 May 2016
Accepted 2 August 2016

KEYWORDS
Interprofessional education; interprofessional learning; practice-based learning; team-based placements

Introduction

Student engagement in supervised practice, often in the form of work-based placements, is common in the health and social care professions (Rodger et al., 2008). The General Medical Council (2011) defines a (clinical) placement as "any arrangement in which a medical student is present in an environment that provides healthcare or related services to patients or the public" (p. 5). Traditionally such placements involve either individual students or small groups of students. Team-based interprofessional learning has largely been absent from structured clinical/fieldwork placement programmes. We define a Team-based Interprofessional Practice Placement (TIPP) as "a dedicated and prearranged opportunity for a number of students from health, social care and related professions to learn together for a period of time in the same setting as they perform typical activities of their profession as a team focused on a client-centred approach". These activities include assessment and intervention planning and implementation, case conferences, ward rounds, patient handover, team meetings, clinical teaching, and professional development.

Examples that accord with our definition of a TIPP can be found in a variety of settings including primary schools (Salm, Greenberg, Pitzel, & Cripps, 2010), residential aged care (Marles, Lawrence, Brewer, Saunders, & Lake, 2012), international service learning (Strong et al., 2014), and primary care (Kent, 2015). The most frequently cited examples of TIPPs are the hospital-based training wards in Sweden and Denmark (Jakobsen, 2016), the United Kingdom (Reeves, Freeth, McCrorie, & Perry, 2002), and Australia (Brewer & Stewart-Wynne, 2013).

Defined thus, a TIPP provides more than just opportunities for students on concurrent placements in the same setting to participate in a shared-learning experience. Typically, such shared experiences include seminars (Hood, Leech, Cant, Gilbee, & Baulch, 2014), grand rounds (Mackintosh, Adams, Singer-Chang, & Hruby, 2011), journals clubs (Gum et al., 2013), observation of other professions (Fougner & Horntvedt, 2011), and team challenges (Newton et al., 2015). Other models of placement programmes have come closer to the definition of TIPPs where, for example, prearranged mixed professional groups of students have followed patients through their pre and perioperative journeys (Joseph, Diack, Garton, & Haxton, 2012), conducted joint visits to patients' homes learning about their life and health (Anderson & Lennox, 2009), or role-played a team meeting during a workshop on a hospital visit (Frisby, Mehdi, & Birns, 2015). Valuable though such experiences may be, they are typically brief, predictable, replicable, low risk, and student-centred (Cooper, Orrell, & Bowden, 2010). This contrasts with TIPPs which, like many placements for senior students, require the learner to work with the public over an extended period of time in complex, dynamic, "people-laden" situations that are unpredictable, unique, and high risk in sites with multiple competing demands (Cooper et al., 2010).

Following an overview of the current evidence for TIPPs, this article reports on the lessons learnt by Curtin University in the development of a large scale TIPP programme which has been embedded in multiple health science courses. These lessons provide a guide to negotiate the challenges typically associated with developing practice-based IPL. A brief description of the university context by way of background precedes these lessons.

CONTACT Margo L. Brewer m.brewer@curtin.edu.au Director, Practice and Interprofessional Education, Curtin University—Pro-Vice Chancellor's Office, Level 4, Building 400, GPO Box U1987, Perth, WA 6845, Australia.

The evidence

Evidence supporting the benefits of TIPPs is growing. Studies have shown that a TIPP can alter students' attitudes towards other professions (Jacobsen & Lindqvist, 2009), increase insight into their own and other professions' roles and competence (Falk, Hult, Hammar, Hopwood, & Dahlgren, 2013; Fortugno, Chandra, Espin, & Gucciardi, 2013; Guitard, Dubouloz, Savard, Metthé, & Brasset-Latulippe, 2010; Pelling, Kalen, Hammar, & Wahlström, 2011), increase confidence in sharing their professional expertise in an interprofessional team (Fortugno et al., 2013), and strengthen collaboration with other professions in subsequent practice (Faresjö, Wilhelmsson, Pelling, Dahlgren, & Hammar, 2007; Grymonpre et al., 2010; Hylin, Nyholm, Mattiasson, & Ponzer, 2007). In relation to service users, studies have also shown that information sharing between professions improved students' decision-making which impacted on their service user assessments and interventions (Guitard et al., 2010; Salm et al., 2010). Another study found that students' attitude towards client-centred care, interprofessional practice, and multiagency collaboration was enhanced (Anderson, Manek, & Davidson, 2006). Comparative studies of student-run wards and staff-run wards indicated patients reported a higher quality of care delivered by students (Hallin, Henriksson, Dale, & Kiessling, 2011) and the student ward was more cost-effective (Hansen, Jacobsen, & Larsen, 2011). Most recently, Jakobsen's (2016) review of 20 training wards in Sweden and Denmark found support for this model of TIPP having enabled students to achieve both uniprofessional and interprofessional learning outcomes, at the same time, strengthening the formation of their professional identity.

To date, research comparing the outcomes of TIPP to other practice-based IPL is lacking, and comparisons to uniprofessional placements are limited. Waller (2010) reported on a detailed comparison of 4-week TIPP and traditional placements within allied health services. Students who completed a TIPP, when compared to the students from uniprofessional placements, were more aware of the contextual factors and processes that lead to interprofessional practice. They also achieved a better understanding of teamwork processes, IPL outcomes, and increased knowledge of their own and others' professional roles. This finding is noteworthy given that the uniprofessional placements occurred within the context of multiprofessional team-based services. The other noteworthy finding was that the students enhanced understanding of interprofessional collaboration following their TIPP was sustained 6 months after entry into the workforce.

The findings of Waller's (2010) longitudinal study add weight to the call for formal practice-based IPL rather than relying solely on opportunistic learning in the practice environment. Stew's (2005) review of IPL across practice sites in south-east England found that the most common model of IPL was clinician-led sessions; students had a passive role and were provided with little opportunity to collaborate with other professions or participate in services' provision. Similarly, a review of the literature on practice-based IPL found that non-patient contact activities (e.g., project work, presentations, team development, or discussion) dominated the students' placement experience (Davidson, Smith, Dodd, Smith, & O'Loughlan, 2008).

Developing, delivering, and evaluating student placements demand careful planning (Orrell, 2011); TIPPs even more so. The lessons learned presented here draw on the experiences of Curtin University with support from the literature. Curtin University, located in Perth, Western Australia, has approximately 11,000 students within 7 schools (nursing, midwifery, and paramedicine; pharmacy; biomedical sciences; public health; occupational therapy and social work; psychology and speech pathology; and physiotherapy and exercise science). As outlined in Brewer and Jones (2014), IPL at Curtin started with a group of champions introducing case-based workshops in 2008 and moved quickly to the faculty executive embedding IPL in the faculty's teaching plan and establishing a dedicated academic leadership position for IPL in 2009. Our *Interprofessional Practice Programme* began in that year with five pilot TIPPs for groups of two to five professions; four in community-based services and one at the university. The programme expanded over the course of several years to now provide over 550 students (most in their final year) with a TIPP experience each year. These students represent nine professions: nursing, physiotherapy, occupational therapy, speech pathology, pharmacy, social work, psychology, dietetics, and exercise science.

Key lessons learned

Consider resource implications early

TIPPs are resource intensive calling for careful consideration of feasibility from the outset (Stew, 2005). Key factors taken into account were the availability of people to lead the initiative in each organisation (university and placement partner site), their experience and capabilities in practice learning (especially interprofessional), and their ability to dedicate time to the design, implementation, and evaluation processes (Jakobsen, 2016; Waller, 2010). Students' access to physical resources including suitable space for them to work together was important. At some sites, this required Curtin to secure a large group space within the facility, whilst at other sites, a small portable building for our students and staff was organised.

The greatest ongoing cost has been the employment of the TIPPs' facilitator(s) who needs to be onsite for much, if not all, of the time with students; facilitating the students' learning and overseeing the quality of care and safety of the students' practice. This facilitator is super-numerary given the lack of time regular staff have to dedicate to practice learning (Jacob, Barnett, Missen, Cross, & Walker, 2012; Rodger et al., 2008).

Choose your placement partner organisation carefully

The selection of, and engagement with, the partner organisation(s) is essential to the success and sustainability of TIPPs (Brewer & Jones, 2014; Siggins Miller Consultants, 2012). Learning organisations (Senge, 2006) committed to the preparation of the graduates of the future and the development of their staff make ideal partners. Organisations should also be committed to continuous quality improvement in the services that they provide. It is essential to ensure that the health and social needs of the service users are such that they would benefit from an interprofessional service model.

The partnership between the university and the placement provider must be positive and mutually beneficial. Weiss, Anderson, and Lasker (2002) describe such a partnership as one which "creates synergy by combining diverse perspectives, knowledge, and skills in a way that enables the partnership to think in new and better ways about how it can achieve its goals, plan more comprehensive, integrated programs and strengthen its relationship to the broader community" (p. 684).

A formal written agreement between partner organisations is highly recommended to ensure clarity (Brewer & Jones, 2014). At Curtin, this agreement includes agreed links to the strategic priorities of the organisations, a shared vision and objectives, staff roles and responsibilities, risk mitigation strategies, evaluation and review process, and plans for sustainability. The size of the organisation does not appear to be a critical factor; smaller organisations where staffs are more likely to be co-located and/or have frequent interaction may have an advantage (Jackson & Bluteau, 2007).

Gain support at all levels

Intertwined with the partnership agreement is the need to develop an engagement plan (Brewer & Jones, 2014) which maps out the process for facilitating the participation of the key stakeholders including senior executive, middle managers, frontline staff, service users, and students, all of whom play a role in success and sustainability (Newton et al., 2015). We utilised the core principles and values of the International Association for Public Participation (2016) and their spectrum of participation – inform, consult, involve, collaborate, and empower – to map the engagement strategies for each stakeholder group.

Plan for sustainability

Sustainability is enhanced by linking the TIPP to the practice learning needs for the relevant courses. Identifying placement requirements and/or gaps is best established via close working relationships with the staff who leads practice learning across the professional courses. A formal group or committee that has oversight of all practice learning provides the ideal forum (Brewer & Jones, 2014).

The selection of the placement site may also impact on sustainability. By situating the programme in nontraditional contexts (primary schools, aged care, and international settings), Curtin has successfully attracted funding from the federal government, philanthropic bodies, and host partner organisations.

Sustainability can also be enhanced by starting small, demonstrating, and disseminating your success to attract interest from fellow teachers, placement provider organisation, and funding bodies (Brewer & Jones, 2014).

Include a quality improvement process

A process of continuous quality improvement should be established from the outset which includes mechanisms for gathering and sharing regular feedback from all key stakeholders – students, service users, facilitators/supervisors, senior staff, and the organisations involved (Siggins Miller Consultants, 2012).

Quality improvement should also include an assessment of the risks involved. At Curtin, this includes assessment of the partnership (e.g., breakdown in the partnership agreement), placement environment (e.g., occupational health and safety procedures), governance (e.g., adherence to policies and procedures), disruption to the service and/or placement (e.g., infectious disease breakout), and service user concerns (e.g., safety and quality, confidentiality).

Develop a theoretical framework

A theoretical framework should guide the development and evaluation process. A number of useful resources are available to guide this process including Roberts and Kumar's (2015) article which outlines a number of theories worth consideration including community of practice, practice theory, professional identity, and sociocultural learning. Similarly, Hean, Craddock, and O'Halloran's (2009) paper provides a useful overview of the key theories in the IPL literature and their relationship to one another, whilst Hean, Craddock, and Hammick (2012) link current theories to key dimensions of IPL such as agency, utility, and location.

Allow students time to consolidate their learning

Experience suggests that a TIPP should not be less than the equivalent of 2 weeks full time (Davidson et al., 2008; Dean et al., 2014; Hylin et al., 2007) to allow students sufficient opportunity to develop an understanding of, and early capabilities in, interprofessional collaborative practice. Placements that are at least 2 weeks in length enable students to (i) learn how practice is currently conducted in particular contexts, (ii) stand back and take a critical view of these practices, and (iii) begin to discern ways in which the practices might be improved (Barnett, 2012). Longer placements have also been shown to have greater capacity to develop other desired graduate attributes (Button, Green, Tengnah, Johansson, & Baker, 2005).

Decide when a TIPP will be most effective

Experience suggests that students at the later stages of their training – having developed their professional identity, confidence, and practice capabilities and who can build on IPL experiences at earlier stages of their courses – benefit most from a TIPP (Gilligan, Outram, & Levett-Jones, 2014; Hylin et al., 2007). At Curtin, the vast majority of the students are in the final year of their course; however, depending on their course requirements, students in their second year may also participate (e.g., nursing students studying aged care and community nursing). Mixing student year levels requires skilled facilitation and is enhanced by the senior students taking on a peer coaching role (Boud, Cohen, & Sampson, 2014).

Take a solution-focused approach

Differences in the structure of the students' courses can be challenging (Davidson et al., 2008; Jacob et al., 2012). Effort was invested in reducing the considerable variation that exists in the timing (within and across year levels) and length of placements. This task was undertaken by a committee with oversight of teaching and learning across the relevant professional courses including placement timing, student assessments, and placement expectations (Nelson, Tassone, & Hodges, 2014). For a multitude of reasons, significant realignment of placement schedules was not achieved, so two other scheduling models were utilised. For the training ward (2 weeks) and international service learning (four weeks) placements, students fit these in between their traditional placement schedule. For other placements, students are allocated based on their usual placement schedule, resulting in different start dates for some. Caution is needed not to overburden the facilitator through running frequent orientation sessions for incoming students. This has been addressed by students sharing the responsibility for orientating new students to the structure, processes, and culture of the placement, that is, the students take on the role of "cultural carriers" (Armenakis, Brown, & Mehta, 2011). This works best when there is several days' overlap between the students' placements.

Consider the learning environment

One important element to consider in the design of the placement is the significant impact of the learning environment on the students' experience (Subramaniam, Silong, Uli, & Ismail, 2015). An ideal environment is one which is welcoming and safe, guided by clear objectives, with appropriate structured-learning experiences, and a suitable ratio of students to facilitators. At Curtin, the Best Practice Clinical Learning Environment tool is being used to guide the assessment and shaping of the environment (see key resources below). In addition, our programme is underpinned by an interprofessional capability framework (Brewer & Jones, 2013) which informs the learning outcomes, design of the learning experience, and the student assessment. Freeth and Reeves' (2004) adaptation of the well-known presage, process, product (3P) model can also be used to guide the programme process.

Another important element of the learning environment is to match the students to the context to ensure the experiences is authentic for the students and the students add value to the partner organisation and their service users. For example, we do not place pharmacy students at primary schools but do place them in aged care.

Faculty development is essential

The staff involved with students on placements are powerful role models whose teaching and learning expertise impacts on the student experience (Lie, Forest, Kysh, & Sinclair, 2016). The facilitator should have previous experience as an educator and a strong commitment to IPL and interprofessional practice. Akin to any placement facilitator (O'Keefe, Burgess, McAllister, & Stupans, 2012), the facilitator needs to demonstrate high-level capabilities in communication and relationship skills particularly with students and staff from other professions, self-awareness to understand and monitor the impact of their previous experiences on their interactions with others, and ongoing reflective practice (Pollard, 2009; Wee & Goldsmith, 2008).

Regulatory bodies typically require that the staffs who supervise students' practice are from their profession. Access to such profession-specific role modelling and support for learning and capability development should be factored into all TIPPs. Current examples of TIPPs, such as student training wards (e.g., Brewer & Stewart-Wynne, 2013; Jakobsen, 2016), demonstrate that whilst students need direct supervision by staffs from their profession at regular intervals; they are able to provide safe health and social care under the supervision of an experienced TIPP's facilitator from a profession other than their own.

Faculty development is critical for the preparation of all interprofessional facilitators (Hall & Zierler, 2015; Lindqvist & Reeves, 2007). The facilitator should challenge students to reflect on what they see, who they are, and who they want to become (Trede & McEwen, 2012).

Student preparation is essential

Preparation prior to the TIPP will optimise students' ability to learn in, for, and about interprofessional collaborative practice (Copley et al., 2007; Dean et al., 2014). At Curtin, this preparation includes a review of information on the definitions, drivers, and evidence for TIPPs and interprofessional collaborative practice, plus videos featuring students, facilitators, and partner organisations highlighting the nature and benefits of the team-based placements. Once on site, the students' placement begins with a formal orientation to both the organisation and the programme including key elements of the structure, process (policies and procedures), and culture. Establishing agreed individual and shared team goals is crucial. Curtin students are expected to achieve both interprofessional and uniprofessional learning outcomes.

Assess the student outcomes

Whilst a range of tools to measure student outcomes at Levels 1 and 2 of the modified Kirkpatrick model (Reeves, Boet, Zierler, & Kitto, 2015) are available (Thannhauser, Russell-Mayhew, & Scott, 2010), many have been criticised (Oates & Davidson, 2015). Nonetheless, assessment of student outcomes is important. In particular, to be effective lifelong learners', students need to learn to judge whether they have met the standards of the task in hand and to seek feedback from peers, supervisors, and practitioners (Boud et al., 2014). Few tools are available to assess Kirkpatrick's level 3 outcomes, that is, the students' interprofessional practice competencies or capabilities (Havyer et al., 2016) during a TIPP. At Curtin, to ensure that the assessment process aligns with the learning outcomes set out in our interprofessional capability framework (Brewer & Jones, 2013), both the TIPP facilitator and the student complete Curtin's interprofessional capability assessment tool at the mid (formative assessment) and end (summative assessment) of the placement. Students are also typically assessed on their profession's placement assessment tool by a supervisor from their own profession.

Utilise the resources of service users and other students

Given that opportunities for students to engage face-to-face in interprofessional practice with service users are frequently missing from many interprofessional placements (Davidson et al., 2008; Jacob et al., 2012; Pollard, 2009), this is the focus of all TIPPs at Curtin. In addition, joint work (projects, assignments) are used to accelerate group development (Fransen, Kirschner, & Erkens, 2011).

Evaluation is critical

Evaluation should be built in from the outset. Input from, and relevant to, all key stakeholders should be obtained using quantitative and qualitative methodologies. Of particular, relevance to practice learning is the issue of managing the evaluation site (Reeves et al., 2015). Kirkpatrick's adapted model (Reeves et al., 2015) can inform the evaluation process. At Curtin University, this evaluation has included an observational study, focus groups, and interviews with students engaged in TIPPs. Evaluations such as this which focus on practice and organisational changes with benefits to service users help advance the evidence for outcomes beyond the early phases of the Kirkpatrick scale (Reeves et al., 2015).

Discussion

Many programmes described as practice-based IPL fall short of the TIPPs definition that we commend as the optimal context for students to develop their interprofessional collaborative practice capabilities. The outcomes of TIPPs summarised in this guide demonstrate the positive benefits for students; benefits that have been sustained postqualification. Evidence of benefits of TIPPs on service users and the organisations involved, however, is very much in its infancy.

Curtin University's TIPPs have grown from providing placements for 115 students in 2009 to 550 in 2015. Much of this growth was possible due to the implementation of the lessons learned which allowed us to overcome the many challenges along the way, most of which are reported elsewhere in the literature (e.g., Lawlis, Anson, & Greenfield, 2014). The major successes to date have been the large government investment in the TIPPs followed by funding from our industry partners, philanthropy, and the faculty. Two new TIPPs have been established in remote Aboriginal communities to help address the needs of these communities and to provide opportunities for students to work in partnership with the communities to developed health services. Plans are underway to develop a new training ward similar to that reported in Brewer and Stewart-Wynne (2013).

The major issue that continues to threaten the sustainability of TIPPS, as for IPL in general, is the increasing fiscal constraint placed on Australian universities. However, in a climate of increasing demand from external agencies for payment to supervise our students combined with growing shortages in traditional uniprofessional placements, TIPPs can provide additional placements where students focus on the development of their professional and interprofessional capabilities, thus preparing them for the future interprofessional workforce.

Additional evidence of the success of these TIPPS at Curtin has been the increase in staff across the faculty and in the community who are involved and trained in IPL; the ongoing collaboration between professions across the faculty with many new educational initiatives, particularly in the area of simulation, including a strong emphasis on IPL; the inclusion of the TIPPs as a standing items on the agenda for key committee including the weekly meeting of the faculty executive and the monthly meeting of the fieldwork leadership group and some TIPPs continuing under the management of our partner organisations such as in a rural hospital and an aged care facility involved in one of our early pilots (Marles et al., 2012). Further to this, a three-part study on the impact of these TIPPs on our students is nearing completion.

Acknowledgements

The authors acknowledge Kate Parkin, Sundari Joseph, Flemming Jakobsen, and Helen Flavell for their editorial input.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

References

Anderson, E. S., & Lennox, A. (2009). The Leicester model of interprofessional education: Developing, delivering and learning from student voices for 10 years. *Journal of Interprofessional Care*, *23*, 557–573. doi:10.3109/13561820903051451

Anderson, E., Manek, N., & Davidson, A. (2006). Evaluation of a model for maximizing interprofessional education in an acute hospital. *Journal of Interprofessional Care*, *20*, 182–194. doi:10.1080/13561820600625300

Armenakis, A., Brown, S., & Mehta, A. (2011). Organizational culture: Assessment and transformation. *Journal of Change Management*, *11*, 305–328. doi:10.1080/14697017.2011.568949

Barnett, R. (2012). Practice-based education: Future possibilities. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede (Eds.), *Practice-based education: Perspectives and strategies*. Rotterdam, the Netherlands: Sense Publishers.

Boud, D., Cohen, R., & Sampson, J. (2014). Peer learning and assessment. In D. Boud, R. Cohen, & J. Sampson (eds.), *Peer learning in higher education: Learning from and about each other*. London, UK: Kogan Page.

Brewer, M. L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health*, *42*, e45–e49.

Brewer, M., & Jones, S. (2014). A successful university-community engagement and leadership model. In D. Forman, M. Jones, & J. Thistlethwaite (Eds.), *Leadership for developing interprofessional education and collaboration*. Basingstoke, UK: Palgrave Macmillan.

Brewer, M. L., & Stewart-Wynne, E. G. (2013). An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities. *Journal of Interprofessional Care*, *27*, 482–488. doi:10.3109/13561820.2013.811639

Button, L., Green, B., Tengnah, C., Johansson, I., & Baker, C. (2005). The impact of international placements on nurses' personal and professional lives: Literature review. *Journal of Advanced Nursing*, *50*, 315–324. doi:10.1111/jan.2005.50.issue-3

Cooper, L., Orrell, J., & Bowden, M. (2010). *Work integrated learning: A guide to effective practice*. London, UK: Routledge.

Copley, J. A., Allison, H. D., Hill, A. E., Moran, M. C., Tait, J. A., & Day, T. (2007). Making interprofessional education real: A university clinic model. *Australian Health Review*, *31*, 351–357. doi:10.1071/AH070351

Davidson, M., Smith, R. A., Dodd, K. J., Smith, J. S., & O'Loughlan, M. J. (2008). Interprofessional pre-qualifying education: A systematic review. *Australian Health Review*, *32*, 11–120. doi:10.1071/AH080111

Dean, H. J., MacDonald, L., Alessi-Severini, S., Halipchuk, J. A. C., Sellers, E. C. A., & Grymonpre, R. E. (2014). Elements and enablers for interprofessional education clinical placements in diabetes teams. *Canadian Journal of Diabetes*, *38*, 273–278. doi:10.1016/j.jcjd.2014.02.024

Falk, A. L., Hult, H., Hammar, M., Hopwood, N., & Dahlgren, M. A. (2013). One site fits all? A student ward as a learning practice for interprofessional development. *Journal of Interprofessional Care*, *27*, 476–481. doi:10.3109/13561820.2013.807224

Faresjö, T., Wilhelmsson, M., Pelling, S., Dahlgren, L., & Hammar, M. (2007). Does interprofessional education jeopardize medical skills? *Journal of Interprofessional Care*, *21*, 573–576. doi:10.1080/13561820701412335

Fortugno, M., Chandra, S., Espin, S., & Gucciardi, E. (2013). Fostering successful interprofessional teamwork through an undergraduate student placement in a secondary school. *Journal of Interprofessional Care*, *27*, 326–332. doi:10.3109/13561820.2012.759912

Fougner, M., & Horntvedt, T. (2011). Students' reflections on shadowing interprofessional teamwork: A Norwegian case study. *Journal of Interprofessional Care*, *25*, 33–38. doi:10.3109/13561820.2010.490504

Fransen, J., Kirschner, P. A., & Erkens, G. (2011). Mediating team effectiveness in the context of collaborative learning: The importance of team and task awareness. *Computers in Human Behavior*, *27*, 1103–1113. doi:10.1016/j.chb.2010.05.017

Freeth, D., & Reeves, S. (2004). Learning to work together: Using the presage, process, product (3P) model to highlight decisions and possibilities. *Journal of Interprofessional Care*, *18*, 43–56. doi:10.1080/13561820310001608221

Frisby, J., Mehdi, Z., & Birns, J. (2015). Interprofessional learning on a stroke unit. *The Clinical Teacher*, *12*, 315–319. doi:10.1111/tct.2015.12.issue-5

General Medical Council. (2011). *Clinical placements for medical students*. Retrieved from http://www.gmc-uk.org/

Gilligan, C., Outram, S., & Levett-Jones, T. (2014). Recommendations from recent graduates in medicine, nursing and pharmacy on improving interprofessional education in university programs: A qualitative study. *BMC Medical Education*, *14*, 52. doi:10.1186/1472-6920-14-52

Grymonpre, R., Van Ineveld, C., Nelson, M., Jensen, F., De Jaeger, A., Sullivan, T., & Booth, A. (2010). See it- do it – learn it: Learning interprofessional education in the clinical context. *Journal of Research in Interprofessional Education and Practice*, *1*, 127–144.

Guitard, P., Dubouloz, C., Savard, J., Metthé, L., & Brasset-Latulippe, C. (2010). Assessing interprofessional learning during a student placement in an interprofessional rehabilitation university clinic in primary healthcare in a Canadian francophone minority context. *Journal of Research in Interprofessional Education and Practice*, *1*, 231–246.

Gum, L. F., Richards, J. N., Walters, L., Forgan, J., Lopriore, M., & Nobes, C. (2013). Immersing undergraduates into an interprofessional longitudinal rural placement. *Rural and Remote Health*, *13*, 2271. (online).

Hall, L. W., & Zierler, B. K. (2015). Interprofessional education and practice guide No. 3: Developing faculty to effectively facilitate interprofessional education. *Journal of Interprofessional Care*, *29*, 3–7. doi:10.3109/13561820.2014.937483

Hallin, K., Henriksson, P., Dale, N., & Kiessling, A. (2011). Effects of interprofessional education on patient perceived quality of care. *Medical Teacher*, *33*, e22–e26. doi:10.3109/0142159X.2011.530314

Hansen, T. B., Jacobsen, F., & Larsen, K. (2011). Cost effective interprofessional training: An evaluation of a training unit in Denmark. *Journal of Interprofessional Care*, *23*, 234–241. doi:10.1080/13561820802602420

Havyer, R. D., Nelson, D. R., Wingo, M. T., Comfere, N. I., Halvorsen, A. J., McDonald, F. S., & Reed, D. A. (2016). Addressing the interprofessional collaboration competencies of the Association of American Medical Colleges: A systematic review of assessment instruments in undergraduate medical education. *Academic Medicine, 91*, 865–888.

Hean, S., Craddock, D., & Hammick, M. (2012). Theoretical insights into interprofessional education: AMEE Guide No. 62. *Medical Teacher*, *34*, e78–e101. doi:10.3109/0142159X.2012.650740

Hean, S., Craddock, D., & O'Halloran, C. (2009). Learning theories and interprofessional education: A user's guide. *Learning in Health and Social Care*, *8*, 250–262. doi:10.1111/j.1473-6861.2009.00227.x

Hood, K., Leech, M., Cant, R., Gilbee, A., & Baulch, J. (2014). Transforming nursing education: Development and evaluation of interprofessional clinical skills training for students on clinical placement. *Journal of Nursing Education and Practice*, *4*, 97–106. doi:10.5430/jnep.v4n8p97

Hylin, U., Nyholm, H., Mattiasson, A., & Ponzer, S. (2007). Interprofessional training in clinical practice on a training ward for healthcare students: A two-year follow-up. *Journal of Interprofessional Care*, *21*, 277–288. doi:10.1080/13561820601095800

International Association of Public Participation Federation. (2016). *Public participation spectrum and core values*. Retrieved from http://www.iap2.org.au/resourcebank

Jackson, A., & Bluteau, P. (2007). At first it's like shifting sands: Setting up interprofessional learning within a secondary care setting. *Journal of Interprofessional Care*, *21*, 351–353. doi:10.1080/13561820701233905

Jacob, E., Barnett, T., Missen, K., Cross, M., & Walker, L. (2012). Australian clinician's views on interprofessional education for students in the rural clinical setting. *Journal of Research in Interprofessional Practice and Education*, *2*, 219–229.

Jacobsen, F., & Lindqvist, S. (2009). A two-week stay in an Interprofessional Training Unit changes students' attitudes to health professionals. *Journal of Interprofessional Care*, *23*, 242–250. doi:10.1080/13561820902739858

Jakobsen, F. (2016). An overview of pedagogy and organisation in clinical interprofessional training units in Sweden and Denmark. *Journal of Interprofessional Care*, *30*, 156–164. Manuscript in press. 10.3109/13561820.2015.1110690

Joseph, S., Diack, L., Garton, F., & Haxton, J. (2012). Interprofessional education in practice. *The Clinical Teacher*, *9*, 27–31. doi:10.1111/tct.2012.9.issue-1

Kent, F. (2015). *Interprofessional education in primary health care* (Doctoral dissertation). Melbourne, Victoria: Monash University.

Lawlis, T. R., Anson, J., & Greenfield, D. (2014). Barriers and enablers that influence sustainable interprofessional education: A literature review. *Journal of Interprofessional Care*, *28*, 305–310. doi:10.3109/13561820.2014.895977

Lie, D. A., Forest, C. P., Kysh, L., & Sinclair, L. (2016). Interprofessional education and practice guide No. 5: Interprofessional teaching for prequalification students in clinical settings. *Journal of Interprofessional Care*, *30*, 324–330. doi:10.3109/13561820.2016.1141752

Lindqvist, S. M., & Reeves, S. (2007). Facilitators' perceptions of delivering interprofessional education: A qualitative study. *Medical Teacher*, *29*, 403–405. doi:10.1080/01421590701509662

Mackintosh, S. E., Adams, C. E., Singer-Chang, G., & Hruby, R. J. (2011). Osteopathic approach to implementing and promoting interprofessional education. *Journal of the American Osteopath Association*, *111*, 206–212.

Marles, K., Lawrence, J., Brewer, M., Saunders, R., & Lake, F. (2012). Interprofessional education in the residential aged care setting: A case study approach. *Aging and Society: An Interdisciplinary Journal*, *1*, 33–43.

Nelson, S., Tassone, M., & Hodges, B. (2014). *Creating the health care team of the future: The Toronto model for interprofessional education and practice*. New York, NY: Cornell University Press.

Newton, C., Bainbridge, L., Ball, V., Baum, K. D., Bontje, P., Boyce, R. A., & Wood, V. (2015). The Health Care Team Challenge™: Developing an international interprofessional education research collaboration. *Nurse Education Today*, *34*, 655–660.

Oates, M., & Davidson, M. (2015). A critical appraisal of instruments to measure outcomes of interprofessional education. *Medical Education*, *49*, 386–398. doi:10.1111/medu.12681

O'Keefe, M., Burgess, T., McAllister, S., & Stupans, I. (2012). Twelve tips for supporting student learning in multidisciplinary clinical placements. *Medical Teacher*, *34*, 883–887. doi:10.3109/0142159X.2012.700431

Orrell, J. (2011). *Good practice report: Work-integrated learning*. Surry Hills, Australia: Australian Learning and Teaching Council.

Pelling, S., Kalen, A., Hammar, M., & Wahlström, O. (2011). Preparation for becoming members of health care teams: Findings from a 5 year

evaluation of a student interprofessional training ward. *Journal of Interprofessional Care*, *25*, 328–332. doi:10.3109/13561820.2011.578222
Pollard, K. (2009). Student engagement in interprofessional working in practice placement settings. *Journal of Clinical Nursing*, *18*, 2846–2856. doi:10.1111/jcn.2009.18.issue-20
Reeves, S., Boet, S., Zierler, B., & Kitto, S. (2015). Interprofessional education and practice guide No. 3: Evaluating interprofessional education. *Journal of Interprofessional Care*, *29*, 305–312. doi:10.3109/13561820.2014.1003637
Reeves, S., Freeth, D., McCrorie, P., & Perry, D. (2002). `It teaches you what to expect in future…': Interprofessional learning on a training ward for medical, nursing, occupational therapy and physiotherapy students. *Medical Education*, *36*, 337–344. doi:10.1046/j.1365-2923.2002.01169.x
Roberts, C., & Kumar, K. (2015). Student learning in interprofessional practice-based environments: What does theory say? *BMC Medical Education*, *15*, 211–213. doi:10.1186/s12909-015-0492-1
Rodger, S., Webb, G., Devitt, L., Gilbert, J., Wrightson, P., & Meeken, J. (2008). Clinical education and practice placements in the allied health professions: An international perspective. *Journal of Allied Health*, *37*, 53–62.
Salm, T., Greenberg, H., Pitzel, M., & Cripps, D. (2010). Interprofessional education internships in schools: Jump starting change. *Journal of Interprofessional Care*, *24*, 251–263. doi:10.3109/13561820903051469
Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization* (2nd ed.). London, UK: Random House.
Siggins Miller Consultants. (2012). *Promoting Quality in Clinical Placements: Literature review and national stakeholder consultation*. Adelaide, Australia: Health Workforce Australia. Retrieved from http://www.hwa.gov.au/resources/publications
Stew, G. (2005). Learning together in practice: A survey of interprofessional education in clinical settings in South-East England. *Journal of Interprofessional Care*, *19*, 223–235. doi:10.1080/13561820500138685
Strong, J., Chipchase, L., Allen, S., Eley, D. S., McAllister, L., & Davidson, B. (2014). Interprofessional learning during an international fieldwork placement. *International Journal of Practice-based Learning in Health and Social Care*, *2*, 27–39. doi:10.11120/pblh.2014.00032
Subramaniam, A., Silong, A. D., Uli, J., & Ismail, I. A. (2015). Effects of coaching supervision, mentoring supervision and abusive supervision on talent development among trainee doctors in public hospitals: Moderating role of clinical learning environment. *BMC Medical Education*, *15*, 129–137. doi:10.1186/s12909-015-0407-1
Thannhauser, J., Russell-Mayhew, S., & Scott, C. (2010). Measures of interprofessional education and collaboration. *Journal of Interprofessional Care*, *24*, 336–349. doi:10.3109/13561820903442903
Trede, F., & McEwen, C. (2012). Developing a critical professional identity: Engaging in self in practice. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede (Eds.), *Practice-based Education: Perspectives and strategies*. Rotterdam, the Netherlands: Sense Publishers.
Waller, S. (2010). *Contact is not enough: The impact of a directed interprofessional clinical education placement (DICEP) compared to a standard clinical education placement (SCEP) on therapy students' understanding of professional roles, teamwork, and interprofessional practice* (Unpublished Doctoral dissertation). Retrieved from http://espace.library.uq.edu.au/view/UQ:219357
Wee, B., & Goldsmith, J. (2008). Preparing facilitators for interprofessional learning. In E. Howkins, & J. Bray (Eds.), *Preparing for interprofessional teaching: Theory and practice*. Oxford, UK: Radcliffe Publishing.
Weiss, E. S., Anderson, R. M., & Lasker, R. D. (2002). Making the most of collaboration: Exploring the relationship between partnership synergy and partnership functioning. *Health Education and Behavior*, *29*, 683–698. doi:10.1177/109019802237938

Appendix: Key resources

Below is a selection of recommended websites for further reading about team-based interprofessional practice placements:

- Best Practice Clinical Learning Environment is an organizational self-assessment tool. Website: https://www.bpcletool.net.au/
- National Centre for Interprofessional Education and Practice has many resources in relation to education, practice and research. Website: https://nexusipe.org/
- Centre for the Advancement of Interprofessional Education has a range of relevant resources and references. Website: http://caipe.org.uk/
- University of Alberta has an online module on preparing for a TIPP. Website: http://healthsci.queensu.ca/education/oipep/online_modules
- Curtin University TIPP resources are available on request from the corresponding author.

Chapter 5: Discussion and conclusion

Never doubt that a small group of thoughtful, concerned citizens can change the world. Indeed it is the only thing that ever has

(Quote attributed to Margaret Mead)

This final chapter critically evaluates the key research findings in light of the research questions and their links with, and contribution to, the literature on leadership of interprofessional education. This summary is organised into four sections. The first section provides a summary and critique of the major findings of each study and their implications for practice. The second section proposes a leadership model based on Drath et al.'s (2008) leadership ontology. The third section outlines the key strengths and limitations of the research and suggestions for future research. The chapter ends with the overarching conclusions of the research.

5.1 Research overview

Interprofessional education has been embedded within many health education programs in Canada (Ho et al., 2008), the US (Greer et al., 2014) and the UK (Barr et al, 2014). Progress in Australia has generally been slow with most interprofessional education offerings within universities not yet embedded within curricula (Interprofessional Curriculum Renewal Consortium Australia, 2013). Education systems are not designed for collaboration with their profession-specific departments, priorities and management structures, and their individualistic reward systems (Kezar & Lester, 2009). Efforts to remove barriers have tended to focus on the surface of the education system rather than address the deeper systemic (Gilbert, 2010) and cultural (MacMillan & Reeves, 2014) issues. The large scale change needed to address the surface, systemic and cultural issues limiting embedding of interprofessional education, requires effective leadership; an area of growing interest but limited research in the field.

This research was driven by the desire to gain insight into the leadership practices which can be used to facilitate embedding interprofessional education within a university curriculum. The main objectives was *to explore the role of leadership practices in facilitating embedding interprofessional education in an Australian university.* As established earlier, the decision to examine leadership practices was based on the need to

address key gaps in the literature on leadership in the interprofessional field where the current focus has been on structural leadership arrangements or the individual leader; a focus in contrast with contemporary theories where the processes or practices of leadership rather than individual leaders are emphasised.

Discussion of the key findings of the research has been framed using Drath and colleagues (2008) direction-alignment-commitment leadership ontology. This leadership theory was selected because of its alignment with two essential elements of the definition of interprofessional education. First, the direction-alignment-commitment ontology adopts a collaborative ('collective') view of leadership, just as collaboration is critical to interprofessional education (and practice). This collective view sees leadership as not limited to any particular position or level; leadership can arise from an organisation, a community of practice, a team, or a leader(s)-follower(s) dyad. The second reason for selecting this theory was, in contrast to many other leadership models focused on leadership entities, direction-alignment-commitment focuses on outcomes, another critical aspect of interprofessional education. A focus on outcomes, instead of on fixed leader-follower structures, allows researchers to track developments in leadership practice by exploring the processes which achieve outcomes (Drath et al., 2008). Enhanced understanding of the processes and practices that facilitate leadership outcomes is needed to address the stalled progress in the interprofessional field in Australia (Lapkin et al., 2013; Nisbet, Lee, Kumar, Thistlethwaite & Dunston, 2011; The Interprofessional Curriculum Renewal Consortium, Australia, 2013).

5.2 Major research findings and their implications

As outlined previously, the first step in Drath and colleagues' (2008) leadership ontology is the provision of a clear direction for the desired change. This direction requires collective agreement over the vision, goals and objectives of the organisation (Drath et al., 2008); visioning being an essential element of leadership within numerous organisational change theories (e.g. Kotter, 2014a; Kouzes & Posner, 2012; Whitney et al., 2010), and the higher education leadership literature (Bolman & Deal, 1999; Kezar & Lester, 2009). At Curtin the process of setting the direction for interprofessional education began with executive agreement on the overarching vision of being *international leaders in interprofessional education, developing new health workforce*

models for the future (Brewer & Jones, 2014). To achieve this vision, staff (and students) needed to not only understand the vision but also understand that the central objective of interprofessional education at Curtin was the development of new interprofessional practice models of health care. Interprofessional practice, however, is a complex concept which has proven difficult to define and conceptualise (Goldman et al., 2009; World Health Organization, 2010). Therefore, facilitating people's ability to make sense of this concept (sensemaking) was a critical first step in leading the embedding interprofessional education within curricula.

The framework described in **Paper 1** was designed to achieve two key objectives. First, the framework provided an approximation of the reality of interprofessional practice (McCray, 2003), that is, the framework (see Appendix E) provided both a visual representation of key elements of interprofessional practice and a detailed description of interprofessional practice capabilities (Brewer, 2011). Second, the framework set out the standards for this practice (Reeves et al., 2009). The interprofessional capabilities, organised across three levels of development (novice to entry level), clarified the standards students were expected to demonstrate as they progressed through their course.

The value of competency/capability frameworks as teaching and learning tools was endorsed in three recent publications in the interprofessional education literature. In their international review of interprofessional frameworks, Thistlethwaite et al. (2014) concluded such frameworks provide a 'blueprint for optimal performance' (p. 870), and assist educators plan how they can support students to become effective members of health care teams. This perspective was supported in the *Journal of Interprofessional Care*'s seventh guide to interprofessional education and practice (Shrader et al., 2016) which suggested the US's competency framework be used to design interprofessional education curricula. Likewise, Rogers et al.'s (2016) international consensus statement on the assessment of interprofessional education outcomes, stated the need to examine the achievement of standards using competence or capability frameworks.

Interestingly, a second Australian interprofessional framework was published by Gum and colleagues (2013) soon after the framework in Paper 1. Whilst this framework has some similarities to the Curtin framework two key differences were evident. As with

the Canadian framework (Bainbridge, Nasmith, Orchard, & Wood, 2010), Gum et al.'s (2013) framework is presented through a complex visual. The utility of such a complex framework to facilitate staff and students' understanding of interprofessional practice needs to be considered. The second major difference was that the majority of Gum et al.'s (2013) capabilities refer to 'within team' or 'in team' without any reference to working with other agencies or service providers. Concern over the narrow focus of interprofessional capability frameworks on health care teams has been raised. For example, Reeves, Lewin, Espin, and Zwarenstein (2010) asserted the need to consider interprofessional work beyond teams or teamwork to encompass collaboration, coordination and networking, thus more accurately representing the array of practice in health service delivery. Whilst Curtin's framework also focuses on the team, it explicitly states the need for interprofessional collaboration between teams and across organisations to ensure integrated service delivery.

In summary, the major contribution of this first paper was the development of the first interprofessional capability tool for the Australian university context. The framework was included in the international framework review by Thistlethwaite et al. (2014) and the international consensus statement on assessment by Rogers et al. (2016) alongside the national Canadian and US frameworks, and a UK-based uiversity framework.

During the process of undertaking the research it became evident the capability framework published in Paper 1, whilst initially developed as a teaching and learning tool, could also function as a leadership tool. This leadership utility was possible in two key ways. By designing a framework that describes the concept of interprofessional practice leaders could facilitate the sensemaking process. Furthermore, by using the framework to describe the standards or outcomes (goals/objectives) for interprofessional education, leaders could clarify the direction or vision for the desired change. This notion of using the capability framework to facilitate the visioning and sensemaking processes will be discussed in more detail later.

Interprofessional education research has increasingly made reference to interprofessional competencies in recent years (e.g., Baker & Durham, 2013; Brown, 2014; Dow, DiazGranados, Mazmanian, & Retchin, 2013 & 2014; Hamilton, 2011; Reeves et al., 2011; Wagner & Reeves, 2015). As outlined earlier, the outcomes of

interprofessional competency frameworks has not yet been examined (Reeves, 2012). To redress this gap the studies outlined in the second phase of the research (comprised of Papers 2 and 3) explored the utilisation of Curtin University's interprofessional capability framework in the design, implementation and assessment of interprofessional education. More specifically, the research explored whether staff had aligned their work and commitment with the direction the framework provided. Importantly, as recommended by Ladhani, Scherpbier, and Stevens (2012), this research included a focus on how the framework was perceived by students and how they used the framework to reflect on practice as a health professional.

The principal outcome of **Paper 2** was the finding that staff had embedded the interprofessional capability framework within a common first year unit and used the framework to shape the students' learning experience and their assessment of this. The cohort of 105 first year students from 14 professions demonstrated a number of novice level interprofessional capabilities outlined in the framework (Brewer, 2011). Furthermore, many of the capabilities discussed by the students aligned with Knight and Yorke's (2002) USEM model of employability. The alignment of these interprofessional capabilities and the four aspects of employability were categorised as follows. In relation to ***U***nderstanding students discussed the capabilities of client centredness, team function and conflict resolution. In relation to ***S***killful practice the key capability discussed by students was communication. Finally, ***E***fficacy beliefs aligned with students' discussion of role clarification, and ***M***etacognition with their discussion of reflection.

These results echo previous studies which have demonstrated positive outcomes for students following the early introduction of interprofessional education (Adams, Hean, Sturgis & Clark, 2006; Anderson & Thorpe 2008; Cameron et al., 2009; Hall, Zoller, West, Lancaster, & Blue, 2011). Embedding interprofessional in the formative years of health professional education was also endorsed by Shrader et al. (2016) in their guide to the implementation of a large scale foundational program.

Unfortunately, direct comparison of this study with other similar learning experiences was difficult as most interprofessional education for first year students published in the literature has been considerably shorter in duration. For example, Cameron et al. (2009) described a 2.5 hour introductory session, van Winkle et al. (2012)

a 50 minute workshop, and Cooper, Spencer-Dawe, and McLean (2005) a lecture followed by four brief workshops. Closer to home, Surjan, Chiarelli, Dempsey, Lyall, and Tool's (2010) Australian study focused on a first year unit for students from eight health professions. On the surface this appeared similar to the unit examined in Paper 2. However, on closer scrutiny, the description of the unit provided by the authors (Surjan et al., 2010) was more akin to shared educational content delivered in an 'interprofessional environment'. What's more, the unit did not appear to be underpinned by any explicit interprofessional education competencies or capabilities. The study most similar to Paper 2 was Rotz et al.'s (2015) description of a 24 week interprofessional education experience for first year medical and pharmacy students; an experience informed by the US interprofessional competency framework. During post-course focus groups students described 12 of the 18 competencies from the US framework. Whilst the number of capabilities mentioned by students was not tallied in Paper 2, the identification of the majority of capabilities from Curtin's framework by students was similar to the findings of Rotz et al. (2015).

In summary, the major contribution of this second paper was its examination of how capabilities can be taught and assessed within a large scale interprofessional unit using a framework designed for the organisational context. This research is also the first in the interprofessional field to utilise the USEM model (Knight & Yorke, 2002), a model which has been described as the most well-known and respected model of employability (Pool & Sewell, 2007). To date interprofessional education, like much of higher education, has emphasised the acquisition of knowledge (understanding) and skills (skillful practice). Perhaps the inclusion of the other two elements of USEM, efficacy beliefs and metacognition, in curriculum design might facilitate graduates development of an interprofessional identity (Khalili, Orchard, Laschinger, & Farah, 2013). In addition, given the purpose of interprofessional education is to ensure 'work ready' health professionals (World Health Organization, 2010), a model of graduate employability such as USEM is worthy of further exploration in the interprofessional education field. Adoption of the broader notion of capability rather than competence is also worthy of consideration.

Building on this research within a foundational first year unit, **Paper 3** described the exploration of the framework in a more complex setting; a hospital placement for final year students. Learning situated in practice contexts, such as this, involves a process of socialisation into professional roles and work (Higgs, 2012) and shapes students' understanding of the sayings, doings and relatings of practice (Kemmis, 2009). Hence, practice settings such as clinical or fieldwork placements, provide optimal learning environments for students (Lapkin et al., 2012), particularly when the goal is for students to develop the capabilities for interprofessional practice, an approach unfamiliar to many health professionals.

To date the practice context has not been the focus of the majority of interprofessional education provided for students. For example, Freeth, Hammick, Koppel, Reeves, and Barr (2002) undertook a systematic review of interprofessional education. Only ten of the 217 studies reviewed related to interprofessional education in a practice setting by way of a student placement. Not only the quantity but also the quality of practice-based studies has been identified as a concern. Recently, Lapkin et al.'s (2013) systematic review found only one study by Street et al. (2007) met their strict inclusion criteria for interprofessional education in the practice context. Similarly, Davidson, Smith, Dodd, Smith, and O'Loughlan's (2008) review of 25 papers on interprofessional education within the context of clinical education found very few papers described placements which provided students with opportunities to engage collaboratively in direct client care. In contrast to this finding, the student training ward described in Paper 3, required students to work as an interprofessional team to deliver health care to clients (hospital patients) for a two week period.

The key findings from **Paper 3** indicated the design of the student training ward placement, based on the three central elements of the capability framework—client safety and quality, client-centred service, and collaborative practice—led to positive outcomes for both students and the clients they provided care to. Overall, the positive reactions and changes in students' attitude aligned with the literature from similar student training wards in Europe (Jacobsen & Lindqvist, 2009; Jakobsen, 2016; Mackenzie et al., 2007; Pelling et al., 2011; Ponzer et al., 2004). Similarly, the high client satisfaction

corroborates outcomes from other student training wards (Hallin, Hendriksson, Dalen, & Kiessling, 2011; Reeves et al., 2002).

Another key finding of this study was the students' performance on Curtin's Interprofessional Capability Assessment Tool (Brewer, Gribble, Robinson, Lloyd, & White, 2009 & 2011) at the end of the placement. The majority of students were rated by their supervisors as performing 'at the required' level or above on the assessment rubric contained within the tool. These performance ratings were supported by comments from staff on the assessment forms. The importance of including assessment of students' interprofessional capabilities was reinforced by Greenstock, Molloy, Fiddes, Fraser, and Brook's (2013) study where students stated the lack of assessment signaled to them interprofessional knowledge and skills were not an important aspect of their placement. Assessment for the purpose of conveying a message to students of what we value was endorsed in the international consensus statement (Rogers et al., 2016), and in Boud and Molloy's (2013) guide to assessment and feedback in higher education. Furthermore, the students learning experience aligned with Royce Sadler's (1989) seminar paper on good practice in feedback; by aligning the assessment tool with the capability framework students were able to received information on the goal of the performance, their execution of this performance, and most importantly, on strategies to address any gap between the goal and their performance

To the best of my knowledge only one other student training ward paper has focused on the behavioural assessment of interprofessional capabilities (Jakobsen, Larsen, & Hansen, 2010). However, the capabilities in this study were based solely on student self-reports. In contrast, the student assessment tool used in the study outlined in Paper 3, was based on professional (expert) judgment as recommended by many including Norman (2005) and van Mook et al. (2009). Whilst the Interprofessional Capability Assessment Tool (ICAT) is yet to be formally validated, it was designed by a team of clinical education experts at Curtin University with input from students, clients and practicing health professionals. The assessment was based on the interprofessional competency literature and the competency assessment of several professions within the Faculty of Health Sciences. In keeping with concerns about the narrow assessment of individual competence in health education (Lingard, 2009), and in interprofessional

education (Reeves, 2012), the Interprofessional Capability Assessment Tool (ICAT) assesses students within the context of the collective; their interprofessional student team. Furthermore, the assessment process was designed to meet many of the key factors deemed important in the assessment of professional behaviour as detailed by van Mook et al. (2009). Table 8 summarises the key factors captured within the capability assessment process in relation to van Mook and colleagues (2009) assessment guidelines.

Table 8. Alignment of the ICAT with van Mook et al.' (2009) assessment of professional behaviour criteria

Reliability in respect of the situation
The assessors observed the students over ten days of practice working with multiple clients and peers
Reliability in respect of the assessors
The assessors were trained to use and interpretation the rating scale The overall assessment of the student was constituted from observations of their main supervisors with input from other staff on the ward
Reliability of the assessment tool
The provision of a simple form supported by a descriptive rubric ensured the rating was clear and easy to complete
Validity in respect of the situation
The context in which the students were assessed was relevant to future practice
Validity in respect of the judges (assessor)
The assessors were experienced health professionals who were familiar with team-based health care and were provided with training on interprofessional education and practice, and the facilitation and assessment of these The assessors observed the student directly
Validity of the rating scale
The assessors and students considered the items of the rating scale as relevant elements of professional behaviour The rubric/rating scale stimulated the desired behaviour
Acceptability in respect of the student
The criteria for assessing professional behaviour were useful for feedback and helpful for the students to change their behaviour The students were given time (two weeks) to improve their professional behaviour
Acceptability in respect of the assessment method
The assessment method was not overly structured so did not limit the use of the expertise of the assessors or restrict their freedom as professionals The method and its educational background was provided to the assessor during the training
Feasibility in respect to cost and time consumption

The assessment was cheap (photocopied form) The assessment required only 30+ minutes per student to complete (15+ minutes to complete the form, 15 minutes for dialogue with the student) ensuring it was a feasible and acceptable assessment method
Educational impact
The assessors were informed of the driving force of assessment to achieve the desired outcome in the training The assessment drove learning through content: The tasks reflected interprofessional reality as closely as possible The assessment drove learning through information and feedback: The assessors provided regular feedback to the students on their performance against the assessment criteria as well as more global judgement of the care they provided to clients and their professional behaviour

In providing a description of the first training ward in the southern hemisphere, this third paper offers an example of how the training wards in Europe can be adapted to the Australian context. The success of this study, and the positive outcomes reported for the students and clients, resulted in 30 citations of this work (e.g. O'Brien, Swann, & Heap, 2015; Thistlethwaite, 2015) in Google Scholar by January 6, 2017. Numerous requests for advice to support others in the development of a similar ward have also resulted from the University of Toronto, the University of British Columbia, Central Queensland University, Auckland University of Technology, Monash University, and Deakin University.

In light of the results from Paper 3, others wishing to develop a training ward should give consideration to the constructive alignment of the student placement with an interprofessional capability framework. Constructive alignment is a well-known curriculum design process developed by Biggs (2003). Although constructive alignment has received little attention in the interprofessional education literature, it has been endorsed by both Professor Jill Thistlethwaite (2012), a leading researcher in medical education and interprofessional education, and by Rogers et al. (2016) in their interprofessional education assessment consensus statement. The constructive alignment process should include formal assessment of the students interprofessional practice capabilities; the full list of van Mook et al.'s (2009) assessment factors provides a useful guide for this assessment process, as does the international assessment consensus statement (Rogers et al., 2016). Consideration should also be given to the inclusion of a client/patient advocate within interprofessional education to facilitate students'

understanding of client-centred care, an approach which remains confusing for staff and students (Epstein & Street, 2011; Kitson, Marshall, Bassett, & Zeitz, 2013).

In summary, the findings of the two studies from phase two indicated staff within both the common first year unit and the training ward had successfully employed the capability framework to inform the design and implementation of the learning experience, the learning outcomes, and the assessment of these. Overall this suggests, by using a capability framework to provide the vision or direction for interprofessional education, leaders can facilitate staff aligning their work and commitment with this direction. This alignment and commitment resulted in quality learning experiences for students. Leaders planning to develop an interprofessional education initiative, whether in a classroom or practice setting, should consider linking the vision and direction for this to a capability framework.

The results of the research to date demonstrated leadership was occurring as evidenced by the presence of direction, alignment and commitment. However, it was not clear which specific leadership practices had facilitated direction-alignment-commitment. To address this, a specific exploration of the leadership practices visioning and sensemaking was undertaken in **Paper 4.** Focus groups with academic staff across a range of inititaives within the interprofessional education curriculum (the classroom, simulation activities, and practice-based placements) indicated the framework had utility as a visioning and sensemaking tool. In addition, the framework provided clarity over the direction and focus for their work.

In relation to direction and focus, staff commented on the usefulness of the framework to provide a ‘structure’, ‘strategies’, ‘guide’, ‘map’ or ‘foundation’ for interprofessional education. Staff also described the framework as a useful tool to prompt or remind staff what to attend to in the design, implementation and assessment of the students’ learning experience. This finding not only aligns with Drath et al’s (2008) direction-alignment-commitment but also supports Goleman’s (2013) claim that leaders must focus the collective attention of staff within an organisation. This ability to focus staff to ensure they align their work towards a shared purpose or goal has received broad support as a critical leadership practice (Drath et al., 2008; Kotter, 2012; Kouzes & Posner,

2012). Interestingly, the importance of focus has recently emerged in the interprofessional education literature (Bridges et al., 2011).

As highlighted in the paper, whilst staff tended not to use the word ‘vision’, on multiple occasions they referred to the framework as providing the goal or purpose for interprofessional education. Consideration of the need to create a vision (visioning) has been present in the interprofessional literature for many years (e.g. Brashers, Peterson, Tullmann, & Schmitt, 2012; Drake, Torkelson, Terrell, Westberg, & Bogolub, 2013; George, MacDonnell, Nimmagadda, Murphy, & Dollase, 2015; Stevens, Moser, & Beurskens, 2015).

Given understanding is an essential precursor to action (Miller, 1990), it was not surprising that, in addition to providing a vision their work, staff higlighted that the framework had provided a conceptual representation of interprofessional practice. Both the visual and semantic representation of interprofessional practice were commenetd on by staff. This finding endorsed the usefulness of the framework as a specific sensemaking tool. Many staff described the framework as helping them to ‘make sense’ of (conceptualise) interprofessional practice. Alternatively, they described the framework as useful for their own sensemaking process, as they used the framework to facilitate other peoples’ (e.g. students, staff and clients) understanding of interprofessional practice. These shared meanings provided a common way to encode and talk about interprofessional practice, another important aspect of the sensemaking process.

Sensemaking has only recently emerged in the interprofessional literature. Manojlovich’s (2010) examination of the communication between nurses and doctors led to her proposal that sensemaking holds promise as both an alternative lens through which to view nurse-physician communication and as the basis for training to overcome communication barriers and improve thus improve patient safety. Thomas, Reedy, and Gill (2014) discussed the application of sensemaking to an interprofessional patient simulation course for undergraduate medical and nursing students. Fox and Gilbert (2015) undertook an observational study of interprofessional communication during wards rounds in an acute teaching hospital in Canada. This study involved the

examination of variations in communication dynamics to explore ‘interprofessional sensemaking’.

Related to this sensemaking process, key design elements of the Curtin framework—the simplicity of its design, its broad view of health practice, and placing the client at the centre—suggested it would be applicable beyond Curtin’s local organisational context. Evidence of this broader applicability was found in the range of international references to the framework. For example, Curtin’s framework has been: featured in two recent publications from the UK (Barr & Coyle, 2013; Domac, Anderson, O’Reilly, & Smith, 2015), in Coventry University’s student handbook (Bluteau, 2014), and listed as a key resource on the Australasian Interprofessional Practice and Education Network’s (2014) website and in the Dictionary of Nursing’s (2008) National Service Frameworks. The framework was also included in presentations by Maria Tassone (2015), the Director of the Centre of Interprofessional Education at the University of Toronto, at an interprofessional education forum in Denmark, by Emeritus Professor Hugh Barr (2013) in a presentation in Cardiff, and in a slideshow on infectious diseases (Rose, 2014).

In summary, this is the first study published in the interprofessional field to explore whether leaders can use a capability framework to faciliate the visioning and sensemaking processes needed for leading organisational change. By explicitly linking the framework to the direction (the vision and goal) for the University’s interprofessional education curriculum, staff had not only engaged with this direction but also viewed the framework as providing a focus for their attention and work. The results supported Grint’s (2010) claim that formal leaders are the primary sensemakers, as by providing the framework, staff were able to understand, explain, attribute and extrapolate (Starbuck & Milliken, 1998) the complex process of interprofessional practice within multiple educational contexts. Other leaders of interprofessional education might consider adopting a capability framework not only as a teaching and learning tool but also to facilitate the leadership practices of visioning and sensemaking.

Having established the critical role of visioning (creation of a vision) and sensemaking in leadership, the next phase of the research focused on the leadership practice of empowering others. In this instance empowering involved recruiting and

developing additional leaders needed to garner broad based support for interprofessional education beyond the confines of Curtin's Faculty of Health Sciences.

Given contemporary thinking on leadership supports the belief that leadership is not an innate trait but something that can be learned (Northouse, 2016), a formal leadership development program was required. In addition, as leadership is influenced by context (Fairhurst & Grant, 2010; Fairhurst & Uhl-Bien, 2012; Pye, 2005), this program needed to be suited to the Australian health and education systems. Prior to the development of the program an examination of how leadership is understood in the interprofessional education and/or practice literature was undertaken. The results of the scoping review of the literature described in **Paper 5** illuminated the general failure to either define or conceptualise leadership, or provide any theory to underpin the research in the 114 papers examined. This finding was not surprising given the history of poor conceptualisation, multiple and overlapping definitions, and limited application of theory in the field (Goldman et al., 2009; Reeves et al., 2011). Similar issues were also evident in the broader empirical research in higher education as highlighted by the literature review undertaken by Ashwin (2012) which found very little evidence of theory development.

The high number of papers published in nursing (32%) and medical (20%) journals was not surprising given the dominance of these two professions in the health workforce (Australian Institute of Health and Welfare, 2014). Regional differences were noted in both the volume and types of papers. The US provided just under half of the papers, followed by Canada and Australia. The volume of papers from the US was also not surprising given they are the third most populous country in the world and produce the most publications in the sciences and social sciences (Thomas Reuters, 2009). Within the interprofessional context this finding may also be linked to the establishment of the national centre in the US driving renewed interest in interprofessional education and practice. Canada and Australia also rank relatively highly in the volume of publications with Canada 7th and Australia 11th (Thomas Reuters, 2009). Canada has received substantial government support for interprofessional education in the past which may also have influenced this result. Australia has also received government support for interprofessional education particularly through funded projects (e.g.

Interprofessional Curriculum Renewal Consortium Australia, 2013; Learning and Teaching for Interprofessional Practice Australia, 2009; Lapkin et al., 2013; O'Keefe, 2015). Whilst other regions were also represented in the literature review (e.g. the UK, New Zealand, Switzerland, Sweden, Turkey, India, and Nicaragua) many more countries, even those with high scientific publication rates (e.g. Germany and China), were not represented. If interprofessional education is to be a truly 'global' movement (Barr, 2011), more needs to be done by countries that have progressed with research into interprofessional education to support others wishing to do the same.

Of particular relevance to this thesis was the range of leadership approaches promoted within the 114 papers. The most frequently cited were collective forms of leadership (shared, team, distributed) followed by transformational leadership. This focus on collective leadership aligns with the mainstream literature were collective leadership models have gained in popularity in recent years. However, as discussed earlier, concern has been raised about this focus on structural aspects of leadership or leadership arrangements (Crevani, Lindgren, & Packendorff, 2010) which draw on traditional models of dyadic leadership set within a team context (Carson, Tesluk, & Marrone, 2007; D'Innocenzo, Mathieu, & Kukenberger, 2016).

Transformational leadership is promoted in many sectors including higher education (Butcher, Bezzina, & Moran, 2011) and health care (McComb, 2013; Nielsen, Yarker, Randall, & Munir, 2009). However, the 'dark side' of transformational leadership has received attention in recent years. Hay (2006) highlighted the potential for transformational leaders to abuse their influence over others, particularly members of minority groups. Further to this, Hay (2006) cited examples of people who fit with the transformational leadership style who have had a negative influence including Charles Manson and Reverend Jim Jones. More recently, Lee (2014) discussed the unidirectional influence of transformational leaders and likened this to the heroic "great man" theories from the past. Lee (2014) identified Hitler as another example of a transformational leader who had a very negative impact.

In contrast to the popularity of collective and transformational leadership in the literature review was the lack of reference to relational approaches (e.g. servant, altruistic, authentic); an approach which have gained popularity in other fields. Further

research into relational leadership within the interprofessional field is warranted, particularly in light of the concern over professionalisation in health (Cashman et al., 2004; George et al., 2013), and the potential for conflicts based on power, hierarchies and turf protection (Beunza, 2012; Paradis & Whitehead, 2015; Reeves et al., 2010b).

Interestingly, more papers related to the practice context rather than to education. Within the 45 papers related to the education context, more of the papers were specific to students with the need to embed leadership development in university curricula a common theme (e.g. Dumont, Brière, Morin, Houle, & Iloko-Fundi, 2010; Ekmecki et al., 2013; George et al., 2013; Jungnickel, Kelley, Hammer, Haines, & Marlowe, 2009). Few papers were specific to leadership among academic staff. Even fewer papers were targeted at senior executive and managers, a surprising finding given the many calls for executive level leadership to overcome the barriers to implementing interprofessional education (Barr, 2011; Blue et al., 2010; Clark et al., 2007; Ansari, 2012; Department of Health and the Centre for the Advancement of Interprofessional Education, 2007; Greer & Clay, 2010; Oandasan & Reeves, 2005; Reeves, MacMillan, & van Soeren, 2010; World Health Organization, 2010)

Another finding highlighted in the scoping review was that few papers included a discussion of leadership competencies or capabilities. The capabilities listed tended to relate to interprofessionalism rather than leadership. This finding aligned with Forman et al.'s (2014) textbook on leadership which, as mentioned previously, described communication, shared decision making, and team working as aspects of leadership. Given the focus on competencies for interprofessional education and health practice more broadly, attempts to detail key leadership capabilities for interprofesssional education (and practice) may emerge in the future. Caution must be taken however before proceeding in this direction as questions have been raised as to whether complex concepts such as leadership can, or should, be atomised in this way (Carroll et al., 2008). Instead, leadership should be viewed holistically and in context (Drath et al., 2008; Endrissat & von Arx, 2013).

To date, only a small number of scoping reviews have been undertaken in the interprofessional field. In keeping with the results of Paper 5 both Goldman et al. (2009) and Reeves et al. (2011) found a diverse range of terms were used in the

interprofessional literature, often without any explicit definition. Furthermore, both reviews also found the explicit use of theoretical perspectives was lacking. Another recent scoping review worthy of comparison was undertaken by Careau and colleagues (2014). This review examined 250 papers on health leadership education programs. Like the review described in Paper 5, the majority of papers were from the US (66%), and targeted leaders from nursing and medicine. Whilst only 40% of the papers explicitly identified the approach to leadership this was double the percentage that identified a leadership model or approach in Paper 5. The most common leadership approaches espoused were aligned with traditional individual top-down leadership (20%). Transformational leadership was the next most common (12%) whilst collaborative leadership was present in only 3% of the papers. Perhaps not surprisingly this differs from the finding of the review in Paper 5 where collective leadership approaches dominated. Akin to Paper 5 and the reviews by Goldman et al. (2009) and Reeves et al. (2011), Careau et al. (2014) found a failure to define the terms used. For example, whilst 21 programs named 'collaborative leadership' as a specific competency or learning objective, only seven of these programs described and/or defined this approach to leadership. The authors highlighted that most of the leadership programs described in the review had taken a uniprofessional or multiprofessional approach to the training. It was suggested this resulted in a focus on 'leading collaboration' rather than 'leading collaboratively'. This aligns with the work of Gabel (2014) who provided an account of leadership training program for doctors. Gabel defined leadership in medicine as 'the appropriate and ethical influence exerted by one individual to alter, modify, or change the reactions, attitudes, or behaviors of other individuals to maintain or further core values of the health professions' (Gabel, 2014 p. 848). This definition reinforces traditional hierarchical views of leadership based on power held by the individual leader. As mentioned previously, definitions such as Wheatley's (2009, p. 144)—"*anyone willing to help, anyone who sees something that needs to change and takes the first steps to influence that situation"*—are likely to have greater appeal and alignment with the inclusive values and principles of interprofessional education

In summary, the results of the scoping review outlined in the fifth paper indicate that our understanding of leadership for interprofessional education and practice is in its

infancy. Researchers in the field need to provide greater detail on the leadership stance they have adopted by providing definitions, conceptualisations, explanations, and theories. This enhanced clarity will inform the work of other researchers as well as academics and practitioners wishing to understand leadership in the interprofessional context. Drawing on the lessons from this scoping review, the interprofessional intervention framework provided by Reeves and colleagues (2011) has been adapted for use by researchers of leadership in interprofessional education and/or practice to structure and communicate their work (see the template provided in Appendix E).

At this point in the research, the results of the scoping review were combined with the broader leadership literature and my lived experience of leadership to shape the leadership development program described in **Paper 6**. This shaping process can be summarised in a number of key program elements. First, all key terms (e.g. interprofessional education, interprofessional practice, and leadership) were clearly defined. Wheatley's (2009) encompassing definition of a leader was utilised to ensure that all participants were encouraged to view themselves as a leader. The second key element of the design of the program was the facilitation approach adopted. As recommended by Lieff et al. (2012) in their paper on facilitating academic identity within faculty development programs, participants were facilitated to identify themselves as a leader in three ways. At the personal level, the range of roles that participants engage in was made explicit (health professional, educator, leader, and person). At the relational level, a sense of belonging was promoted via informal discussion and relationship building activities. At the contextual level, multiple leadership models and theories were both described and modelled to allow participants to experience these. For example, collaborative leadership was described and modelled throughout the program by the interprofessional project team. The four 'D' cycle (Discover–Dream–Design–Destiny) of appreciative inquiry was used to structure the program (Cooperrider et al., 2008) and to foster participant engagement and action. Kotter's (1996) eight steps of change and Bolman and Deal's (1997 & 1999) leadership frames were also discussed. It is worth noting here that Kotter's earlier model focused on linear steps (Kotter, 1996) was used rather than his later model focused on accelerators (Kotter, 2014) because it was less complex and thus easier to explain to

participants in the time available. Others in the interprofessional field have also adopted Kotter's earlier model (e.g. Berger et al., 2016; Burley & Chester, 2014; Styron, Dearman, Whitworth, & Brown, 2014). Based on the information provided, and their experience of the approaches modelled for them, participants were encouraged to select the leadership approach they felt aligned most with their values, leadership style and work context.

The third program design element was the use of Curtin's Interprofessional Capability Framework from Paper 1 to facilitate the visioning and sensemaking for the participants. The framework was examined in detail with specific research and activities (e.g. video critiques and facilitation exercises) aligned with each elements of the framework. Participants were then asked to develop a vision for interprofessional education in their work context and a plan to lead the achievement of this vision. Embedding visioning and sensemaking into the leadership program appeared to be effective with the most cited knowledge outcome being an increased understanding of interprofessional practice. Moreover, the vast majority of participants stated they were encouraged to make changes to their practice, that is, to achieve the vision for interprofessional education and/or practice they had created. Many of these changes were sustained over time with most respondents to the follow-up survey having indicated they successfully led interprofessional education and/or practice initiatives within their academic and clinical work context.

The findings of this study match those of other similar interprofessional leadership programs published to date. The University of British Columbia's program was also based on an interprofessional framework (Newton, Wood, & Nasmith, 2012), the national Canadian competency framework (Bainbridge et al., 2010). Newton and colleagues' paper described the outcomes of a pilot leadership program conducted in Ontario with 35 clinical educators and practice leaders. Overall the participants were positive about the impact of the program on their knowledge of interprofessional competencies and their ability to implement them in the workplace. However, caution must be taken when interpreting these results as whilst 14 participants (40%) completed the retrospective self-reported knowledge measure, only four (11%) participated in the follow up focus group. A second similar study, led by the University of Toronto

(Simmons et al., 2011), described the program from which the study in Paper 6 was adapted. The results of reflective essays from 34 of their 36 (94%) program participants indicated they had enjoyed the time to learn and reflect on their practice. Along similar lines to the study in Paper 6, 30 out of 34 (88%) participants reported they had led the development of new initiatives or integrated what they had learned within their current work.

Linking the educational and practice worlds more directly through continued professional development, as was undertaken in this program, is critical for the future education of health professionals especially with respect to collaboration and teamwork (Clark, 2011; Institute of Medicine, 2010). Professionals must become better educated on how to advocate effectively for teamwork with administrators, using evidence and arguments related to effectiveness and efficiency. Therefore, the inclusion of research supporting the drivers and outcomes desired change—interprofessional education and/or practice—is crucial to any effective leadership program.

Given the barriers to implement interprofessional education experienced by the program participants, and cited extensively in the literature (e.g. Lawlis et al., 2014), future interprofessional leadership programs should include strategies to address common barriers to interprofessional collaboration. Whilst the leadership program outlined in Paper 6 included post-program site visits to explore key successes and address obstacles to leading change, the addition of more time with participants in their workplace would have added significant value to this program. This recommendation aligns with Stoller's (2013) commentary on health care leadership training. Stoller (2013) recommended such programs include ongoing mentorship and coaching as it is through these experiences that participants are provided with feedback on their leadership in a safe and developmental manner. Others planning to run leadership training should build mentoring and/or coaching into their program to ensure the ongoing development of the participants' leadership and their ability to overcome any barriers to leading change. To supplement this mentoring and coaching the use of reflective journals, such as those adopted by Harrison and Fopma-Loy (2010), might assist staff in their leadership development. Yasinski described this development process

as a “continuous personal journey of self-discovery, self-improvement, reflection and renewal” (Yasinski, 2014, p. 37).

Another recommendation by Stoller (2013) was the importance of establishing a community of practice or network for emerging leaders. This community or network would enhance their connections with others and, according to Stoller (2013), extend their learning. To facilitate this process the leadership program participants in this study were invited to the conference described in Paper 7. Whilst designed as a dissemination event the conference also functioned as a sharing, learning and networking experience. A further enhancement to the leadership program would be to target specific participants within existing teams (or potential networks) to ensure the development of effective ‘guiding coalitions’ (Kotter, 2012) to lead interprofessional education within their local context.

Beyond such structural improvements to the leadership program the other key lesson learned from this research was the need to explicitly focus on leadership practices. Whilst the leadership practices of visioning, sensemaking, empowering and disseminating were implicitly included, future programs should ensure these practices are made explicit to participants. In addition, an exploration of other collaborative and relational leadership practices would be beneficial. Drawing on the leadership research of Contractor et al. (2012), Cunliffe and Ericksen (2011), and Raelin (2006), this might include exploration of how multiple people can share the leadership role, or shifts in and out of the leader and follower roles based on the situation at hand. It might also include how leaders can facilitate others to: (1) adopt a nonjudgmental stance to building relationships with others; (2) accept responsibility for recognising and addressing difference by being responsive to others and engaging in dialogue that is questioning, challenging, answering, extending and agreeing; (3) understand the importance of relational integrity including being accountable to others, acting in ways others can rely on us, and being able to explain decisions and actions to others and themselves; and (4) sense and respond in the present by observing, listening and anticipating. These practices would lend themselves more to in-situ mentoring and coaching than to formal training which typically occurs out of context.

In summary, Paper 6 provides additional insights into current knowledge on interprofessional leadership development with evidence of program outcomes at all four levels of Freeth et al.'s (2005) model. The provision of the full program resources on the project website (Brewer, Flavell, Smith, Trede, & Jones, 2014) ensures the replicability of this research in other settings. Furthermore, the program resources provide others with the opportunity to build a 'volunteer army' (Kotter, 2012) of academic staff and/or health care providers to lead interprofesssional education and practice within their own work context.

The impact of both the capability framework and the leadership program, whilst pleasing, was limited to staff and students from Curtin University, Charles Sturt University, and the two health service organisations involved in the leadership program. To accelerate the adoption of interprofessional education the engagement of many more leaders was needed. A key aspect of engagement is dissemination (International Association of Public Participation Federation, 2016; Kotter, 2012; Kouzes & Posner, 2012). Therefore, the final phase of the research moved from leadership targeted at the individual level to a more systemic approach by building a 'volunteer army' (Kotter, 2012) to lead interprofessional education within the local community.

As mentioned previously common dissemination strategies described in the interprofessional education literature include networks (Liaskos et al., 2009) and events such as health team challenges (Newton et al., 2015) and conferences (Schmitt et al., 2013). These strategies typically lack evaluation and any description of their theoretical underpinning or link to a leadership framework or strategy. In contrast, Curtin's dissemination strategy was underpinned by Roger's (2003) diffusion of innovation theory. This theory has been suggested as applicable to interprofessional education (Sargeant, 2009) yet a search of key health databases (SCOPUS, ProQuest, Informit and Medline) in February 2017 revealed only one paper published in the peer reviewed literature on this topic (Styron et al., 2014); published after the planning of the dissemination event at Curtin featured in the next paper. However, Greenhalgh and colleagues (2004) model of diffusion of innovation was highlighted in Borduas et al.'s. (2006) report for Health Canada on the importance of academic institutions in embedding interprofessional education.

Paper 7 examined disseminating interprofessional education at Curtin University informed by Kotter's (1996 & 2012) eight stage change process and Roger's (2003) 'diffusion of innovation' theory. More specifically, diffusion of innovation was tested in the context of the key dissemination event for Curtin University, the Health Interprofessional Education (HIPE) conference. The findings of this study confirmed the usefulness of Rogers' (2003) five characteristics to inform the design and evaluation of the conference outcomes with the majority of participants having stated the conference was informative, relevant, increased their interest in and knowledge of interprofessional education and/or practice, and was likely to result in positive changes in interprofessional education and/or practice in Western Australia. Given the social underpinnings of diffusion of innovation theory—diffusion is viewed as a process where new ideas are invented, diffused and adopted or rejected leading to social change (Rogers, 2003)—the success of this approach within a networking event such as a conference is perhaps not surprising.

The importance of disseminating has been illuminated in several key documents including recently published interprofessional education guides. Reeves, Boet, Zieler, and Kitto's (2015) guide to evaluation described the dissemination of evaluation outcomes as a critical component of the research process. The authors claimed it is through dissemination that key stakeholders, including students, educators, practitioners, managers, employers, funders, clients and other researchers, gain information on the outcomes of a particular intervention. Reeves et al. (2015) recommended several tools for dissemination including meetings, conferences, scholarly papers, newsletters, websites and social media. In their guide to developing a centre for interprofessional education, Brashers et al. (2015) also encouraged those in the interprofessional field to disseminate their findings as a successful dissemination strategy has been shown to: (1) encourage staff and students to participate in evidence-based research-focused interprofessional education; (2) facilitate attention on measuring outcomes; and (3) lead to opportunities to work with other high quality programs and gain alternative perspectives, new skills and connections. Willgerodt et al. (2015 p. 222) refer to efficiency of large scale annual dissemination events to raise the excitement and prolife of interprofessional education. Newton and colleagues (2015) also highlighted

dissemination as an important outcome of another interprofessional event that has spread across the globe, the Healthcare Team Challenge. Whilst discussing a pilot interprofessional education project at a university in the US rather than a dissemination strategy per se, Styron et al. (2014) used the same combination of Kotter's (2012) eight stage change process and Roger's (2003) 'diffusion of innovation' theory as was used in Paper 6. The authors cited a number of successful outcomes including increased staff expertise in leading interprofessional education and practice, and interprofessional experiences for students in two practice settings.

In summary, the key lesson from this study was the leadership practice of disseminating may benefit from consideration of the five characteristics that facilitate the adoption of any innovation: relative advantage, compatibility, complexity, trialability and observability. This recommendation aligns with other research which found the five key characteristics of diffusion of innovation to be robust tools for recruiting change agents and opinion leaders (Dingfelder & Mandell, 2011; Greenhalgh et al., 2005; Styron et al., 2014). MacVaugh and Schiavone (2010) raised concern that the adoption of innovations is neither uniform nor inevitable. They suggest consideration needs to made, not just to the individual 'adopter', but also the context in which the innovation is to be adopted. The paper recommends, that to further facilitate the social process of diffusion and the development of a community of 'users', more time be allocated to workshopping the ideas presented at any dissemination event. Workshopping would also enable consideration of the context in which the innovation is to be implemented, thereby addressing MacVaughan and Schiavone's (2010) concern cited above.

Building on the dissemination event, an additional dissemination strategy was undertaken, the publication of a guide to interprofessional team-based placements. This placement model has been one of the most successful interprofessional education initiatives at Curtin having been awarded multiple teaching excellence awards (outlined on page 12-13). **Paper 8** provides both academics and practicing health professionals with a guide to establishing structured team-based interprofessional placements for students. Most importantly, this guide begins with a definition of team-based interprofessional practice placements to ensure clarity of the term. Two related guides have been published in the same journal, the *Journal of Interprofessional Care*, since the

submission of Paper 8. The first guide by Lie, Forest, Kysh, and Sinclair (2016) provided advice on implementing interprofessional education within clinical settings. In contrast, the second guide by Anderson, Ford, and Kinnair (2016), moved from Lie et al.'s (2016) incidental clinical learning to more structured short-term placements of two to four days. A number of similarities exist between the three guides. All included a focus on the client/patient and acknowledged the value of the client or patient's input into the learning experience. The importance of student reflection and assessment of student learning was also highlighted in all three guides along with the need for professional development and reflective practice for the staff involved. All applied a pragmatic, solution focused approach to addressing the barriers to interprofessional education in practice settings. Thorough planning including ensuring sustainability were further common themes across the guides. One major difference in the guide outlined in Paper 8, in comparison to the other two guides, was the inclusion of the critique of other approaches to practice-based interprofessional education and the summary of the evidence to justify the investment in the team-based placement model described. Other differences lie in the more structured approach to the organisation of the placements in contrast to Lie et al.'s (2016) guide, and the extended length of the placement (recommended minimum of two weeks) in contrast to Anderson et al.'s (2016) guide.

This guide provides a useful peer-reviewed resource for academic staff wishing to lead the establishment of practice-based interprofessional education. In addition, the guide forms the basis for current research being undertaken to examine the impact of these team-based interprofessional placements on Curtin students. This research includes an observational study of the students' behaviour during the placements followed by focus groups and follow up interviews to gain an understanding of their lived experience. (Note: All three phases of the data collection have been completed with analysis of the observational data and the interviews nearing completion. A manuscript outlining the findings of the focus groups with students was resubmitted to the *Journal of Interprofessional Care* in January 2016 in response to minor editorial changes requested by the reviewers).

5.3 Proposed leadership model

Based on the findings from this research and the broader leadership literature reviewed Drath et al.'s (2008) leadership model has been adapted for interprofessional education within the university context (Figure 6). This model is informed by two definitions featured earlier, one of leader and one of leadership. Wheatley's (2009) definition of a leader as "anyone willing to help, anyone who sees something that needs to change and takes the first steps to influence that situation" (p. 144) ensures the encompassing approach of this model. The Leadership Development National Excellence Collaborative (2012) defined collaborative leadership as "a process in which people with differing views and perspectives come together, put aside their narrow self-interests, and discuss issues openly and supportively in an attempt to solve a larger problem or achieve a broader goal." The model is a combination of the leadership approaches reviewed in chapter two and utilised in the leadership program featured in Paper 6. The elements of the model are interrelated and may occur sequentially or in unison.

Leadership beliefs and practices:

Each individual involved in embedding interprofessional education holds their own beliefs about leadership which are likely to influence the beliefs of the collective. These beliefs are influenced by context, thus the context of the organisation must be considered at each step. Based on the findings from the literature review and studies undertaken, I suggest leadership be viewed as an appreciative, collaborative and relational process. This requires leaders to appreciate the potential contribution of others members of the collective (group, team, committee, etc.) to the situation at hand, and draw on these experiences, wisdom and capabilities by building effective working relationships.

The key leadership practices for leading interprofessional education are summarised in the leadership model (Figure 6 below). Those in italics are practices not specifically examined in this research but evident in the leadership models utilised during the research.

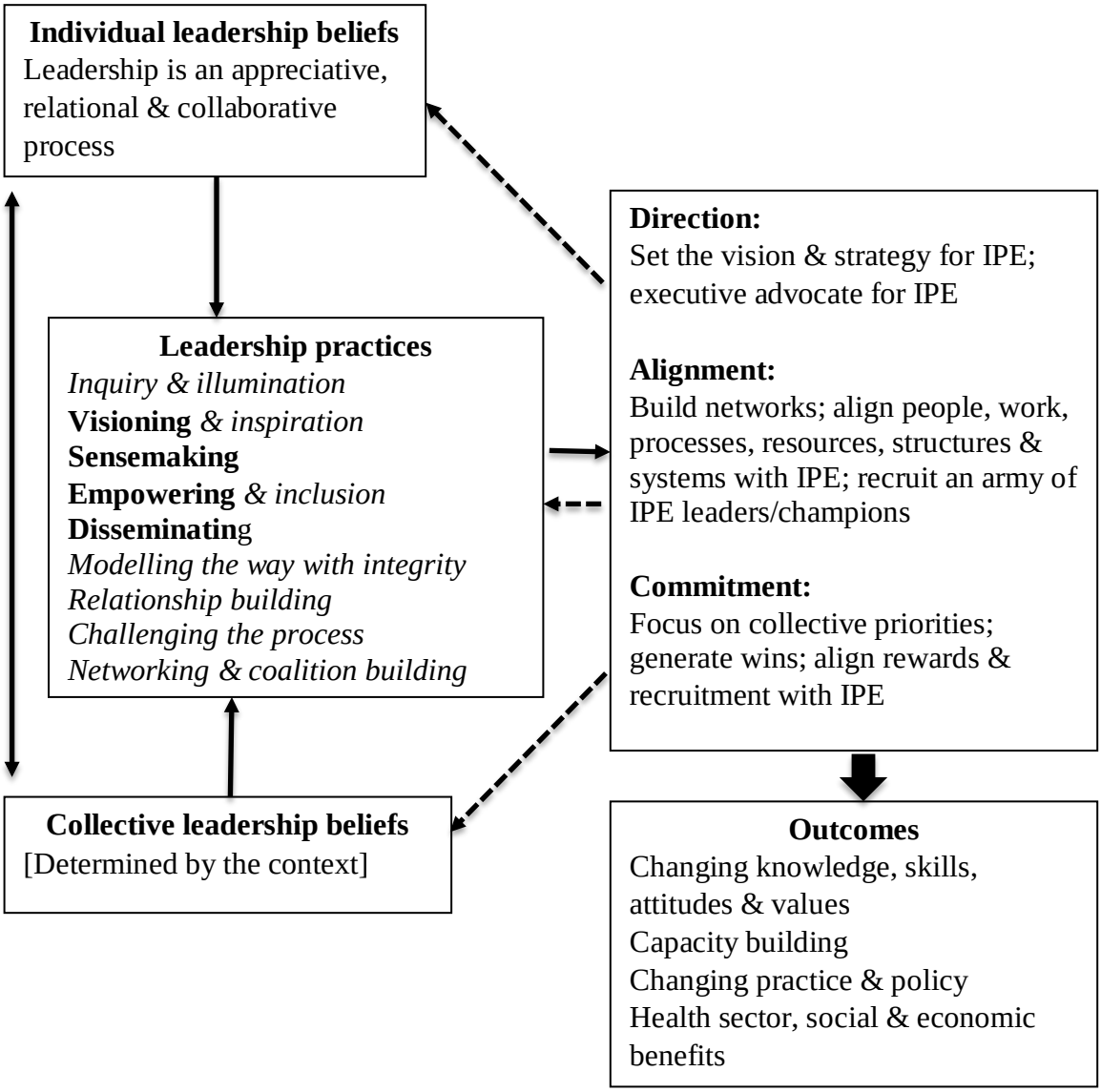


Figure 6. Brewer (2017) Leadership of interprofessional education model

Phase one: Direction

Setting the direction for the desired change—embedding interprofessional education—should begin with a process of inquiry to discover or illuminate opportunities that exist within the current curriculum and any successful initiatives already in place (Whitney et al., 2010). This process is best led by a group of leaders—the guiding coalition—engaged in collaborative leadership. This guiding coalition (Kotter, 2012) will henceforth be referred to as the collaborative leadership group.

Appreciative, strengths-based questions provide an optimal approach to this inquiry (Cooperrider et al., 2008; Whitney et al., 2010) and have recently been recommended to enhance curriculum and faculty development in medical education (Sandars & Murdoch-Eaton, 2016).

Following this process of inquiry, the collaborative leadership group moves to facilitating the visioning process. Representation from key stakeholders groups both internal and external to the organisation (e.g. students, teaching and research experts, clients and their careers, health care providers, and key employers) should be included. The visioning process involves the creation of an inspiring vision for the desired future; the dream phase of appreciative inquiry (Cooperrider et al., 2008). Kotter's (2012) six characteristics for an effective vision (imaginable, desirable, feasible, focused, flexible and communicable) should be captured in the final vision statement. Building on the foundation of this vision, the strategy (goals, objectives and plan) for implementation and evaluation are formulated. At this stage it is crucial to ensure senior executive are promoting interprofessional education as a priority for the organisation (Kezar & Lester, 2009) and clarify the expected changes in staff behaviour needed to achieve this vision.

Phase two: Alignment

The process of aligning staff with the direction is closely linked to sensemaking. The collaborative leadership team can draw on a range of sensemaking tools including frameworks/models, metaphors and images. In the context of interprofessional education this sensemaking should include making sense of the complex process of interprofessional practice to ensure staff understand the desired outcome of interprofessional education; effective interprofessional collaboration and improved health outcomes. A critical step in the alignment of individual people (their knowledge, skills, attitudes, values and work) with the direction of the organisation is the establishment of networks to lead interprofessional education across the boundaries that exist in the university. These networks will provide the creativity and innovation which facilitate change (Kotter, 2014a). Kezar and Lester (2009) recommended senior executives make these networks of interprofessional education leaders ('champions') formal to ensure they have the support needed. Therefore, the collaborative leadership team must establish a process(es) by which these networks are connected to the

traditional hierarchical leadership/management structure (Kotter, 2012). Beyond sensemaking, the key leadership practices in this alignment phase are inclusion, empowering, support, advocacy and relationship building. In addition to engaging the people needed to achieve the direction for change—Kotter's (2012) 'volunteer army—a number of other organisational changes are needed. Professional development for staff will be critical to ensure they develop the capabilities to facilitate interprofessional education and to provide leadership within their own network(s). The identification of existing and potential barriers and solutions to overcome these is critical. This is likely to require the redesign of some processes, structures and systems to support interprofessional education, a job which requires senior executive engagement.

Phase three: Commitment

The aim of the commitment phase is for staff to focus on the priorities of the collective (the organisation) over their individual priorities. To engage staff commitment a number of leadership practices are critical including inspiration (Whitney et al., 2010), building relationships based on trust and respect (Clark, 2013), and modelling leadership with integrity (Kouzes & Posner, 2012); leaders aligning their actions with the values of collective leadership and interprofessional practice. Raelin's (2006) recommended practices of collaborative leaders should also be adopted. These practices include:

- taking a nonjudgmental stance when building relationships with others;
- accepting responsibility for recognising and addressing difference by being responsive to others and engaging in dialogue that is questioning, challenging, answering, extending and agreeing;
- understanding the importance of relational integrity including being accountable to others and acting in ways others can rely on;
- being able to explain decisions and actions to others and themselves; and
- sensing and responding in the moment by observing, listening and anticipating.

Successful initiatives must be created and celebrated (Kotter, 2012), and any additional resources needed to support staffs' ongoing commitment to interprofessional education secured. Challenging the process (Kouzes & Posner, 2012) or ways of working is critical to overcome any barriers or obstacles to implementing interprofessional education. For example, Kezar and Lester (2009) noted that relief from day-to-day work activities and

funds to support collaborative work are essential success factors. Staff rewards, annual performance reviews and recruitment processes need to be aligned with their engagement in, or leadership of, interprofessional education (Kezar & Lester, 2009).

Outcomes:

Some outcomes (e.g. capacity building and changes in staff and students knowledge, skills, attitudes and values) will be achieved more easily and quicker than others. Changes to the practices and policies of higher education are likely to occur before changes in other key stakeholder groups including registration and accreditation bodies. Health sector, social and economic benefits are longer term outcomes requiring substantial investment and leadership.

This proposed model of leadership of interprofessional education aligns closely with the experience of five Canadian universities in establishing interprofessional education programs (Ho et al., 2008). These researchers highlighted the establishment of a common vision, values and goals, opportunities for collaborative work, professional development for staff, and attention to sustainability as key factors in the implementation of interprofessional education. Key informants described the role of champions who brought energy, dedication, persistence and committed time to interprofessional education. Specific to leadership in these universities was the lesson that senior leaders need to use their position to allocate human and financial resources, and stimulate interest and commitment among stakeholders.

5.4 Strengths and limitations

This research featured a number of strengths and limitations.

5.4.1 Strengths

The key strengths of this research lie in the areas of applicability, breadth of perspective, and innovation. The focus on applicability was heavily driven by the researcher having been immersed in the context being studied: leading interprofessional education in a large university. This position enabled the critique of the literature to be combined (and perhaps tempered) with the lived experience of leadership and the research outcomes obtained.

Several outcomes of the research are applicable to other leaders and researchers of leadership. For example, the lessons learned from the critique of the literature were

utilised to develop a framework to guide researchers on key factors to consider when undertaking and reporting on leadership studies (Appendix F). The applicability of the interprofessional capability framework to other contexts was evidenced by the multiple references to the framework in the international literature cited previously. Similarly, the provision of the full leadership program on the project website (Brewer et al., 2014b) ensures both the replicability of this research in other settings and the opportunity for others to build the capabilities of staff to lead interprofesssional education within their institution. Furthermore, both the paper on dissemination and the team-based placement guide have the potential for wide appeal across the interprofessional field.

On the topic of breadth, this research adopted a broad view of leadership which went beyond the interprofessional field, education and health to examine leadership research from fields including business, sociology and psychology. This interdisciplinary research focus was also incorporated in the use of an expert from business leadership as the external evaluator of the leadership development program. The alternative perspective this expert brought to the program was not only useful in guiding the program's evaluation process but also the modifications made after each testing phase.

Breadth also went beyond discipline to include context. First, the capability framework was examined in multiple contexts (the classroom, online, simulations and practice). Second, the leadership program was not only adapted from an established program in Canada but was also tested at Charles Sturt University. Charles Sturt University, located on the opposite side of Australia, provided a useful contrast to Curtin University as it is located in a rural area and offers much of its course in the online environment. In addition, Charles Sturt was at an earlier stage of the journey to embedding interprofessional education so again provide a contrasting context for the research.

I propose that my lived experience of leadership, in combination with the broad interdisciplinary perspective taken, contributed to another strength of this research; the application of new and innovative thinking. To date researchers in the interprofessional field have viewed competency or capability frameworks only as curriculum (learning and teaching) tools. This research was the first to explore the application of a capability

framework to facilitate the leadership practices of visioning and sensemaking. The research thus provides insights for other leaders on the use a capability framework to explicitly make sense of the complex, often unfamiliar, process of interprofessional practice, and to create the vision and direction for interprofessional education within their organisation.

A second key innovation was the application of novel theories to interprofessional education. The first was the diffusion of innovation theory (Roger's 2003) used to inform the design and evaluation of a dissemination event. The insights gained from the outcomes of this paper provide others with guidance on how to incorporate the five characteristics that facilitate the adoption of interprofessional education and practice. The second was the application of the Direction-Alignment-Commitment leadership ontology to interprofessional education; an application not found elsewhere in the literature.

Similarly, the research undertaken in the third paper involved the development and evaluation of the first student training ward in the southern hemisphere. The findings from this paper, supplemented by the guide published in the final paper, provide insights for others interested in practice-based interprofessional education; currently an under developed area in the field (Barr et al., 2014; Davidson et al., 2008; Lapkin et al., 2013).

Perhaps the greatest strength of this research was that, in keeping with the collaborative leadership approach adopted, almost all of the studies were undertaken in collaboration with colleagues. These colleagues represented a range of professions including physiotherapy, medicine, cultural studies, nursing, occupational therapy, dietetics and psychology. These interprofessional collaborations strengthened the research through the different experiences and perspectives offered.

5.4.2 Limitations

Specific limitations for each study were provided in each of the papers so only a brief overview of key limitations is highlighted here. As outlined earlier, due to the lack of suitable validated tools (Carpenter & Dickinson, 2008; Oates & Davidson, 2015; Thannhauser et al., 2010) most studies adopted non-validated tools developed by the researcher(s). Whilst this may raise concern over the reliability and validity of some

results, steps were taken to ensure the trustworthiness of the research undertaken. First, the data collection and preliminary interpretation for Papers 2 through 7 was undertaken by trained research assistants. This was deemed important to address the potential for bias if I, or my co-authors, had been directly involved. Regular debriefings to compare the data collected and the interpretations made were held between the research assistants, and between the assistants and myself. Regular meetings of the lead members of the research team to compare and contrast data and interpretations were also undertaken for all collaborative studies. Paper 6 included an external evaluator employed to oversee the evaluation process. This process included attendance at all three workshops and the first focus group with the participants. In addition, in Paper 7 Braun and Clarke's (2006) guidelines for qualitative research were adopted by both researchers involved in the analysis of the data.

A second methodological limitation was reliance on participants self-reports in several studies. Whilst this is common practice in qualitative research, where the experience of the participants is highly valued, response bias must be considered. Added to this, sample sizes tended to be small (varied from 11 to 105 participants). Small sample sizes such as this are common in the interprofessional field. Brandt, Lutfiyya, King, and Chioreso's (2014) scoping review of approximately 500 papers found that over half had a sample size of less than fifty and only 16% had one hundred or more. A number of steps, as discussed previously, were taken to increase the trustworthiness, credibility, transferability, dependability and confirmability of the research including: the use of independent, experienced research assistants; and regular meetings of the research team to review, compare and contrast data analysis and reach consensus on interpretations.

The context of much of the research was one higher education institution. It is worth noting that Curtin has the fifth highest number of health sciences students in Australian universities representing 26 different professions' so in itself does provide a high level of diversity. Whilst this case study approach allowed for control of the context for much of the research, it meant that many of the social, political and cultural factors that impact on interprofessional education and the leadership of this were not investigated. Therefore, it is important that the representativeness of the results and thus

the ability to draw firm conclusions, or extrapolate these to other participants and other contexts, must be considered in light of limitations but also the strengths of this research.

5.5 Future research

Multiple recommendations, particularly for practice, have been woven throughout the papers and this discussion, therefore this section focuses on recommendations for research. The results of the literature review indicate that more research is needed to examine leadership in interprofessional education and practice. Researchers could consider using the research framework provided (Appendix F) to structure and communicate their work. Also, as the literature review was a scoping review, a more systematic review to gain an in depth picture of the leadership required to embed interprofessional education and/or practice into organisational culture and operations is needed.

It is widely recognised that further research is needed to measure outcomes from interprofessional education, both short term and long term (e.g. Hammick et al., 2007: Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). Higher education institutions in particular need to undertake research into the outcomes for students engaged in practice-based interprofessional education such as the examples described in Paper 3 and Paper 8. Such research would add greatly to the body of evidence needed to support higher education institutions' investment in interprofessional education (Canadian Interprofessional Health Collaborative, 2008). Any such research should include an examination of changes to practice that arise from the interprofessional education and the impact of these on clients and the health care organisations involved.

The applicability of the capability framework and leadership programs need to be tested in other contexts, both within Australian and overseas. The suggested improvements to the leadership program (such as the inclusion of onsite mentoring and/or coaching to support sustained change, the use of reflective journaling, and a greater emphasis on specific leadership practices) need to be developed and tested. Research to measure the impact of the leadership program on the organisations involved is also essential to the interprofessional field. The IP-COMPASS^{TM} (Parker, Jacobson, McGuire, Zorzi, & Oandasan, 2012) would provide a useful tool for this.

Further research, as recommended by Drath et al. (2008), into the dynamics and development of leadership beliefs and practices would also greatly benefit the field. This could include interviews, focus groups or observational studies of teams and/or organisations to ascertain how they are creating direction, alignment and commitment, and the individual and collective beliefs and practices that impact on this. An exploration of the successful leaders of interprofessional education would also be of value to the field. For example, Vilkinas and Ladyshewsky's (2012) Integrated Competing Values Scale could be used to gain information on the key roles leaders focus on; my hypothesis being successful leaders of interprofessional education focus more on people than on task, and are more externally than internally focused. That is, successful leaders of interprofessional education are more involved in the developer, innovator and broker roles.

Building on from this research into leadership beliefs and practices, further research on the leadership of interprofessional education at the organisational level is needed. Accounts have been published on the development of centres for interprofessional education at the University of Virginia (Brashers et al., 2015) and the University of Toronto (Nelson, Tassone, & Hodges, 2014). Whilst these authors share valuable lessons learned, rigorous research into organisational changes that facilitate embedding interprofessional education is needed. The work of Adrianna Kezar and colleagues would provide a useful platform for such research (Kezar & Elrod, 2012; Kezar & Lester, 2009).

5.6 Conclusions

The development and implementation of interprofessional education is a complex, time consuming process that requires substantial commitment and leadership at all levels of the organisations involved. Despite growing interest in recent years, little is known about leadership of interprofessional education. This thesis makes a unique contribution to the literature on leadership in the interprofessional field by exploring the role of leadership practices in facilitating embedding interprofessional education in an Australian university. The value of leaders utilising an interprofessional capability framework to provide a clear vision and direction for the desired organisational change—in this case embedding interprofessional education within health curricula—

was demonstrated. A critical element of this organisational change was the use of the capability framework to facilitate the sensemaking process, a process which ensured staff and students had a clear understanding of the concept of interprofessional practice. With clarity over the vision and direction, staff demonstrated the alignment and commitment of their work to embedding interprofessional education across several elements of the health curriculum; educational experiences which resulted in positive outcomes for the students and clients involved. Local leadership such as this does not build the broad based support needed to drive and sustain organisational change. The leadership practices of empowering and disseminating assist with building an 'army' of interprofessional education leaders. Developing the leadership capabilities of both academic and practicing health professionals though a formal training program was shown to increase interprofessional education (and interprofessional practice) within the universities and health service organisations involved. Further to this, the utilisation of a dissemination strategy informed by Rogers' (2003) diffusion of innovation theory led to greater awareness, knowledge and commitment to interprofessional education in both staff and students. In addition, aligned with the pragmatic approach taken to the research, a 'how to' guide for team-based interprofessional student placements to redress the gap in the peer-reviewed literature on practice-based interprofessional education was published. Finally, a leadership model based on the research is proposed. By focusing on leadership practices and building an 'army' of leaders, Curtin University has embedded interprofessional education across multiple contexts within its health science curriculum.

Bibliography

Abu-Rish, E., Kim, S. Choe, L., Varpio, L., Malik, E., White, A. A., … Zierler, B. (2012). Integrating the organizational change literature: A model for successful change. *Journal of Organizational Change Management, 28,* 234-262.

Adams, K., Hean, S., Sturgis, P., & Clark, J. M. (2006). Investigating the factors influencing professional identity of first-year health and social care students. *Learning in Health and Social Care, 5,* 55-68.

Addy, C. L., Browne, T., Blake, E. W., & Bailey, J. (2015). Enhancing interprofessional education: Integrating public health and social work perspectives. *American Journal of Public Health, 105,* s106-s108.

Alderson, A., & Martin, M. (2007). Outcomes based education: Where has it come from and where is it going? *Issues in Educational Research, 17,* 161-182.

Amundsen, S., & Martinsen, O. L. (2014). Empowering leadership: Construct clarification, conceptualization, and validation of a new scale. *Leadership Quarterly, 25,* 487-511.

Anacona, D. (2011). Sensemaking: Framing and acting in the unknown. In S. A. Snook, N. N. Nohria, & R. Khurana. (Eds.), *The handbook for teaching leadership: Knowing, doing, and being.* (pp. 3-19). Thousand Oaks, CA: Sage Publications.

Anderson, E. S., Ford, J., & Kinnair, D. J. (2016). Interprofessional education and practice guide No. 6: Developing practice-based interprofessional learning using a short placement model. *Journal of Interprofessional Care, 30,* 433-440.

Anderson, E. S., & Lennox, A. (2009). The Leicester model for interprofessional education: Developing, delivering and learning from student voices for 10 years. *Journal of Interprofessional Care, 23,* 557-573.

Anderson, E., Manek, N., & Davidson, A. (2006). Evaluation of a model for maximizing interprofessional education in an acute hospital. *Journal of Interprofessional Care, 20,* 182-194

Anderson, E. S., & Thorpe, L. N. (2008). Early interprofessional interactions: Does student age matter? *Journal of Interprofessional Care, 22,* 263-282.

Anderson, E. S., & Thorpe, L. N. (2010). Learning together in practice: an interprofessional education program to appreciate teamwork. *Clinical Teacher, 7*, 19-25.

Anderson, E. S., & Thorpe, L. N. (2014). Students improve patient care and prepare for professional practice: An interprofessional community-based study. *Medical Teacher, 36,* 495-504.

Anderson, E., Thorpe, L., Heney, D., & Petersen, S. (2009). Medical students benefit from learning about patient safety in an interprofessional team. *Medical Education, 43,* 542-552.

Ansari, W. E. (2012). Leadership in community partnerships: South African study and experience. *Central European Journal of Public Health, 20*, 174-184.

Appelbaum, S. H., Habashy, S., Malo, J., & Shafiq, H. (2012). Back to the future: Revisiting Kotter's 1996 change model. *Journal of Management Development, 31*, 764-782.

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*, 19-32.

Armenakis, A., Brown, S., & Mehta, A. (2011). Organizational culture: Assessment and transformation. *Journal of Change Management, 11,* 305-328.

Armitage, H., Connelly, J., & Pitt, R. (2008). Developing sustainable models of interprofessional learning in practice–The TUILIP project. *Nurse Education in Practice, 8,* 276-282.

Arndt, J., King, S., Suter, E., Mazonde, J., Taylor, E., & Arthur, N. (2009). Socialization in health education: Encouraging an integrated interprofessional socialization process. *Journal of Allied Health, 38*, 18-23.

Arnold, N. W., & Crawford, E. R. (2014). Metaphors of leadership and spatialized practice. *International Journal of Leadership in Education, 17,* 257-285.

Ashwin, P. (2012). How often are theories developed through empirical research into higher education? *Studies in Higher Education, 37,* 941-955.

Australian Bureau of Statistics. (2012). *Population projections, Australia, 2012 (base) to 2101*. Retrieved from http://www.abs.gov.au/ausstats/abs

Australian Commission on Safety and Quality in Healthcare. (2010). *Australian safety and quality framework for healthcare.* Sydney, Australia: Retrieved from: http://www.safetyandquality.gov.au/

Australian Commission on Safety and Quality in Health Care. (2013). *Consumers, the health system and health literacy: Taking action to improve safety and quality.* Sydney, NSW. Retrieved from https://www.safetyandquality.gov.au/

Australian Institute of Health and Welfare. (2012). *Health expenditure Australia 2010-11.* Canberra, Australia: Australian Institute of Health and Welfare. Retrieved from http://www.aihw.gov.au/

Australian Institute of Health and Welfare. (2014). *Health workforce.* Retrieved from http://www.aihw.gov.au/

Australian Institute of Health and Welfare. (2015). *Chronic diseases (media release).* Canberra, Australia. Retrieved from http://www.aihw.gov.au/

Australasian Interprofessional Practice & Education Network. (2014). *Resources.* Retrieved from: http://www.aippen.net/

Avolio, B. J., Reichard, R. J., Hannah, S. T., Walumbwa, F. O., & Chan, A. (2009). A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies. *The Leadership Quarterly, 20,* 764–784.

Bainbridge, L. (2010). Interprofessional education for interprofessional practice: Will future healthcare providers embrace collaboration as one answer to improve quality of care? *University of British Columbia Medical Journal, 2* 9-10.

Bainbridge, L., Nasmith, L., Orchard, C., & Wood, V. (2010). Competencies for interprofessional collaboration. *Journal of Physical Therapy Education, 24*, 6-11.

Bainbridge, L., & Wood, V. I. (2013). The power of prepositions: A taxonomy for interprofessional education. *Journal of Interprofessional Care, 27,* 131-136.

Bajnok, I., Puddster, D., MacDonald, C. J., Archibald, D., & Kuhl, D. (2012) Building positive relationships in healthcare: Evaluation of the teams of interprofessional staff interprofessional education program. *Contemporary Nurse, 42,* 76-89.

Baker, G. R., Norton, P. G., Flintoft, V., Blais, R., Brown, A., Cox, J., … Tamblynk, R. (2004). The Canadian adverse events study: the incidence of adverse events

among hospital patients in Canada. *Canadian Medical Association Journal, 170,* 1678-1686.

Baker, L., Reeves, S., Egan-Lee, E., Leslie, K., & Silver, I. (2010). The ties that bind: A network approach to creating a programme in faculty development. *Medical Education, 44,* 132-139.

Baker, M. J., & Durham, C. F. (2013). Interprofessional education: A survey of students' collaborative competency outcomes. *Journal of Nursing Education, 52,* 713-718.

Barker, K. K., Bosco, C., & Oandasan, I. F. (2005). Factors in implementing interprofessional education and collaborative practice initiatives: Findings from key informant interviews. *Journal of Interprofessional Care, Supplement 1,* 166-176.

Barnett, R. (2012). Practice-based education: Future possibilities. In J. Higgs, R. Barnett, S. Billett, M Hutchings, & F. Trede. (Eds.), *Practice-based Education: Perspectives and Strategies* (pp. 241-252). Rotterdam, The Netherlands: Sense Publishers.

Barr, H. (1998). Competent to collaborate: towards a competency-based model of interprofessional education. *Journal of Interprofessional Care, 12,* 181-187.

Barr, H. (2002). *Interprofessional education today, yesterday and tomorrow.* London: Centre for the Advancement of Interprofessional Education. Retrieved from www.unmc.edu/

Barr, H. (2009). An anatomy of continuing interprofessional education. *Journal of Continuing Education in the Health Professions, 29,* 147-150.

Barr, H. (2011). Engaging with the global challenge. *Journal of Interprofessional Care, 25,* 319-320.

Barr, H. (2012). Toward a theoretical framework for interprofessional education. *Journal of Interprofessional Care, 27,* 4-9.

Barr, H. (2013). *Interprofessional education to improve collaboration and quality of care.* Paper presented at Cardiff University Schools of Medicine and Pharmacy and Pharmaceutical Sciences Interprofessional Education Conference, Cardiff, UK. Retrieved from http://www.cardiff.ac.uk/

Barr, H., & Brewer, M. (2012). Interprofessional practice-based education. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede. (Eds.), *Practice-based education: Perspectives, and strategies*. (pp. 199-212). Rotterdam, The Netherlands: Sense Publishers.

Barr, H., & Coyle, J. (2013). Introducing interprofessional education. In S. Loftus, T. Gerzina, J. Higgs, M. Smith, & E. Duffy (Eds.), *Educating health professionals: Becoming a university teacher.* (p. 185-196). Rotterdam, The Netherlands: Sense Publishers.

Barr, H., Helme, M., & D'Avray, L. (2014). *Review of interprofessional education in the United Kingdom, 1997-2013*. London, UK: CAIPE. Retrieved from https://www.caipe.org/resources/

Barr, H., & Low, H. (2011). *CAIPE principles of interprofessional education*. Retrieved from http://caipe.org.uk/resources/

Barr, H., Koppel, K., Reeves, S., Hammick, M., & Freeth, D. (2005). *Effective interprofessional education: Argument, assumption and evidence*. Oxford, UK: Blackwell.

Barrett, J., Curran, V., Glynn, L., & Godwin, M. (2007). *CHSRF Synthesis: Interprofessional collaboration and quality primary healthcare.* Retrieved from http://www.cfhi-fcass.ca/

Barrie, S. (2012). A research-based approach to generic graduate attributes policy. *Higher Education Research & Development, 31,* 79-92.

Barrie, S., Hughes, C., & Smith, C. (2009). *The national graduate attributes project: Integration and assessment of graduate attributes in curriculum.* Sydney, Australia: Australian Learning and Teaching Council. Retrieved from http://www.olt.gov.au/

Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics, 18,* 19-31.

Bathgate, K., & Harris, C. (2012). The impact of eLearning tools on the interprofessional learning experience in a first year foundations health unit. In A. Herrington, J. Schrape, & K. Singh. (Eds.), *Engaging students with learning technologies* (pp. 209-222). Perth, Australia: Curtin University.

Bass, B. M. (1990). *Bass and Stogdill's handbook of leadership (*3rd ed.). New York, NY: The Free Press.

Bass, B. M., & Avolio, B. J. (1990). *MLQ multifactor leadership questionnaire.* Redwood City: Mind Garden

Bazeley, P. (2007). *Qualitative data analysis with NVivo qualitative project book.* Thousand Oaks, CA: Sage.

Bell, A, V., Michalec, B., & Arenson, C. (2014). The (stalled) progress of interprofessional collaboration: The role of gender. *Journal of Interprofessional Care, 28,* 98-102.

Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Bennett, C. (2008). *A healthier future for all Australians: Interim report.* Retrieved from http://www.health.gov.au/

Bennett, J., & Bennett, L. (2003). A review of factors that influence the diffusion of innovation when structuring a faculty training program. *Internet and Higher Education, 6,* 53–63.

Bennis, W. G. (2007). The challenges of leadership in the modern world: An introduction to the special issue. *American Psychologist, 62,* 2-5.

Bennis, W. G., & Nanus, B. (2007). *Leaders: The strategies for taking charge.* New York, NY: Harper and Row.

Berger, S., Goetz, K., Leowardi-Bauer, C., Schultz, J., Szecsenyi, J., & Mahler, C. (2017). Anchoring interprofessional education in undergraduate curricula: The Heidelberg story. *Journal of Interprofessional Care, 31,* 175-179.

Best, A., Greenhalgh, T., Lewis, S., Saul, J. E., Carroll, S., & Bitz, J. (2012). Large-system transformation in healthcare: A realist review. *Milbank Quarterly, 90,* 421-456.

Beunza, J. (2013). Conflict resolution techniques applied to interprofessional collaborative practice. *Journal of Interprofessional Care, 27,* 110-112.

Biggs, J. (2003). *Aligning teaching and assessing to course objectives*. Paper presented at the Teaching in higher education: New trends and innovations conference, Aveiro, Portugal. Retrieved from http://ucsc.cmb.ac.lk/

Blue, A. V., Mitcham, M., Smith, T., Raymond, J., & Greenberg, R. (2010). Changing the future of health professions: Embedding interprofessional education within an Academic Health Center. *Academic Medicine, 85,* 1290-1295.

Bluteau, P. (2014). *Coventry University's Faculty of Health and Life Sciences 2013 pre-registration collaborative curriculum student information.* Retrieved from http://placementconnect.coventry.ac.uk/

Bolden, R., Gosling, J., Marturano, A., & Dennison, P. (2003). *A review of leadership theory and competency frameworks.* Centre for Leadership Studies, University of Exeter. Exeter, UK. Retrieved from https://ore.exeter.ac.uk/

Bolden, R., Petrov, G., Gosling, J., & Bryman, A. (2009). Leadership in higher education: Facts, fictions and futures. *Leadership, 5*, 291-298.

Bolman, L. G., & Deal, T. E. (1997). *Reframing organizations: Artistry, choice and leadership.* San Francisco, CA: Jossey-Bass.

Bolman, L. G., & Deal, T. E. (1999). Leadership and management effectiveness: A multi-frame, multi-sectorial analysis. *Human Resource Management, 30,* 509-534.

Bolman, L. G., & Gallos, J. V. (2011). *Reframing academic leadership*. San Francisco, CA: John Wiley & Sons.

Boseman, G. (2008). Effective leadership in a changing world. *Journal of Financial Service Professionals, 62*, 36-38.

Borduas, F., Frank, B., Hall, P., Handfield-Jones, R., Hardwick, D., Ho, K., … Wright, B. (2006). *Facilitating the integration of interprofessional education into quality healthcare: Strategic roles of academic institutions.* Retrieved from http://www.cihc.ca/

Boud, D., Cohen, R. & Sampson, J. (2014). Peer learning and assessment. In D. Boud, R. Cohen, & J. Sampson. (Eds.), *Peer learning in higher education: Learning from and about each other* (pp. 67-84). London, UK: Kogan Page.

Boud, D., & Falchikov, N. (2006). Aligning assessment with long term learning. *Assessment and Evaluation in Higher Education, 31*, 399-413.

Boud, D., & Molloy, E. (2013). (Eds.), *Feedback in higher and professional education.* New York, NY: Routledge.

Bradley, A. P., Grice, T., & Paulsen, N. (2017). Promoting leadership in Australian universities. *Australian Universities Review, 59*, 97-103.

Brandt, B., Lutfiyya, M. N., King, J. A., & Chioreso, C. (2014). A scoping review of interprofessional collaborative practice and education using the lens of the Triple Aim. *Journal of Interprofessional Care, 28*, 393-399.

Brashers, V., Owen, J., & Haizlip, J. (2015). Interprofessional education and practice guide no. 2: Developing and implementing a center for interprofessional education. *Journal of Interprofessional Care, 29*, 95-99.

Brashers, V., Peterson, C., Tullmann, D., & Schmitt, M. (2012). The University of Virginia interprofessional education initiative: An approach to integrating competencies into medical and nursing education. *Journal of Interprofessional Care*, *26*, 73-75.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101.

Brewer, M. (2011). *Curtin University's Faculty of Health Sciences interprofessional capability framework*. Perth, Australia: Curtin University. Retrieved from http://healthsciences.curtin.edu.au/studying-health-sciences/interprofessional-education/about-ipe/ [updated link]

Brewer, M. (2012a). *Curtin University's interprofessional capability assessment tool final year students.* Perth, Australia: Curtin University. Retrieved from http://healthsciences.curtin.edu.au/faculty/so-module.cfm [link inactive]

Brewer, M. (2012b). *Guide to completing the ICAT final year student version.* Perth, Australia: Curtin University. Retrieved from http://healthsciences.curtin.edu.au/faculty/so-module.cfm [link inactive]

Brewer, M., Flavell, H., Davis, M., Harris, C., & Bathgate, K. (2014a). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability, 5*, 29-46.

Brewer, M., Flavell, H., Smith, M., Trede, F., & Jones, S. (2014b). *Creating a collaborative practice environment which encourages sustainable*

interprofessional leadership, education and practice. Retrieved from http://healthsciences.curtin.edu.au/faculty/leadership_programme.cfm

Brewer, M. L., Flavell, H., Trede, F., & Smith, M. (2016). A scoping review to understand 'leadership' in interprofessional education and practice. *Journal of Interprofessional Care, Published online 18 May* [entitled *Critically mapping 'leadership' in interprofessional education and practice* in Paper 7 reference list]

Brewer, M., & Franklin, D. (2011). *Building interprofessional education and practice capacity in industry partners.* Paper presented at the Collaborating Across Borders III conference, Tucson, Arizona.

Brewer, M., Franklin, D., & Lawrence, J. (2011). Brightwater Care Group Interprofessional Placement. *Journal of Professional Management, 5*.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., & White, S. (2009). Assessment of interprofessional competencies for health professional students in fieldwork education placements. In J. Milton, C. Hall, J. Lang, G. Allan, & M. Nomikoudis. (Eds.), *ATN Assessment Conference 2009: Assessment in different dimensions conference proceedings.* Melbourne, Australia: Learning and Teaching Unit, RMIT University.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A. & White, S. (2011). *Interprofessional collaboration in practice: The assessment of students' interprofessional capabilities in clinical placements.* Paper presented at the Collaborating Across Borders III conference, Tucson, Arizona.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A. & White, S. (2011). *Interprofessional collaboration in practice: The assessment of students' interprofessional capabilities in clinical placements.* Paper presented at the Collaborating Across Borders III conference, Tucson, Arizona.

Brewer, M., & Jones, S. (2011). *Client centred care: The foundation for an interprofessional capability framework.* Paper presented at the European Interprofessional Education Conference, Ghent, Belgium.

Brewer, M. L., & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health, 42*, e45-e49.

Brewer, M., & Jones, S. (2014). A university-community engagement and leadership model. In D. Forman, M. Jones, & J. Thistlethwaite. (Eds.), *Leadership Development for Interprofessional Education and Collaborative Practice* (pp.85-104). London, UK: Palgrave MacMillan.

Brewer, M. L., & Stewart-Wynne, E. G. (2013). An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities. *Journal of Interprofessional Care, 27*, 482-488.

Brewer, M., Tucker, B., Irving, L., & Franklin, D. (2014). The evolution of faculty-wide interprofessional education workshops. In D. Forman, M. Jones, & J. Thistlethwaite. (Eds.), *Leadership Development for Interprofessional Education and Collaborative Practice* (pp. 206-227). London, UK: Palgrave MacMillan.

Bridges, D. R., Davidson, R. A. Odegard, P. S., Maki, I. V., & Tomkowiak, J. (2011). Interprofessional collaboration: Three best practice models of interprofessional education. *Medical Education Online, 16*, 1-10.

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development, 28*, 31-44.

Brown, L. D. (2014). Towards defining interprofessional competencies for global health education: Drawing on educational frameworks and the experience of the UW-Madison Global Health Institute. *Journal of Law, Medicine & Ethics, 42*, 32-37.

Bryman, A. (2007). Effective leadership in higher education: A literature review. *Studies in Higher Education, 32,* 693-710.

Bryman, A. (2012). *Social research methods.* (4th ed.). New York, NY: Oxford University Press.

Bucciarelli, L. (2015). A review of innovation and change management: Stage model and power influences. *Universal Journal of Management, 3,* 36-42.

Buhr, G. T., Konrad, T., Pinheiro, S., Pruitt, J., Poer, C., Shock, L., … Heflin, M. T. (2014). An interprofessional education collaborative (IPEC) competency-focused workshop to enhance team performance. *Journal of Post-Acute and Long-Term Care Medicine, 15,* b10-b11.

Buring, S. M., Bhushan, A., Broeseker, A., Conway, S., Duncan-Hewitt, W., Hansen, L., & Westberg, S. (2009). Interprofessional education: Definitions, student competencies, and guidelines for implementation. *American Journal of Pharmaceutical Education*, 73, Article 59, 1-8.

Burley, M., & Chester, J. (2014). Leadership in interprofessional collaboration for lifelong learning. In D. Forman, M. Jones, & J. Thistlethwaite (Eds.), *Leadership Development for Interprofessional Education and Collaborative Practice* (pp. 228-244). London, UK: Palgrave MacMillan.

Burns, J. M. (1978). *Leadership.* New York, NY: Harper & Row Publishers.

Butcher, J., Bezzina, M., & Moran, W. (2011). Transformational partnerships: A new agenda for higher education. *Innovative Higher Education, 36,* 29-40.

Button, L., Green, B., Tengnah, C., Johansson, I., & Baker, C. (2005). The impact of international placements on nurses' personal and professional lives: Literature review. *Journal of Advanced Nursing, 50,* 315-324.

Cahn. P. (2014). In and out of the curriculum: An historical study in implementing interprofessional education. *Journal of Interprofessional care, 28,* 128-133.

Calegari, M. F., Sibley, R. E., & Turner, M. E. (2015). A roadmap for using Kotter's organizational change model to build faculty engagement in accreditation. Academy of Educational Leadership Journal, 19, 31-43.

Cameron, A., Ignjatovic, M., Langlois, S., Dematteo, D., DiProspero, L., Wagner, S., & Reeves, S. (2009). An interprofessional education session for first-year health science students. *American Journal of Pharmaceutical Education, 73*, 1-7.

Canadian Medical Association. (2007). *Putting patients first: Patient-centred collaborative care.* Retrieved from http://fhs.mcmaster.ca/

Canadian Interprofessional Health Collaborative. (2008). *Situational analysis: Current state of interprofessional education (IPE) in Canada.* Retrieved from http://www.cihc.ca/

Careau, E., Biba, G., Brander, R., Van Dijk, J. P., Verma, S., Paterson, M., & Tassone, M. (2014). Health leadership education programs, best practices, and impact on learners' knowledge, skills, attitudes, and behaviors and system change: A literature review. *Journal of Healthcare Leadership, 6,* 39-50.

Carifio, J., & Perla, R. (2007). Ten common misunderstandings, misconceptions, persistent myths and urban legends about Likert scales and Likert response formats and their antidotes. *Journal of Social Sciences, 3,* 106-116.

Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and missing Likert scales. *Medical Education, 42,* 1150-1152.

Carney, M. (2009). Public health nurses perception of clinical leadership in Ireland: Narrative descriptions. *Journal of Nursing Management, 17,* 435-445.

Carpenter, J. (1995). Doctors and nurses: Stereotypes and stereotype change in interprofessional education. *Journal of Interprofessional Care, 9,* 151-161.

Carpenter, J., & Dickinson, H. (2008). *Interprofessional education and training.* Bristol, UK: Policy Press.

Carraccio, C., Benson, B. J., Nixon, J., & Derstine, P. L. (2008). From the educational bench to the clinical bedside: Translating the Dreyfus developmental model to the learning of clinical skills. *Academic Medicine, 83,* 761-767.

Carraccio, C. & Englander, R. (2013). From Flexner to competencies: Reflections on a decade ahead. *Academic Medicine, 88,* 1067-1073.

Carroll, B., Levy, L., & Richmond, D. (2008). Leadership as practice: Challenging the competency paradigm. *Leadership, 4,* 363-379.

Cashman, S. B., Reidy, P., Cody, K., & Lemay, C. A. (2004). Developing and measuring progress toward collaborative, integrated, interdisciplinary healthcare teams. *Journal of Interprofessional Care, 18,* 183-196.

Carson, J. B., Tesluk, P. E., & Marrone, J. A. (2007). Shared leadership in teams: An investigation of antecedent conditions and performance. *Academy of Management Journal, 50,* 1217-1234.

Centre for the Advancement of Interprofessional Education. (2002). *Defining IPE.* Retrieved from: http://www.caipe.org.uk/

Chappell, S., Pescud, M., Waterworth, P., Shilton, T., Roche, D., Ledger, M. … Rosenberg, M. (2016). Exploring the process of implementing healthy workplace initiatives: Mapping to Kotter's leading change model. *Journal of Occupational and Environmental Medicine, 58,* e341-e348.

Chen, F., Delnat, C. C., & Gardner, D. (2015). The current state of academic centers for interprofessional education. *Journal of Interprofessional Care, 29,* 497-498.

Chen, F. M., Williams, S. D., & Gardner, D. B. (2013). The case for a National Center for Interprofessional Practice and Education. *Journal of Interprofessional Care, 27,* 356-357.

Chrislip, D. D., & Larson, C. E. (1994). *Collaborative leadership: How citizens and civic leaders can make a difference.* San Francisco, CA: Jossey-Bass Publishers.

Clark, P. G. (2009). Reflecting on reflection in interprofessional education: Implications for theory and practice. *Journal of Interprofessional Care, 23,* 213-223.

Clark, P. G. (2011). The devil is in the details: The seven deadly sins of organizing and continuing interprofessional education in the US. *Journal of Interprofessional Care, 25,* 321-327.

Clark, P. G. (2013). Toward a transtheoretical model of interprofessional education: stages, processes and forces supporting institutional change. *Journal of Interprofessional Care, 27,* 43-49.

Clark, P. G., Cott, C., & Drinka, T. J. K. (2007). Theory and practice in interprofessional ethics: A framework for understanding ethical issues in healthcare teams. *Journal of Interprofessional Care, 21,* 591-603.

Clinical Excellence Commission. (2009). *Clinical incident management in the NSW public health system*. Sydney, Australia. Retrieved from: http://www.cec.health.nsw.gov.au/

Colyer, H., Helme, M., & Jones, I. (2005). *The theory-practice relationship in interprofessional education.* London, UK: Higher Education Academy.

Combined Universities Interprofessional Learning Unit. (2010). *Interprofessional Capability Framework 2010 mini-guide.* London, UK: Higher Education Academy. Retrieved from: http://www.cuilu.group.shef.ac.uk/

Contractor, N. S., DeChurch, L. A., Carson, J., Carter, D. R., & Keegan, B. (2012). The topology of collective leadership. *The Leadership Quarterly, 23,* 994-1011.

Cook, D.A. (2005). Models of interprofessional learning in Canada, *Journal of Interprofessional Care, 19,*107-115.

Cooper, L., Orrell, J., & Bowden, M. (2010). *Work integrated learning: A guide to effective practice*. London, UK: Routledge.

Cooper, H., Spencer-Dawe, E., & McLean, E. (2005). Beginning the process of teamwork: Design, implementation and evaluation of an inter-professional education intervention for first year undergraduate students. *Journal of Interprofessional Care, 19,* 492-508.

Cooperrider, D. L., & Whitney, D. (1999). *Appreciative inquiry*. San Francisco, CA: Berret-Koehler.

Cooperrider, D. L., Whitney, D., & Stavros, J. M. (2008). *Appreciative inquiry handbook: For leaders of change.* (2nd ed.). Brunswick, OH: Crown Custom Publishing.

Copley, J. A., Allison, H. D., Hill, A. E., Moran, M. C., Tait, J. A., & Day, T. (2007). Making interprofessional education real: A university clinic model. *Australian Health Review, 31,* 351-357.

Cornthwaite, K., Edwards, S., & Siassakos, D. (2013). Reducing risk in maternity by optimising teamwork and leadership: An evidence-based approach to save mothers and babies. *Best Practice and Research: Clinical Obstetrics and Gynaecology, 27,* 571-581.

Costello, J., Clarke, C., Gravely, G., D'Agostino-Rose, D., & Puopolo, R. (2011). Working together to build a respectful workplace: Transforming OR culture. *Association of preOperative Registered Nurses Journal, 93,* 111-126.

Coster, S., Norman, I., Murrells, T., Kitchen, S., Meerabeau, E., Sooboodoo, E., & d'Avray, L. (2008). Interprofessional attitudes amongst undergraduate students in health professions: A longitudinal questionnaire survey. *International Journal of Nursing Studies, 45,* 1032-1041.

Crevani, L., Lindgren, M., & Packendorff, J. (2010). Leadership, not leaders: On the study of leadership as practices and interactions. *Scandinavian Journal of Management, 26,* 77-86.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. (4th ed.). Boston, MA: Pearson.

Cuff, P., Schmitt, M., Zierler, B., Cox, M., De Maeseneer, J., Maine, L. L., … Thibault, G. E. (2014). Interprofessional education for collaborative practice: Views from a global workshop. *Journal of Interprofessional Care, 28,* 2-4.

Cunliffe, A. L., & Ericksen, M. (2011). Relational leadership. *Human Relations, 64,* 1425-1449.

Curran, V., Casimiro, L., Banfield, V., Hall, P., Lackie, K., Simmons, B., … Oandasan, I. (2008). Research for interprofessional competency-based evaluation (RICE). *Journal of Interprofessional Care, 23,* 297-300.

Curran, V., Hollett, A., Casimiro, L. M., McCarthy, P., Banfield, V., Hall, P., … Wagner, S. (2011). Development and validation of the interprofessional collaborator assessment rubric (ICAR). *Journal of Interprofessional Care, 25,* 339-344.

Curran, V., Sargeant, J., & Hollett, A. (2007). Evaluation of an interprofessional continuing professional development initiative in primary health care. *Journal of Continuing Education in the Health Professions, 27,* 241-252.

Curran, V. R., Sharpe, D., Flynn, K., & Button, P. (2010). A longitudinal study of the effect of an interprofessional education curriculum on student satisfaction and attitudes towards interprofessional teamwork and education. *Journal of Interprofessional Care, 24,* 41-52.

Dall'Alba, G., & Sandberg, J. (2006). Unveiling professional development: A critical review of stage models. *Review of Educational Research, 76,* 383-412.

D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of Interprofessional Care, 19,* 8-20.

Darney, B. G., VanDerhei, D., Weaver, M. R., Stevens, N. G., & Prager, S. W. (2013). "We have to what?": Lessons learned about engaging support staff in an interprofessional intervention to implement MVA for management of spontaneous abortion. *Contraception, 88,* 221-225.

Davidson, M., Smith, R. A., Dodd, K. J., Smith, J. S, & O'Loughlan, M. J. (2008). Interprofessional pre-qualifying education: A systematic review. *Australian Health Review, 32,* 111-120.

Day, D. V., Fleenor, J. W., Atwater, L. E., Sturm, R. E., & McKee, R. A. (2014). Advances in leader and leadership development: A review of 25 years of research and theory. *The Leadership Quarterly, 25,* 63-82.

Day, G. E., & Shannon, E. (2015). Leading and managing change. In G. E. Day, & S. G. Leggat. (Eds.), *Leading and managing health services: An Australian perspective* (pp.295-304. Melbourne, Australia: Cambridge University Press.

Dean, H. J., MacDonald, L., Alessi-Severini, S., Halipchuk, J. A. C., Sellers, E. C. A., & Grymonpre, R. E. (2014). Elements and enablers for interprofessional education clinical placements in diabetes teams. *Canadian Journal of Diabetes, 38,* 273-278.

Dearing, J. W. (2004). Improving the state of health programming by using diffusion theory. *Journal of Health Communication: International Perspectives, 9,* 21-36.

de la Harpe, B., Radloff, A., Scoufis, M., Dalton, H., Thomas, J., Lawson, A., … Girardi, A. (2009). *The B factor project: Understanding academic staff beliefs about graduate attributes. Final Report.* Surry Hills, Australia: Australian Learning and Teaching Council.

De Los Santos, M., McFarlin, C. D., & Martin, L. (2014). Interprofessional education and service learning: A model for the future of health professions education. *Journal of Interprofessional Care, 28,* 374-375.

De Matteo, D., & Reeves, S. (2011). A critical examination of the role of appreciative inquiry within an interprofessional education initiative. *Journal of Interprofessional Care, 25,* 203-208.

Department for Education and Skills. (2005). *Every Child Matters: Change for Children–Children's Workforce Strategy.* London, UK: Department for Education and Skills.

Department of Health. (2000). *An organisation with a memory: Report of an expert group on learning from adverse events in the NHS.* London, UK: Department of Health.

Department of Health and the Centre for the Advancement of Interprofessional Education. (2007). *Creating an interprofessional workforce: An education and*

training framework for health and social care. Retrieved from http://caipe.org.uk/resources/

Deutschlander, S., & Mallinson, S. (2014). Measuring behaviour as an outcome of interprofessional interventions: Are you willing to collaborate or are you collaborating? *Journal of Research in Interprofessional Practice and Education, 4*, 1-19.

Dewar, B., & Cook, F. (2014). Developing compassion through a relationship centred appreciative leadership programme. *Nurse Education Today, 34,* 1258–1264.

Dictionary of Nursing. (2008). *National Service Frameworks.* Retrieved from: http://www.encyclopedia.com/doc/1O62-nationalserviceframeworks.html

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *The Leadership Quarterly, 25*, 36-62.

Dingfelder, H. E., & Mandell, D. S. (2011). Bridging the research-to-practice gap in autism intervention: An application of diffusion of innovation theory. *Journal of Autism and Developmental Disorders, 41*, 597-609.

D'Innocenzo, L., Mathieu, J. E., & Kukenberger, M. R. (2016). A meta-analysis of different forms of shared leadership–team performance relations. *Journal of Management, 42*, 1964-1991.

Dionne, S. H., Gupta, A., Sotak, K. L., Shirreff, K. A., Serba, A., Hao, C., … Yammarino, F. J. (2014). A 25-year perspective on levels of analysis in leadership research. *The Leadership Quarterly, 25,* 6-35.

Domac, S., Anderson, L., O'Reilly, M., & Smith, R. (2015). Assessing interprofessional competence using a prospective reflective portfolio. *Journal of Interprofessional Care, 29*, 179-187.

Dow, A. W., DiazGranados, D., Mazmanian, P. E., & Retchin, S. M. (2013). Applying organizational science to healthcare: A framework for collaborative practice. *Academic Medicine, 88*, 952-957.

Dow, A. W., DiazGranados, D., Mazmanian, P. E., & Retchin, S. M. (2014). An exploratory study of an assessment tool derived from the competencies of the

interprofessional education collaborative. *Journal of Interprofessional Care, 28,* 299-304.

Drake, D., Torkelson, C., Terrell, C., Westberg, S., & Bogolub, C. (2013). A model for integrative women's health in an interprofessional and academic setting: Vision, implementation, and sustainability. *Global Advances in Health and Medicine, 2,* 29A.

Drath, W. H., McCauley, C. D., Palus, C. J., Van Velsor, E., O'Connor, P. M. G., & McGuire, J. B. (2008). Direction, alignment, commitment: Towards a more integrative ontology of leadership. *The Leadership Quarterly, 19,* 635-653.

Dumont, S., Brière, N., Morin, D., Houle, N., & Iloko-Fundi, M. (2010). Implementing an interfaculty series of courses on interprofessional collaboration in prelicensure health science curriculums. *Education for Health, 23,* 1-12.

Ehsani, J. P, Jackson, T., & Duckett, S. J. (2006). The incidence and cost of adverse events in Victorian hospitals 2003–04. *Medical Journal of Australia, 184,* 551-555.

Eiser, A. R., & Connaughton-Storey, J. (2008). Experiential learning of systems-based practice: A hands-on experience for first-year medical residents. *Academic Medicine, 83,* 916-923.

Ekmekci, O., Plack, M., Pintz, C., Bocchino, J., LeLacheur, S., & Halvaksz, J. (2013). Integrating executive coaching and simulation to promote interprofessional education of healthcare students. *Journal of Allied Health, 42,* 17-24.

El Ansari, W. (2012). Leadership in community partnerships: South African study and experience. *Central European Journal of Public Health, 20,* 174-184.

Endrissat, N., & von Arx, W. (2013). Leadership practices and context: Two sides of the same coin. *Leadership, 9,* 278-304

Epstein, R. M., & Hundert, E. M. (2002). Defining and assessing professional competence. *Journal of American Medical Association, 287,* 226-235.

Epstein, R. M., & Street, R. L. (2011). The values and value of patient-centered care. *Annals of Family Medicine, 9,* 100-103.

Eraut, M. (1998). Concepts of competence. *Journal of Interprofessional Care, 12,* 127-139.

Erickson, T., Shami, N.S., Kellogg, W.A., & Levine, D.W. (2011). Synchronous interaction among hundreds: An evaluation of a conference in an avatar-based virtual environment. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York, NY: Association for Computing Machinery.

Fairhurst, G. T., & Connaughton, S. L. (2014). Leadership: A communicative perspective. *Leadership, 10*, 7-35.

Fairhurst, G. T., & Grant, D. (2010). The social constriction of leadership: A sailing agenda. *Management Communication Quarterly, 24*, 171-210.

Fairhurst, G. T., & Uhl-Bien, M. (2012). Organizational discourse analysis (ODA): Examining leadership as a relational process. *The Leadership Quarterly, 23*, 1043-1062.

Fairman, J. C., & Mackenzie, S. V. (2015). How teacher leaders influence others and understand their leadership. *International Journal of Leadership in Education, 18*, 61-87.

Falk, A. L., Hult, H., Hammar, M., Hopwood, N., & Dahlgren, M. A. (2013). One size fits all? A student ward as a learning practice for interprofessional development. *Journal of Interprofessional Care, 27*, 476-481.

Faresjo, T., Wilhelmsson, M., Pelling, S., Dahlgren, L. O., & Hammar, M. (2007). Does interprofessional education jeopardize medical skills? *Journal of Interprofessional Care, 21*, 573-576.

Ferré, F., de Belvis, A. G., Valerio, L., Longhi, S., Lazzari, A., Fattore, G., … Maresso, A. (2014). Italy: Health system review. *Health Systems in Transition, 16*, 1-168.

Findlay, N., Dempsey, S., & Warren-Forward, H. (2010). Validation and use of the Newcastle Reflective Analysis Tool: A three-year longitudinal study of RT students' reflective journals. *Reflective Practice, 11*, 83-94.

Forman, D., Jones, S., & Brewer, M. (2011). Interprofessional sharing. *International Journal of Professional Management, 5*.

Forman, D., Jones, M., & Thistlethwaite, J. (2014). (Eds.), *Leadership development for interprofessional education and collaborative practice*. Bakingstoke, UK: Palgrave Macmillan.

Forman, D., Jones, M., & Thistlethwaite, J. (2015). (Eds.), *Leadership development for interprofessional education and collaborative practice*. Bakingstoke, UK: Palgrave Macmillan.

Forte, A., & Fowler, P. (2009). Participation in interprofessional education: An evaluation of student and staff experiences. *Journal of Interprofessional Care, 23,* 58-66.

Fortugno, M., Chandra, S., Espin, S., & Gucciardi, E. (2013). Fostering successful interprofessional teamwork through an undergraduate student placement in a secondary school. *Journal of Interprofessional Care, 27,* 326-332.

Fougner, M., & Horntvedt, T. (2011). Students' reflections on shadowing interprofessional teamwork: a Norwegian case study. *Journal of Interprofessional Care, 25,* 33-38.

Fox, S. J., & Gilbert, J. H. (2015). Mapping collective sensemaking in communication: The interprofessional patient case review in acute care rounds. *Health and Interprofessional Practice, 2,* 1-20.

Fox, A., & Reeves, S. (2015). Interprofessional collaborative patient-centred care: A critical exploration of two related discourses. *Journal of Interprofessional Care, 29,* 113-118.

Frank, J. R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S., & Horsley, T. (2010). Toward a definition of competency-based education in medicine: A systematic review of published definitions. *Medical Teacher, 32,* 631-637.

Fransen, J., Kirschner, P. A., & Erkens, G. (2011). Mediating team effectiveness in the context of collaborative learning: The importance of team and task awareness. *Computers in Human Behavior, 27,* 1103-1113.

Fraser, S. W., & Greenhalgh, T. (2001). Coping with complexity: Educating for capability. *BMJ, 323,* 799-803.

Frederickson, K., & Nickitas, D. (2011). Chief nursing officer executive development: A crisis or a challenge? *Nursing Administration Quarterly, 35,* 344-353.

Freeman, S., Wright, A., & Lindqvist, S. (2010). Facilitator training for educators involved in interprofessional learning. *Journal of Interprofessional Care, 24,* 375-385.

Freeth, D., Hammick, M., Koppel, I., Reeves, S., & Barr, H. (2002). *A critical review of evaluations of interprofessional education.* London, UK: Centre for the Advancement of Interprofessional Education.

Freeth, D., Hammick, M., Reeves, S., Koppel, I., & Barr, H. (2005). (Eds.), *Effective Interprofessional Education: Development, Delivery & Evaluation*. Oxford, UK: Blackwell Publishing.

Freeth, D., & Reeves, S. (2004). Learning to work together: using the presage, process, product (3P) model to highlight decisions and possibilities. *Journal of Interprofessional Care, 18,* 43-56.

Frenk, J., Chen, L., Bhutta, Z.A., Cohen, J., Crisp, N. Evans, T., … Serwadda, D. (2010). Health professionals for a new century: Transforming education to strengthen health systems in an independent world. *The Lancet, 376,* 1923-1958.

Fried, L. P., Begg, M. D., Bayer, R., & Galea, S. (2014). MPH education for the 21st century: Motivation, rationale, and key principles for the new Columbia public health curriculum. *American Journal of Public Health, 104,* 23-30.

Friedrich, T. L., Vessey, W.B., Schuelke, M. J., Ruark, G. A., & Mumford, M. D. (2009). A framework for understanding collective leadership: The selective utilization of leader and team expertise within networks. *The Leadership Quarterly, 20,* 933-958.

Frisby, J., Mehdi, Z., & Birns, J. (2015). Interprofessional learning on a stroke unit. *Clinical Teacher. 12,* 315-319.

Fulop, L., & Mark, A. (2013). Relational leadership, decision-making and the messiness of context in healthcare. *Leadership, 9,* 254-277.

Gabel, S. (2014). Expanding the scope of leadership training in medicine. *Academic Medicine, 89,* 848–852. [Error in spelling of name in published paper - Gable]

Garling, P. R. (2008). *Final report of the special commission of the inquiry into acute care services in NSW public hospitals.* Retrieved from http://www.lawlink.nsw.gov.au/

General Medical Council. (2011). *Clinical placements for medical students.* Retrieved from http://www.gmc-uk.org/

George, A. E., Frush, K., & Michener, J. L. (2013). Developing physicians as catalysts for change. *Academic Medicine, 88,* 1603-1605.

George, P., MacDonnell, C., Nimmagadda, J., Murphy, J., & Dollase, R. (2015). Designing interprofessional education curriculum using multiple conceptual frameworks. *Annals of Behavioral Science and Medical Education, 21,* 9-13.

Ghaye, T., Melander-Wikman, A., Kisare, M., Chambers, P., Bergmark, U., Kostenius, C., & Lillyman, S. (2008). Participatory and appreciative action and reflection (PAAR): Democratizing reflective practices. *Reflective Practice, 9,* 361-397.

Gilbert, J. H. V. (2005). Interprofessional learning and higher education structural barriers. *Journal of Interprofessional Care, 19,* 87-106.

Gilbert, J. H. V. (2010). The status of interprofessional education in Canada. *Journal of Allied Health, 39,* 216-223.

Glen, S., & Reeves, S. (2004). Developing interprofessional education in the pre-registration curricula: Mission impossible? *Nurse Education in Practice, 4,* 45-52.

Goldman, J., Zwarenstein, M., Bhattacharyya, O., & Reeves, S. (2009). Improving the clarity of the interprofessional field: Implications for research and continuing interprofesssional education. *Journal of Continuing Education in the Health Professions, 29,* 151-156.

Goleman, D. (2013). *Focus: The hidden driver of excellence.* New York, NY: Harper Collins.

Goleman D., Boyatzis, R., & McKee, A. (2002). *The new leaders: Transforming the art of leadership into the science of results.* London, UK: Little, Brown.

Gratton, L., & Erickson, T. J. (2007). Eight ways to build collaborative teams. *Harvard Business Review, 85,* 100-110.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Quarterly, 82,* 581-629.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., Kyriakidou, O., & Peacock, R. (2005). Storylines of research in diffusion of innovation: A meta-narrative approach to systematic review. *Social Science & Medicine, 61,* 417-430.

Greenstock, E. M., Molloy, E., Fiddes, P., Fraser, C., & Brooks, P. (2013). Medical students' interprofessional experiences in a rehabilitation and palliative care placement. *Journal of Interprofessional Care, 27,* 537-539.

Greer, A. G., & Clay, M. C. (2010). Interprofessional education assessment and planning instrument for academic institutions. *Journal of Allied Health, 39,* 224-231.

Greer, A. G., Clay, M., Blue, A., Evans, C. H., & Garr, D. (2014). The status of interprofessional education and interprofessional prevention education in academic health centers: A national baseline study. *Academic Medicine, 89,* 799-805.

Greiner, A., & Knebel, E. (2003). (Eds.), *Health professions education: A bridge to quality*. Washington, DC: Institute of Medicine of the National Academies.

Grint, K. (2005). Problems, problems, problems: The social construction of 'leadership'. *Human Relations, 58,* 1467-1494.

Grint, K. (2010). The sacred in leadership: Separation, sacrifice and silence. *Organizational Studies, 31,* 89-107.

Gronn, P. (2002). Distributed leadership as a unit of analysis. *The Leadership Quarterly, 13,* 423-451.

Gross, J. (2008). *Projection of Australian healthcare expenditure by disease, 2003 to 2033.* Canberra, Australia: Australian Institute of Health and Welfare. Retrieved from http://www.aihw.gov.au/

Grymonpre, R., van Ineveld, C., Nelson, M., Jensen, F., De Jaeger, A., Sullivan, T., … Booth, A. (2010). See it-do it-learn it: Learning interprofessional education in the clinical context. *Journal of Research in Interprofessional Education and Practice, 1,* 127-144.

Guitard, P., Dubouloz, C., Savard, J., Metthé, L., & Brasset-Latulippe, C. (2010). Assessing interprofessional learning during a student placement in an interprofessional rehabilitation university clinic in primary healthcare in a Canadian francophone minority context. *Journal of Research in Interprofessional Education and Practice, 1,* 231-246.

Gum, L., Lloyd, A., Lawn, S., Richards, J. N., Lindeman, I., Sweet, L., … Bramwell, D. (2013). Developing an interprofessional capability framework for teaching healthcare students in a primary healthcare setting. *Journal of Interprofessional Care, 27,* 454-460.

Gum, L. F., Richards, J. N., Walters, L., Forgan, J., Lopriore, M., & Nobes, C. (2013). Immersing undergraduates into an interprofessional longitudinal rural placement. *Rural and Remote Health, 13,* 2271-2283.

Guzmán, W. Z., Gely, M. I., Crespo, K., Matos, J. R., Sánchez, N., & Guerrero, L. M. (2011). Transformation of a dental school's clinical assessment system through Kotter's eight-step change process. Journal of Dental Education, 75, 485-495.

Haider, M., & Kreps, G. L. (2004). Forty years of diffusion of innovations: Utility and value in public health. *Journal of Health Communication: International Perspectives, 9,* 3-11.

Hall, L. W., & Zierler, B. K. (2015). Interprofessional education and practice guide no. 1: Developing faculty to effectively facilitate interprofessional education. Journal of *Interprofessional Care, 29,* 3-7.

Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. *Journal of Interprofessional Care, 19,* 188-196.

Hall, P. D., Zoller, J. S., West, V. T., Lancaster, C. J., & Blue, A. V. (2011). A novel approach to interprofessional education: Interprofessional day, the four-year experience at the Medical University of South Carolina. *Journal of Research in Interprofessional Practice and Education, 2,* 49-62.

Hallin, K., Henriksson, P., Dalén, N., & Kiessling, A. (2011). Effects of interprofessional education on patient perceived quality of care. *Medical Teacher, 33,* e22-e26.

Hamilton, J. (2011). Two birds with one stone: Addressing interprofessional education aims and objectives in health profession curricula through interdisciplinary cultural competency training. *Medical Teacher, 33,* e199-e203.

Hammick, M., Freeth, D., Copperman, J., & Goodman, D. (2009). *Being interprofessional.* Cambridge, UK: Polity Press.

Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education: BEME guide no. 9. *Medical Teacher, 29,* 735-751.

Hansen, T.B., Jacobsen, F., & Larsen, K. (2009). Cost effective interprofessional training: An evaluation of a training unit in Denmark. *Journal of Interprofessional Care, 23,* 234-241.

Harris, M. (2010). Interdisciplinary strategy and collaboration: A case study of American research universities. *Journal of Research Administration, 41*, 22-34.

Harris, R., Sims, S., Hewitt, G., Joy, M., Brearley, S., Cloud, G., … Ross, F. (2013). *Interprofessional teamwork across stroke care pathways: Outcomes and patient and carer experience.* NIHR Service Delivery and Organisation Programme. Retrieved from http://eprints.kingston.ac.uk/

Harrison, P. A., & Fopma-Loy, J. L. (2010). Reflective journal prompts: A vehicle for stimulating emotional competence in nursing. *Journal of Nursing Education, 49,* 644-652.

Havyer, R. D., Nelson, D. R., Wingo, M. T., Comfere, N. I., Halvorsen, A. J., McDonald, F. S., & Reed, D. A. (2016). Addressing the interprofessional collaboration competencies of the Association of American Medical Colleges: A systematic review of assessment instruments in undergraduate medical education. *Academic Medicine, early online.*

Hay, I. (2006). Transformational leadership: Characteristics and criticisms. *E-Journal of Organizational Learning and Leadership, 5,* 1-19.

Health Consumers' Council WA (Inc.). Retrieved from http://www.hconc.org.au/home/

Health Workforce Australia. (2011). *National health workforce innovation and reform strategic framework for action.* Retrieved from: http://www.hwa.gov.au/

Health Workforce Australia. (2013). *Health LEADS Australia: The Australian Health Leadership Framework.* Adelaide. Retrieved from http://www.hwa.gov.au/

Health Workforce Australia. (2014). *National clinical supervision competency resource*. Retrieved from http://www.hwa.gov.au/

Hean, S., Craddock, D., & Hammick, M. (2012). Theoretical insights into interprofessional education. *Medical Teacher, 34,* 158-160.

Hean, S., Craddock, D., & O'Halloran, C. (2009). Learning theories and interprofessional education: A user's guide. *Learning in Health and Social Care, 8,* 250-262.

Heifetz, R., Grashow, A., & Linsky, M. (2009). The practice of adaptive leadership. *Boston, MA: Harvard Business School Publishing*.

Higgs, J. (2012). Practice-based education: The practice-education-context-quality nexus. In J. Higgs, R. Barnett, S. Billett, M Hutchings, & F. Trede. (Eds.), *Practice-based Education: Perspectives and Strategies* (pp. 3-12). Rotterdam, The Netherlands: Sense Publishers.

Higgs, M., & Rowland, D. (2005). All changes great and small: Exploring approaches to change and its leadership. *Journal of Change Management, 5,* 121-151.

Ho, K., Jarvis-Selinger, S., Borduas, F., Frank, B., Hall, P., Handfield-Jones, R., … Rouleau, M. (2008). Making interprofessional education work: The strategic roles of the academy. *Academic Medicine, 83,* 934-940.

Hobbs, J. L. (2009). A dimensional analysis of patient-centered care. *Nursing Research, 58,* 52-62.

Hoffman, S. J., Rosenfield, D., & Nasmith, L. (2009).What attracts students to interprofessional education and other health care reform initiatives? *Journal of Allied Health, 38,* e75-e78.

Hofmeyer, A., Sheingold, B. H., Klopper, H. C., & Warland, J. (2015). Leadership in learning and teaching in higher education: Perspectives of academics in non-formal leadership roles. *Contemporary Issues in Education Research, 8,* 181-192.

Hogg, W., Lemelin, J., Dahrouge, S., Liddy, C., Armstrong, C. D., Legault, F., … Zhang, W. (2009). Randomized controlled trial of anticipatory and preventive multidisciplinary team care for complex patients in a community-based primary care setting. *Canadian Family Physician, 55,* e76-e85.

Hood, K., Leech, M., Cant, R., Gilbee, A., & Baulch, J. (2014). Transforming nursing education: Development and evaluation of interprofessional clinical skills training for students on clinical placement. *Journal of Nursing Education and Practice, 4,* 97-106.

Horsburgh, M., Lamdin, R., & Williamson, E. (2001). Multiprofessional learning: the attitudes of medical, nursing and pharmacy students to shared learning. *Medical Education, 35,* 876-883.

Howkins, E., & Bray, J. (2008). (Eds.), *Preparing for interprofessional teaching: Theory and practice*. Oxford, UK: Radcliffe.

Hughes, M. (2011). Do 70 per cent of all organizational change initiatives really fail? *Journal of Change Management, 11*, 451-464.

Hylin, U., Nyholm, H., Mattiasson, A., & Ponzer, S. (2007). Interprofessional training in clinical practice on a training ward for healthcare students: A two-year follow-up. *Journal of Interprofessional Care, 21*, 277-288.

Ibarra, H., & Hansen, M. T. (2011). Are you a collaborative leader? *Harvard Business Review, 89,* 69-74.

Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, DC: Interprofessional Education Collaborative. Retrieved from http://www.aacn.nche.edu/

International Association of Public Participation Federation. (2016). *Public participation spectrum and core values.* Retrieved from http://www.iap2.org.au/

Institute of Medicine. (1972). *Education for the health team.* Washington, DC: The National Academies Press.

Institute of Medicine. (1999). *To err is human: Building a safer health system.* Washington, DC: National Academy of Sciences.

Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century.* Washington, DC: National Academy Press.

Institute of Medicine. (2010). *Redesigning continuing education in the health professions.* Washington, DC: The National Academies Press.

International Association of Public Participation Federation. (2016). *Public participation spectrum and core values.* Retrieved from http://www.iap2.org.au/

Jackson, A., & Bluteau, P. (2007). At first it's like shifting sands: Setting up interprofessional learning within a secondary care setting. *Journal of Interprofessional Care, 21*, 351-353.

Jacob, E.; Barnett, T., Missen, K., Cross, M., & Walker, L. (2012). Australian clinician's views on interprofessional education for students in the rural clinical setting. *Journal of Research in Interprofessional Practice and Education, 2,* 219-229.

Jacobsen, F., & Lindqvist, S. (2009). A two-week stay in an interprofessional training unit changes students' attitudes to health professionals. *Journal of Interprofessional Care, 23,* 242-250.

Jakobsen, F. (2016). An overview of pedagogy and organization in Clinical Interprofessional Training Units in Sweden and Denmark. *Journal of Interprofessional Care,* 30, 156-164.

Jakobsen. F., & Hansen, J. (2014). Spreading the concept: An attempt to translate an interprofessional clinical placement across a Danish hospital. *Journal of Interprofessional Care, 28,* 407-412.

Jakobsen, F., Larsen, K., & Hansen, T. B. (2010). This is the closest I have come to being compared to a doctor: Views of medical students on clinical clerkship in an interprofessional training unit. *Medical Teacher, 32,* e399-e406.

Jones, S., Harvey, M., Lefoe, G., & Ryland, K. (2012). *Lessons learnt: Identifying synergies in distributed leadership projects.* Sydney, Australia: Australian Government Office for Learning and Teaching.

Jorm, C. M., White, S., & Kaneen, T. (2009). Clinical handover: Critical communications. *The Medical Journal of Australia, 190,* 108-109.

Joseph, S., Diack, L. Garton, F., & Haxton, J. (2012). Interprofessional education in practice. *Clinical Teacher, 9,* 27-31.

Jungnickel, P. W., Kelley, K. W., Hammer, D. P., Haines, S.T., & Marlowe, K. F. (2009). Addressing competencies for the future in the professional curriculum. *American Journal of Pharmaceutical Education 2009, 73,* Article 156, 1-15.

Kabcenell, A., Nolan, T. W., Martin, L. A., & Gill, Y. (2010). *The pursuing perfection initiative: Lessons on transforming health care*. Cambridge, MA: Institute of Healthcare Improvement.

Kakabadse, N. K., Kakabadse, A., & Lee-Davies, L. (2005). Visioning-the pathway: A process model. *European Management Journal, 23,* 237-246.

Kanter, R. M. (1977). *Men and women of the corporation.* New York, NY: Basic Books.

Karban, K., & Smith, S. (2006). *Developing critical reflection within an interprofessional learning programme.* Leeds, UK: Leeds Metropolitan University.

Karp, T. (2012). Developing oneself as a leader. *Journal of Management Development, 32,* 127-140.

Kemmis, S. (2009). Action research as a practice-changing practice. *Educational Action Research, 17,* 463-474.

Kent, F. (2015). *Interprofessional education in primary health care.* Doctoral dissertation. Monash University, Melbourne, Victoria.

Kent, F., & Keating, J. (2012). Patient outcomes from a student-led interprofessional clinic in primary care. *Journal of Interprofessional Care, 27,* 336-338.

Kezar, A. J., Carducci, R., & Contreras-McGavin, M. (2006). *Rethinking the "l" word in higher education: The revolution of research on leadership.* Hoboken, NJ: Wiley Periodicals.

Kezar, A. J., & Eckel, P. D. (2002). The effect of institutional culture on change strategies in higher education: Universal principles or culturally responsive concepts? *The Journal of Higher Education, 73*, 435-460.

Kezar, A., & Elrod, S. (2012). Facilitating interdisciplinary learning. *Change: The Magazine of Higher Learning,* January/February, 6-25.

Kezar, A., & Lester, J. (2009). *Organizing higher education for collaboration.* San Francisco, CA: Jossey-Bass.

Khalili, H., Hall, J., & DeLuca, S. (2014). Historical analysis of professionalism in western societies: Implications for interprofessional education and collaborative practice. *Journal of Interprofessional Care, 28,* 92-97.

Khalili, H., Orchard, C., Laschinger, H. K. S., & Farah, R. (2013). An interprofessional socialization framework for developing an interprofessional identity among health professions students. *Journal of Interprofessional Care, 27,* 448-453.

King, G., Keohane, R. O., & Verba, S. (1994). *Designing social inquiry: Scientific inference in qualitative research.* Princeton, NJ: Princeton University Press.

King, G., Shaw, L., Orchard, C. A., & Miller, S. (2010). The Interprofessional Socialization and Valuing Scale: A tool for evaluating the shift twoard collaborative care approaches in healthcare settings. *Work, 35*, 77-85.

Kitson, A., Marshall, A., Bassett, K., & Zeitz, K. (2013). What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *Journal of Advanced Nursing, 69,* 4-15.

Kitto, S., Marshall, S.D., McMillan, S.E., Shearer, B., Buist, M., Grant, R., Wilson, S. (2014). Rapid response systems and collective (in)competence: an exploratory analysis of intraprofessional and interprofessional activation factors. *Journal of Interprofessional Care, 29,* 340-346.

Knight, P. T., & Yorke, M. (2002). Employability through the curriculum. *Tertiary Education and Management, 8*, 261-276.

Kotter, J. P. (1995). Leading change: Why transformation efforts fail. *Harvard Business Review, 73*, 59-67.

Kotter, J. P. (1996) *Leading change*. Boston, MA: Harvard Business School Press.

Kotter, J. P. (2012). *Leading change.* Cambridge, MA: Harvard Business Review Press.

Kotter, J. P. (2014a). *Accelerate.* Cambridge, MA: Harvard Business Review Press.

Kotter, J. P. (2014b). Capturing the opportunities and avoiding the threats of rapid change. *Leader to Leader, 74,* 32-37.

Kouzes, J. M., & Posner, B. Z. (2012). *The leadership challenge: How to make extraordinary things happen in organizations.* San Francisco, CA: Jossey-Bass.

Krause, K., Barrie, S., Scott, G., Sachs, J., & Probert, B. (2012). *Mapping learning and teaching standards in Australian higher education: An issues and options paper*. Paper presented at the Higher Education Evaluation Roundtable 2012. Sydney, Australia: University of Western Sydney.

Kreitzer, M. J., Kligler, B., & Meeker, W. C. (2009). Health professions education and integrative healthcare. *Explore (NY), 5,* 212-227.

Kupers, W. M. (2013). Embodied inter-practices of leadership-Phenomenological perspectives on relational and responsive leading and following. *Leadership, 9,* 335-357.

Lacasse, C. (2013). Developing nursing leaders for the future: achieving competency for transformational leadership. *Oncology Nursing Forum, 40*, 431-433.

Ladkin, D. (2010). *Re-thinking leadership: A new look at old leadership questions.* Northampton, MA: Edward Elgar Publishing.

Ladhani, Z., Scherpbier, A. J. J. A., & Stevens, F. C. J. (2012). Competencies for undergraduate community-based education for the health professions: A systematic review. *Medical Teacher, 34*, 733-743.

Ladyshewsky, R. K. (2010). Building competency in the novice allied health professional through peer coaching. *Journal of Allied Health, 39*, 77-82.

Laksov, K. B., & Tomson, T. (2016). Becoming an educational leader: Exploring leadership in medical education. *International Journal of Leadership in Education*, DOI: 10.1080/13603124.2015.1114152.

Lapkin, S., Levett-Jones, T., & Gilligan, C. (2012). A cross-sectional survey examining the extent to which interprofessional education is used to teach nursing, pharmacy and medical students in Australian and New Zealand Universities. *Journal of Interprofessional Care, 26*, 390-396.

Lapkin, S., Levett-Jones, T., & Gilligan, C. (2013). A systematic review of the effectiveness of interprofessional education in health professional programs. *Nurse Education Today, 33*, 90-102.

Lawlis, T. R., Anson, J. & Greenfield, D. (2014). Barriers and enablers that influence sustainable interprofessional education: A literature review. *Journal of Interprofessional Care, 28*, 305-310.

Leadership Development National Excellence Collaborative. (2012). *Collaborative Leadership*. Retrieved from http://www.collaborativeleadership.org/

Learning and Teaching for Interprofessional Practice Australia. (2009). *Interprofessional health education in Australia: The way forward*. Sydney, Australia: University of Technology Sydney.

Leasure, E. L., Jones, R. R., Meade, L. B., Sanger, M. I., Thomas, K. G., Tilden, V. P., … Warm, E. J. (2013). There is no "I" in teamwork in the patient-centered medical home: Defining teamwork competencies for academic practice. *Academic Medicine, 88*, 585-592.

Leathard, A. (1994). Interprofessional developments in Britain. In A. Leathard (Ed.). *Going interprofessional: Working together for health and welfare* (p. 3-37). London: Routledge.

Lee, M. (2014). Transformational leadership: Is it time for a recall? *International Journal of Management and Applied Research, 1,* 17-29.

Levac, D., Colquhoun, H., & O'Brien, K.K. (2010). Scoping studies: Advancing the methodology. *Implementation Science, 5*, 69-77.

Lewis, D., Medland, J., Malone, S., Murphy, M., Reno, K., & Vaccaro, G. (2006). Appreciative leadership: Defining effective leadership. *Methods Organization Development Journal, 24,* 88-100.

Liaskos, J., Frigas, A., Antypas, K., Zikos, D., Diomidous, M., & Mantas, J. (2009). Promoting interprofessional education in health sector within the European Interprofessional Education Network. *International Journal of Medical Informatics, 7-8,* s43-s47.

Lidskog, M., Lofmark, A., & Ahlstrom, G. (2009). Learning through participating on an interprofessional training ward. *Journal of Interprofessional Care, 23,* 486-497.

Lie, D. A., Forest, C. P., Kysh, L., & Sinclair, L. (2016). Interprofessional education and practice guide no. 5: Interprofessional teaching for prequalification students in clinical settings. *Journal of Interprofessional Care, 30,* 324-330.

Lie, D. A., Fung, C., Trial, J., & Lohenry, K. (2013). A comparison of two scales for assessing health professional students' attitude toward interprofessional learning. *Medical Education Online, 18*, 1-10.

Lieff, S., Baker, L., Mor, B., Egan-Lee, E., Chin, K., & Reeves, S. (2012). Who am I? Key influences on the formation of academic identity within a faculty development program. *Medical Teacher, 34,* e208-e215.

Lindqvist, S. M., & Reeves, S. (2007). Facilitators' perceptions of delivering interprofessional education: A qualitative study. *Medical Teacher, 29,* 403-405.

Lingard, L. (2009). What we see and don't see when we look at 'competence': Notes on a god term. *Advances in Health Science Education, 14,* 625-628.

Luecht, R. M., Madsen, M. K., Taugher, M. P., & Petterson, B. J. (1990). Assessing professional perceptions: Design and validation of an interdisciplinary education perception scale. *Journal of Allied Health, 19*, 181-191.

Lyons, K. (2009). Next steps in rural health interprofesssional education and practice. In C. B. Royeen, G. M. Jensen, & R. A. Harvan. (Eds.), *Leadership in interprofessional health education and practice* (pp. 429-437). Sudbury, MA: Jones & Bartlett.

Mackenzie, A., Craik, C., Tempest, S., Cordingley, K., Buckingham, I., & Hale, S. (2007). Interprofessional learning in practice: The student experience. *British Journal of Occupational Therapy, 70*, 358-361.

MacKenzie, D., & Merritt, B. K. (2013). Making space: Integrating meaningful interprofessional experiences into an existing curriculum. *Journal of Interprofessional Care, 27*, 274-276.

Mackintosh, S. E., Adams, C. E., Singer-Chang, G., & Hruby, R. J. (2011). Osteopathic approach to implementing and promoting interprofessional education. *Journal of the American Osteopath Association, 111,* 206-212.

MacMillan, K., & Reeves, S. (2014). Editorial: Interprofessional education and collaboration: the need for a socio-historical framing. *Journal of Interprofessional Care, 28*, 89-91.

MacNeill, F., & Vanzetta, J. (2014). Appreciative leadership: Delivering sustainable difference through conversation and inquiry. Industrial and Commercial Training, 46, 16-24.

MacVaugh, J., & Schiavone, F. (2010). Limits of the diffusion of innovation: A literature review and integrative model. *European Journal of Innovation Management, 13,* 197-221.

Malloch, K., & Melnyk, B. M. (2013). Developing high-level change and innovation agents competencies and challenges for executive leadership. *Nursing Administration, 37*, 60-66.

Mann, K. V., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Sciences Education, 14*, 595-621.

Manojlovich, M. (2010). Nurse/Physician communication through a sensemaking lens: Shifting the paradigm to improve patient safety, *Medical Care, 48*, 941-946.

Marles, K., Lawrence, J., Brewer, M., Saunders, R., & Lake, F. (2012). Interprofessional education in the residential aged care setting. *International Journal of Aging in Society, 1,* 33-43.

Marshall, S. J. (2006). *Issues in the development of leadership for learning and teaching in higher education.* Carrick Institute for Learning and Teaching in Higher Education Occasional Paper, Sydney, Australia.

Martin, W., & Voynov, S. (2014). Electronic health records and change management. *International Journal of Computer and Information Technology, 3,* 626-630.

McCallin, A. (2003). Interdisciplinary team leadership: A revisionist approach for an old problem? *Journal of Nursing Management, 11,* 364-370.

McComb, J. (2013). Is current NHS leadership sufficient or defficient? *British Journal of Healthcare Management, 19*, 342-347.

McCray, J. (2003). Leading interprofessional practice: a conceptual framework to support practitioners in the field of learning disability. *Journal of Nursing Management, 11,* 387-395.

McKee, A., Boyatzis, R. E., & Johnston, F. (2008). *Becoming a resonant leader: Develop your emotional intelligence, renew your relationships, sustain your effectiveness*. Boston, MA: Harvard Business School.

McNair, R. (2005). The case for educating healthcare students in professionalism as the core content of interprofessional education. *Medical Education, 39,* 456-464.

McNeil, K. A., Mitchell, R. J., & Parker, V. (2013). Interprofessional practice and professional identity threat. *Health Sociology Review, 22,* 291-307.

McPherson, K., Headrick, L., & Moss, F. (2001). Working and learning together: good quality care depends on it, but how can we achieve it? *Quality in Healthcare, 10,* ii46-ii53.

Meads, G., Jones, I., Harrison, R., Forman, D., & Turner, W. (2009). How to sustain interprofessional learning and practice: Messages for higher education and health and social care management. *Journal of Education and Work, 22,* 67-79.

Meghani, S. H., Buck, H. G., Dickson, V. V., Hammer, M. J., Rabelo-Silva, E. R., Clark, R., & Naylor, M. D. (2013). The conceptualization and measurement of comorbidity: A review of the interprofessional discourse. *Nursing Research and Practice, Article ID 192782,* 1-10.

Mennin, S. P. (2013). Health professions education: Complexity, teaching and learning. In J. P. Sturmberg & C. M. Martin (Eds.), *Handbook of systems and complexity in health* (pp. 755-766). New York, NY: Springer.

Mickan, S., Hoffman, S. J., & Nasmith, L. (2010). Collaborative practice in a global health context: Common themes from developed and developing countries. *Journal of Interprofessional Care, 24,* 492-502.

Mickan, S., & Rodger, S. (2000). The organisational context for teamwork: Comparing health care and business literature. *Australian Health Review, 23,* 179-192.

Miller, G. E. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine, 65,* s63-s67.

Montgomery, K. L. (2011). Leadership redefined: Educating the doctorate of nursing practice nurse leader through innovation, *Nursing Administration Quarterly, 35,* 248-251.

Moon, J. A. (2013). *Reflection in learning and professional development: Theory and practice.* Hoboken, NJ: Taylor and Francis.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research, 1,* 48-76.

Morrison, G., Goldfarb, S., & Lanken, P.N. (2010). Team training of medical students in the 21st century: Would Flexner approve? *Academic Medicine, 85,* 254-259

Morison, S., Johnston, J., & Stevenson, M. (2010). Preparing students for interprofessional practice: Exploring the intra-personal dimension. *Journal of Interprofessional Care, 24,* 412-421.

Murphy, J. I., & Nimmagadda, J. (2015). Partnering to provide simulated learning to address Interprofessional Education Collaborative core competencies. *Journal of Interprofessional Care, 29,* 258-259.

Nandan, M., & Scott, P. A. (2014). Interprofessional practice and education: Holistic approaches to compel health acre challenges. *Journal of Allied Health, 43,* 150-156.

National Health and Hospitals Reform Commission. (2009). *A healthier future for all Australians: Final report of the national health and hospitals reform commission.* Canberra, Australia: National Health and Hospitals Reform Commission.

National Health and Medical Research. (2007). *National statement on ethical conduct of human research.* Retrieved from https://www.nhmrc.gov.au/

National Health Workforce Taskforce. (2010). *Final report: Acute aged care interface workforce competencies project, education and training.* Melbourne, Australia: National Health Workforce Taskforce.

Nahavandi, A. (2003). *The art and science of leadership.* Upper Saddle River, NJ: Prentice-Hall.

Nelson, S., Tassone, M., & Hodges, B. (2014). *Creating the health care team of the future: The Toronto model for interprofessional education and practice.* New York: Cornell University Press.

Newhall, S. (2012). Preparing our leaders for the future. *Strategic HR Review, 11*, 5-12.

Newton, C., Bainbridge, L., Ball, V., Baum, K.D., Bontje, P., Boyce, R.A., … Wood, V. (2015). The Health Care Team Challenge™: Developing an international interprofessional education research collaboration. *Nurse Education Today, 34,* 655-660.

Newton, C., Wood, V., & Nasmith, L. (2012). Building capacity for interprofessional practice. *The Clinical Teacher, 2,* 94-98.

Nielsen, K., Yarker, J., Randall, R., & Munir, F. (2009). The mediating effects of team and self-efficacy on the relationship between transformational leadership, and job satisfaction and psychological well-being in healthcare professionals: A cross-sectional questionnaire survey. *International Journal of Nursing Studies, 46,* 1236-1244.

Nisbet, G., Lee, A., Kumar, K., Thistlethwaite, J., & Dunston, R. (2011). *Interprofessional health education: A literature review.* Centre for Research in Learning and Change, University of Technology, Sydney.

Nolte, E., & McKee, M. (2008). *Caring for people with chronic conditions: A health system perspective.* Berkshire, UK: Open University Press.

Norman, G. (2005). Checklists vs. ratings, the illusion of objectivity, the demise of skills and the debasement of evidence. *Advances in Health Sciences Education, 10,* 1-3.

Norman, G. (2010). Likert scales, levels of measurement and the ‘‘laws’’ of statistics. *Advances in Health Science Education, 15,* 625-632.

Northouse, P. G. (2016). *Leadership: Theory and practice* (7th ed.). Thousand Oaks, CA: Sage.

Nugus, P., Greenfield, D., Travaglia, J., Westbrook, J., & Braithwaite, J. (2010). How and where clinicians exercise power: Interprofessional relations in health care. *Social Science & Medicine, 71,* 898-909.

Oandasan, I., & Reeves, S. (2005). Key elements for interprofessional education part 1: The learner, the educator and the learning context. *Journal of Interprofessional Care, 19,* 21-38.

Oandasan, I., & Reeves, S. (2005). Key elements of interprofessional education part 2: Factors, processes and outcomes. *Journal of Interprofesssional Care, Supplement 1,* 39-48.

Oates, M., & Davidson, M. (2015). A critical appraisal of instruments to measure outcomes of interprofessional education. *Medical Education, 49,* 386–398.

O'Brien, D., Swann, J., & Heap, N. (2015). Can the communities of practice model explain the complex organization of an interprofessional student-led health clinic? *Journal of Allied Health, 44,* e11-e16.

Ogawa, S., Takahashi, Y., & Miyazaki, T. (2015). The current status and problems with the implementation of interprofessional education in Japan: An exploratory study. *Journal of Research in Interprofessional Practice and Education, 5,* 1-15.

O'Keefe, M. (2015). *Collaborating across boundaries: a framework for an integrated interprofessional curriculum.* Sydney, Australia: Office for Learning and Teaching.

O'Keefe, M., Burgess, T., McAllister, S., & Stupans, I. (2012). Twelve tips for supporting student learning in multidisciplinary clinical placements. *Medical Teacher, 34,* 883-887.

Oliver, B. (2010). *Australian Learning and Teaching Council teaching fellowship: Benchmarking partnerships for graduate employability.* Retrieved from http://www.olt.gov.au/

Oliver, B. (2011). *Assuring graduate outcomes.* Australian Learning and Teaching Council good practice reports. Strawberry Hills, Australia: Australian Learning and Teaching Council.

Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools, 13,* 48-63.

Onwuegbuzie, A. J., & Leech, N. L. (2005). On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International Journal of Social Research Methodology, 8,* 375-387.

Orrell, J. (2011). *Good practice report: Work-integrated learning.* Strawberry Hills, Australia: Australian Learning and Teaching Council.

O'Sullivan, P.S., & Irby, D.M. (2014). Promoting scholarship in faculty development: Relevant research paradigms and methodologies. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 375-398). Montreal, CA: Springer.

Oxford Dictionaries [online] Retrieved from www.oxforddictionaries.com/

Packer, M. (2011). *The science of qualitative research.* New York, NY: Cambridge University Press.

Paradis, E., & Whitehead, C. R. (2015). Louder than words: power and conflict in interprofessional education articles, 1954-2013. *Medical Education, 4,* 399-407.

Parker, L. (2008). *Leadership for excellence in learning and teaching in Australian higher education: Review of the Australian Learning and Teaching Council*

(ALTC) Program 2006-2008. Strawberry Hills, NSW: Australian Learning and Teaching Council.

Parker, K., Jacobson, A., McGuire, M., Zorzi, R., & Oandasan, I. (2012). How to build high-quality interprofessional collaboration and education in your hospital: The IP-COMPASS tool. *Quality Management in Healthcare, 21,* 160-168.

Parry, K., Mumford, M. D., Bower, I., & Watts, L. L. (2014). Qualitative and historicometric methods in leadership research: A review of the first 25 years of The Leadership Quarterly, *The Leadership Quarterly, 25,* 132-151.

Parsell, G., & Bligh, J. (1999). The development of a questionnaire to assess the readiness of healthcare students for interprofessional learning (RIPLS). *Medical Education, 33,* 95-100.

Patterson, E., & McMurray, A. (2003). Collaborative practice between registered nurses and medical practitioners in Australian general practice: Moving from rhetoric to reality. *Australian Journal of Advanced Nursing, 20,* 43-48.

Pearce, C. L., & Conger, J. A. (2002). *Shared leadership: Reframing the hows and whys of leadership*. Thousand Oaks, CA: Sage Publications.

Pecukonis, E., Doyle, O., & Bliss, D. L. (2008). Reducing barriers to interprofessional training: Promoting interprofessional cultural competence. *Journal of Interprofessional Care, 22,* 417-428.

Pecukonis, E., Doyle, O., Acquavita, S., Aparicio, E., Gibbons, M., & Vanidestine, T. (2013). Interprofessional leadership training in MCH social work. *Social Work in Healthcare, 52,* 625-641.

Pelling, S., Kalen, A., Hammar, M., & Wahlström, O. (2011). Preparation for becoming members of healthcare teams: findings from a 5-year evaluation of a student interprofessional training ward. *Journal of Interprofessional Care, 25,* 328-332.

Pirrie, A., Hamilton, S., & Wilson, V. (1999). Multidisciplinary education: Some issues. *Educational Research, 41,* 301-314.

Piterman, L., Newton, J. M., & Canny, B. J. (2010). Interprofessional education for interprofessional practice: Does it make a difference? *The Medical Journal of Australia, 193,* 92-93.

Pittenger, A. L., Westberg, S., Rowan, M., & Schweiss, S. (2013). An interprofessional diabetes experience to improve pharmacy and nursing students' competency in collaborative practice. *American Journal of Pharmaceutical Education, 77,* Article 197.

Poirier, T. I., & Newman, K. (2016). Advancing interprofessional education via strategic planning. *American Journal of Pharmaceutical Education 2016, 80,* Article 56.

Pollard, K. (2009). Student engagement in interprofessional working in practice placement settings. *Journal of Clinical Nursing, 18,* 2846-2856.

Ponzer, S., Hylin, U., Kusoffsky, A., Lauffs, M., Lonka, K., Mattiasson, A., & Nordstrom, G. (2004). Interprofessional training in the context of clinical practice: goals and students' perceptions on clinical education wards. *Medical Education, 38,* 727-736.

Pool, L. D., & Sewell, P. J. (2007). The key to employability: Developing a practical model of graduate employability. *Education + Training, 49,* 277-289.

Porteous, J. M., Stewart-Wynne, E. G., Connolly, M., & Crommelin, P. F. (2009). iSoBAR-a concept and handover checklist: The national clinical handover initiative. *The Medical Journal of Australia, 190,* s152-s156.

Porter-O'Grady T., & Malloch, K. (2003). *Quantum leadership: A resource for health care innovation.* Sudbury, MA: Jones and Bartlett.

Precision Consulting. (2007). *Graduate employability skills.* Melbourne, Victoria: Business, Industry and Higher Education Collaboration Council.

Pressler, J. L., & Kenner, C. A. (2012). Interprofessional and interdisciplinary collaboration in nursing. *Nurse Educator, 37,* 230-232.

Price, S., Doucet, S., & McGillis Hall, L. (2014). The historical social positioning of nursing and medicine: Implications for career choice, early socialization and interprofessional collaboration. *Journal of Interprofessional Care, 28,* 103-109.

Pye, A. (2005). Leadership and organizing: Sensemaking in action. *Leadership, 1,* 31-50.

Raelin, J. (2006). Does action learning promote collaborative leadership? *Academy of Management Learning & Education, 5*, 152-168.

Ratka, A. (2013). Transition of pharmacy educators to faculty champions of interprofessional education. *American Journal of Pharmaceutical Education, 77,* Article 136.

Ray, T., Clegg, S., & Gordon, R. (2004). A new look at dispersed leadership: Power, knowledge and context. In J. Storey (Ed.), *Leadership in organizations.* (pp. 319-336). London, UK: Routledge.

Reeves, S. (2012). The rise and rise of interprofessional competence. *Journal of Interprofessional Care,* 26, 253-255.

Reeves, S. (2016). Why we need interprofessional education to improve the delivery of safe and effective care. *Interface, 20,* 185-196.

Reeves, S., Boet, S., Zierler, B., & Kitto, S. (2015). Interprofessional education and practice guide no. 3: Evaluating interprofessional education. *Journal of Interprofessional Care, 29,* 305-312.

Reeves, S., Fox, A., & Hodges, B. D. (2009). The competency movement in the health professions: Ensuring consistent standards or reproducing conventional domains of practice? *Advances in Health Sciences Education, 17,* 451-453.

Reeves, S., Freeth, D., McCrorie, P., & Perry, D. (2002). It teaches you what to expect in future: Interprofessional learning on a training ward for medical, nursing, occupational therapy and physiotherapy students. *Medical Education, 36,* 337-344.

Reeves, S., Goldman, J., Burton, A., & Sawatzky-Girling, B. (2010). Synthesis of systematic review evidence of interprofessional education. *Journal of Allied Health, 39,* 198-203.

Reeves, S., Goldman, J., Gilbert, J., Tepper, J., Silver, I., Suter, E., & Zwarenstein, M. (2011). A scoping review to improve conceptual clarity of interprofessional interventions. *Journal of Interprofessional Care, 25,* 167-174.

Reeves, S., Lewin, S., Espin, S., & Zwarenstein, M. (2010). *Interprofessional teamwork for health and social care.* Oxford, UK: Wiley Blackwell.

Reeves, S., MacMillan, K., & van Soeren, M. (2010). Leadership of interprofessional health and social care teams: A socio-historical analysis. *Journal of Nursing Management, 18,* 258-264.

Reeves, S., Perrier, L., Goldman, J., Freeth, D., & Zwarenstein, M. (2013). *Interprofessional education: Effects on professional practice and healthcare outcomes (update).* Cochrane Database Systematic Review, DOI: 10.1002/14651858.CD002213.pub3.

Reeves, S., Tassone, M., Parker, K., Wagner, S. J., & Simmons, B. (2012). Interprofessional education: An overview of key developments in the past three decades. *Work, 41*, 233-245.

Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Hammick, M., & Koppel, I. (2008). *Interprofessional education: Effects on professional practice and healthcare outcomes*. Cochrane Database of Systematic Reviews, Issue 1. Art. No.: CD002213.

Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Koppel, I., & Hammick, M. (2010). The effectiveness of interprofessional education: Key findings from a new systematic review. *Journal of Interprofessional Care, 24*, 230-241.

Remington, T. L., Foulk, M. A., & Williams, B. C. (2006). Evaluation of evidence for interprofessional education. *American Journal of Pharmaceutical Education, 70*, 1-7.

Roberts, C., & Kumar, K (2015). Student learning in interprofessional practice-based environments: What does theory say? *BMC Medical Education, 15*, 211-213.

Rodger, S., & Hoffman, S. J. (2010). Where in the world is interprofessional education? A global environmental scan. *Journal of Interprofessional Care, 24*, 479-491.

Rodger, S., Webb, G., Devitt, L., Gilbert, J., Wrightson, P., & Meeken, J. (2008). Clinical education and practice placements in the allied health professions: An international perspective. *Journal of Allied Health, 37*, 53-62.

Rogers, E. (2003). *Diffusion of Innovations.* New York, NY: The Free Press.

Rogers, G. D., Thistlethwaite, J. E., Anderson, E. S., Dahlgren, M. A., Grymonpre, R. E., Moran, M., & Samarasekera, D. D. (2016). International consensus statement on the assessment of interprofessional learning outcomes. *Medical Teacher, DOI: 10.1080/0142159X.2017.1270441.*

Romanow, R. J. (2002). *Building on values: The future of healthcare in Canada*. Ottawa, Canada: Royal Commission on the Future of Healthcare in Canada. Retrieved from http://www.hc-sc.gc.ca/

Rose, L. (2014, May) *Infectious disease –Malaria.* [Slide share]. Retrieved from https://prezi.com/6fqreotdwegk/infectious-disease-malaria/

Rotz, M. E., Duenas, G. G., Grover, A. B., Headly, A., & Parvanta, C. F. (2015). Exploring first-year pharmacy and medical students' experiences during a longitudinal interprofessional education program. *Currents in Pharmacy Teaching and Learning, 7,* 302-311.

Royeen, C. B., Jensen, G. M., & Harvan, R. A. (2009). *Leadership in interprofessional health education and practice.* Sudbury, MA: Jones & Bartlett.

Rubin, H. J., & Rubin, I. S. (1995). *Qualitative interviewing: The art of hearing data.* Thousand Oaks, CA: Sage.

Rumrill, P. D., Fitzgerald, S. M., & Merchant, W. R. (2010). Using scoping literature reviews as a means of understanding and interpreting existing literature. *Work, 35,* 399-404.

Runciman, W. B., Hunt, T. D., Hannaford, N. A., Hibbert, P. D., Westbrook, J. I., Coiera, E. W., … Braithwaite, J. (2012). CareTrack: Assessing the appropriateness of healthcare delivery in Australia. *Medical Journal of Australia, 197,* 100-105.

Ryan, G. W., & Bernard, R. H. (2003). Techniques to identify themes. *Field Methods, 15,* 85-109.

Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional Science,* 18, 119-144.

Salm, T., Greenberg, H., Pitzel, M., & Cripps, D. (2010). Interprofessional education internships in schools: Jump starting change. *Journal of Interprofessional Care, 24,* 251–263.

Sandars, J., & Murdoch-Eaton, D. (2016). Appreciative inquiry in medical education. *Medical Teacher,* DOI: 10.1080/0142159X.2017.1245852

Sargeant, J. (2009). Theories to aid understanding and implementation of interprofessional education. *Journal of Continuing Education in the Health Professions, 29*, 178-184.

Savage, G. T., Duncan, W. J., Knowles, K. L., Nelson, K., Rogers, D. A., & Kennedy, K. N. (2014). Interprofessional academic health center leadership development: The case of the University of Alabama at Birmingham's Healthcare Leadership Academy. *Applied Nursing Research, 27*, 104-108.

Scharmer, C. O. (2008). *Theory U: Leading from the future as it emerges.* San Francisco, CA: Berrett-Koehler.

Schmitt, M. H., Gilbert, J. H. V., Brandt, B. F., & Weinstein, R. S. (2013). The coming of age for interprofessional education and practice. *Journal of Medicine, 126*, 284-288.

Schlombs, C., Howard, A., DeLong, C., & Lieberman, J. (2015). Changing an institutional environment through appreciative inquiry: Rochester Institute of Technology's College of Liberal Arts, *The Seneca Falls Dialogues Journal, 1*, Article 8.

Senge, P.M. (2006). *The fifth discipline: The art and practice of the learning organization.* (2nd ed.). London, UK: Random House.

Sheppard, K. D., Ford, C. R., Sawyer, P., Foley, K. T., Harada, C. N., Brown, C. J., & Ritchie, C. S. (2015). The interprofessional clinical experience: interprofessional education in the nursing home *Journal of Interprofessional Care, 29*, 170-172.

Shih, A., Davis, K., Schoenbaum, S. C., Gauthier, A., Nuzum, R., & McCarthy, D. (2008). *Organizing the U.S. healthcare delivery system for high performance*. The Commonwealth Fund. Retrieved from www.commonwealthfund.org

Shrader, S., Hodgkins, R., Laverentz, D., Zaudke, J., Waxman, M., Johnston, K., & Jernigan, S. (2016). Interprofessional education and practice guide no. 7: Development, implementation, and evaluation of a large-scale required interprofessional education foundational programme. *Journal of Interprofessional Care, 30*, 615-619.

Shrader, S., Mauldin, M., Hammad, S., Mitcham. M., & Blue, A. (2015). Developing a comprehensive faculty development program to promote interprofessional

education, practice and research at a free-standing academic health science center. *Journal of Interprofessional Care, 29,* 165-167.

Siggins Miller Consultants. (2012). *Promoting quality in clinical placements: Literature review and national stakeholder consultation.* Adelaide, Australia: Health Workforce Australia. Retrieved from http://www.hwa.gov.au/

Simmons, B., Oandasan. I., Soklaradis, S., Esdaile, M., Barker, K., Kwan, D., … Wagner, S. (2011). Evaluating the effectiveness of an interprofessional education faculty development course: The transfer of interprofessional learning to the academic and clinical practice setting. *Journal of Interprofessional Care, 25,* 56-157.

Silver, I. (2014). Starting a faculty development program. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 331-349). Montreal, CA: Springer.

Small, A., Souza, D., Dalton, J., Magny-Normilus, C. & David, D. (2016). Using Kotter's change model for implementing bedside handoff: A quality improvement project. *Journal of Nursing Care Quality, 31,* 304–309.

Spencer, J. (2014). Faculty development research: The 'state of the art' ad future trends. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 353-374). Montreal, CA: Springer.

Starbuck W. H., & Milliken, F. J. (1998). Executive perceptual filters: What they notice and how they make sense. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers.* (pp. 35-65). Greenwich, Connecticut: JAI Press.

Steinert, Y. (2005). Learning together to teach together: Interprofessional education and faculty development. *Journal of Interprofessional Care, 19,* 60-75.

Steinert, Y., Mann, K., Centeno, A., Dolmans, D., Spencer, J., Gelula, M., & Prideaux, D. (2006). A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME guide no. 8. *Medical Teacher, 28,* 497-526.

Steinert, Y., Naismith, L., & Mann, K. (2012). Faculty development initiatives designed to promote leadership in medical education. A BEME systematic review: BEME guide no. 19. *Medical Teacher, 34,* 483-503.

Stephenson, J. (1994). Capability and competence: Are they the same and does it matter? *Capability, 1,* 3-4.

Stephenson, K. (2009). Neither hierarchy nor network: An argument for heterarchy**.** *People and Strategy, 32,* 4-7.

Stevens, A., Moser, A., & Beurskens, S. (2015). The development and implementation of an interprofessional study programme: A multifaceted approach. In A. Vyt, M. Pahor, & T. Tervaskanto-Maentaust. (Eds.), *Interprofessional education in Europe: Policy and practice.* (pp. 77-90). Antwerp, Belgium: Garant.

Stew, G. (2005). Learning together in practice: A survey of interprofessional education in clinical settings in South-East England. *Journal of Interprofessional Care, 19,* 223-235.

Stoller, J. K. (2013). Commentary: Recommendations and remaining questions for healthcare leadership training programs. *Academic Medicine, 88,* 12-15.

Strasser, D. C., Falconer, J. A., Herrin, J. S., Bowen, S. E., Stevens, A. B., & Uomoto, J. (2005). Team functioning and patient outcomes in stroke rehabilitation. *Archives of Physical Medicine and Rehabilitation, 86,* 403-409.

Street, K. N., Eaton, N., Clarke, B., Ellis, M., Young, P. M., Hunt, L., & Emond, A. (2007). Child disability case studies: An interprofessional learning opportunity for medical students and paediatric nursing students. *Medical Education, 41,* 771-780.

Strong, J., Chipchase, L., Allen, S., Eley, D. S., McAllister, L., & Davidson, B. (2014). Interprofessional learning during an international fieldwork placement. *International Journal of Practice-based Learning in Health and Social Care, 2,* 27-39.

Styron, J., Dearman, C., Whitworth, S., & Brown, H. (2014). Interprofessional collaborative practice to improve patient outcomes: A Pilot Study. *Systemics, Cybernetics and Informatics, 12,* 75-81.

Subramaniam, A., Silong, A.D., Uli, J., & Ismail, I. A. (2015). Effects of coaching supervision, mentoring supervision and abusive supervision on talent development among trainee doctors in public hospitals: Moderating role of clinical learning environment. *BMC Medical Education, 15,* 129-137.

Sunguya, B. F., Hinthong, W., Jimba, M., & Yasuoka, J. (2014). Interprofessional education for whom?-Challenges and lessons learned from its implementation in developed countries and their application to developing countries: A systematic review. *PLoS ONE,* e96724.

Surjan, Y., Chiarelli, P., Dempsey, S., Lyall, D., & Tool, G. (2010). The experience of implementing an interprofessional first year course for undergraduate health science students: The value of acting on student feedback. *Journal of University Teaching and Learning Practice, 7,* Article 5.

Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Interprofessional Care, 23,* 52-57.

Suter, E., & Deutschlander, S. (2010). *Can interprofessional collaboration provide health human resources solutions?* Retrieved from www.wcihc.ca

Suter, E., Goldman, J., Martimianakis, T., Chatalalsingh, C., DeMatteo, D. J., & Reeves, S. (2013). The use of systems and organizational theories in the interprofessional field: Findings from a scoping review. *Journal of Interprofessional Care, 27,* 57-64.

Swanwick, T., & McKimm, J. (2014). Faculty development for leadership and management. In Y. Steinert (Ed.), *Faculty development in the health professions: A focus on research and practice* (pp. 53-78). Montreal, CA: Springer.

Tassone, M. (2015, May*). International perspectives on interprofessional learning and care: The Toronto story: Advancing a cultural shift towards high quality, patient-partnered healthcare.* Paper presented at the Danish Society for Interprofessional Learning and Collaboration.

Teixeira, B., Gregory, P. A. M., & Zubin, A. (2017). How are pharmacists in Ontario adapting to practice change? Results of a qualitative analysis using Kotter's change management model. Canadian Pharmacists Journal, 150, 198-205.

Thannhauser, J., Russell-Mayhew, S., & Scott, C. (2010). Measures of interprofessional education and collaboration. *Journal of Interprofessional Care, 24*, 336-49.

The Interprofessional Curriculum Renewal Consortium, Australia. (2013). *Curriculum Renewal for Interprofessional Education in Health.* Canberra, Australia: Department of Education.

The King's Fund. (2011). *The future of leadership and management in the NHS: No more heroes.* Report from The King's Fund Commission on Leadership and Management in the NHS. Retrieved from www.kingsfund.org.uk/

Thistlethwaite, J. (2012). Interprofessional education: A review of context, learning and the research agenda. *Medical Education, 46,* 58-70.

Thistlethwaite, J. (2014). Closing reflections. In D. Forman, M. Jones, & J.Thistlethwaite. (Eds.), *Leadership development for interprofessional education and collaborative practice* (p. 245-251). Bakingstoke, UK: Palgrave Macmillan.

Thistlethwaite, J. (2015). Interprofessional education: Implications and development for medical education. *Educación Médica, 16,* 68-73.

Thistlethwaite, J. E., Forman, F., Matthews, L. R., Rogers, G. D., Steketee, C., & Yassine, T. (2014). Competencies and frameworks in interprofessional education: A comparative analysis. *Academic Medicine, 89,* 869-875.

Thistlethwaite, J., & Moran, M. (2010). Learning outcomes for interprofessional education (IPE): Literature review and synthesis. *Journal of Interprofessional Care, 24,* 503-513.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation, 27,* 237-246.

Thomas, L., Reedy, G., & Gill, E. (2014). Learning to work together: How interprofessional simulation enables undergraduate medics in their understanding of interprofessional practice. *BMJ Simulation and Technology Enhanced Learning, 1,* a80-a81.

Thomas Reuters. (2009). *National rankings by output in sciences and social sciences, 1999-2008*. Retrieved from http://archive.sciencewatch.com/

Thompson, S. A., & Tilden, V. P. (2009). Embracing quality and safety education for the 21st century: Building interprofessional education. *Journal of Nursing Education, 48,* 698-701.

Thorkildsen, K., & Raholm, M. (2010). The essence of professional competence experienced by Norwegian nurse students: A phenomenological study. *Nurse Education Practice, 10,* 183-188.

Todnem By, R. (2005). Organisational change management: A critical review. *Journal of Change Management, 5,* 369–380.

Trede, F., & McEwen, C. (2012). Developing a critical professional identity: Engaging in self in practice. In J. Higgs, R. Barnett, S. Billett, M Hutchings, & F. Trede. (Eds.), *Practice-based Education: Perspectives and Strategies* (pp. 27-40). Rotterdam, The Netherlands: Sense Publishers.

Uhl-Bien, M. (2006). Relational leadership theory: Exploring the social processes of leadership and organizing. *The Leadership Quarterly, 17,* 654-676.

Ulhoi, J. P., & Muller, S. (2014). Mapping the landscape of shared leadership: A review and synthesis. *International Journal of Leadership Studies, 8,* 66-86.

van Mook, W. N. K. A., van Luijk, S. J., O'Sullivan, H., Wass, V., Schuwirth, L. W., & van der Vleuten, C. P. M. (2009). General considerations regarding assessment of professional behaviour. *European Journal of Internal Medicine, 20,* e90-e95.

van Winkle, L. J., Bjork, B. C., Chandar, N., Cornell, S., Fjortoft, N., Green, J. M. & Burdicka, P. (2012). Interprofessional workshop to improve mutual understanding between pharmacy and medical students. *American Journal of Pharmaceutical Education, 76,* Article 150.

Verma, S., Paterson, M., & Medves, J. (2006). Core competencies for healthcare professionals: What medicine, nursing, occupational therapy, and physiotherapy share. *Journal of Allied Health, 35,* 109-115

Verma, S., Broers, T., Paterson, Schroder, C., Medves, J. M., & Morrison, C. (2009). Core competencies: The next generation comparison of a common framework for multiple professions. *Journal of Allied Health, 38,* 47-53.

Vilkinas, T., & Ladyshewsky, R. K. (2012). Leadership behaviour and effectiveness of academic program directors in Australian universities. *Educational Management Administration & Leadership, 40*, 109-126.

Vilkinas, T., Leaks, B., & Rogers, T. (2007, July). *Enhancing higher education, theory and scholarship.* Proceedings of the 30th HERDSA Annual Conference, Adelaide, Australia.

Wackerhausen, S. (2009). Collaboration, professional identity and reflection across boundaries. *Journal of Interprofessional Care, 23*, 455-473.

Wagner, S., & Reeves, S. (2015). Milestones and entrustable professional activities: The key to practically translating competencies for interprofessional education? *Journal of Interprofessional Care, 29*, 507-508.

Wald, H. S., Borkan, J. M., Taylor, J. S., Anthony, D., & Reis, S. P. (2012). Fostering and evaluating reflective capacity in medical education: Developing the REFLECT rubric for assessing reflective writing. *Academic Medicine, 87*, 41-50.

Walhstrom, O., & Sanden, N. I. (1998). Multiprofessional training ward at Linkoping University: Early experience. *Education for Health, 11*, 225-231.

Waller, S. (2010). *Contact is not enough: The impact of a directed interprofessional clinical education placement (DICEP) compared to a standard clinical education placement (SCEP) on therapy students' understanding of professional roles, teamwork, and interprofessional practice.* (Doctoral dissertation). Retrieved from http://espace.library.uq.edu.au/view/UQ:219357

Walsh, C. L., Gordon, M.F., Marshall, M., Wilson, F., & Hunt, T. (2005). Interprofessional capability: A developing framework for interprofessional education. *Nurse Education in Practice, 5*, 230-237.

Wee, B., & Goldsmith, J. (2008). Preparing facilitators for interprofessional learning. In E. Howkins & J. Bray, J. (Eds.*), Preparing for interprofessional teaching: Theory and practice* (p. 55-67). Oxford, UK: Radcliffe Publishing.

Weick, K. E. (1995). *Sensemaking in organizations.* Thousand Oaks, CA: Sage.

Weiss, D., Tilin, F., & Morgan, M. (2014). *The interprofessional healthcare team: Leadership and development.* Burlington, MA: Jones & Bartlett Learning.

Weiss, E. S., Anderson, R. M., & Lasker, R. D. (2002). Making the most of collaboration: Exploring the relationship between partnership synergy and partnership functioning. *Health Education and Behavior, 29,* 683-698.

West, M., Eckert, R., Steward, K., & Pasmore, B. (2014). *Developing collective leadership in healthcare.* Report published by The King's Fund, London, UK. Retrieved from http://www.kingsfund.org.uk/

Wheatley, M. J. (2009). *Turning to one another: Simple conversations to restore hope to the future*. San Francisco, CA: Berrett-Koehler.

Whitney, D., Trosten-Bloom, A., & Rader, K. (2010). *Appreciative leadership: Focus on what works to drive winning performance and build a thriving organization.* New York, NY: McGraw Hill.

Wilhelmsson, M., Pelling, S., Ludvigsson, J., Hammar, M., Dahlgren, L. O., & Faresjo, T. (2009). Twenty years experiences of interprofessional education in Linkoping: Ground-breaking and sustainable. *Journal of Interprofessional Care, 23*, 121-133.

Willgerodt, M. A., Blakeney, E. A., Brock, D. M., Liner, D., Murphy, N., & Zierler, B. (2015). Interprofessional education and practice guide no. 4: Developing and sustaining interprofessional education at an academic health center. *Journal of Interprofessional Care, 29,* 421-425.

Willumsen, E. (2006). Leadership in interprofessional collaboration: The case of childcare in Norway. *Journal of Interprofessional Care, 20,* 403-413.

Winston, B. E., & Patterson, K. (2006). An integrative definition of leadership. *International Journal of Leadership Studies, 1,* 6-66.

Wood, V., Flavell, A., Vanstolk, D., Bainbridge, L., & Nasmith, L. (2009). The road to collaboration: Developing an interprofessional competency framework. *Journal of Interprofessional Care, 23,* 621-629.

World Health Organization. (2006). *Working together for health.* Geneva: World Health Organization.

World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice.* Geneva: World Health Organization.

Wren, J. T. (1995). *The leader's companion: Insights on leadership through the ages.* New York, NY: The Free Press.

Yammarino, F.J., Sala, E., Serban, A., Shirreffs, K., & Shuffler, M.L. (2012). Collectivistic leadership approaches: Putting the ''we'' in leadership science and practice. *Industrial and Organizational Psychology, 5,* 382-402.

Yasinksi, L. (2014). Authentic leadership: Develop the leader within. *Operating Room Nurses Association of Canada Journal, 32,* 35-38. [Note error in date in published paper]

Yielder, J., & Codling, A. (2004). Management and leadership in the contemporary university. *Journal of Higher Education Policy and Management, 26,* 315-328.

Yin, R. K. (2014). *Care study research: Design and methods.* Thousand Oaks, CA: Sage Publications.

Yorke, M. (2006). *Employability in higher education: What it is-what it is not.* Learning and Employability Series. London, UK: Higher Education Academy.

Yukl, G. (2006). *Leadership in organizations.* (6th ed.). Upper Saddle River, NJ: Pearson-Prentice Hall.

Zarezadeah, Y., Pearson, P., & Dickinson, C. (2009). A model for using reflection to enhance interprofessional education. *International Journal of Education, 1,* 1-18.

Zwarenstein, M., & Bryant, W. (2008). *Interventions to promote collaboration between nurses and doctors (review).* Retrieved from The Cochrane Library Issue 2 Art. No. CD000072.

Appendix A. Link between additional publications and the thesis

Elements of the research that informed, or are linked to, the eight paper in the thesis have also been published in the peer reviewed literature. These have been organised into sub-themes.

Interprofessional education assessment

The following paper describes the first iteration of the Interprofessional Capability Assessment Tool utilised to measure students' interprofessional practice capabilities in the student training ward (Paper 3).

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., & White, S. (2009). Assessment of interprofessional competencies for health professional students in fieldwork education placements. In J. Milton, C. Hall, J. Lang, G. Allan, & M. Nomikoudis. (Eds.), *ATN Assessment conference 2009: Assessment in different dimensions Conference proceedings.* Melbourne: RMIT University.

Team-based interprofessional practice placements

Two papers describe the student placements at Brightwater Care Group which stemmed from one of the original pilot placements I ran in 2009. These informed the placements discussed in papers 3, 4, 7 and 8.

Marles, K., Lawrence, J., **Brewer, M.**, Saunders, R., & Lake, F. (2012). Interprofessional education in the residential aged care setting. *International Journal of Aging in Society, 1*.

Brewer, M., Franklin, D., & Lawrence, J. (2011). Brightwater care group interprofessional placement. *International Journal of Professional Management, 5*(2).

One book chapter describes the initial model for practice-based interprofessional education which includes team-based placements.

Barr, H., & **Brewer, M.** (2012). Interprofessional practice-based education. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede. (Eds.), *Practice-based education: Perspectives, and strategies* (pp. 199-212). Rotterdam, The Netherlands: Sense Publishers.

One paper describes the outcomes of focus groups with students who participated in a team-based interprofessional placements. While directly relevant to the thesis this paper was published after the thesis was submitted for examination.

Brewer, M. L., Flavell, H., & Jordon, J. Interprofessional team-based placements: The importance of space, place and facilitation. *Journal of Interprofessional Care, Published online May 3, 2017.*

Interprofesssional leadership program

Two book chapters describe the early iteration of the leadership and engagement model used to facilitate embedding interprofessional education at Curtin University.

Brewer, M., & Jones, S. (2014). A successful university-community engagement and leadership model. In D. Forman, M. Jones, & J. Thistlethwaite. (Eds.), *Leadership for developing interprofessional education and collaboration* (pp. 85-104). London, UK: Palgrave Macmillan.

Brewer, M. L., Tucker, B., Irving, L., & Franklin, D. (2014). The evolution of faculty-wide interprofessional education workshops: A leadership model for success. In D. Forman, M. Jones, & J. Thistlethwaite. (Eds.), *Leadership for developing interprofessional education and collaboration* (pp. 206-227). London, UK: Palgrave Macmillan

Another book chapter describes the leadership program featured in Paper 6.

Trede, F., Smith, M., & **Brewer, M.** (2016). Learning about leadership and collaboration in interprofessional education and practice. In A. Croker, J. Higgs, & F. Trede (Eds.), *Collaborating in healthcare: Reinterpreting therapeutic relationships* (pp. 261-268). Rotterdam, The Netherlands: Sense Publishers.

One journal paper describes the community of practice of leaders of interprofessional education and practice from across Australian and New Zealand which I am a member of.

Ritchie, C., Gum, L., **Brewer, M.**, Sheehan, D., Burley, M., Saunders-Battersby, S., Evans, S., & Tucker, L. (2013). Interprofessional collaborative practice across

Australasia: An emergent and effective community of practice. *Focus on Health Professional Education: A Multi-disciplinary Journal, 14,* 71-80.

The final additional paper challenges occupational therapists to embed interprofessional education into their training to ensure other profession understand there full scope of practice.

Brewer, M. L., & Rosenwax, L. (2016). What is occupational therapy? *Australian Occupational Therapy Journal, 63,* 221–222.

Appendix B. Conference presentations relevant to this thesis

Interprofessional education curriculum

Brewer, M. (2016). *Interprofessional education: Practical tips on planning, implementation and evaluation.* University of Otago Wellington, New Zealand **[Invited workshop]**

Brewer, M. (2015). *Interprofessional Education at Curtin University's Faculty of Health Sciences.* Centre for the Advancement of Interprofessional Education, London, UK. **[Invited plenary]**

Joseph, S., Diack, L., **Brewer, M.**, & Duncanson, K. (2014).*Virtual interprofessional education in remote and rural settings: An Australian and Scottish experience.* All Together Better Health VII, Pittsburgh, US.

Downie, J., Jones, S., Davis, M., & **Brewer, M.** (2012). *An interprofessional first year curriculum for 22 health science disciplines: Experiences, evaluation, and evidence.* All Together Better Health VI, Kobe, Japan.

Davis, M., Jones, S., & **Brewer, M.** (2012). *Learning and teaching together: Benefits of an interprofessional first year curriculum for enhancing interdisciplinary connections for staff and students.* The Higher Education Research and Development Society of Australasia, Tasmania, Australia.

Brewer, M., & Franklin, D. (2011). *Preparing health science graduates for the future: The role of interprofessional education.* Teaching and Learning Forum, Perth, Australia.

Brewer, M., Irving, I., & Bathgate, K. (2011). *Using and evaluating the stilwell virtual community to promote IPL: A UK/Australian collaboration.* European Interprofessional Education Conference, Ghent, Belgium.

Brewer, M., & Jones, S. (2011). *Client centred care – the Foundation for an IPE capability framework.* European Interprofessional Education Conference, Belgium.

Jones, S., Downie, J., & **Brewer, M.** (2011). *A community engagement model to lead cultural change for an interprofessional first year curriculum across 19 health disciplines.* Collaborating Across Borders III Conference, Arizona, US.

Jones, S., Downie, J., & **Brewer, M.** (2011). *Embedding IPE within first year curricula: Community engagement as a key enabling strategy.* European Interprofessional Education Conference, Ghent, Belgium.

Walsh, M., **Brewer, M.**, Irving, I., & Bathgate, K. (2011). *Using and evaluating the Stilwell virtual community to promote IPL: A UK/Australian Collaboration.* European Interprofessional Education Conference, Ghent, Belgium.

Brewer, M., Irving, L., & Doherty, C. (2010). *What's all the HIpE? A student health interprofessional education conference.* All Together Better Health V, Sydney, Australia.

Brewer, M., Jones, S., Chuang, V., & Hughes, J. (2010). *Innovations in interprofessional education practice and research at Curtin University.* Japanese Interprofessional Education Network Conference, Kyoto, Japan.

Jones, S., **Brewer, M.**, & Davis, M. (2009). *Interprofessional education to meet changing health and social care demands.* Graduate Attributes Project Symposium 3, New South Wales, Australia.

Leadership of interprofessional education

Brewer, M. (2016). *Developing students interprofessional practice capabilities: Lessons learned about leadership, engagement & partnerships.* New Zealand Interprofessional Health Conference, Auckland, New Zealand **[Invited plenary]**

Brewer, M. (2016). *Interprofessional education and practice: Creating leaders and opportunities for clinical learning.* New Zealand Interprofessional Health Conference, Auckland, New Zealand **[Invited workshop]**

Brewer, M. (2016). *Interprofessional education masterclass*. University of Otago, Wellington, New Zealand **[Invited workshop]**

Brewer, M., & Flavell, H. (2016). *Leadership in interprofessional education and practice: What is the literature telling us?* All Together Better Health VIII, Oxford, UK.

Brewer, M., Flavell, H., Jones, S., Smith, M., & Trede, F. (2015). *Engaging health industry partners through interprofessional change leadership development.*

Australia & New Zealand Association for Health Professional Educators/Asian Medical Education Association, Newcastle, New South Wales., Australia.

Brewer, M., & Sinclair, L. (2014) *Creating leaders to advance IPL and IPP in Australia and Canada – Two countries one vision.* All Together Better Health VII, Pittsburgh, US.

Brewer, M., & Franklin, D. (2011). *Building interprofessional education and practice capacity in industry partners.* Collaborating Across Borders III Conference, Arizona, US.

Brewer, M., Forman, D., & Jones, S. (2010). *Developing the health workforce for the future: A strategic vision.* All Together Better Health V, Sydney, Australia.

Burley, M., **Brewer, M.**, Stone, J., Saunders-Battersby, S., Tucker, L., Sheenan, D. Jones, M. (2010). *A model framework for development of the Australasian Community of Interprofessional Collaborative Practice network.* All Together Better Health V, Sydney, Australia.

Practice-based interprofessional education

Brewer, M. (2017). *Interprofessional student placements: A guide to ensuring quality learning experiences.* Teaching and Learning Forum, Perth, Western Australia.

Brewer, M. (2016). *Team-based placements.* All Together Better Health VIII, Oxford, UK.

Tomlinson, K., & **Brewer, M.** (2015). *Authentic WIL in action: Building capacity of children, communities and the future health work force via an interprofessional health practice model.* Australian Collaborative Education Network, Gold Coast, Queensland, Australia.

Moran, M., Thistlethwaite, J., Tyack, Z., **Brewer, M.**, & Dettrick-Janes, M. (2015). *"I feel like I've been lifted out of a hole by coming here": Clients experiences and health outcomes when attending a client-centred, interprofessional, student assisted clinic.* Australian and New Zealand Associate for Health Profession Educators Conference, Newcastle, New South Wales.

Tomlinson, K., Musumeci, L., & **Brewer, M.** (2014). *Embedding interprofessional practice within the school environment.* Linking Up for Kids, Sydney, Australia.

Brewer, M., Jones, S., Trede, F., Smith, M., & Flavell, H. (2014). *Hand in hand: health and education working together to deliver collaborative practice ready graduates*. Practice Based Education Summit, Sydney, Australia.

Brewer, M. (2014). *Preparing students for community-based rehabilitation: An interprofessional approach.* Singapore Rehabilitation Conference, Singapore.

Brewer, M. (2013). *An innovative approach to clinical education: The interprofessional student training ward.* Interprofessional and Teamwork Education: Challenges and Triumphs for Educators and Researchers Symposium, CQU, Rockhampton, Queensland, Australia **[Invited plenary]**

Brewer, M., & Stewart-Wynne, E. (2012). *The Royal Perth Hospital - Curtin University student training ward: Building a sustainable interprofessional practice placement in Australia.* All Together Better Health VI, Kobe, Japan.

Brewer, M. (2012). *Interprofessional practice placements for over 1,000 students from 10 disciplines.* All Together Better Health VI, Kobe, Japan.

Tomlinson, K., Ivanac, J., & **Brewer, M.** (2012). *Integrating a student run interprofessional health service into a primary school setting: A successful practice based IPE partnership.* All Together Better Health VI, Kobe, Japan.

Stewart-Wynne, E., & **Brewer, M.** (2011). *The Royal Perth Hospital-Curtin University student training ward – an Australian interprofessional education perspective.* Western Australia Health Conference, Perth, Australia.

Brewer, M., Franklin, D., Slater, H., & Hoti, K. (2011). *Chronic disease management and collaborative practice*. Western Australia General Practice and Education Training Conference, Perth, Australia.

Brewer, M. (2010). *Educating the health professional of the future: Fieldwork placements that transformed student practice.* All Together Better Health V, Sydney, Australia.

Brewer, M., & Forman, D. (2010). *Changing patient management: An interprofessional placement at Brightwater*. 2nd International Conference for Health and Social Care Interprofessional Education and Practice, Manchester, UK.

Brewer, M., Forman, D., D'Avray, L., & Dalhberg, J. (2010). *Interprofessional education: Integrating existing practice on interprofessional student training*

wards in the development of a similar learning environment in Perth, Western Australia: Lessons learned from University of Linkoping, Karolinska Institute and St Georges University. Towards Unity for Health, Kathmandu, Nepal.

Brewer, M., & Jones, S. (2010). *Extending the boundaries: Capacity building for interprofessional practice fieldwork placements through partnerships.* Australian Collaborative Education Network, Perth, Australia.

Davis, M., Straker, L., Weiss, M., & **Brewer, M.** (2010). *Allied health students working together for better physical and psychological outcomes for overweight adolescents and their families.* All Together Better Health V, Sydney, Australia.

Brewer, M., Potter, M., Lake, F., & Jones, S. (2010). *An inter-university partnership to build capacity for interprofessional practice in the health sector.* All Together Better Health V, Sydney, Australia.

Brewer, M., & Snell, R. (2009). *Interprofessional learning experience: Dietetics and Human Communication Science students.* Teaching and Learning Forum, Perth, Australia.

Assessing interprofessional education

Brewer, M. (2012). *A tool to assess students' interprofessional practice capabilities for diverse professions and in diverse clinical settings.* All Together Better Health VI, Kobe, Japan.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., &White, S. (2009). *Assessment of interprofessional competencies for health professional students in fieldwork education placements.* Australian Technology Network, Victoria, Australia.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., &White, S. (2010). *More similar than different: The assessment of students' interprofessional capabilities.* All Together Better Health V, Sydney, Australia.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., & White, S. (2011). *Interprofessional collaboration in practice: The assessment of students' interprofessional capabilities in clinical placements.* Collaborating Across Borders III Conference, Arizona, US.

Brewer, M., Gribble, N., Robinson, P., Lloyd, A., & White, S. (2011). *Assessment of capabilities in clinical placements to foster interprofessional practice.* European Interprofessional Education Conference, Ghent, Belgium.

Brewer, M., & Bolte, K. (2012). *Interprofessional education in practice: An interprofessional capabilities assessment tool for student placement.* The National Association of Educators in Practice Conference: Promoting Quality in Practice Education, East Sussex, UK.

Gum, L., Smith, R., Burley, M., Taylor, J., **Brewer, M.**, Marles, K., Sheehan, S., & Forman, D. (2014). *Exploring experience with interprofessional teambuilding assessment tools across Australia and New Zealand.* Australian and New Zealand Association for Health Profession Educators, Gold Coast, Queensland, Australia.

Facilitating interprofessional education

Brewer, M. (2011). *Facilitating interprofessional education in general practice.* Western Australia General Practice and Education Training Conference, Western Australia.

Appendix C. Permission letters from copyright owners

Curtin University

Faculty of Health Sciences

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 0000
Facsimile +61 8 9266 0000
Web curtin.edu.au

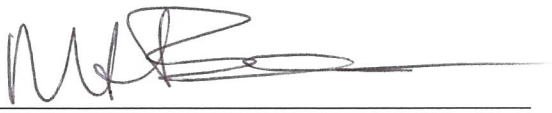
14 December 2015

To whom it may concern

I, Margo Brewer, was a major contributor to the conceptualisation, coordinator, and implementation of the research which resulted in the following paper:

Brewer, M.L. & Jones, S. (2013). An interprofessional practice capability framework focusing on safe, high quality client centred health service. *Journal of Allied Health*, 42(2), e45–e49.

I also contributed to a significant extent to the conceptualisation, drafting, writing and editing of the paper above which is used for my PhD thesis. Accordingly, I am lead author on this publication (Paper 1).

Margo Brewer 

I, as co-author, endorse that the level of contribution indicated by the candidate above is appropriate.

Sue Jones 

Curtin University

Faculty of Health Sciences

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 0000
Facsimile +61 8 9266 0000
Web curtin.edu.au

14 December 2015

To whom it may concern

I, Margo Brewer, was a major contributor to the conceptualisation, coordinator, and implementation of the research which resulted in the following paper:

Brewer, M., Flavell, H., Davis, M., Harris, C. & Bathgate, K. (2014). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability, 5*(1), 29–46.

I also contributed to a significant extent to the conceptualisation, drafting, writing and editing of the paper above which is used for my PhD thesis. Accordingly, I am lead author on this publication (Paper 3).

Margo Brewer _____

I, as co-author, endorse that the level of contribution indicated by the candidate above is appropriate.

Helen Flavell _____

Melissa Davis _____

Courtenay Harris _____

Katherine Bathgate _____

Curtin University

29 July, 2013

To whom it may concern

I, Margo Brewer, was a major contributor to the conceptualisation, coordinator, and implementation of the research which resulted in the following paper:

Brewer M. L. & Stewart-Wynne, E. G. (2013). An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities. *Journal of Interprofessional Care, 27*(6), 482-488.

I contributed to a significant extent to the conceptualisation, drafting, writing and editing of the paper above which is used for my PhD thesis. Accordingly, I am lead author on this publication.

Margo Brewer

I, as co-author, endorse that the level of contribution indicated by the candidate above is appropriate.

Edward G Stewart-Wynne

Curtin University

Faculty of Health Sciences

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 0000
Facsimile +61 8 9266 0000
Web curtin.edu.au

3 February 2016

To whom it may concern

I, Margo Brewer, was a major contributor to the conceptualisation, coordinator, and implementation of the research which resulted in the following paper:

Brewer, M., Flavell, H., Trede, F. & Smith, M. (2016). A scoping review to understand 'leadership' in interprofessional education and practice. *Journal of Interprofessional Care.* Manuscript accepted for publication.

I also contributed to a significant extent to the conceptualisation, drafting, writing and editing of the paper above which is used for my PhD thesis. Accordingly, I am lead author on this publication.

Margo Brewer _____

I, as co-author, endorse that the level of contribution indicated by the candidate above is appropriate.

Helen Flavell _____

Franziska Trede _____

Megan Smith mesmith@csu.edu.au Digitally signed by mesmith@csu.edu.au DN: cn=mesmith@csu.edu.au Date: 2016.02.05 09:00:28 +11'00' _____

Curtin University

Faculty of Health Sciences

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 92669288
Web curtin.edu.au

21 February 2017

To whom it may concern

I, Margo Brewer, was a major contributor to the conceptualisation, coordination, and implementation of the research which resulted in the following paper:

Brewer, M. L., Flavell, H., Trede, F. & Smith, M. Creating change agents for interprofessional education and practice: A leadership programme for academic staff and health practitioners. *International Journal of Leadership in Education.*

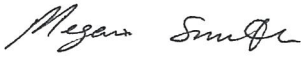
I contributed to a significant extent to the conceptualisation, drafting, writing and editing of the paper above which is used for my PhD thesis. Accordingly, I am lead author on this publication.

Margo Brewer 

I, as co-author, endorse that the level of contribution indicated by the candidate above is appropriate.

Helen Flavell 

Franziska Trede



Megan Smith

Curtin University

Faculty of Health Sciences

GPO Box U1987
Perth Western Australia 6845

Telephone +61 8 9266 0000
Facsimile +61 8 9266 0000
Web curtin.edu.au

5 January 2017

To whom it may concern

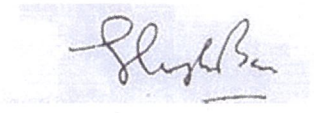
I, Margo Brewer, was a major contributor to the conceptualisation, coordinator, and implementation of the research which resulted in the following paper:

Brewer M. L. & Barr, H. (2016). Interprofessional Education and Practice Guide No. 8: Team-based interprofessional practice placements. *Journal of Interprofessional Care.* DOI 10.1080/13561820.2016.1220930

I contributed to a significant extent to the conceptualisation, drafting, writing and editing of the paper above which is used for my PhD thesis. Accordingly, I am lead author on this publication.

Margo Brewer 

I, as co-author, endorse that the level of contribution indicated by the candidate above is appropriate.

Hugh Barr 

Appendix D. Permission to use copyright material

Date: Dec 10, 2015
Dear Dr. Brewer:

Material:
Full paper (for dissertation)
Brewer ML, Jones S
An interprofessional practice capability framework focusing on safe, high quality client centred health service.
Journal of Allied Health. Summer 2013, 42(2):e45-e49.

Proposed Use: Dissertation
Title: (leadership in professional education)
Journal/book:
Publisher/university: Curtin University
Pub Date: Dec 2015

Thank you for requesting permission to reproduce/excerpt material from your paper published in *Journal of Allied Health*.

As requested in your email dated Dec 9, 2015, we hereby grant you permission to reproduce the aforementioned material in print and electronic format, as well as university archives, at no charge subject to the following conditions:

1. Use is limited to one-time only in the current edition of the publication and electronic editions of that publication (not derivatives) and is for educational purposes only.

2. Credit to the source is given in the figure legend, with full reference given either in figure legend and/or reference list.
(See above)

3. This permission is granted for non-exclusive rights.

4. This permission does not include the right to grant others permission to re-use or reproduce this material in other formats or publications [except for versions made by non-profit organizations for use by the blind or handicapped persons].

5. A fee of $ 0.00 is paid to the publisher.

Thank you for publishing in Journal of Allied Health. Good luck in finishing your dissertation.
--
Best wishes,
Mike Bokulich
Journal of Allied Health, Publisher

Science & Medicine
T 610 660 9187
F 610 660 0348
C 610 247 2399
bokulich@sciandmed.com

27 January, 2106

Dear Ms Brewer

On behalf of the Editorial Team I hereby give permission for you to include the publication as shown below in your higher degree thesis for Curtin University, and to communicate this material via the espace@Curtin institutional repository. This permission is granted on a non-exclusive basis and for an indefinite period.

I confirm that I am the copyright owner of the specified material.

Title of publication:

Brewer, M., Flavell, H., Davis, M., Harris, C. & Bathgate, K. (2014). Ensuring health graduates' employability in a changing world: Developing interprofessional practice capabilities using a framework to inform curricula. *Journal of Teaching and Learning for Graduate Employability, 5*(1), 29–46.

Best wishes

B M Tucker

Dr Beatrice Tucker (Deputy Editor)

Taylor & Francis
Taylor & Francis Group

Permissions

T & F Reference Number: P042716-02

4/27/2016

Margo Brewer
Director Practice & Interprofessional Education | Teaching and Learning
Faculty of Health Sciences
Curtin Academy Fellow

Curtin University
m.brewer@curtin.edu.au

Dear Ms. Brewer,

We are in receipt of your request to reproduce your article for use in your dissertation

Brewer, M.L. & Stewart-Wynne, E.G. (2013)
An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities
Journal of Interprofessional Care, 27(6), 482–488.
DOI: 10.3109/13561820.2013.811639

You retain the right as author to post your Accepted Manuscript on your departmental or personal website with the following acknowledgment: "This is an Accepted Manuscript of an article published in the *Journal of Interprofessional Care* online [December 4, 2013], available online: http://www.tandfonline.com/doi/full/10.3109/13561820.2013.811639

We are in receipt of your request to reproduce your forthcoming articles for use in your dissertation

Brewer, M.L. (2016)
Exploring the potential of a capability framework as a vision and 'sense-making' tool for leaders of interprofessional education
Journal of Interprofessional Care (in press)
DOI: 10.1080/13561820.2016/1182969.

Brewer, M.L., Flavell, H., Trede, F. & Smith, M. (2016)
A scoping review to understand 'leadership' in interprofessional education and practice
Journal of Interprofessional Care (in press)
DOI: 10.3109/13561820.2016/1150260

An embargo period of twelve months applies for the Accepted Manuscripts to be posted to an institutional or subject repository.

We will be pleased to grant you permission free of charge **with the understanding that Taylor & Francis is the first to publish the full article** on the condition that:

This permission is all for print and electronic editions.

This permission is for non-exclusive English world rights. This permission does not cover any third party copyrighted work which may appear in the material requested.

Taylor & Francis
Taylor & Francis Group

Full acknowledgment must be included showing article title, author, and full Journal title, reprinted by permission of Taylor & Francis LLC (http://www.tandfonline.com).

Thank you very much for your interest in Taylor & Francis publications. Should you have any questions or require further assistance, please feel free to contact me directly.

Sincerely,

Mary Ann Muller

Permissions Coordinator

Telephone: 215.606.4334

E-mail: maryann.muller@taylorandfrancis.com

From: International Journal Leadership Education
To: Margo Brewer
Subject: Re: International Journal of Leadership in Education - Decision on Manuscript ID TEDL-2016-0050.R1
Date: Wednesday, 4 January 2017 7:05:10 AM

Hello,

I apologize for the delayed response. I shared your email with our editor, Dr. Waite, and he said that using the article in your thesis is no problem; just write an acknowledgement in your acknowledgements section with full citation. Please let me know if you have any questions.

Best,

Katherine Lewis
Editorial Assistant
International Journal of Leadership in Education

Texas State University-San Marcos
601 University Dr
Education Building, Suite 4028
San Marcos, TX 78666
Ph: (512) 245-8918
Fax: (512) 245-8872

Announcing IJLE's 15th Annual Emerging Scholars Competition
http://www.tandf.co.uk/journals/pdf/TEDL-competition-flyer.pdf

---

From: Margo Brewer <M.Brewer@curtin.edu.au>
Sent: Monday, December 19, 2016 10:49:53 PM
To: International Journal Leadership Education
Subject: RE: International Journal of Leadership in Education - Decision on Manuscript ID TEDL-2016-0050.R1

Dear Professor Arar

Thank you for your prompt advice re this manuscript.

I am writing to request permission to reproduce the paper Manuscript ID TEDL-2016-0050.R1 - Creating change agents for interprofessional education and practice: A leadership programme for academic staff and health practitioners - in a doctoral thesis which I am currently undertaking at Curtin University in Perth, Western Australia. The subject of my research is leadership in interprofessional education. I am carrying out this research in my own right and have no association with any commercial organisation or sponsor. The specific material that I would like to use for the purposes of the thesis is the full paper. Once completed, the thesis will be made available in online form via Curtin University's Institutional Repository espace@Curtin (https://urldefense.proofpoint.com/v2/url?u=http-3A__espace.library.curtin.edu.au&d=CwIGaQ&c=OrYO-caJHQE1g_AJU3az1awi55It-bjDIQrtRiZ6WBk&r=V5VxATveSI2WYZ3oL9MWXQ&m=NJ4nX2J6U1vXKa5DgsVi2GQm7mQGntqAwXWh9JVo6iQ&s=r7SyJXiciCL9wVTT73BQmqZJK_MRKS1FKBatJ209JTQ&e=). The material will be provided strictly for educational purposes and on a non-commercial basis.

I have prepared a permission form (see attached) which may be of use to your publisher.

I would be most grateful for your assistance in obtaining consent to the copying and communication of the work as proposed. I look forward to hearing from you and thank you in advance for your consideration of my request.

Kind Regards

Margo Brewer

Director Practice & Interprofessional Education | Learning and Teaching

Faculty of Health Sciences

Curtin Academy Fellow

2. USER LICENSE

The user license of an article determines how readers can share and use your article without the need to request permission. Before publishing open access, we recommend you to:

- Understand what each user license permits and the rights it grants to readers to use your article.
- Check if your funding body or institution requires the use of a specific license in their policy.
- Read your journal's Guide for Authors to ensure they offer the license you want to use.
- Visit the Creativecommons.org site to read what to consider before selecting a user license. It is important to note that your license selection is non-revocable.

At Elsevier we give you a choice of user licenses so you can select the license which suits your type of research. Below is a quick reference guide what each license permits readers to do:

User License	Read, print, download	Redistribute or republish the final article (e.g. display in a repository)	Text & data mine	Translate the article	Reuse portions or extracts from the article in other works	'Sell ' or re-use for "commercial purposes"
Commercial license: CC-BY 4.0	✓	✓	✓	✓	✓	✓
Non- commercial license: CC-BY-NC-ND 4.0	✓	✓	✓ *for private use only and not for distribution	✓	✓	✗

Elsevier Article Sharing Policy

ELSEVIER SUPPORTS RESPONSIBLE SHARING

Responsible sharing in line with copyright enables publishers to sustain high quality journals and the services they provide to the research community. Find out how you can share your research published in Elsevier journals – www.elsevier.com/sharing-articles.

You can share your research at each stage of the research process:

	Share
Presubmission	**Preprints[1] can be shared anywhere at any time.** PLEASE NOTE: Cell Press, The Lancet, and some society-owned titles have different preprint policies. Information on these is available on the journal homepage.
After acceptance	**Accepted manuscripts[2] can be shared:** • Privately with students or colleagues for their personal use. • Privately on institutional repositories. • On personal websites or blogs. • To refresh preprints on arXiv and RePEc. • Privately on commercial partner sites.
After publication	**Gold open access articles can be shared:** • Anytime, anywhere on non-commercial platforms. • Via commercial platforms if the author has chosen a CC-BY license, or the platform has an agreement with us. **Subscription articles can be shared:** • As a link anywhere at any time. • Privately with students or colleagues for their personal use. • Privately on commercial partner sites.
After embargo	**Author manuscripts can be shared:** • Publicly on non-commercial platforms. • Publicly on commercial partner sites.[3]

1 Preprint is your initial write up of your results and analysis that has not yet have been peer reviewed or submitted to a journal.
2 Accepted manuscript is a version of your manuscript which typically includes any changes you have incorporated through the process of submission, peer review and in your communications with the editor.
3 For an overview of how and where you can share your article, please see elsevier.com/sharing-articles

In all cases:

- Preprints and accepted manuscripts shouldn't be added to or enhanced in any way to appear more like, or to substitute for, the final published journal article.
- All posted articles should link to the final version via the Digital Object Identifyer (DOI).
- Posted accepted manuscripts need to have a CC-BY-NC-ND user license.

For more information, please see our open access policy at elsevier.com/openaccess.

Should you have any questions, please contact our permissions helpdesk: permissionshelpdesk@elsevier.com or (+1) 800-523-4069 x 3808.

Permissions

T & F Reference Number: P121316-04

12/13/2016

Margo Brewer
Director Practice & Interprofessional Education | Learning and Teaching
Faculty of Health Sciences
Curtin Academy Fellow

Curtin University
m.brewer@curtin.edu.au

Dear Professor Brewer,

We are in receipt of your request to reproduce your article

> Margo L. Brewer and Hugh Barr (2016)
> Interprofessional Education and Practice Guide No. 8: Team-based interprofessional practice placements
> *Journal of Interprofessional Care* 30 (6): 747-753.
> DOI: http://dx.doi.org/10.1080/13561820.2016.1220930

You retain the right as author to post your Accepted Manuscript on your departmental or personal website with the following acknowledgment: "This is an Accepted Manuscript of an article published in the *Journal of Interprofessional Care* online [October 31, 2016] available online: http://www.tandfonline.com/doi/full/10.1080/13561820.2016.1220930

An embargo period of twelve months until October 31, 2017 applies for this Accepted Manuscript to be posted to an institutional or subject repository.

For use in your dissertation

This permission is for all print and electronic editions.

We will be pleased to grant you permission free of charge on the condition that:

This permission is for non-exclusive English world rights. This permission does not cover any third party copyrighted work which may appear in the material requested.

Full acknowledgment must be included showing article title, author, and full Journal title, reprinted by permission of Taylor & Francis LLC (http://www.tandfonline.com).

Thank you very much for your interest in Taylor & Francis publications. Should you have any questions or require further assistance, please feel free to contact me directly.

Sincerely,

Mary Ann Muller

Permissions Coordinator

Telephone: 215.606.4334

E-mail: maryann.muller@taylorandfrancis.com

Appendix E. Interprofessional capability booklet


Curtin University
INTERPROFESSIONAL CAPABILITY FRAMEWORK
Faculty of Health Sciences

ISBN: 978-0-646-55124-1

FROM THE PRO VICE-CHANCELLOR

Interprofessional Education (IPE) is internationally recognized to be a key strategy for the current and future health workforce to ensure safe, high quality, client-centred service. The World Health Organisation (2010) mandated that interprofessional education should be a core component of the health science curriculum. A critical element in embedding IPE in our Faculty has been the development of this framework which provides students, staff and our industry partners with the capabilities we expect our graduates to demonstrate.

CONTENTS

INTERPROFESSIONAL CAPABILITY FRAMEWORK

BACKGROUND

Interprofessional education is seen as a necessary step in preparing a collaborative practice-ready health workforce that is better able to respond to local health needs (World Health Organisation, 2010).

At the centre of such collaborative working is the individual, family or community that is involved in the health service or care process. John Gilbert, a leader in interprofessional education, states that learning to be an effective collaborative worker requires both a personal transformation in perspective and a change in professional identity (cited in Freeth et al, 2005).

It is important to focus on collaborative acts, programs and services that can achieve more than could be achieved by the same health professionals acting independently. This requires a level of interdependence i.e. the occurrence of, and reliance on, interactions among professionals whereby each is dependent on the other to accomplish the required goals and tasks.

INTRODUCTION

This framework is designed to provide a model for teaching and assessing the capabilities required to be a collaborative practice-ready health professional who can work effectively and efficiently in an interprofessional team to provide safe, high quality service/care to clients, families and communities.

Barr et al (1998) proposed three sets of competencies:

Common – held by all professions

Complementary – distinguish one profession from another

Collaborative – necessary to work together effectively

The focus of this framework is on the collaborative competencies or capabilities.

DEFINITIONS

Client refers to the individual, family or community that is the focus of the health or social service/care.

Safety refers to the physical, psychological, environmental and cultural aspects of safety.

Interprofessional Education "Occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (CAIPE, 2002). The key for effective interprofessional education is that the learning must be interactive.

Multiprofessional Education "When members of two or more professions learn alongside one another" (Freeth et al, 2005). Learning typically occurs in parallel.

Collaborative practice "When multiple health workers from different backgrounds work together with patients, families, carers and communities to deliver high quality care" (WHO, 2010).

Collaborative worker A collaborative practice-ready health worker is someone who has learned how to work competently in an interprofessional team and understands the system in which they are working (adapted from WHO, 2010).

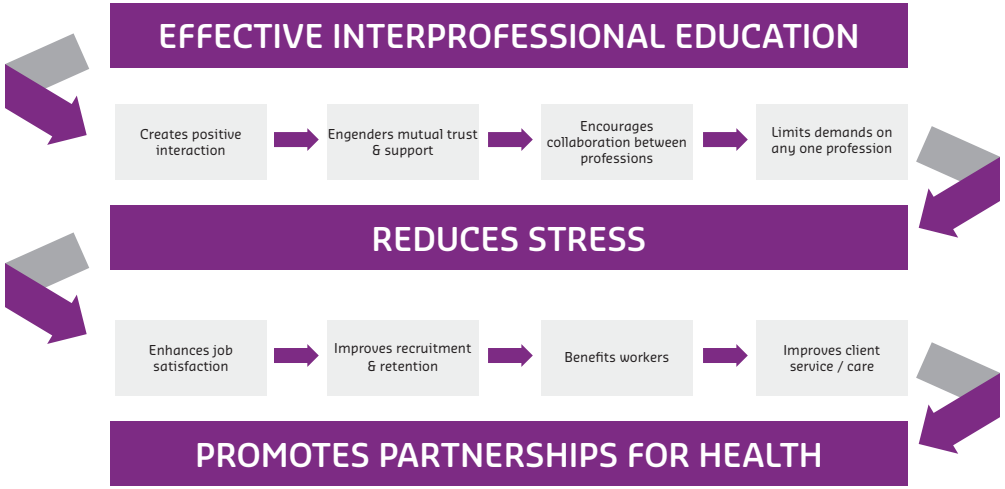
WHY IS COLLABORATIVE PRACTICE IMPORTANT?

There are many drivers of the need to change the way that health professionals are educated. These include:

- The changing needs of the health service
- The need to prepare workers for new, emerging roles
- New regulatory requirements
- The needs of rural and remote areas
- Employment expectations of graduates
- The need to strengthen partnerships between education and health providers

Barr et al (2005 pg. 27) proposed the following chain reaction:

The most important driver, however, is the need to improve the health outcomes for clients.



ASSUMPTIONS UNDERPINNING THIS FRAMEWORK

- Collaborative practice is critical to client safety and quality of service or care.
- Interprofessional education occurs on a continuum from early exposure to other professions through to collaborative practice in teams in the practice setting.
- The learner will move through the levels at different rates according to their personal and professional experiences.
- A student's capacity to demonstrate interprofessional capabilities in different settings will be impacted by their comfort level, familiarity and skill set within that context.

THE FRAMEWORK

The framework has three core elements:

- Client centred service
- Client safety and quality
- Collaborative practice

The core elements are underpinned by five collaborative practice capabilities represented in Figure 1.

These capabilities, which interact with each other to achieve the three core elements, consist of:

1. Communication
2. Team function
3. Role clarification
4. Conflict resolution
5. Reflection

Figure 1.
Curtin Interprofessional Capability Framework (Brewer & Jones, 2010)

The levels described equate approximately with the following:

1	The novice student at the completion of the first year of an undergraduate degree.
2	The intermediate student at the end of the second or third year of an undergraduate degree or at the completion of the first year of a graduate entry masters degree.
3	The entry to practice level student at the end of the final year of an undergraduate or entry level masters degree.

INTERPROFESSIONAL CAPABILITY
CORE ELEMENTS

CLIENT/FAMILY/COMMUNITY CENTRED SERVICE/CARE

The client is valued as an important partner in planning and implementing services/care. Service providers seek out and integrate the client's input into services. Service providers promote the participation and autonomy of clients to ensure that they are involved in decision making and exercise choice.

Descriptors

The collaborative worker:

- Supports the client as an integral partner in planning, implementing and evaluating their services/care
- Shares information with the client in a respectful manner
- Shares information with the client in a way that is understandable, ensures informed consent, encourages interaction and enhances their participation in choice and decision making

Levels

1	Acknowledges the need to be client centred in providing safe and high quality service/care.
2	Communicates with the client in a respectful manner. Actively listens to the client. Describes key aspects of client centred service/care.
3	Communicates with the client and/or other team members in a manner that promotes understanding and positive interaction. Works in partnership with the client and/or other team members to plan and implement service/care plans.

CLIENT SAFETY AND QUALITY

The ultimate aim of collaborative practice is to improve all aspects of health and social care quality: safety, appropriateness, access, client-centredness, efficiency and effectiveness (Barraclough et al, 2009). Therefore safety and quality form the overarching structure of the framework.

Descriptors

The collaborative worker:

- Is committed to a non-blaming, non-punitive team culture
- Shares professional perspective on client safety and quality with the team
- Critically evaluates practice and policy in the context of client safety
- Negotiates and evaluates services within the team that promote policy and procedural improvements

Levels

1	Identifies the major factors that impact on the safety and quality of service/care for clients. Demonstrates a non-blaming approach to teamwork.
2	Discusses own professional perspective on client safety and quality and seeks input from others. Checks understanding of others to ensure effective communication. Critically evaluates research on client safety.
3	Adheres to policies and procedures that ensure client safety and quality including national/international standards. Contributes to the evaluation of client safety and quality outcomes in university and fieldwork settings. In partnership with the client and the team recommends appropriate improvements in policies and procedures.

COLLABORATIVE PRACTICE

Collaborative practice occurs when multiple health and human service professionals from different backgrounds work together with clients to deliver high quality care.

Descriptors

(adapted from Barr et al, 2005 p 84-85; and Hammick et al, 2009 p 23)

The collaborative worker:

- Recognises the value of interprofessional collaboration between professions and between agencies
- Identifies situations where collaboration is beneficial to stakeholders
- Is committed to a client-centred approach to service/care
- Recognises and respects the roles, responsibilities and competence of other health professionals
- Describes own role and responsibilities clearly to other professions
- Recognises and observes the constraints of own role, responsibilities and competence
- Applies the principles and practice of effective teamwork to the assessment, planning, implementation and review of health services/care

- Applies effective communication methods with all stakeholders
- Manages confidentiality between professions and between agencies
- Acknowledges and respects others' views, values and ideas
- Facilitates interprofessional case conferences, meetings and networking
- Applies knowledge of health and social care systems to participate in the delivery of high quality services/care
- Contributes to the knowledge of other professions
- Contributes to the evaluation of both team and service/care outcomes

Levels

1	Respects others' views, values and ideas. Demonstrates effective teamwork and communication skills in the university setting. Recognises the value of a client-centred, collaborative approach to health services/care and situations where this approach may be beneficial to stakeholders.
2	Explains the roles and responsibilities of own and other professions. Maintains client confidentiality. Evaluates team outcomes.
3	Reflects on own competencies and constraints of own profession. Demonstrates effective teamwork and communication skills in university and fieldwork settings. Contributes to the knowledge of others. Facilitates effective interprofessional team interactions and provides leadership when appropriate. In partnership with clients and other professionals provides collaborative health services/care within and across organisations and refers on appropriately.

COLLABORATIVE PRACTISE CAPABILITIES

COMMUNICATION

The collaborative worker consistently communicates in a sensitive and professional manner demonstrating effective interpersonal skills.

Descriptors

The collaborative worker:

- Communicates clearly, comprehensively and in a culturally appropriate manner both verbally and in writing
- Actively listens to and respects the client's needs and concerns
- Actively listens to knowledge and opinions of all team members
- Develops effective working relationships with clients and team members
- Uses information and communication systems effectively to improve client service
- Respects values, beliefs and culture of all relevant parties

Levels

1	Demonstrates developing skills in effective listening, oral and written communication. Demonstrates respect for others and makes some contribution to team discussions.
2	Demonstrates effective communication skills with a wide range of people.
3	Demonstrates effective communication skills within and between teams and organisations which enhance service/care provision. Responds to, and synthesises information from, others and incorporates this into their contribution to the service/care plan for clients. Demonstrates culturally safe communication skills.

TEAM FUNCTIONING

The collaborative worker understands the principles of teamwork and group processes and their importance in providing effective interprofessional collaboration to improve client services/care. The collaborative worker is able to participate across teams and in inter-agency work to ensure integrated service/care delivery.

Descriptors

The collaborative worker:

- Analyses the process of team (group) development
- Establishes and maintains effective working relationships with other team members and other teams
- Effectively facilitates discussions and interactions among team members
- Engages in shared decision making to establish and achieve commonly agreed goals
- Respects all team members' contribution to collaborative decision making
- Respects team ethics including confidentiality, resource and workload allocation, and professionalism

Levels

1	Describes the process of group/team development. Participates in the exchange of professional knowledge and collaborative decision making. Demonstrates effective teamwork skills with others including respect for team ethics.
2	Reflects on the benefits of sharing professional knowledge to own professional development and to client safety and quality.
3	Initiates the exchange of professional knowledge and shared decision making to improve service/care delivery. Demonstrates effective teamwork skills in a wide range of contexts including fieldwork settings.

ROLE CLARIFICATION

The collaborative worker understands their own role and the roles of other relevant parties and uses this knowledge to improve client services.

Descriptors

The collaborative worker:

- Has confidence in and knowledge of their own profession so they can work effectively in a team
- Effectively communicates their role, knowledge and opinions to team members in a way that promotes positive interaction
- Recognises and respects the roles, responsibilities and competence of other team members and their contribution to health and social service/care

Levels

1	Demonstrates developing knowledge of the role of their own and other professions. Effectively communicates their point of view to others.
2	Describes the benefits of understanding the role, responsibilities and competence of other professions to improving service/care provision. Effectively communicates their professional knowledge to others.
3	Demonstrates respect for the contribution of other professions in the provision of services/care. Appraises the role, responsibilities and competence of their own profession and others in service/care provision.

INTERPROFESSIONAL CONFLICT RESOLUTION

The collaborative worker actively engages in addressing different perspectives among colleagues and clients in a positive and constructive manner as they arise.

Descriptors

The collaborative worker:

- Contributes to establishing a safe environment in which diverse opinions can be expressed
- Recognises the potential for conflict to occur
- Values the potential positive nature of conflict
- Identifies common situations that may lead to conflict including role ambiguity, power differentials, communication differences (terminology or language) and differences in goals
- Employs strategies to deal with conflict constructively including analysing the causes and working collaboratively to reach acceptable agreed upon solutions

Levels

1	Describes common situations where conflict may arise in interprofessional teams and strategies that can be employed to address this. Communicates in a manner that promotes positive interactions.
2	Participates actively in the resolution of conflicts that arise with support.
3	Participates actively in resolution of conflict to ensure effective collaborative practice.

REFLECTION (INDIVIDUAL AND TEAM)

The collaborative worker utilises reflective processes in order to work in partnership with clients and others to ensure safe and effective services/care. The collaborative worker addresses personal learning needs to ensure optimal service/care provision.

Descriptors

The collaborative worker:

- Regularly reflects on team structures, functions and roles and their own contribution to these
- Seeks and accepts feedback and constructive criticism to strengthen collaborative relationships and team effectiveness
- Critically evaluates policies and procedures related to all aspects of service/care delivery
- Critically evaluates service/care outcomes

Levels

1	Reflects on own contribution to teamwork experiences. Reflects on own learning and progress in developing interprofessional capabilities.
2	Seeks feedback from others that strengthens teamwork skills and collaborative relationships. Reflects on own learning from conflict situations that arise. Develops a plan to address knowledge, skills, attitudes and values that will enhance collaborative practice.
3	Critically evaluates service/care outcomes, policies and procedures. Demonstrates well developed reflection processes in order to evaluate personal and professional knowledge, skills, attitudes and values and the impact of these on the provision of services/care. Develops comprehensive plans to ensure development of effective collaborative practice that enhances service/care provision.

REFERENCES AND ACKNOWLEDGEMENTS

References

Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *Journal of Interprofessional Care,* 12(2),18-187.

Barr, H., Koppel, K., Reeves, S., Hammick, M. & Freeth, D. (2005). *Effective interprofessional education: Argument, assumption and evidence.* Blackwell: Oxford.

Barraclough, B.; Braithwaite, J., Travaglia, J.F., Johnson, J. & Corbett, A. (2009). Patient safety first: Responsive regulation in health care. Healy, J. & Dugdale, P. (Eds). Allen & Unwin, NSW.

CAIPE (2002). Centre for the Advancement of Interprofessional Education. Retrieved from: http://www.caipe.org.uk/about-us/defining-ipe/

Freeth, D., Hammick, M., Reeves, S., Koppel, I. & Barr, H. (2008). Effective interprofessional education: Development , delivery and evaluation. Blackwell: Oxford.

Hammich, M., Freeth, D., Copperman, J. & Goodman, D. (2009). Being interprofessional. Polity Press: Cambridge.

World Health Organisation (2010). Framework for action on interprofessional education and collaborative practice. Retrieved from http://who.int/hrh/resources/framework_action/en/index.html

PREPARED BY

Margo Brewer,
Director of Interprofessional Practice,
Faculty of Health Sciences,
Curtin University, 2011.

NOTE

This framework has been adapted from the Sheffield Hallam University Interprofessional Capability Framework 2010 and the Canadian Interprofessional Health Collaborative National Competency Framework 2010.

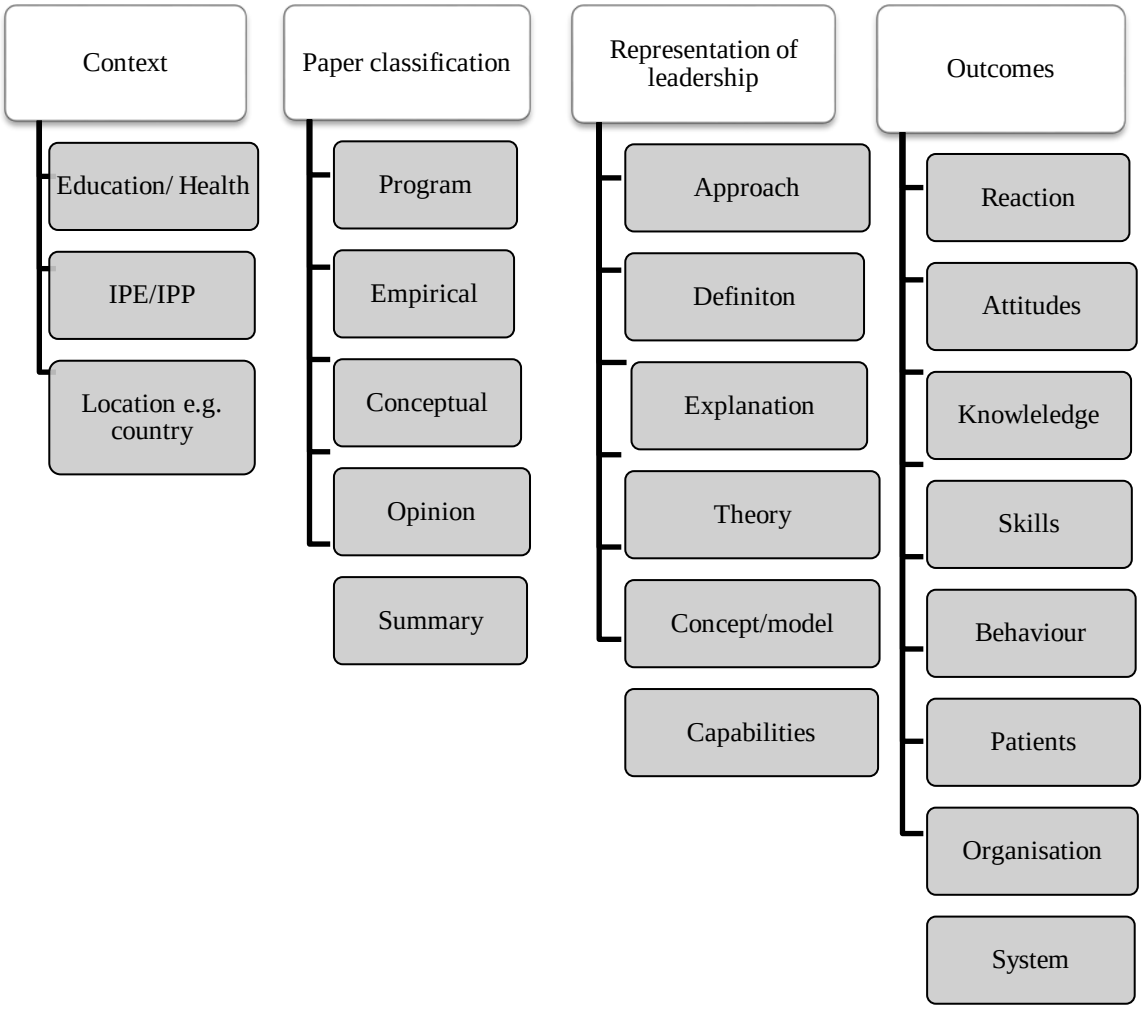
For further information, contact:

Ms Margo Brewer
Director Interprofessional Practice
Phone: +61 8 9266 9288
Email: m.brewer@curtin.edu.au

CRICOS Provider Code
00301J Perth
02637B Sydney

Curtin University of Technology
Street address:
Kent Street Bentley WA 6102
Postal address:
GPO Box U1987 Perth WA 6845
www.healthsciences.curtin.edu.au

Appendix F. Interprofessional leadership research framework



Note: This template has been adapted from Reeves et al. (2011) to provide a standardised structure to facilitate the development of an evidence base for the leadership required to embed interprofessional education and/or practice into organisational culture and operations.