



Curriculum Renewal for Interprofessional Education In Health

Final Report 2014

Support for the production of this report has been provided by the Australian Government Office for Learning and Teaching. The views expressed in this report do not necessarily reflect the views of the Australian Government Office for Learning and Teaching.



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Office for Learning and Teaching

Department of Education

GPO Box 9880,

Location code N255EL10

Sydney NSW 2001

learningandteaching@deewr.gov.au

2014

ISBN 978-1-74361-325-2 [PDF]

ISBN 978-1-74361-326-9 [DOCX]

ISBN 978-1-74361-327-6 [PRINT]

Suggested citation:

The Interprofessional Curriculum Renewal Consortium, Australia (2013), *Curriculum Renewal for Interprofessional Education in Health*. Sydney, Centre for Research in Learning and Change, University of Technology, Sydney.

Design: Teena Clerke

Study Partners and Reference Group

Study Leadership Team

Associate Professor Roger Dunston, *University of Technology, Sydney*
Professor Dawn Forman, *Curtin University*
Associate Professor Gary Rogers, *Griffith University*
Professor Jill Thistlethwaite, *The University of Queensland Study Team*
Ms Tagrid Yassine, Project Manager, *University of Technology, Sydney*
Ms Jane Hager, *University of Technology, Sydney*
Dr Marie Manidis, *University of Technology, Sydney*
Ms Chris Rossiter, *University of Technology, Sydney*

Study Partners

Professor Selma Allieux, *The University of Notre Dame Australia*
Ms Margo Brewer, *Curtin University*
Professor Nicholas Buys, *Griffith University*
Professor Sandra Carr, *The University of Western Australia*
Dr Joanne Gray, *University of Technology, Sydney*
Associate Professor Sue Jones, *Curtin University*
Dr Koshila Kumar, *The University of Sydney*
Dr Lynda Matthews, *The University of Sydney*
Associate Professor Monica Moran, *Central Queensland University*
Associate Professor Pam Nicol, *The University of Western Australia*
Dr Paul Nicol, *The University of Western Australia*
Dr Rosalie Pockett, *The University of Sydney*
Professor Cobie Rudd, *Edith Cowan University*
Associate Professor Rosemary Saunders, *The University of Western Australia*
Ms Caron Shuttleworth, *Edith Cowan University*
Associate Professor Carole Steketee, *The University of Notre Dame Australia*
Professor Jill White, *The University of Sydney*

Partner Institutions

Australasian Interprofessional Practice and Education Network – AIPPEN
Central Queensland University
Curtin University
Edith Cowan University
Griffith University
Health Workforce Australia
The University of Notre Dame Australia
The University of Queensland
The University of Sydney
The University of Western Australia
University of Technology, Sydney
WA Health

Study Reference Group

Professor Hugh Barr, *London*
Professor Mark Barrow, *The University of Auckland, New Zealand*
Ms Mollie Burley, *Monash University, Australia*
Professor Janice Chesters, *Waitemata District Health Board, Auckland, New Zealand*
Professor Patrick Crookes, *University of Wollongong, Australia*
Professor Madeleine Abrandt Dahlgren, *Linköping University, Sweden*
Professor Liz Farmer, *University of Wollongong, Australia*
Professor John Gilbert, *The University of British Columbia, Canada*
Professor Ian Goulter, *Charles Sturt University, Australia*
Associate Professor Ivy Oandasan, *University of Toronto, Canada*
Professor Carole Orchard, *Western University, Canada*
Dr Scott Reeves, *University of Toronto, Canada*
Mr Glenn Ruscoe, *Physiotherapy Board Australia*
Professor Madeline Schmitt, *University of Rochester, USA*
Professor Juanita Sherwood, *University of Technology, Sydney, Australia*
Dr Andrew Singer, *Australian Government Department of Health and Ageing*
Professor Yumi Tamura, *Jikei Institute, Tokyo*
Dr Simon Towler, *WA Health*

Study Evaluator

Patrick Boyle

Preface

In this preface we comment on four matters that we think bode well for the future of interprofessional education in Australia.

First, there is a growing articulation, nationally and globally, as to the importance of interprofessional education and its contribution to the development of interprofessional and collaborative health practices. These practices are increasingly recognised as central to delivering effective, efficient, safe and sustainable health services. Second, there is a rapidly growing interest and institutional engagement with interprofessional education as part of pre-registration health professional education. This has changed substantially in recent years. Whilst beyond the scope of our current studies, the need for similar developments in continuing professional development (CPD) for health professionals was a consistent topic in our stakeholder consultations. Third, we observe what might be termed a threshold effect occurring in the area of interprofessional education. Projects that address matters relating to IPE are now far more numerous, visible and discussed in terms of their aggregate outcomes. The impact of this momentum is visible across the higher education sector. Finally, we believe that effective collaboration is a critical mediating process through which the rich resources of disciplinary knowledge and capability are joined to add value to existing health service provision.

We trust the conceptual and practical contributions and resources presented and discussed in this report contribute to these developments.

Acknowledgements

The work, goodwill, tolerance and preparedness to contribute of everyone involved in this study have been exceptional. The intellectual and pragmatic richness and insights identified in the report have been enabled by the generosity of all the individuals and institutions involved.

Of critical importance in generating the data on which this study has been developed, are the many people in universities, professional bodies, various government policy and workforce bodies and in health practice who participated in the national survey and in one or two rounds of consultations, and who contributed resources and time to support the study.

Study partners have been remarkable in their willingness to ride with and contribute to a process that has often felt like a roller coaster. As a group of partners from twelve geographically distributed institutions, the process of communication has been challenging. We would not have completed this study without their trust and dedication.

The study reference group members have also been generous, active and affirming in their participation and comment. Critical comments have been framed skilfully, enabling us to think more broadly or differently. We have greatly appreciated their participation and look forward to taking this work further globally.

The study team, Marie Manidis (project manager), Tagrid Yassine (who succeeded Marie as project manager), Jane Hager and Chris Rossiter, have all been exceptional, energetic and pro-active. In so many ways, the completion of this study and the development of its outputs would have been impossible without their collective team work and their support of the lead team, in particular myself, and partners.

In a very personal way, I wish to acknowledge my close colleague Professor Alison Lee. Alison was involved from the beginning of this work and was a co-lead in this project. Alison has contributed immensely, in particular to the articulation of the 'four dimensional curriculum framework' developed for this study and, more broadly, has extended our thinking about curriculum and pedagogy. Alison died in September 2012 following a period of illness due to cancer. This was a great loss to many of us and to the study. Alison was a profound thinker, a gifted and passionate educator, a wise and dedicated mentor, a deeply respected colleague and a true advocate of interprofessional practice.

I would also like to thank the Faculty of Arts and Social Sciences, my employing faculty at UTS and, in particular, Professor Nicky Solomon. The faculty and Professor Solomon allowed me a remarkable degree of flexibility in working with the project leading up to and following Alison's death. In a similar way, what became the study lead team following Alison's death – Professors Jill Thistlethwaite and Dawn Forman and Associate Professor Gary Rogers – provided great support. They were always prepared to take on tasks and make comment.

The Australian Government Office for Learning and Teaching (previously, the Australian Learning and Teaching Council) has been immensely supportive and understanding of the difficulties we faced both in terms of partner geographical distribution, and as a result of Alison's death. More particularly, they worked closely with us as we extended the scope of the overall programme of studies, and in the process, redesigned parts of the study, its sequencing and duration. We have greatly appreciated their understanding about complex learning in complex environments.

Finally, I wish to acknowledge the work and support of our external evaluator, Patrick Boyle, who provided input, advice and positive critique at all stages of the study. The meetings between Patrick and myself, the lead team and other members of the study team were always productive and always added value.

Roger Dunston
Study Co-lead
October 2013

Table of Contents

Study Partners and Reference Group	3
Preface	5
Acknowledgements	6
List of Tables	9
List of Figures	10
Glossary and Abbreviations	11
Executive Summary	13
Introduction	15
Curriculum Renewal Study (CRS)	16
Methodology	17
Data analysis	18
Authoring the report	18
What do the report and curriculum development resources provide?	18
Summary details of related studies	18
Recommendations	19
Section 1. Defining Interprofessional Education	21
Introduction	22
IPE/IPP discourse	22
Four influential definitions of interprofessional education	23
In summary	24
Section 2. A Conceptual Framework: The Four Dimensional Model of Curriculum Development	25
Section 3. Interprofessional Competency Framework: a review of six frameworks	29
Introduction	30
What did the National Audit say about IPP competencies?	30
What are IPP competency frameworks?	31
Six important competency frameworks	32
Review Methodology	32
Framework reviews	32
National Interprofessional Competency Framework (Canada)	33
Core Competencies for Interprofessional Collaborative Practice (United States)	34
Interprofessional Capability Framework (UK)	34
CanMEDs (Canada)	35
An Implementation Framework for Interprofessional Learning at Griffith Health 2011–2014	36
Curtin University Interprofessional Capability Framework	37
Australian professional competencies and interprofessional practice	40

Section 4. Teaching, Learning & Assessment	41
Introduction	42
What did the National Audit say about teaching and learning?	42
Curriculum Design and Decision Making: Five Interprofessional Curriculum Frameworks	48
The decision-making process	53
Methods	56
Teaching and learning decisions	54
Assessment	58
Section 5. The Evaluation of Interprofessional Education at Pre-qualification Level:	
Methods and Critique	61
Introduction	62
What did the National Audit say about Evaluation?	62
The nature and purpose of evaluation	64
Evaluation in IPE – the dominance of the Kirkpatrick and JET model	65
A narrative review of evaluation methods – 2013	66
Beyond Kirkpatrick and JET: realist evaluation for health professional education	67
Concluding comments	68
Section 6. Local Implementation: Case Studies and Exemplars	69
Introduction	70
What did the National Audit say about IPE implementation?	70
IPE case studies and exemplars	71
Methodology	72
Snapshot of case studies	72
Thematic Analysis	73
Conclusion – case study analysis	74
Section 7. Deliverables + Change: maximising the impact of a study	75
Introduction	76
Stage 1: 2007 – 2009	76
Stage 2: 2010 – 2013	78
Section 8. Conclusion and Recommendations	81
Why is this work important?	82
Where to from here?	82
Recommendations	83
Recommendations elaborated	83
A National Forum – an initial step in national leadership	84
References	85
Appendices	91
Appendices Table of Contents	92

List of Tables

Table 1.	Summary overview – competencies, evaluation and resource links	39
Table 2.	Summary of relevant theories to inform IPE (Barr 2013)	48
Table 3.	Summary of British Columbia’s Competency Framework elements	49
Table 4.	Curtin University’s Faculty of Health Sciences IPE Curriculum Model	50
Table 5.	Classification of IPE methods	56
Table 6.	Classification of interprofessional outcomes	65

List of Figures

Figure 1.	4DF in diagrammatic form	27
Figure 2.	Finding 1 from the National Audit Study (2013)	31
Figure 3.	Finding 2 from the National Audit Study (2013)	31
Figure 4.	Finding 3 from the National Audit Study (2013)	43
Figure 5.	Finding 4 from the National Audit Study (2013)	43
Figure 6.	Finding 6 from the National Audit Study (2013)	44
Figure 7.	Finding 9 from the National Audit Study (2013)	45
Figure 8.	Finding 10 from the National Audit Study (2013)	46
Figure 9.	Finding 13 from the National Audit Study (2013)	46
Figure 10.	Finding 8 from the National Audit Study (2013)	47
Figure 11.	Teaching and Learning Decision-Making Tree	53
Figure 12.	Assessment Decision-Making Tree	54
Figure 13.	Finding 5 from the National Audit Study (2013)	55
Figure 14.	Finding 16 from the National Audit Study (2013)	58
Figure 15.	Finding 17 from the National Audit Study (2013)	59
Figure 16.	Finding 18 from the National Audit Study (2013)	60
Figure 17.	Finding 19 from the National Audit Study (2013)	63
Figure 18.	Finding 20 from the National Audit Study (2013)	63

Glossary

Interprofessional education, learning and practice

The focus of the study documented in this report is interprofessional education (IPE) for interprofessional learning (IPL) and interprofessional or collaborative practice (IPP). An initial task in the report is to comment on the critical issue of what these terms mean. In doing this we draw on a series of commonly cited and influential definitions. We seek to synthesise and add to what has already been done (see Section 1). However, to orientate readers we refer to what is arguably the most cited and widely adopted definition of interprofessional education, learning and practice, before briefly elaborating on this definition.

- Interprofessional education (IPE): Occasions when two or more professions learn from, with and about each other to improve collaboration and the quality of care.
- Interprofessional learning (IPL): Learning arising from interaction between members (or students) of two professions. This may be a product of interprofessional education or occur spontaneously in the workplace or in education settings.
- Interprofessional practice (IPP): Two or more professions working together as a team with a common purpose, commitment and mutual respect. (Freeth, Hammick, et al. 2005, pp. xiv-xv).

IPE enables health professionals to learn and practise in ways that add to what can be achieved through uni-disciplinary practices and, in doing this, improve health outcomes for patients. We believe that what characterises and differentiates IPE from other forms of learning is: i) its focus on learning through practising with others from different professions, agencies and sectors; ii) the educational conditions it establishes to produce a particular kind of learning, as much as possible reflecting workplace practice; and, iii) its pedagogical intent, the development of knowledge through the experience of practice, discussed by writers such as Kemmis and Smith (2008) as 'praxis'.

Competencies and Capabilities

In this document we refer to interprofessional practice competencies, capabilities and learning outcomes, as the aim, focus and outcome of IPE. Each of these terms carries complex institutional histories and meanings. They are used and theorised in different ways, often depending on the institutional context, and are part of complex and contested debates about the education, learning and professional practice.

We have made a pragmatic decision to use the term 'competencies' throughout this report. This decision was not based on a conceptual comparison or preference; rather the decision was a response to the usage that seems to be most common in the area of Australian health professional practice and workforce development.

Patients, clients, consumers?

The above terms are frequently used interchangeably to identify the person seeking and/or receiving and/or participating in health service provision. We have chosen to use the term 'patient'. Whilst this is not our preferred term, it seems to reflect the most frequently used term in the various literatures and discourses with which we have engaged.

Abbreviations

3P	3-P Model – presage, process, product (Freeth & Reeves 2004)
4DF	Four Dimension Framework (of Curriculum Development)
AASW	Australian Association of Social Workers
AIPPEN	Australasian Interprofessional Practice & Education Network
ALTC	Australian Learning and Teaching Council
BC	British Columbia (Competency Framework for Interprofessional Collaboration)
BERA	British Educational Research Association
CAIPE	Centre for the Advancement of Interprofessional Education
CIHC	Canadian Interprofessional Health Collaborative
CLEIMS	Clinical Learning through Extended Immersion in Medical Simulation
CPD	Continuing professional development
CRPS	Chronic regional pain syndrome
CRS	Curriculum Renewal Study (the study reported on)
CU	Curtin University (Interprofessional Education Curriculum)
CUICF	Curtin University Interprofessional Capability Framework
CUILU	Combined Universities Interprofessional Learning Unit
FTE	Full-time equivalent
GEMS	Graduate Entry Masters
GIFS	Guided Interprofessional Field Study
GP	General Practitioner
GU	Griffith University
HWA	Health Workforce Australia
IBL	Issues-based learning
IDEAS	Institute for the Development of Education And Scholarship
IOM	Institute of Medicine
IPE	Interprofessional Education
IPEC	Interprofessional Education Collaborative
IPL	Interprofessional Learning
IPP	Interprofessional Practice
JET	Joint Evaluation Team
JIC	Journal of Interprofessional Care
JRIPE	Journal of Research into Interprofessional Education
L-TIPP	Learning and Teaching for Interprofessional Practice
LP	Linköping University
LTASP	Learning and Teaching Academic Standards Project
MPHPT	Maternal & Perinatal Health Priority Taskforce
NHS	National Health Service (UK)
OLT	Office of Learning & Teaching
OSCE	Objective Structured Clinical Examination
PBL	Problem based learning
PIPER	Program for Interprofessional Practice, Education and Research
QUM	Quality Use of Medicines
SH	Sheffield Hallam (University)
TLO	threshold learning outcome
UBC	University of British Columbia
UK	United Kingdom
UQ	The University of Queensland
USyd	The University of Sydney
UTS	University of Technology, Sydney
WHO	World Health Organization

Executive Summary

This report **Curriculum Renewal for Interprofessional Education in Health** (CRS) is the final deliverable in the Office for Learning and Teaching (OLT) funded study of the same name. It focuses on the design, delivery, development and future of pre-registration interprofessional education (IPE) in Australian universities. The study was conducted during 2011-2013 by a consortium led by the University of Technology, Sydney (UTS) which included nine Australian universities, two government bodies and a non-government organisation.

The study used five distinct methods of information gathering and stakeholder engagement: i) a national survey of IPE activities across Australian universities offering health professional education (National Audit Study – see below); ii) a qualitative study of curriculum development in West Australian universities (WA Study – see below) iii) extensive consultations with key education, profession-specific and government bodies; iv) the identification of relevant national and international resources to support curriculum development; and v) comment and guidance from a reference group of eminent national and international IPE educators and researchers established to assist the study team.

In its introduction, the report identifies the context and key issues that the report addresses, in particular, the Australian higher education and health service context. It briefly describes the two other studies undertaken in tandem with the CRS. These other studies have provided one important source of data for the CRS. Finally, the study focus and methodology of the CRS are presented.

Section 1 identifies a comprehensive conceptual framework developed by the study team for investigating IPE curriculum development (the ‘four dimensional model of curriculum development’ [the 4DF] see below. The 4DF has been used as a way of organising report data and communicating report findings.

Section 2 introduces the discourse of interprofessional education and interprofessional practice, presents and summarises four influential definitions of IPE and identifies common themes and defining characteristics of IPE in health.

Section 3 introduces and comments on the competencies and capabilities required for IPP. It summarises six influential competency frameworks developed in Australia and overseas. In doing this, section 3 presents data from the earlier National Audit Study – a study of IPE activity across Australian universities. It illustrates the diversity of terminology and lack of specificity in the way that competencies and learning outcomes are identified, and the fact that a considerable number of IPE units/programs did not appear to align to one or more IPP competencies or, in some cases, learning outcomes.

Section 4 presents information about educational approaches and teaching methods used to present IPE in Australian universities and addresses the issue of when IPE should be introduced to students. It identifies key factors to consider when developing effective IPE and addresses issues about assessing IPE and how effectively IPE activities meet learning outcomes. Section 4 also provides a summary of and discusses five IPE curriculum frameworks, developed in Britain, Canada, Sweden and Australia (two frameworks).

Section 5 identifies the challenges of evaluation in IPE within the broader context of human services and education. It reports on the extent of evaluation in current IPE activities in Australian universities and suggests the need for new ways of conceptualising and conducting evaluation in IPE, including ‘realist’ approaches to evaluation.

Section 6 addresses the implementation of IPE and analyses data from both the National Audit Survey and from extensive consultations with key stakeholders about the principal elements in implementing IPE in and across diverse institutional settings. It presents nine IPE implementation case studies and draws out common elements enabling successful implementation.

Section 7 reflects on the design and implementation of a number of Australian studies of IPE in health. It makes reference to the study and team process of the CRS, the National Audit Study and the WA Study. It discusses the challenge and importance of working at lasting and sustainable change.

Section 8 draws conclusions and makes recommendations for developing a national approach to IPE curriculum development and capacity building. These recommendations are informed by the CRS and build on many existing Australian achievements. The report ends with a call for a national forum involving all key stakeholder bodies and individuals to plan for and design a cross-sector and interprofessional governance approach that will progress IPE and interprofessional practice in Australia¹.

¹ Importantly, support and funding have been provided by the OLT, HWA and WA Health to address this need. Two national forums will be held in early/mid 2014.

Introduction

Roger Dunston

Introduction

This report **Curriculum Renewal for Interprofessional Education in Health** (CRS) is the final deliverable in the OLT funded study of the same name. Its focus is the design, delivery, development and future of pre-registration interprofessional education (IPE) in Australian universities.

The CRS report also draws extensively on content from two other study reports that overlapped in time and personnel: the *National Audit of Interprofessional Education in Health* report (NAS), funded by Health Workforce Australia, 2011–2012; and *A Qualitative Study into Interprofessional Education for Health Professionals in Western Australia* (WA Study), funded by the Western Australian Department of Health (WA Health), 2011–2012. The CRS study also draws on and takes its point of departure from an earlier study involving CRS lead team members: *Learning and Teaching for Interprofessional Practice* (L-TIPP), funded by the Australian Learning and Teaching Council, 2007–2009.

These studies constitute part of an increasing focus on IPE, interprofessional learning (IPL) and interprofessional practice (IPP) in health service redesign, health professional practice, health workforce development, health policy, continuing professional development (CPD) and health professional education in Australia and globally.

Given the particular focus of this report, curriculum renewal in the area of pre-registration IPE, we do not address these broader developments in any detail. We have, however, addressed these matters in other reports and publications (Dunston et al. 2010; Dunston et al. 2009; Forman et al. 2013; Interprofessional Curriculum Renewal Consortium Australia 2013; Lee et al. 2013; Matthews et al. 2011; Nicol 2012; Nisbet et al. 2011; Thistlethwaite et al. 2009).

In the remainder of the Introduction we provide summary details of the CRS study. For completeness we also provide a brief summary of the three studies mentioned above.

Following the introduction, we present CRS recommendations – five national development and capacity building recommendations. We also propose a national forum to be held in 2014.

Each of the recommendations and the national forum proposal are discussed in detail in Section 8, the final section of the report.

The CRS – summary details

The focus and shape of the CRS developed from conversations between L-TIPP partners and a wide range of universities, government bodies and health professional educators with an interest in the development of IPE and IPP in Australia. More particularly, the CRS was a response to the key L-TIPP finding about the need for urgent work on IPE curriculum development. The *L-TIPP report, The Way Forward* (Dunston et al. 2009), provided an impetus and focus for further development and research activity.

The CRS aimed to provide a range of IPE relevant curriculum development resources that would inform, assist and enable those involved with health professional education, IPE curriculum development and, more broadly, health workforce and health policy development in Australia.

Alignment with ALTC priorities

The focus and proposed outcomes of the CRS also responded to the then existing ALTC Priority of ‘curriculum renewal’, with its focus on the future direction of programs; the re-shaping of discipline-based courses; the promotion of interprofessional programs and pedagogies; and the use of information technologies and strategies that seek inclusivity. Particular areas of curriculum work developed in the study also address components of ALTC Priority Project Priority 1: Academic standards and assessment practices.

Study outcomes and deliverables

Two broad outcome categories were identified: first, outcomes that would inform and resource IPE curriculum development; second, outcomes that would support and enable uptake, implementation and national capacity building. Whilst identifying and developing curriculum resources would be vital (the first outcome area), it would not be sufficient to enable the kind of change we believed would be required. An active process of dissemination, stakeholder engagement and buy-in, and a focus on connected national action would also be required (the second outcome area). The underpinning study methodology was built around the need for deliverables and strategies addressing both, to be run in parallel. We discuss this in Section 7 as ‘deliverables + change’.

Five deliverable areas were specified:

Deliverable 1

Focuses on developing a future orientated curriculum framework, the ‘Four Dimensional Curriculum Framework’ (4DF) (Lee et al. 2013). The 4DF has been used across the three studies as a way of organising, analysing and communicating about the studies - see Sections 1 and 2.

Deliverable 2

Focuses on the presentation of a resource bank of curriculum development materials. This deliverable is achieved through work in three sections of the report:

- competencies and interprofessional competency frameworks – see Section 3.
- teaching, learning and assessment – see Section 4.
- evaluation – see Section 5.

Deliverable 3

Focuses on local implementation. We present a number of ‘case studies’ from partners focused on building and implementing IPE curriculum. We supplement these with a number of Australian implementation examples provided by a broad range of Australian universities and other organisations. We also provide a brief analysis of factors associated with success and sustainability – key success factors.

Deliverable 4

Involves a description of how we used the CRS, National Audit and WA studies to work for change and national capacity building.

Deliverable 5

Focuses on increasing levels of understanding in relation to IPE as a consequence of the study, discussed in Section 7.

Study Partners

One of the most rewarding and challenging aspects of the study has been the commitment and input from a large number of geographically dispersed partners, as well as the complexities of managing information sharing, the development of common understanding, and defining a division of labour. We comment on these issues in Section 7 of the report.

Refer page 3 for a list of study partners and their institutions.

Study Reference Group

As one critical part of the study methodology, we sought the participation of leading IPE scholars nationally and internationally. We had also done this for the L-TIPP study.

Refer page 4 for a list of reference group members with their country affiliations.

We have benefited immensely from the input of reference group members. Their participation, positively critical, encouraging and affirming, has been a strength of the project. Their ability to point us toward international work and resources has added much and ensured we were not building in isolation.

Methodology

The study used four distinct methods for information gathering and stakeholder engagement:

A national survey

Our aim was to revisit the findings of an earlier, limited national survey (Dunston et al. 2009). Work in this area identified the broad contours of IPE activity in higher education in Australia. The incorporation of additional capacity from the National Audit study enabled this survey to become an in-depth study of IPE across all Australian universities. It focused on competencies/capabilities, learning outcomes, methods of teaching, modes of assessment, evaluation and local implementation. All Australian universities involved in health professional education were invited to participate in the survey. Participants from 26 different universities responded, providing information about 83 specific IPE activities (Interprofessional Curriculum Renewal Consortium Australia 2013). Appendix 2 presents a table of the higher education institutions that participated.

National stakeholder consultation

To supplement data gathered from the survey, we used a consultative method. We originally planned to consult key higher education, profession-specific and government bodies, with the scope of the consultative effort limited to key and peak bodies. With the capacity made available from the National Audit and WA Health studies, we were able to expand significantly the scope and depth of consultation activity. The extensive scope of consultations and the detail of conversations this facilitated have provided a significant opportunity to identify issues and, importantly, invite key bodies into the study process (see Appendix 3).

Resource identification and review

A major aim of the project was to identify relevant resources to support curriculum development. This work has been an ongoing activity across all three studies: the National Audit Study, the WA Study and the CRS.

Resources have been organised in two ways. For the most part, the material presented in all sections of the report provides a comparative summary and analysis of a wide range of resources, approaches, frameworks etc. This is particularly the case with sections 4 and 5, which cover teaching, learning, assessment and evaluation. Additionally approximately 100 resources are identified and made available in a comprehensive electronic Resource Bank developed as part of this study.

The Resource Bank is available on the AIPPEN web site (www.aippen.net/ under Resources).

Establishing an international reference group

To ensure we accessed contemporary international resources and developments, the project established a group of some of the most well-known and influential educators and researchers working in IPE/IPP nationally and internationally. Utilising this group to assist, advise and disseminate has proved immensely valuable.

Data analysis

An important decision made at the beginning of the project concerned the need to develop and utilise a curriculum development framework as a way of organising all data and communicating findings. The 4DF has been an important outcome and is discussed in Section 2. We have used it extensively as a way of bringing diverse forms of data together.

The study committed to a complex and rich process of data analysis. We conducted analytic work in each of the areas of data development and used extensive statistical analysis for managing the national survey data. A significant amount of qualitative data was generated from the survey – open-ended questions – and from the stakeholder consultations. We used thematic content analysis to organise and communicate this data, gathered from documentary, exemplar and evidence reviews.

Authoring the report

As we thought about the final design of the report, we felt the structure of a book made sense. We formed working groups to address specific areas of the 4DF. We list the authors at the beginning of each section. Working groups took on an overall structure agreed across all study partners. However, each of the sections bears the particular writing style and characteristics of the working group involved. After sections were written, members of the lead team and the study team provided further input. Our aim was to make the report coherent as to concepts, questions addressed and how we communicated findings, but also to preserve the writing characteristics of the authors involved.

What do the report and curriculum development resources provide?

Importantly, this study aims to ‘inform’ and ‘resource’ curriculum design and development. We have purposely avoided suggesting a ‘right way’ for IPE curriculum to be designed and delivered. Rather we have attempted to work from high-level principles to the detail of activities and methods. This recognises that, while we need to be clear about what distinguishes IPE at the level of pedagogy and methods (see Section 1), issues of how curriculum is configured and delivered need to respond to local circumstances – the context, the stage, the type of students, and the learning outcomes.

Summary details of related studies

Interprofessional education: the National Audit Study (NAS)

This project was funded by Health Workforce Australia. It developed a profile and analysis of IPE activity in health disciplines across all relevant Australian universities during 2011, based on the first national survey of activities in this area. The findings of the National Audit Study provide an important resource, informing and supporting the development of the current study. The National Audit also considers a number of future scenarios, as a method for exploring recommendations about future curriculum development and national capacity building. See Interprofessional Curriculum Renewal Consortium Australia (2013).

The recommendations of the National Audit Study are linked to the work undertaken in the various sections of the CRS. National Audit Study recommendations are identified in Appendix 1. For more information see also www.ipehealth.edu.au

Interprofessional education for health professionals in Western Australia: perspectives and activity (WA Study)

This qualitative study was funded by WA Health. It investigated the developments in IPE in four participating universities in WA in order to map existing and planned IPE activity in institutions in one state. As well as documenting the principal IPE activities in depth, the study examined cultural, logistical and strategic factors that had an impact on the development and delivery of IPE. See Nicol (2012). For more information see www.ipehealth.edu.au

Learning and Teaching for Interprofessional Practice (L-TIPP)

The L-TIPP project, a national scoping and development project, was funded by the ALTC. It consulted widely about key issues – challenges, opportunities and constraints – in the area of Australian IPE. Its recommendations focused on the need for a more coherent and coordinated approach to IPE curriculum development and national capacity building. For more information see www.rilc.uts.edu.au/projects/ltipp/

Recommendations

Curriculum Renewal Study Recommendations

As an outcome of the CRS and as way of drawing together what we have been told and have learned through the study, we make **five national development and capacity building recommendations**.

We also identify a proposal for a **National Forum** to be held in 2014. We believe that such a forum could establish the development contours and priorities of Australian IPE development for the next five to ten years.

Each of the recommendations and the National Forum proposal are discussed in detail in Section 8, the final section of the report.

A National Forum – an initial step in national leadership

We conclude this section and the report with a proposal for a national forum to be held during 2014 on the future of IPE in Australia². This proposal is a response to Recommendation 1. The design and governance of such an event would be critical. It would need to include all relevant stakeholders, be carefully planned and resourced with what we already know and have achieved in the area of IPE. In discussion with many, many stakeholders across sectors and professions, we believe such a forum could establish the development contours and priorities of IPE development – curriculum, research, evaluation, professional learning, impact and outcomes – for the next five to ten years.

Recommendations

Recommendation 1

Establish inclusive and ongoing structures and processes to provide national leadership in the development of IPE across higher education, health, the professions and government.

Recommendation 2

Develop a nationally coordinated approach to building IPE curriculum and related faculty capacity.

Recommendation 3

Incorporate IPP standards and interprofessional learning outcomes into the accreditation standards of all Australian health professions and recognise that meeting these learning outcomes will require the application of IPE pedagogies.

Recommendation 4

Establish ongoing research to ensure the development of new knowledge and learning to inform IPE curricula and practice.

Recommendation 5

Develop a virtual knowledge repository that organises and disseminates information and knowledge about IPE. This repository would link with other international IPE networks.

² This proposal has recently been funded by the OLT, HWA and the Western Australia Department of Health, Nursing and Midwifery Office.

Section 1.

Defining Interprofessional Education

Roger Dunston

Caron Shuttleworth

Carole Steketee

Section 1.

Defining Interprofessional Education

This section:

- Introduces the discourse of interprofessional education and interprofessional practice
- Presents and summarises four influential definitions of IPE
- Identifies common themes and defining characteristics.

Introduction

This brief section addresses the question of *what is Interprofessional education?*

This question was, in most cases, the starting point in our consultations with stakeholder groups. What struck us again and again was how varied and unspecified were the responses to this question. Not surprisingly, given the ongoing focus on the need for greater role flexibility in response to predicted national health workforce shortages, a number of stakeholders primarily equated IPE and IPP with changes in role delineation. In consistently discussing definitions and meanings, we realised that any productive national conversation about IPE (and IPP and IPL) needs to be introduced by a focus on definitions and meanings. This section addresses this critical issue.

Whilst there is no simple consensus on what IPE is, there are conceptual characteristics consistently referred to by scholars, researchers and practitioners that seek to delineate and differentiate the particular focus and role of IPE within the broader context of health professional education.

To provide readers with an overview of existing definitions of IPE, we first present comments on the discourse of IPE/IPP, or how IPE/IPP is presented and argued at the present time. We then discuss four of the most influential and cited definitions of IPE. We review these definitions for what they say about IPE: its focus, scope, preferred educational methods and contribution, and importantly, how it is presented as distinct from uni-professional education and pedagogy.

IPE/IPP discourse

Two defining features of IPE/IPP discourse are the significant claims made on its behalf coupled with discussions about what

constitutes IPP/IPE, often couched in very broad and discursive terms. The national and global policy literatures consistently focus on and advocate for the benefits of IPP and on IPE as the preferred educational approach to building IPP capabilities.

In response to these challenges, health systems in general, and health services in particular, are increasingly emphasising the critical importance of improved and increased levels of interprofessional practice: that is, health professionals working together, often in teams, to manage complex practice situations. Changing the way health professionals are educated is a critical step to achieving system change and ensuring that health practitioners have the necessary knowledge and training to work effectively within a complex and evolving health care system ...

The global health workforce shortage has been the impetus for the work of a more recent WHO study group on interprofessional education and collaborative practice (Yan et al. 2008). In 2010, this study group, co-chaired by John Gilbert and Jean Yan, released the WHO Framework for Action on Interprofessional Education and Collaborative Practice report (World Health Organization 2010), which emphasises the role of interprofessional education in underpinning the development of a collaborative practice-ready health workforce, where health workers work together and rely on one another in delivering quality healthcare. The report summarised the evidence regarding the positive impact of interprofessional education on collaborative practice, and the impact of collaborative practice in addressing local health needs and improving healthcare delivery and patient outcomes (Nisbet et al. 2011, pp. 8-9).

Within the Australian context, the need for new forms of educational thinking and practice aimed at addressing the above health issues and challenges through IPE have been increasingly articulated. For example, the National Patient Safety Education Framework report (Australian Council for Safety and Quality in Health Care 2005) identified that the development of IPE and IPP capabilities across all sections of the Australian health workforce was essential for enabling effective collaboration, effective teamwork, and increased levels of quality and safety:

In the past most training and education in health care has been delivered using the learning objectives of a particular profession, occupation or profession. This segregated approach is not appropriate in today's health care system where complexity, technology and specialization are the norm ... Health care workers who are educated and trained to work together can reduce risks to patients, themselves and their colleagues (Australian Council for Safety and Quality in Health Care 2005, p. 6).

Within the educational context, whether undergraduate, pre-registration, post-registration or in workplace learning, participation in IPE activities is argued as generating the competencies required for future practice, that is, competencies for health professionals to function in a more complex health context where the experience of health and illness is increasingly shaped by changing demographic and lifestyle factors. (See Section 3 for a detailed discussion of IPP competencies.)

In keeping with this view, Health Canada notes that ‘changing the way we educate health providers is key to achieving system change and to ensuring that health providers have the necessary knowledge and training to work effectively in interprofessional teams within the evolving health care system.’ (Cited in Braithwaite & Travaglia (2005, p. 17).

A further constant of many conceptualisations of IPP/IPE is the tendency to talk of IPE/IPP in terms of ‘teams’ and teamwork. Whilst intuitively the focus on teams makes sense, we think this narrows the applicability of IPP and IPE and draws a problematic distinction between team-based practice and other practice. We believe that the recent championing by the WHO in their *Framework for action on interprofessional education and collaborative practice* (World Health Organization 2010) of the term ‘collaborative practice’ is more helpful and inclusive, recognising the need for effective collaboration (if only with the patient) as a requirement for all forms of service delivery.

In terms of discourse, IPP is identified as adding value to and extending the practice competence of health professionals as they work together to deliver safe, effective and more sustainable health care. IPE is consistently identified as equipping graduating health professionals with IPP capabilities. The educational methods and pedagogy associated with IPE are largely identified as distinct from those associated with uni-professional education.

Four influential definitions of interprofessional education

While many definitions of IPE appear in the literature, most authors refer to a few primary sources that have become influential when discussing the conceptual and educational contours of IPE. As various bodies have taken up these definitions, they have been slightly amended – extended, specified or otherwise adapted. To provide some sense of these developments, we identify and discuss four of the most influential and cited definitions of IPE. These were developed by peak organisations in health professional practice or education:

- Centre for Advancement in Interprofessional Education (CAIPE)
- Canadian Interprofessional Health Collaborative (CIHC)
- World Health Organisation (WHO)
- Interprofessional Education Collaborative (IPEC).

The Centre for Advancement in Interprofessional Education (CAIPE)

Founded in 1987 as a UK-based independent ‘think tank’ of individual and corporate members, CAIPE works with organisations in the UK and overseas to improve collaborative practice and thereby the quality of health and social care, through professionals learning and working together. Its goal is to act as an authoritative national and international voice on IPE in both universities and the workplace.

The current CAIPE definition of IPE has arguably become the most globally used definition: ‘IPE occurs 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).

The CAIPE definition with its focus on an experiential approach to learning with, from and about students from other professions is deceptive in its brevity. Whilst added to and extended in a range of important ways, the CAIPE definition, with its focus on learning across professional knowledge and practice boundaries, constitutes the most essential and important articulation of the learning orientation of IPE. As in the following definitions, this definition emphasises the central place of collaboration, or rather effective collaboration, as the mediating factor in producing improved patient care outcomes.

The ground-breaking work of CAIPE owes much to the exceptional work of Hugh Barr, Emeritus Professor of Interprofessional Education at the University of Westminster (London) and President of CAIPE. Professor Barr’s background is in social work, specifically the probationary services, prison aftercare and criminology in the UK. His interest in IPE is longstanding and his publication record in the field is second to none. He is Emeritus Editor of the *Journal of Interprofessional Care* and holds visiting chairs in IPE at Curtin University (Western Australia), the University of Greenwich, Kingston University with St George’s University of London and University Campus Suffolk. He served on the WHO study group reviewing interprofessional developments worldwide.

The World Health Organization (WHO)

The WHO incorporates the CAIPE definition of ‘two or more professionals learning with, from and about each other to enable effective collaboration and improve health outcomes’ (World Health Organization 2010, p. 13). What is particularly important about the conceptual work of the WHO is its co-location of IPE with ‘collaborative practice’. The use of this term poses a far broader meaning and applicability for IPE and IPP. IPE is presented as the educational approach for building collaborative competencies. Such competencies are argued as required for all forms of collaboration. The WHO, commenting on its 2010 Framework for Action, notes:

The Framework for Action on Interprofessional Education and Collaborative Practice recognizes that many health systems throughout the world are fragmented and struggling to manage unmet health needs. Present and future health workforce are tasked with providing health-services in the face of increasingly complex health issues. Evidence shows that as these health workers move through the system, opportunities for them to gain interprofessional experience help them learn the skills needed to become part of the collaborative practice-ready health workforce (World Health Organization 2010, p. 10).

Canadian Interprofessional Health Collaborative (CIHC)

The Canadian Interprofessional Health Collaborative (CIHC) is 'Canada's hub for interprofessional education and collaborative practice. Founded in 2006, CIHC's original purpose was to link together 20 projects funded under a Health Canada initiative. CIHC's membership includes health providers, educators, researchers, policymakers, patients and students' (Canadian Interprofessional Health Collaborative 2013).

Dr. John Gilbert, Principal and Professor Emeritus, College of Health Disciplines, is the CIHC's Chair and Project Lead. He was the College of Health Disciplines' first appointed Principal at UBC in December 2001 and held this position until his retirement from UBC in June 2006. He continues to be a leader in projects and initiatives across Canada and internationally in pursuit of advancing interprofessional education.

CIHC's definition is closely aligned with CAIPE but adds that IPE occurs when 'health care professionals learn collaboratively within and across their disciplines in order to gain the knowledge, skills and values required to work with other health care professionals' (Canadian Interprofessional Health Collaborative 2010, p. 8). In doing this they add a degree of specificity in relation to scope. IPE targets 'knowledge', 'skills' and 'values'. This definition identifies 'working with other health care professionals' as the mediating factor or mechanism through which better outcomes are achieved. Clearly this is a critical issue in seeking to tease apart what produces more effective and patient-responsive health service delivery. Interestingly, this definition also recognises that in many areas of practice the degree of specialisation within a profession is now so great that practitioners from the same profession may well experience the same challenges in sharing information and interacting as practitioners working across professions. This issue was raised in several stakeholder consultations, in particular with medical practitioners.

Interprofessional Education Collaborative (IPEC)

IPEC was formed in the United States in 2009 by the national education associations representing schools of six health professions: allopathic and osteopathic medicine, dentistry, nursing, pharmacy and public health. IPEC's goal is 'to promote and encourage efforts that would advance substantive interprofessional learning experiences to help prepare future clinicians for team-based care of patients' (see ipcollaborative.org/About_IPEC.html). The Collaborative aims to create core competencies for interprofessional collaborative practice to guide curricular development – not only in the professions represented in IPEC, but across all health professions.

IPEC indicates that IPE is 'a learning process that prepares professionals through interdisciplinary education and diverse fieldwork experiences to work collaboratively with communities to meet the multifaceted needs of children, youth and families' (Interprofessional Education Collaborative Expert Panel 2011, p. 7).

The IPEC definition elaborates on the CAIPE and CIHC definitions of IPE through its emphasis on the patient and distinct groups in the community – 'children, youth and families' and 'communities'. This definition also foregrounds an important topic in many discussions of IPE, that is the importance of learning

through experience related to practice (fieldwork). The central place of learning with, about and from other students in settings that emulate practice is frequently presented as something that differentiates IPE from most uni-professional pedagogies. As with the CIHC definition, this definition implies the importance of working together as the mediating factor in producing better care.

In summary

Whilst the broad rhetorical thrust of these definitions is similar, taken collectively they provide a nuanced view of how particular key bodies focused on reform in health systems, the workforce and professional education currently view the conceptual and practice contours – foci, scope, mechanisms and contributions – of IPE.

In examining these definitions, what is evident?

- IPE involves students (or health professionals) from more than one profession, ideally from as many professions as is feasible and meaningful given the learning outcomes to be addressed.
- IPE recognises as its point of departure that effective health care practice is inevitably a collective and social process – a process of collaboration within and between professions (and often between agencies and sectors).
- IPE pays particular attention to how interprofessional, collaborative and team-based practice needs to be developed to optimise service user outcomes.
- IPE pays particular attention to the need for situational design in practice, that is, IPE is patient and context responsive.
- IPE focuses its educational activities and learning outcomes towards achieving understandings and competencies required by students/health professionals to practise in a collaborative context.
- IPE utilises methods and tasks that as much as possible mirror practice as it occurs in diverse health settings, i.e. it is active and interactive³.
- IPE pays particular attention to the kinds of educational methods that create the conditions required to achieve the kind of learning identified above.

The outcomes of active and interactive education that works across professional boundaries, whilst more detailed in some definitions than others, are fundamentally similar. The experience of well developed and well presented IPE enables health professionals to learn and practise in ways that add to what can be achieved through uni-disciplinary practices and, in doing this, improve health outcomes for patients. We believe that what characterises and differentiates IPE from other forms of learning is its focus on learning through practising with others from different professions, agencies and sectors; the educational conditions it establishes to produce a particular kind of learning, as much as possible reflecting workplace practice; and its pedagogical intent, the development of knowledge through the experience of practice, discussed by writers such as Kemmis and Smith (2008) as 'praxis'.

³ Simulation clearly offers many opportunities when practice in-situ is not possible.

Section 2.

A Conceptual Framework: The Four Dimensional Model of Curriculum Development

Alison Lee

Monica Moran

Gary Rogers

Carole Steketee

Section 2.

A Conceptual Framework: The Four Dimensional Model of Curriculum Development

This section:

- Presents a conceptual framework for curriculum development, developed by members of the study team, which is used to organise and analyse data from this and related studies
- Includes a summary of the underlying conceptual work relating to each curriculum dimension. It addresses the why, what, how and where of the curriculum development process.

As a central strand in the development of the CRS, partners highlighted the importance of identifying a conceptually coherent approach to curriculum renewal. Our experience in earlier IPE-focused projects, particularly the L-TIPP project (see <http://www.rilc.uts.edu.au/projects/ltipp>) and more broadly in the area of curriculum development, identified the considerable variability in how curriculum was often conceptualised and approached. In particular, it highlighted the localisation of curriculum as a pragmatic response to institutional circumstances:

the term 'curriculum' tends to be used in its limited sense, often referring to the development of written syllabi for courses where learning objectives, activities and assessments are identified for localised needs. In this regard, little systematic attention is paid in the curriculum development process to the impact of curriculum decisions on the health of citizens or the future development and sustainability of the health professions; that is, there is little theoretical framing of the curriculum development process. (Lee et al. 2013, p. 65)

To provide a conceptual framework that addressed the above issues a working group comprising project partners with extensive curriculum expertise in health professional education and more generally in educational research, undertook the task of generating a curriculum framework that could be used within the project but also more broadly. At the macro level, a central feature of the curriculum framework is that it identifies the need for curriculum conceptualisation to engage with a range of socio-political and economic factors. At the micro level, it identifies

the need for attention to the particular circumstances of the institutions involved.

It [the process] recognises the need to connect health curriculum directly to the larger political, social and economic issues surrounding the profession for which it aims to prepare graduates, in addition to acknowledging the cultural and historical forces that underpin these influences. (Lee et al. 2013, p. 64)

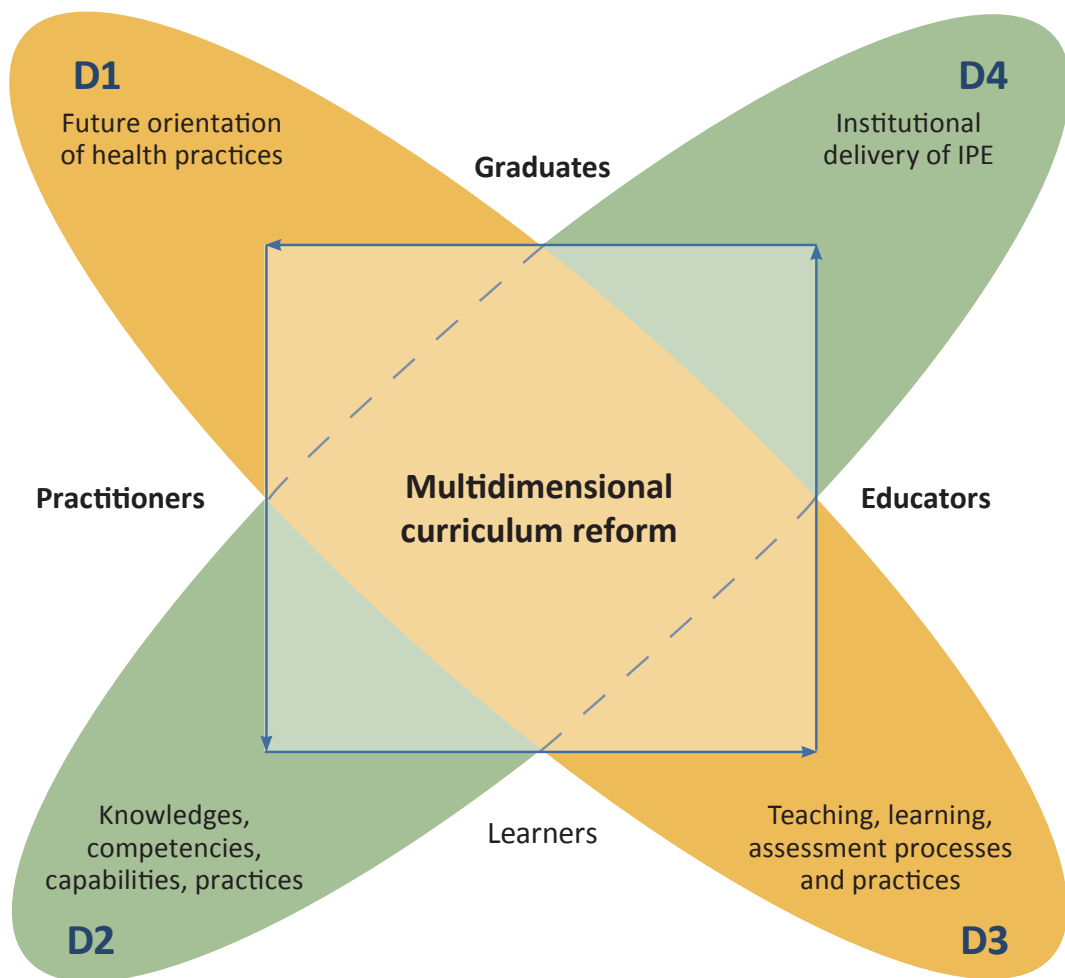
The outcome of the working group activity has been the development of a curriculum framework – the 'four-dimensional curriculum framework' (4DF). The 4DF has been used to organise and analyse data and to communicate findings across all three studies. In generating the 4DF working group members drew on the work of Bernstein (1971) and Ball (1990). Bernstein identified three message systems, knowledge, pedagogy and assessment, while Ball added a fourth, that of the organisational dimensions of curriculum (Yates 2009).

What follows is a brief overview of the 4DF. Figure 1 presents the model in a diagrammatic form. A brief description of each of the dimensions is then provided. Interest in and discussion about the 4DF has been a major feature of many of our peak body consultations. The 4DF has also generated much interest at conference presentations.

Figure 1: 4DF in diagrammatic form (next page).

Dimension 1: Identifying future health-care practice needs. This dimension seeks to connect health professionals' practice needs to new and changing workplace demands in all health sectors. Curriculum considerations take into account global health and educational reforms; how these link to the development of knowledges, competencies, capabilities and practices; as well as local institutional delivery conditions.

Dimension 3: Teaching, learning and assessment. This dimension pertains to the development of appropriate learning, teaching and assessment experiences, all of which have been guided by the messages inherent within D1 and D2.



Dimension 2: Defining and understanding capabilities. This dimension describes the knowledges, capabilities and attributes health professionals require. This component addresses how changing health services impact on expertise, identities and practice, which ultimately impacts upon the training and preparation of future health professionals.

Dimension 4: Supporting institutional delivery. This dimension focuses on the impact of local university structure and culture in the shaping of curriculum design and delivery, such as timetabling, logistics and entry requirements.

(Extract from: Lee, A., Steketee, C., Rogers, G. & Moran, M., 2013, 'Towards a theoretical framework for curriculum development in health professional education', *Focus on Health Professional Education: A Multi-disciplinary Journal*, vol. 14, no. 3, pp. 64–77.)

Towards A Theoretical Framework For Curriculum Development In Health Professional Education

Dimension One: Big picture decisions – the Why?

The first dimension focuses attention on curriculum as a program of knowledge and learning, shaped by social, historical, political, economic, professional and educational forces, and a purposeful selection from relevant aspects of a culture. At the same time, curriculum contributes directly to the shaping of professional, social, economic and personal futures through the production of graduates who enter the workforce with particular knowledge, skills and attitudes (Australian Curriculum Studies Association 2009). Additionally, different curricula reflect particular visions of the future that are valued either implicitly or explicitly by those who are responsible for shaping it.

Where health professional education is largely structured along disciplinary lines, assumptions of value and notions of future workforce needs reflect the interests of a discipline. Similarly, if health professional education is shaped through work-based, interprofessional or public health foci, a different set of interests and visions would be encoded in curriculum design.

Dimension Two: Defining graduate capabilities – the What?

Dimension Two focuses our attention on identifying sets of learning outcomes, expressed in relation to standards and sets of attributes: knowledge, skills and capabilities, as well as dispositions: values and attitudes, articulated within the idea of professional practice (Barrie 2006). However, rather than practice being merely the application of abstract knowledge gained during traditional modes of study, contemporary theoretical understandings of practice demonstrate how professional capabilities are complex and develop in situations where they are enacted (Green 2009; Schatzki 2001). That is, becoming and being a health professional is substantially learned on the job, through practising and systematic critical reflection on practice. This second dimension is the primary place where the dynamic interplay between 'knowing, doing and being' (Barnett & Coate 2005) is articulated.

Health professional practice is multi-dimensional, contextually specific and relationally complex and this must be reflected in the capabilities of graduates. Understanding professional practice in these terms requires a curriculum framework that is directly connected to the considerations in Dimension One. That means that this practice-oriented conception of the second dimension needs to extend beyond a uni-disciplinary focus and beyond an approach to capability development understood in purely cognitive and individual terms.

Dimension Three: Teaching, learning and assessment – the How?

The third dimension focuses on the core educational activities of teaching, learning and assessment. As a message system, these three elements constitute the daily decision-making and dynamics of education. However, they also carry important elements of the previous two dimensions: assumptions about the big picture; what model of the future is articulated in the selection and sequencing of learning activities; how practice is best learned, and so on. For example, traditional didactic modes of teaching (large lectures, memory learning, sequestration of disciplines from each other) encode values and hierarchies about the relationship between theory and practice; between the various professional disciplines; between curative and primary or preventive health models. In contrast, collaborative, inquiry-based, team-based, work-based, or simulation-based modes of teaching, learning and assessment carry a message about a different set of assumptions regarding these relationships.

Dimension Four: Supporting institutional delivery – the Where?

The fourth dimension considers the organisational and administrative context in which curriculum is structured, implemented and experienced (Ball 1990). This fourth dimension involves cultural norms, protocols and procedures responsive to specific universities and locations. It addresses the complex cultural challenges and accommodations of translating curriculum ideas into curriculum practices that are enacted and experienced by teachers, students, clinicians and organisers. As a message system, this element is often overlooked in accounts of curriculum renewal and considered to be 'outside' curriculum design. Yet organisational life within educational settings is a powerful force shaping what is considered possible and desirable. Each university carries its own historical, demographic and organisational culture.

Section 3.

Interprofessional Competency Framework: a review of six frameworks

Dawn Forman

Jane Hager

Lynda Matthews

Tagrid Yassine

Section 3.

Interprofessional Competency Framework: a review of six frameworks

This section:

- Addresses the concepts of competencies and capabilities required for IPP
- Presents data from the National Audit Study about the specification of competencies in IPE activities in Australian universities
- Presents and summarises six influential competency frameworks developed in Australia (Griffith University, Curtin University) and overseas (Royal College of Physicians and Surgeons of Canada, the Canadian Interprofessional Health Collaboration, the US-based Interprofessional Education Collaborative and the Combined Universities Interprofessional Learning Unit in Sheffield, UK).

Introduction

Our focus in Section 3 of this report engages with the complex issue of IPP competencies – their focus, scope and identified outcomes. As briefly discussed in the Glossary, we made a pragmatic decision to use the term ‘competencies’ rather than ‘capabilities’ throughout this report. This decision was not based on a conceptual comparison or preference; rather the decision was a response to the usage that seems to be most common in the area of Australian health professional practice and workforce development. We are also acutely aware of the debate that exists in relation to the strengths and limitations of both terms and, importantly, how these terms have been used and what they have come to signify.

As with many other matters in this report, we have debated the level of detail and analysis to provide. Our decision, related to the study’s aim to ‘resource’ thinking, has been to provide a general overview of the six frameworks with links to where additional information can be found. The review of each framework is structured in a similar way to maximise the degree of coherence and comparison.

Table 1 (page 39) enables visual comparison of the competencies identified by each framework. These summaries are organised by:

- Terminology
- Specified competencies
- Evaluation
- Framework Resources.

The table also provides links to the framework, framework resources, and evaluation details where available.

What did the National Audit say about IPP competencies?

The National Audit Study posed a number of questions about competencies and learning outcomes. As noted earlier, the NAS presented details of a large survey of IPE activities in health in Australian universities. A summary of how respondents answered these questions follows.

Participants answered the survey questions on learning outcomes and competencies in quite general terms, i.e. IPE outcomes, objectives and capabilities that students undertaking the IPE activity should achieve. Therefore, it was difficult to separate aims and objectives from outcomes and, in many cases, outcomes from actual activities. Overall, 54 activities (out of 70) had specified learning outcomes. However, a smaller number (36) actually included or summarised those outcomes as part of their response. Learning outcomes were more commonly specified for activities that included students from psychology, dentistry/ oral health, midwifery, paramedicine and pharmacy. It became clear that survey participants hold varying conceptions of IPE and/or utilise different terms to describe similar learning outcomes or objectives. Relatively few participants specifically included capabilities or competencies in their answers, although 22 out of 70 indicated that these had been developed for the IPE activity. Activities in the area of dietetics, psychology, radiation science and social work were more likely to indicate that learning capabilities or competencies had been specified than those targeted to other health professions. (Interprofessional Curriculum Renewal Consortium Australia 2013, p. 29)

Finding 1

Of the 70 IPE activities reported, over three-quarters had learning outcomes specified (Fig 1).

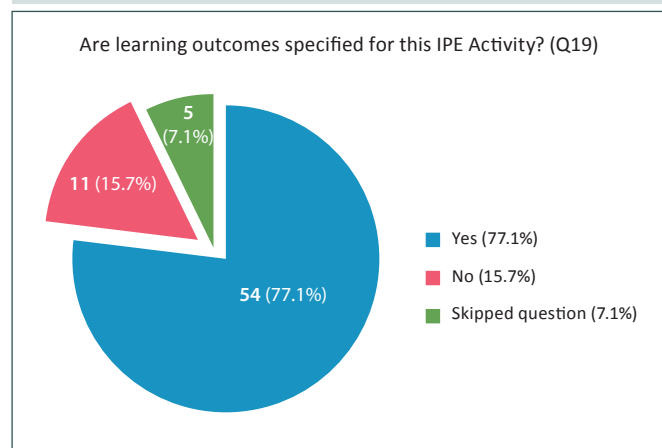


Figure 2: Finding 1 from the *National Audit Study* (2013)

Finding 2

Of the 70 IPE activities reported, the majority did not specify learning capabilities/competencies (Fig 2).

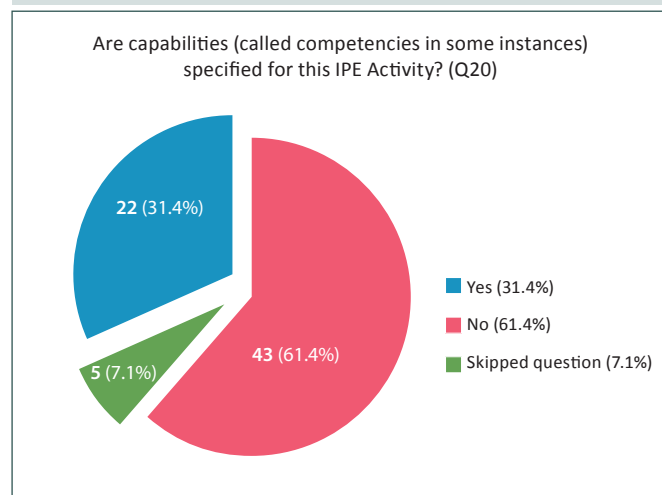


Figure 3: Finding 2 from the *National Audit Study* (2013)

What stands out from the survey responses and consultation participant comments is the diversity of terminology and lack of specificity in the way that competencies and learning outcomes are identified. We see an opportunity for national work across universities in partnership with the professions, industry and government as a useful, necessary and highly beneficial next step in developing a national approach to IPE curriculum development and capacity building.

What was surprising about these responses was the considerable number of IPE units/programs that did not appear to respond directly to one or more IPP competencies. To a lesser extent, this apparent lack of alignment also occurred in relation to learning outcomes.

What are IPP competency frameworks?

IPP competency frameworks specify a range of inter-related competencies that underpin and inform effective collaboration and team-based practice. They provide insight into the depth and breadth of the competencies involved in effective IPP. Norman (1999) identifies IPP competencies as incorporating the understanding of clinical, technical and communication skills, and the ability to solve problems through the use of clinical judgment. Bainbridge et al. (2010, p. 8) elaborate further, noting that 'competency descriptors identify specific knowledge, skills, attitudes, values and judgments that are dynamic, developmental and evolutionary'.

D'Amour and Oandasan (2005) scope IPP competencies in terms of what they refer to as 'interprofessionality':

Interprofessionalism is defined as the development of a cohesive practice between professionals from different disciplines. It is the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population ... it involves continuous interaction and knowledge sharing between professionals organized, to solve or explore a variety of education and care issues all while seeking to optimize the patient's participation ... Interprofessionalism requires a paradigm shift, since interprofessional practice has unique characteristics in terms of values, codes of conduct, and ways of working. These characteristics must be elucidated. (D'Amour & Oandasan 2005, p. 9)

Six important competency frameworks

In observing the development of IPE internationally, what stands out is the way in which many initiatives commence with research and development focused on establishing IPP competencies (often national competencies). The importance of achieving such agreement, particularly at the national level, was reiterated frequently in our consultations (Interprofessional Curriculum Renewal Consortium Australia 2013).

To inform and resource the thinking in this area, this section presents and discusses six important and influential competency frameworks. Five address IPP directly. One framework, CanMEDS, is a uni-disciplinary framework (from medicine) that has been adopted and adapted by numerous bodies internationally. Two of the frameworks are Australian and four were developed in other countries. We present the CanMEDS framework for two reasons: it has been influential and widely adopted, and it is an example of how professions are reconceptualising practice as consisting of a set of inter-related practices that extend beyond the domain of disciplinary knowledge and an individualistic and cognitive understanding of practice (Dunston forthcoming; Schatzki 2001).

Arguably, the most fundamental function of a competency framework within the context of curriculum development is to mediate the linkage between the world of practice development as seen by industry, the professions, and government on the one hand, and the formation of health professional curriculum within the university on the other. IPP competency frameworks provide a common language and platform for planning learning and for maximising the benefits to be achieved from IPE.

With a focus on the importance of well-specified IPP competencies for the development and legitimacy of IPE curriculum, Bainbridge et al. cite Harden and comment:

When educators share a common nomenclature and framework, they take more consistent approaches to introducing new content within health professional education, across departments, and among service delivery institutions. This common framework helps educators to: plan content, curriculum structures, and learning strategies; allocate instructional resources; develop a sense of commitment to and ownership of the proposed implementation; and to legitimize unfamiliar curricular approaches and content, such as those associated with interprofessional education, in the eyes of both those delivering and participating in the educational experiences. (Bainbridge et al. 2010, p. 6)

The six competency frameworks presented are:

1. National Interprofessional Competency Framework (CIHC) Canada
2. Core Competencies for Interprofessional Collaborative Practice (IPEC) USA
3. Interprofessional Capability Framework (Combined Universities Interprofessional Learning Unit, Sheffield) UK
4. CanMEDS Framework (Royal College of Physicians and Surgeons of Canada)
5. An Implementation Framework for Interprofessional Learning at Griffith University, Australia
6. Curtin University Interprofessional Capability Framework, Australia.

As previously mentioned, four of the competency frameworks were developed abroad. In the absence of an Australian national IPP competency framework the working group drew on two important competency frameworks developed by project partners (5 and 6 above).

The six frameworks are categorised according to dimensions, otherwise known as themes or domains, and each dimension is presented as necessary for effective collaborative and team-based practice.

Review Methodology

A working group comprising study partners, the study manager and an external advisor⁴ undertook the review. In order to select frameworks for review, the working group:

- Identified the most cited and internationally recognised frameworks
- Developed a review template to ensure consistency (see Appendix 4)
- Invited framework authors to be part of the review.

Framework reviews

A summary of the six competency framework reviews is included in this section in Table 1, page 39. The full reviews can be found in Appendix 5.

⁴ We are greatly appreciative of Professor Carole Orchard, a member of the Study Reference Group, who agreed to undertake this role, a task extending considerably beyond the work of the Study Reference Group.

National Interprofessional Competency Framework (Canada)

Background

This framework was developed in Canada in 2010 by the Canadian Interprofessional Health Collaborative (CIHC) Competencies Working Group (2010) with funding provided by Health Canada. The group's mandate was to review the relevant literature and existing frameworks and to develop a national competency framework for interprofessional collaboration. An external group undertook an evaluation of peer-reviewed and grey literature related to competencies, competency-based education and existing competency frameworks to inform the development of the framework. The CIHC initiated stakeholder consultations and refined the framework based on the results of the consultations.

The framework

The framework is not discipline specific. The framework is applicable to students and practitioners, regardless of skill level or practice setting or context. Each competency can be integrated into every new experience without compromising any of the competencies.

The framework has a clearly articulated philosophical underpinning based on the work of Roegiers (2007), Tardif (1999), and Peyser, Gerard and Roegiers (2006). Creators of the framework believe that it is unique in that 'rather than focusing on demonstrated behaviours to determine competence, the framework relies on the ability to integrate knowledge, skills, attitudes, and values in arriving at judgments' (Canadian Interprofessional Health Collaborative 2010, p. 8).

The framework is based on six competency domains:

1. *Interprofessional communication*: 'Learners/practitioners from different professions communicate with each other in a collaborative, responsive and responsible manner'.
2. *Patient/client/family/community-centred care*: 'Learners/practitioners seek out, integrate and value, as a partner, the input and the engagement of the patient/client/family/community in designing and implementing care/services'.
3. *Role clarification*: 'Learners/practitioners understand their own role and the roles of those in other professions, and use this knowledge appropriately to establish and achieve patient/client/family and community goals'.
4. *Team functioning*: 'Learners/practitioners understand the principles of team work dynamics and group/team processes to enable effective interprofessional collaboration'.
5. *Collaborative leadership*: 'Learners/practitioners understand and can apply leadership principles that support a collaborative practice model'.
6. *Interprofessional conflict resolution*: 'Learners/practitioners actively engage self and others, including the client/patient/family, in positively and constructively addressing disagreements as they arise. To support interprofessional collaborative practice, team members consistently

address conflict in a constructive manner' (Canadian Interprofessional Health Collaborative 2010, p. 11).

The first two domains support and influence the other four, and there are multiple competencies that define each of the domains. The framework acknowledges that interprofessional collaborations will differ in terms of their complexity, context and the need for quality improvement. It therefore provides descriptors or indicators of collaborations that are 'individualized based on the level of experience of learners or practitioners, and reflect their learning or practice context' (Canadian Interprofessional Health Collaborative 2010, p. 8).

Evaluation

The framework is being reviewed through a Delphi process that is being conducted with colleagues around the world (including Australia). The developers report that to date, the global consultation has been productive, although input from developing countries has been difficult to achieve. The competencies have been well received in Canada and a number of provinces are using them. They competencies have also been adopted in recent US initiatives.

Implementation

The framework can be implemented within any relevant practice or learning setting. The framework document provides examples of how the framework can be applied to several contexts and is useful for educators, learners, regulators, practitioners/employers, and accreditors. These can be located on the CIHC website.

More information

Canadian Interprofessional Health Collaborative Competencies working group.

Leads: Carole Orchard (University Western Ontario) and Lesley Bainbridge (University of British Columbia).

Contact: info@cihc.ca

Visit: www.cihc.ca

Please see Appendix 5 for the full review of this framework.

Core Competencies for Interprofessional Collaborative Practice (United States)

Background

The Interprofessional Education Collaborative (IPEC) developed the framework in 2011 in response to widespread interest in transforming health professional education to meet changing health service needs, capacity and expectations in the US, in particular the need to build a health service that was safer and more patient-centred and community/population-oriented health care systems.

The framework

A panel of experts reviewed the existing literature, including the 2010 WHO framework and CIHC framework. Out of this activity, they identified four core competency domains:

1. *Values and ethics*: 'Work with individuals of other professions to maintain a climate of mutual respect and shared values'.
2. *Roles and responsibilities*: 'Use the knowledge of one's own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served'.
3. *Interprofessional communication*: 'Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease'.
4. *Teamwork and team-based care*: 'Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable'.

(Interprofessional Education Collaborative Expert Panel 2011, pp. 17–25).

A further 38 competencies were then identified that described essential behaviours across these domains. These draft competency statements were then shared with 82 education and clinical practice participants from various professions (at a conference on team-based competencies) for review and comment. The participants unanimously endorsed the set of competencies.

The competency statements reflect the endpoint of initial health professional education (pre-licensure or pre-credentialing).

Evaluation

As far as we could determine, the framework has not yet been evaluated.

Implementation

The framework is not discipline specific and is aimed at pre-licensure/pre-credentialing students, although application is possible beyond that student level. The framework document consists of a discussion of pedagogy, the nature of activities, optimum ways to assist students to learn, stages in education, use of educational technologies and so on. There is no

comprehensive implementation guide but exemplar IPE programs and learning activities that are consistent with the World Health Organization's definition of interprofessional education are provided to illustrate how they meet one or more competencies identified in the IPEC framework.

More information

The Interprofessional Education Collaborative (IPEC).

Contact: ip@aamc.org

Visit: ipcollaborative.org/Resources.html

Please see Appendix 5 for the full review of this framework

Interprofessional Capability Framework (UK)

Background

This framework was developed in 2004 by the Combined Universities Interprofessional Learning Unit (CUILU) in a joint initiative between the University of Sheffield and Sheffield Hallam University in the UK. The initiative was government funded, and responded to a number of issues including 'the need to provide a more coherent, integrated and patient-centred approach to modernising educational input for future health professionals. The National Health Service (NHS) workforce strategy calls for education and training which is 'genuinely multiprofessional' to promote teamwork, partnership and collaboration between professionals, between agencies and with patients' (Combined Universities Interprofessional Learning Unit 2004, p. 5).

The framework

The framework developers have used the term capabilities, rather than competencies as they indicate that 'competence is frequently interpreted as a fixed-point, context-free, outcome-based measure'. Capability, conversely, is interpreted as incorporating changeability and responsiveness (Combined Universities Interprofessional Learning Unit 2004, p. 7).

The four domains of the Interprofessional Capability Framework are:

1. *Knowledge in Practice*: 'captures awareness of "others" professional regulations in the interprofessional team, the structures, functions and processes of the team in the specific area of practice and how anti-discriminatory, non judgemental practice informs a patient/user centred participatory service'.
2. *Ethical Practice*: 'focuses on the promotion of patient/user participation in the decision making processes of the interprofessional team; the need for practitioners to be sensitive both to the demands made in law of the other professions, with regard to their duty of care, and the underpinning ethos of the different professional groups'.

3. *Interprofessional Working*: ‘captures participation, assessment and communication strategies, again patient/user centred, developing the skills to identify and work towards mutual adaptation between patient/user and the team. This domain also identifies co-mentoring activities across professions and the importance of this aspect of work to successful interprofessional teams’.
4. *Reflection (learning)*: This component harnesses and promotes an important aspect of contemporary practice. It identifies the development of a reciprocal approach across professions, along with the utilisation of Evidence Based Practice and an integration of Continuous Professional Development (Combined Universities Interprofessional Learning Unit 2004, pp. 8–9).

From these domains are derived the 16 capabilities and learning achievements that are assessed (see Appendix 5).

Evaluation

The framework was reviewed in 2005 (Gordon et al. 2005) resulting in a number of key points including the advancement of student skills and that interprofessional capabilities ensured the patient was at the focus. Recommendations for government were also provided including the recommendation for further roll out and research.

Evaluations and refinements have been undertaken and are widely documented (Gordon 2004, 2009; Gordon & Pengelly 2012; Gordon & Walsh 2005; Gordon et al. 2004, 2005, 2006; Walsh et al. 2005).

All documentation can be found at: <http://www.cuilu.group.shef.ac.uk/documents.htm>

Implementation

The framework is not discipline-specific, and is aimed at tertiary students – pre-licensure. The framework creators provide a number of implementation tools.

Students are assessed by individuals in the relevant team, mentors and clinical supervisors, patients and other service users.

More information

Developed by the Combined Universities Interprofessional Learning Unit, Sheffield, UK Sheffield Hallam University and Sheffield University

Contact: Professor Frances Gordon.

F.Gordon@shu.ac.uk

cuilu@sheffield.ac.uk

cuilu@shu.ac.uk

Visit: www.sheffield.ac.uk/cuilu

Please see Appendix 5 for the full review of this framework.

CanMEDs (Canada)

While not an IPP framework, we have included the CanMEDS framework as an important and influential example of the growing recognition that health professional practice, whether in medicine, nursing, or other health professions, consists of and requires wide-ranging capabilities. Such capabilities extend beyond what has traditionally been termed as disciplinary knowledge and skills, or as Thistlethwaite et al. (2010) described it ‘profession specific outcomes’.

The CanMEDS framework was developed by the Royal College of Physicians and Surgeons of Canada. It is now in use in 26 jurisdictions around the world and has been adopted by 13 professions. The framework was developed in the early 1990s as an outcome of research undertaken and has been continually reviewed and evaluated since that time.

The research (Frank 2005; Frank, Jabbour & Tugwell 1996; Frank & Langer 2003), which was government funded, resulted in a number of White Papers on how health services should be reconfigured, and therefore how the curriculum for medical practitioners should be configured to align with future service needs. Wide-scale research involving a range of health professions and clients underpinned the development of the competency framework. The framework was reviewed in 2005 in recognition of the changing and dynamic nature of health service development and delivery, and is due for further review in 2015.

The framework

While the framework was initially developed for postgraduate and continuing professional development programs, it is presented in Frank (2005) as relevant at the undergraduate level. Phase I of the research, Framework Development 1993–1996, derived the competencies.

In defining competence the framework noted that: ‘the process of identifying the core abilities involved translating the available evidence on effective practice into educationally useful elements. The result was a new multifaceted framework of physician competence that comprises numerous competencies. To be useful these were organized thematically around “meta-competencies” or physician Roles’ (Frank 2005, p. viii).

Phase II included a series of pilot projects that took place between 1996 and 1997, and Phase III was the implementation phase that took place between 1997 and 2002. The framework was revised in 2003 and the current framework was published in 2005 (Frank 2005).

The 2005 framework renewed the emphasis on key roles each with a number of enabling competencies and meta-competencies. The key roles elaborated further in the 2005 competency framework were:

1. *Medical expert*: ‘As Medical Experts, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. Medical Expert is the central physician Role in the CanMEDS framework’.

2. *Communicator*: 'As Communicators, physicians effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter'.
3. *Collaborator*: 'As Collaborators, physicians effectively work within a healthcare team to achieve optimal patient care'.
4. *Manager*: 'As Managers, physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the healthcare system'.
5. *Health advocate*: 'As Health Advocates, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations'.
6. *Scholar*: 'As Scholars, physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge'.
7. *Professional*: 'As Professionals, physicians are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour' (Frank 2005, pp. 9–24).

Further Development and Evaluation

Continual evaluation has resulted in refinements to the framework. A train the trainer programme was developed in 2007 (Richardson et al. 2007) to support the roll-out of the programme to physicians, surgeons and other health professionals. More recently, a collaborator toolkit has been developed for teaching and assessing the roles and competencies (Glover Takahashi, Martin & Richardson 2012; Suter et al. 2009).

Implementation

In terms of implementation, modest changes have been made in the framework to cater for a range of different circumstances: for practitioner cohorts who are less or more skilled in these competencies; for different contexts within a country; and for different country contexts. Work on CanMEDS has been widely published (Frank 2005; Glover Takahashi, Martin & Richardson 2012; Richardson et al. 2007; Suter et al. 2009).

Trainers are trained in how to utilise the framework, including what features to look for when assessing the competences. Guidelines (Glover Takahashi, Martin & Richardson 2012) provide instruction in how the framework should be implemented in a variety of contexts. Importantly, the framework provides information regarding assessment and how CanMEDS-specific assessment tools should be used. In broad terms, the assessment of the competencies and roles involves gathering perspectives from three groups – medical practitioners, other health professional groups, and patients.

More information

The CanMEDS Framework (Royal College of Physicians and Surgeons of Canada).

Contact: Jason R Frank.

jfrank@royalcollege.ca

Visit: <http://www.royalcollege.ca/portal/page/portal/rc/canmeds>

Please see Appendix 5 for the full review of this framework.

An Implementation Framework for Interprofessional Learning at Griffith Health 2011 – 2014

Background

The framework was developed in 2011 by the Griffith Health Institute for the Development of Education and Scholarship (GH-IDEAS), at Griffith University in Queensland, Australia. The framework was developed as the university recognised that the 'ability to work interprofessionally has become a core competency for all graduates in the health professions' (Griffith Health IDEAS 2011, p. 1). In order to respond to this an expert symposium was conducted, with over 30 academics from various health disciplines attending the meeting. The discussions and outcomes of the meeting formed the basis for the framework, which was informed by the WHO Framework for Action on Interprofessional Education & Collaborative Practice.

The framework

Threshold (minimum) learning outcomes in relation to interprofessional practice are used. The framework states that upon graduation, Griffith-trained health professionals will be able to:

1. Articulate the purpose for effective interprofessional practice in relation to optimisation of the quality, effectiveness and person-centredness of health and social services, in order to assist patients and clients to maximise their health and wellbeing.
2. Work effectively in a team, both in the role of team member and of team leader.
3. Describe the potential barriers to effective teamwork and strategies through which they may be overcome.
4. Describe the roles, responsibilities, practices and expertise of effective members of their own profession.
5. Describe the roles, practices and expertise of effective members of each of the other major health professions.
6. Recognise and challenge stereotypical views in relation to the roles, practices and expertise of particular health professions in their own thinking and in the communication of others.
7. Express their professional opinions competently, confidently and respectfully to colleagues in any health profession.

8. Listen to the opinions of other health professionals effectively and respectfully, valuing each contribution in relation to its usefulness for the patient, client or community concerned, rather than on the basis of the professional background of its contributor
9. *For individual level care:*
 * synthesise the input of multiple professional colleagues, together with the beliefs, priorities and wishes of the patient or client and their significant others, to reach consensus on optimal treatment, care and support and how it should be provided
while for community level health activity:
 * synthesise the input of multiple professional colleagues, together with the values and priorities of the community concerned, to reach consensus on optimal interventions and how they should be implemented
10. Reflect critically and creatively on their own performance in health professional team settings (Griffith Health IDEAS 2011, p. 6).

Evaluation

The framework has been under continuous informal review by the Steering Group that has carriage of it, and has generally been found fit for purpose. The group anticipates undertaking formal evaluation in the near future.

Implementation

The framework is not discipline specific and is aimed at pre-licensure/pre-credentialing students, although application is possible beyond that student level. Importantly, the framework is grounded in three pedagogical phases, which indicate various points in the student's program:

- Phase I: Introduction to the health professions and attainment of 'health professions literacy'
- Phase II: Simulated professional team experience
- Phase III: Real service professional team experience.

A broad schema for interprofessional learning activities is provided. Some information is provided regarding appropriate assessment points.

More information

Griffith Health Institute for the Development of Education and Scholarship.

Contact: Associate Professor Gary Rogers.

health@griffith.edu.au

Visit: <http://www.griffith.edu.au/health/griffith-health/health-ideas>

Please see Appendix 5 for the full review of this framework.

Curtin University Interprofessional Capability Framework

Background

The Curtin University Interprofessional Capability Framework (CUICF) is a response to the World Health Organization's recommendation (2010) that interprofessional education should be a core component of health science curricula. The framework is a model for teaching and assessing the capabilities needed to be a collaborative practice ready health professional, who can work in an interprofessional team and provide safe, quality service to clients, families and communities.

The Framework was developed in 2011 for the Curtin University Health Sciences faculty, which has around 10,000 students and teaches 22 different health science disciplines, including: psychology, nutrition, health promotion, occupational therapy, speech pathology, social work, physiotherapy, nursing, pharmacy, health promotion and medical science.

The framework was adapted from the *CUILU Interprofessional Capability Framework* (2004) and the *CIHC National Interprofessional Competency Framework* (2010). The developers consulted widely with stakeholders including staff, students, industry representatives, international experts in the field of interprofessional education and health consumer representatives during the development of the framework and whilst it was being applied to curricula.

The framework

The framework has five collaborative practice capabilities:

1. *Communication*: 'The collaborative worker consistently communicates in a sensitive and professional manner demonstrating effective interpersonal skills'
2. *Team function*: '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'
3. *Role clarification*: 'The collaborative worker understands their own role and the roles of other relevant parties and uses this knowledge to improve client services'
4. *Conflict resolution*: 'The collaborative worker actively engages in addressing different perspectives among colleagues and clients in a positive and constructive manner as they arise'
5. *Reflection*: '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'. (Brewer & Jones 2011, p. 8–11)

These five capabilities actively combine to produce the three core elements that are the focus of the framework. The three core elements are:

- *Client centred service*: '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'.
- *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'.
- *Collaborative practice*: 'Collaborative practice occurs when multiple health and human service professionals from different backgrounds work together with clients to deliver high quality care'. (Brewer & Jones 2011, p. 6-8)

Evaluation

While this framework has not yet been evaluated, it has been used when designing evaluation tools for interprofessional education undertaken at Curtin Health Sciences Schools. For example, it has been incorporated in staff and student interviews, surveys and focus groups.

Implementation

The framework is designed for students from the health science disciplines and is aimed at undergraduate through to entry-level masters degree courses. As with the Griffith framework, the framework is structured in levels as listed below:

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.

The framework has been implemented within the interprofessional first year curriculum, the suite of IPE workshops and the IPE placements within Curtin's Faculty of Health Sciences. WA Heath is also adapting the framework for implementation with staff within their organisation.

An Interprofessional Capability Assessment Tool, which is utilised in clinical and fieldwork settings to assess student interprofessional practice capabilities, is provided.

More information

Contact: Ms Margo Brewer.

Director Interprofessional Practice, Curtin University.

Email: m.brewer@curtin.edu.au

Visit: <http://healthsciences.curtin.edu.au/faculty/ipe.cfm>

Please see Appendix 5 for the full review of this framework.

Table 1: Summary overview – competencies, evaluation and resource links

FRAMEWORK AND DATE	ORIGIN	TERMINOLOGY USED	COMPETENCIES/CAPABILITIES SPECIFIED	EVALUATED	RESOURCES WEB LINK
CanMEDS ⁴ 1996, 2005	Canada	Competencies	<ul style="list-style-type: none"> • Medical expert • Communicator • Collaborator • Manager • Health advocate • Scholar and professional 	Yes, however not published	http://www.royalcollege.ca/
CIHC 2010	Canada	Competencies	<ul style="list-style-type: none"> • Interprofessional communication • Patient/client centred care • Role clarification • Team functioning • Collaborative leadership • Interprofessional conflict resolution 	Extensive feedback has been sought regarding the relevance and effectiveness of the framework	www.cihc.ca
IPEC 2011	United States	Competencies	<ul style="list-style-type: none"> • Values and ethics • Roles and responsibilities • Interprofessional communication • Teamwork and team-based care 	As far as we could determine, the framework has not yet been evaluated.	https://ipecollaborative.org/
CUILU 2004	United Kingdom	Capabilities	<ul style="list-style-type: none"> • Knowledge in practice • Ethical practice • Interprofessional working • Reflection (learning) 	Yes	www.sheffield.ac.uk/cuilu
GH-IDEAS 2011	Australia	Threshold (minimum) learning outcomes	<ul style="list-style-type: none"> • Articulate purpose for IPP • Work effectively in a team • Describe barriers to IPP and strategies to overcome • Health professions literacy (own profession) • Health professions literacy (other professions) • Recognise and challenge stereotypes • Express opinions appropriately • Listen effectively • Synthesise input to reach consensus on care or intervention • Reflect critically and creatively on IPP performance 	Informally	http://www.griffith.edu.au/health/griffith-health/health-ideas
CUICF 2011	Australia	Capabilities	<ul style="list-style-type: none"> • Communication • Team function • Role clarification • Conflict resolution • Reflection 	Not yet formally evaluated, but used in designing IPE evaluation tools at CU Health Sciences.	http://healthsciences.curtin.edu.au/faculty/ipe.cfm

⁴ See p. 35–36 for explanation of competencies within CanMEDS.

Australian professional competencies and interprofessional practice

Offering an additional, Australian-specific view on the issue of IPP competencies and how these are currently located as part of health profession accreditation requirements, we refer to the OLT funded *Learning and Teaching Academic Standards Project* (LTASP) (O’Keefe, Henderson & Pitt 2010). This important study reviewed the standards for 26 Australian health professions in terms of ‘threshold learning outcomes’. To allow comparison across professions, the project used broadly specified categories in relation to standards. The most relevant standard in relation to IPP was ‘Deliver safe and effective collaborative healthcare’ (emphasis added).

Within this standard the most common IPP competency areas focused on are:

- Communicating
- Operating within scope of own practice, and knowing when to refer to others
- Collaborating
- Working well in a team
- IPP for service delivery.

A noteworthy observation was the considerable diversity in IPP threshold learning outcomes across professions: some professional competencies had many IPP learning outcomes, others had very few; some standards were well specified, some were high level and lacked specificity⁵.

See also the soon to be released findings of the OLT-funded project, Harmonising higher education and professional quality assurance processes for the assessment of learning outcomes in health.

⁵ The professions of social work and the bio-medical sciences were not included.

Section 4.

Teaching, Learning and Assessment

Selma Allix

Margo Brewer

Dawn Forman

Pamela Nicol

Gary Rogers

Section 4.

Teaching, Learning and Assessment

This section:

- Presents information from the National Audit Study about educational approaches and teaching methods used to present IPE in Australian universities
- Addresses the issue of when IPE should be introduced to students
- Discusses five curriculum frameworks for IPE, developed by the University of British Columbia, Curtin University, Griffith University, Linköping University, and Sheffield Hallam and Sheffield Universities, UK
- Identifies key factors to consider when developing effective IPE and gives examples of IPE teaching methods and resources
- Addresses issues about assessing IPE and how effectively IPE activities meet learning outcomes
- Identifies different methods of assessment, including National Audit Study data on how these are utilised in Australian universities.

Introduction

This section addresses Dimension 3 of the 4DF: teaching, learning and assessment of IPE.

In doing this, we adopt the position of IPE being a pedagogical process that purposefully utilises relational and interactive methods within settings that mirror, as much as possible, future practice. More particularly, IPE focuses on the selection and sequencing of methods that encourage collaborative, inquiry-based, team-based, work-based, or simulation-based modes of teaching, learning and assessment (Lee et al. 2013). This pedagogical focus is utilised to enable learning for practising and learning in a collaborative and, when applicable, team-based way. The outcome of such learning is not the individual enactment of profession specific-knowledge and practice, but practice that utilises the resources of all professionals involved to generate the best possible care.

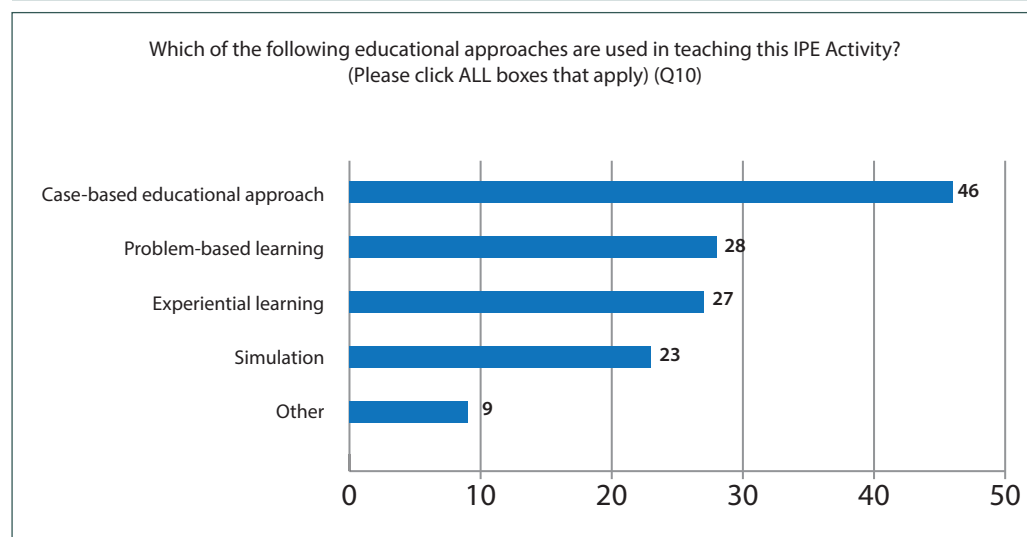
Whilst theorisation, research and publication in relation to IPE are increasing exponentially, there are to date very few studies or publications addressing IPE as an overarching educational framework (Reeves, Goldman & Oandasan 2007). The CRS seeks to address this gap.

What did the National Audit say about teaching and learning?

As in other areas the National Audit survey respondents identified a considerable diversity in the ways in which IPE was designed and delivered in Australian universities. The National Audit study gathered information on 70 IPE activities in terms of teaching methods; location/site; level/phase; disciplines involved; number of participants per activity; staff and/or consumer involvement; timing and duration; and assessment. Extracts from the National Audit relevant to teaching, learning and assessment are provided below.

Finding 3

Of the 70 IPE activities reported, 46 involved a case-based learning educational approach.

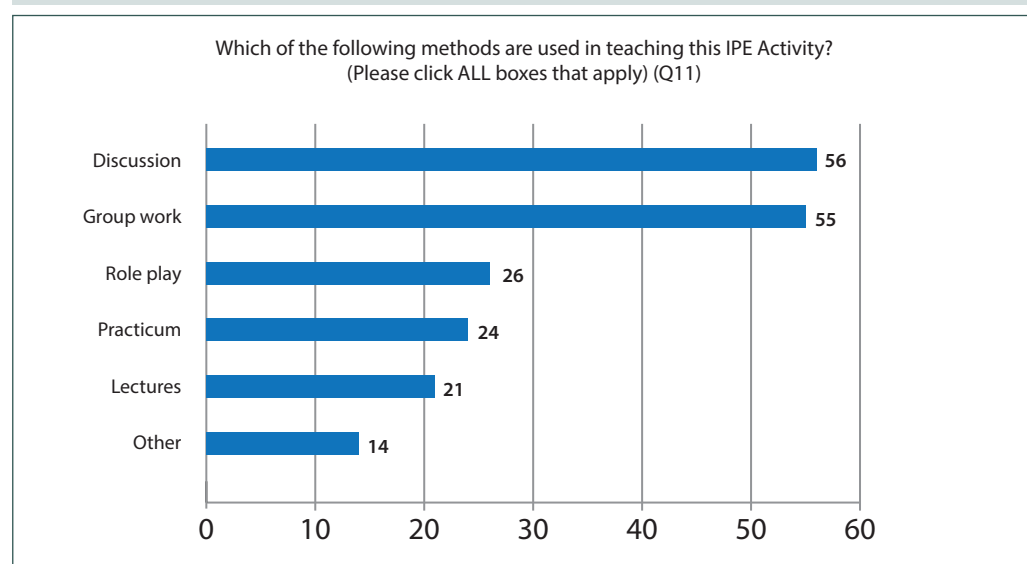


Participants could select more than one response. Response rate: 69 out of 70

Figure 4: Finding 3 from the *National Audit Study* (2013)

Finding 4

Of the 70 IPE activities reported, most teaching methods included discussions (N=56) and group work (N=55).

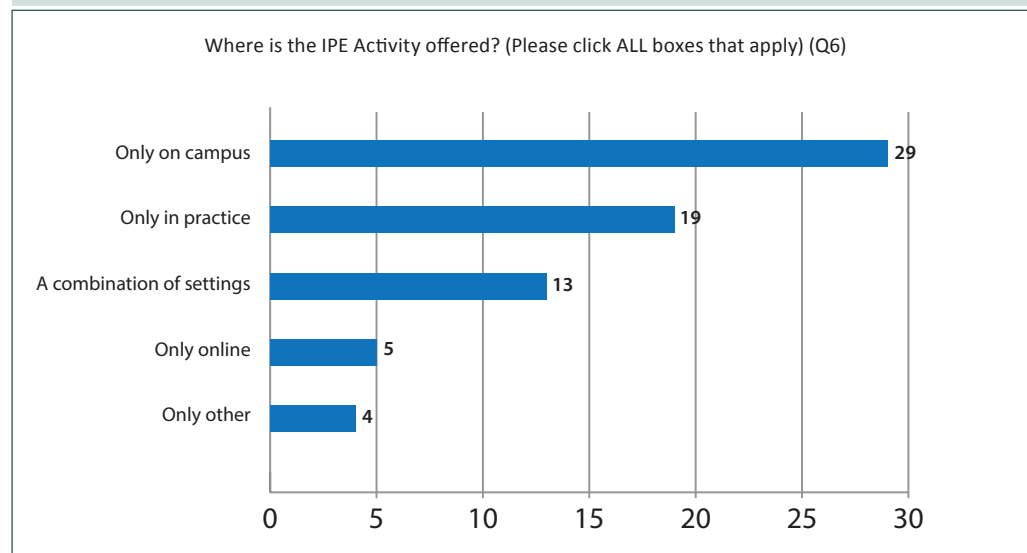


Participants could select more than one response. Response rate: 70 out of 70

Figure 5: Finding 4 from the *National Audit Study* (2013)

Finding 6

Of the 70 IPE activities reported, the most common location was on campus (at least in part), although 19 were solely practice-based and five were purely online activities.

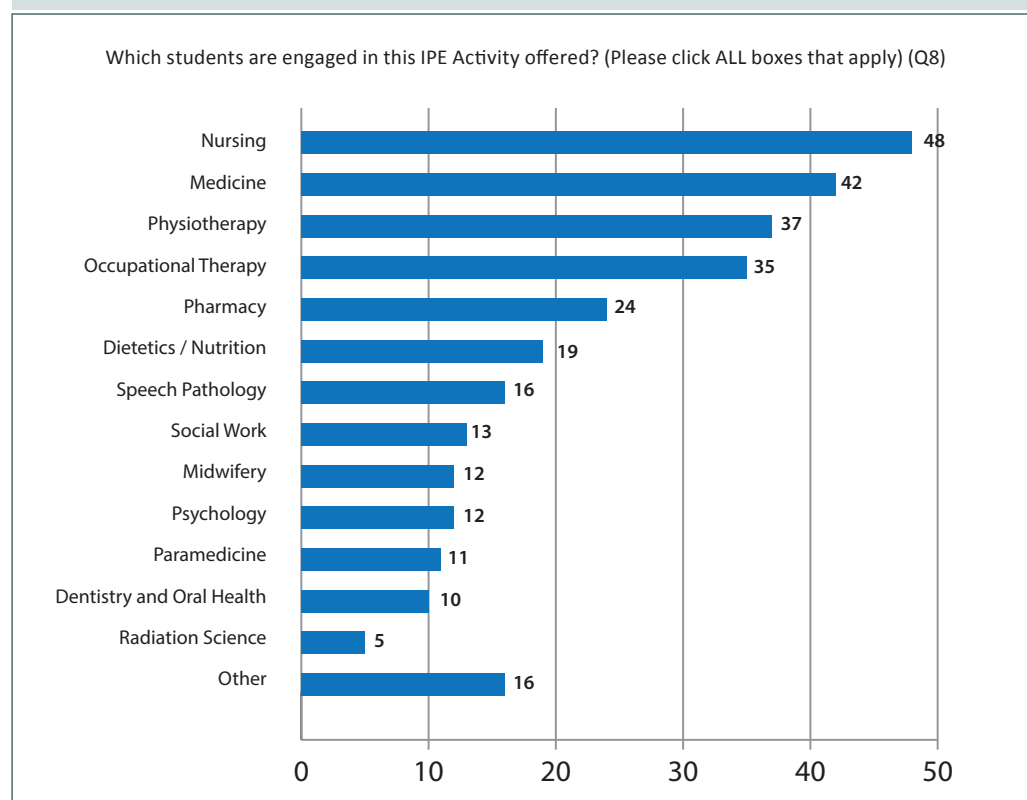


Participants could select more than one response. Response rate: 70 out of 70

Figure 6: Finding 6 from the *National Audit Study* (2013)

Finding 9

Of the 70 IPE activities reported, over two-thirds included nursing students. Medical students were the next most common (engaged in 60% of activities), followed by physiotherapy (52.8%) and occupational therapy students, who were engaged in half of the IPE activities reported.

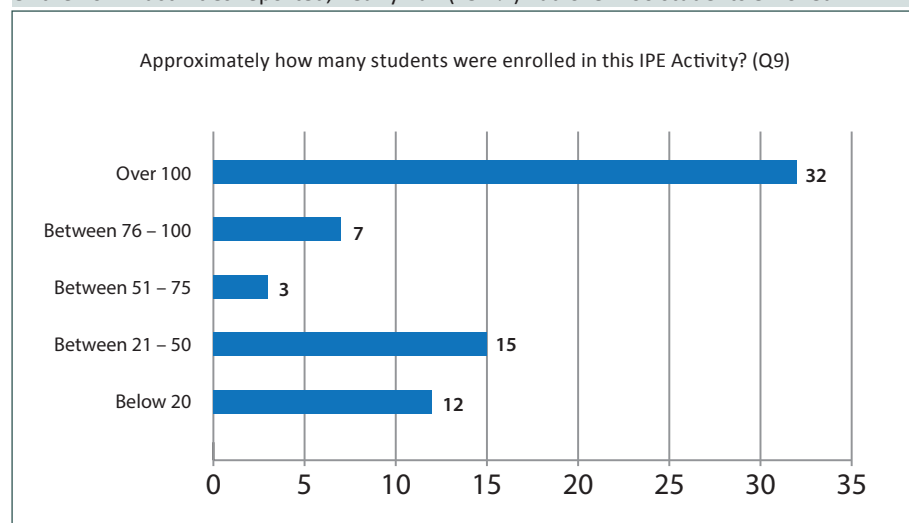


Note that participants could select a combination of response options. Response rate: 70 out of 70

Figure 7: Finding 9 from the *National Audit Study* (2013)

Finding 10

Of the 70 IPE activities reported, nearly half (45.7%) had over 100 students enrolled.

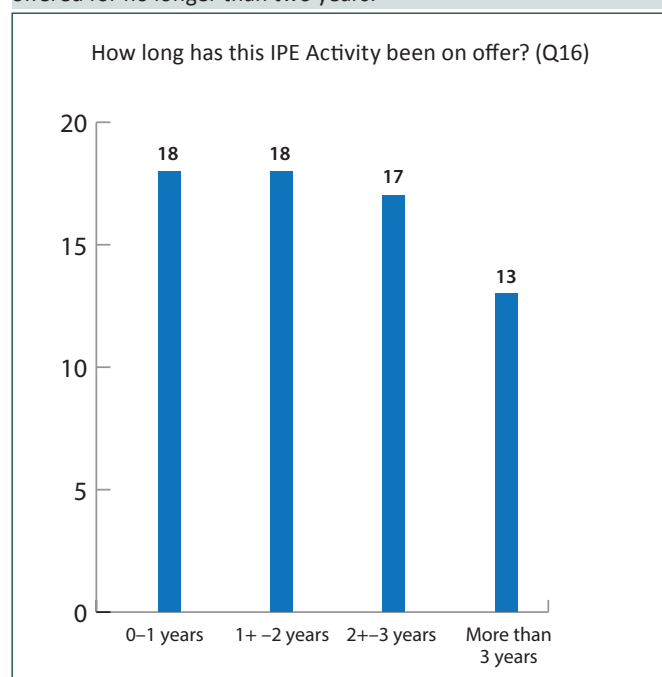


Response rate: 69 out of 70

Figure 8: Finding 10 from the *National Audit Study* (2013)

Finding 13

Of the 70 IPE activities reported, over one half (51.4%) had been offered for no longer than two years.



Response rate: 66 out of 70

Figure 9: Finding 13 from the *National Audit Study* (2013)

With reference to course duration, reported IPE activities ranged from short one-off activities such as modules or units within a larger course or subject, through to substantial courses or modules offered over one or more semesters. The diversity was so great that it was not possible to meaningfully depict this range of responses (Interprofessional Curriculum Renewal Consortium Australia 2013).

Critical questions

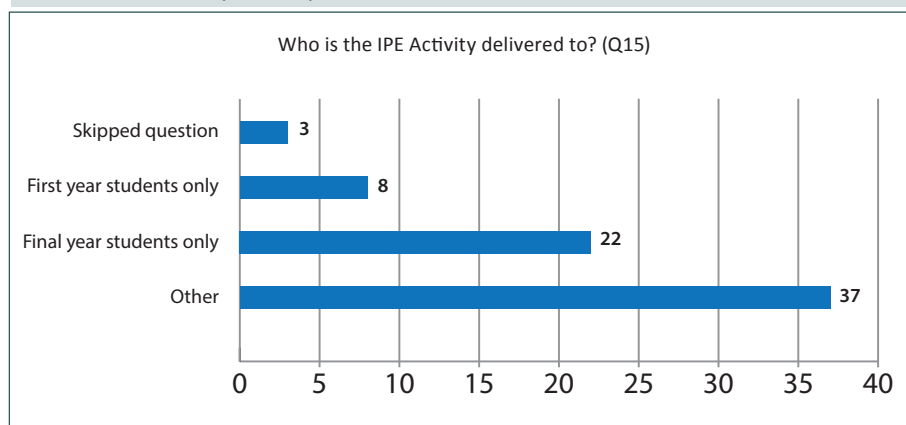
Despite broad agreement on values and the pedagogical principles underpinning IPE, survey and consultation responses provided evidence of strikingly different approaches to teaching IPE and to assessing IPE learning outcomes. Many of these differences focused around two interrelated questions: *When and how should IPE be introduced with the broader curriculum?* and, *How should IPE activities be sequenced across the time frame of the curriculum?* Two very different views were evident.

The first view argues that meaningful IPE activities should not be introduced into the curriculum until students have developed a sense of their own professional identity, knowledge base and role. In contrast, another view argues that to maximise their educational impact, IPE activities need to be introduced into and across curriculum activities as early as possible. These different views articulate very different understandings about learning, identity formation, competency development and socialisation. As part of the second view, concerns are expressed that early socialisation into a uni-disciplinary identity – what is often referred to as a ‘tribal identity’ – militates against the broader educational aims and impact of IPE (Horder 1996).

The National Audit identified that the majority of IPE activities in Australia were introduced late in the curriculum, with relatively little attention being given to the development of ‘health professions literacy’ early in the curriculum.

Finding 8

Of the 70 IPE activities reported, a majority (52.9%) were offered to students from a range of years. Nearly one third were delivered exclusively to final year students and relatively few were aimed solely at first year students.



Response rate: 67 out of 70

Figure 10: Finding 8 from the *National Audit Study* (2013)

Reflecting on their own educational process, consultation participants indicated that, despite their exposure to some form of IPE, often in terms of information exchange, they acquired very little practice-focused understanding of the knowledge, role and contribution of other professions. The need to build practice-mediated understandings prior to graduation was identified as an important educational task (Interprofessional Curriculum Renewal Consortium Australia 2013).

The crowded curriculum

In addition to differing views about when to introduce and how to sequence IPE, there was consistent discussion about the practical difficulties of implementing IPE as part of the overall curriculum. These discussions were often presented with reference to the idea of an already ‘overcrowded curriculum’.

A lack of evaluation and research evidence

Whilst participants recognised that diverse methods and activities could all contribute to developing IPP capabilities, the National Audit identified the lack of a substantial evaluation and research base to provide comment on the use, implications and outcomes of different methods, configurations, sequencing, and contexts. The National Audit study concluded that this issue should be addressed as a matter of national urgency.

Theory

The need for further theoretical development to inform IPE curriculum design is increasingly noted as a matter requiring attention. A recent initiative seeking to contribute in this area (Barr 2013) outlined two curriculum elements requiring consideration in the development of an IPE theoretical framework: the learning process and the learning context. Given the cross-boundary focus of IPE and IPP, Barr also recognised that it would be necessary to draw from a number of theoretical frameworks (Table 2).

Table 2. Summary of relevant theories to inform IPE (Barr 2013)

LEARNING PROCESS	LEARNING CONTEXT
Adult learning	Sociology of professions
Psychodynamic theory	General systems theory
Contact hypothesis	Organisational theory
Identity theories – social identity, self-categorisation and realistic conflict	Activity theory
Practice theory	Complexity theory
Situated learning	Complexity theory

In summary, the National Audit study pointed to considerable diversity across all aspects of IPE teaching, learning and assessment – timing, sequencing, methods, location of IPE activities, professions involved, modes of delivery and assessment of IPE. The study identified several factors intersecting with and, in varying degrees, shaping IPE and its place within the overall curriculum: different views on how best to achieve the learning outcomes of IPE; complex institutional negotiations about space and legitimacy in the curriculum; the practical complexity of offering educational activities across a number of professions; gaps in evaluation and research knowledge about the design, delivery, impact and outcomes of IPE; and, critically, resourcing. Many of the National Audit findings are not surprising and they reflect much that has been identified in IPE curriculum development internationally. (See Nisbet et al. (2011) for discussion of these matters.)

Curriculum Design and Decision Making: Five Interprofessional Curriculum Frameworks

In this section we outline five curriculum frameworks that have been developed internationally, namely:

1. *British Columbia Competency Framework for Interprofessional Collaboration*, developed by the College of Health Disciplines, University of British Columbia, Canada (BC)
2. *Curtin University Interprofessional Education Curriculum* from Perth, Australia (CU)
3. *Griffith University Implementation framework for interprofessional learning at Griffith Health 2011–2014*, from Queensland, Australia (GU)
4. *Linköping University The Linköping Interprofessional Problem Based Curriculum*, from Sweden (LP)
5. *Sheffield Hallam University and Sheffield University. A framework containing capabilities and learning levels leading to interprofessional capability*, from the United Kingdom (SH).

These frameworks share four elements:

1. they begin with what the students should learn through the process, therefore adhering to the concept of constructive alignment (Biggs 2003)
2. the emerging professional is to focus on the care of the client, patient or community
3. the requirements of the relevant professional bodies must be met
4. they emphasise the need for a strong and effective partnership arrangement with the health services.

Further elements in the design of the curricula differ including:

- The nature of the learning outcomes (often expressed as competencies or capabilities) identified and how these learning outcomes will be assessed. For example, the BC and CU frameworks are very specific in noting and measuring the student capabilities or competencies, whereas the LP curriculum focuses beyond graduation and includes the development of ethical principles, leadership skills for change, and skills that will ensure practitioners strive for quality improvement.
- How the experience and curriculum are designed to facilitate the learning experience. SH, for example, puts more emphasis on e-learning as a component of the learning environment, whilst CU focuses on the classroom, online, simulation and practice contexts.
- The context in which the faculty and students are working, for example CU, LP and GU have a diverse range of health professions within one institution, while Sheffield Hallam University and Sheffield University needed to form a partnership to ensure an appropriate variety of professions (see SH).

British Columbia (BC) Framework – Canada

The *British Columbia Competency Framework for Interprofessional Collaboration* was developed ‘to inform curriculum development for health and human service professionals throughout the continuum of learning’ (College of Health Disciplines University of British Columbia 2008). A competency approach was adopted drawing explicitly on Norman’s definition of a competency as:

more than knowledge; it includes the understanding of knowledge, clinical, technical and communication skills, and the ability to problem-solve through the use of clinical judgment (Norman 1985, cited in College of Health Disciplines University of British Columbia (2008))

The development of competency is viewed as a process of translating core abilities involved in effective practice into educationally useful elements (College of Health Disciplines University of British Columbia 2008). In keeping with this orientation, the focus is on the ‘practice’ end of interprofessional learning with an emphasis on the ‘product’ of worker competencies. The ‘process’ of acquiring these competencies (the educational task) does not receive attention, and as such appears to be viewed as outside the framework’s purpose.

Wood and colleagues (2009) provide a detailed account of the BC framework. The initial process was the development of a ‘competency assessment tool for interprofessional collaborative practice’ at a health service, known as the Guided Interprofessional Field Study (GIFS). Their study reviewed existing uni-professional frameworks to generate a candidate list of competencies. They undertook multiple interviews and consultations with practitioners from a range of professions focusing on ‘how, as a professional, they became competent in various domains of collaborative practice’ (Wood et al. 2009,

p. 623). They sought input from patients and clients. Draft competencies and behavioural indicators of their achievement were then ‘verified’ by nursing students who ‘shadowed’ and observed professionals in practice.

Wood and her colleagues (2009) then describe a secondary process whereby the outcomes of GIFS were compared with 12 other competency frameworks and through ‘examining the language, consistencies, inconsistencies, overlap, and discrepancies’, developed a draft framework. They undertook a closing round of face-to-face consultation and expert review to arrive at the final British Columbia Competency Framework for Interprofessional Collaboration.

The BC document defines 20 competencies, arranged in Domains and Sub-sections (Table 3).

Table 3. Summary of British Columbia’s Competency Framework elements

DOMAINS	SUB-SECTIONS	NUMBER OF COMPETENCIES	NUMBER OF BEHAVIOURAL DESCRIPTORS
Interpersonal & Communication Skills		3	10
Patient-Centred & Family Focused Care		2	11
Collaborative Practice	Collaborative Decision Making	5	18
	Roles and Responsibilities	2	7
	Team Functioning	5	17
	Continuous Quality Improvement	3	9
3 Domains	4 Sub-sections	20 competencies	72 behavioural descriptors

Each competency has a set of behavioural descriptors along with broader descriptors at Domain and Sub-domain levels, making a total of 99 statements of practitioner characteristics (including the competencies themselves) across the whole document.

The competencies in the BC document include observable behaviours, such as ‘involves the patient/client and family as partners in group decision-making processes’ but also implied internal states, such as ‘has sufficient confidence in and knowledge of others’ professions to work effectively with others in order to optimize patient/client care’ and latent abilities such as ‘can act as a representative linking the professional team and outsiders’.

The 72 behavioural descriptors in the document provide a comprehensive range of fine grained and generally measurable characteristics such as ‘is observant and respectful of non-verbal as well as verbal communication’ but does include some descriptions of internal states that would require lower level observable descriptors to verify, such as ‘respects others’ contributions and work ethic’ or ‘understands how others’ skills

and knowledge complement and may overlap with one's own'. Additionally, several of the behavioural descriptors appear to be redundant. For example it would be difficult to determine how 'practices ethical behaviour in all professional activities' and 'displays integrity, honesty and social responsibility' might be differentiated from each other in assessment.


Despite a behavioural descriptor that focuses on identifying a patient or client's 'social determinants of health', the document is strongly focused on individual and family level care and thus excludes from its scope health professionals who work at community and population levels, such as public health practitioners, health service managers and policy makers.

In summary, the *British Columbia Competency Framework for Interprofessional Collaboration* is the outcome of highly consultative decision-making processes. Whilst the document is lengthy and complex, it provides a very comprehensive description of the characteristics that practitioners who work at individual and family care levels should exhibit in order to be effective in what it terms 'Collaborative Patient-Centred Practice'. Although it guides the design of the learning outcomes by providing final 'products' it does not provide a curriculum framework that institutions can adopt or adapt.

Curtin University (CU) – Australia

Curtin University's Faculty of Health Sciences *Interprofessional Education Curriculum* has close links to the University's *triple i curriculum* which focuses on ensuring students have a range of experiences which are i) industry based; ii) interdisciplinary; and iii) intercultural, international, indigenous. The curriculum provides approximately 10,000 students from 22 professions within the Faculty of Health Sciences along with Medical Imaging Science students from the Faculty of Science and Engineering with a range of high quality IPE experiences (Table 4). The vision is to provide high quality interprofessional education experiences that ensure graduates have the collaborative practice capabilities to deliver safe, effective health services. The Faculty's *Interprofessional Capability Framework* (Brewer & Jones 2011; Brewer & Jones 2013) provides the foundation on which the curriculum is built. The framework takes a broad view with key terms. For example, the term 'client' refers to individuals, families, communities and organisations that are involved in health services/care, while the term 'safety' refers to the physical, psychological, environmental and cultural aspects of safety. This increases the applicability of the framework to a range of contexts.

Table 4. 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 into practice	Fieldwork placements Case based workshops	High
Medium	Intermediate	Case based workshops Interprofessional focus in profession specific units	Medium
Low	Novice	Interprofessional first year	Low

The curriculum planning process incorporated the learner, faculty and organisation factors referred to earlier (Brewer & Jones 2011; Brewer & Jones 2013). All factors were considered in the development of one of the most comprehensive, large-scale interprofessional education curricula internationally. For example, in 2012 over 2,500 students were involved in the five core and nine shared interprofessional first year units, over 1,000 students participated in the suite of case-based workshops, and students completed over 15,500 days of practice-based placements. Learner factors covered the promotion of interprofessional interactions, managing group dynamics and ensuring relevance and status. Faculty factors covered facilitation from the recruitment through to the training and ongoing support. Organisational factors covered both implementation and support.

In keeping with the constructive alignment process each unit with an IPE focus includes a learning outcome(s) related to the interprofessional capability framework. The unit learning experience is designed to provide students with the opportunity to develop the relevant interprofessional capabilities, which are then assessed to ensure students achieve the unit learning outcome. Curtin's Faculty of Health Sciences is currently undertaking a large-scale assessment project, which requires that all 23 courses include IPE within each year of their course. This must be explicit in the course learning outcomes, learning experience and assessment process.

As students progress through the curriculum, the learning experiences increase in both their level of authenticity and complexity. A diverse range of experiences is provided including debates, case discussions, problem solving challenges, seminars, workshops, role plays, joint projects, skill laboratories, client assessment and treatments sessions and an annual conference. As recommended by Barr and colleagues (2005), the students' learning is collaborative, egalitarian, group directed, experiential, reflective and applied. Each experience is designed and taught by interprofessional staff teams, as modelling of collaborative practice is an essential principle of the curriculum.

Griffith University (GU) – Australia

GU's *Implementation framework for interprofessional learning at Griffith Health 2011–2014*, is focused on the implementation of a program of learning activities in the health faculty of a single large institution providing pre-registration education for almost 8000 health students (Rogers 2011). It was designed by one of the authors of this section of the report (GR) through a collaborative process involving academic representatives from the nine health schools that comprise the Griffith Health Group. Its development was driven by the promulgation of the *Sydney Interprofessional Declaration* (Participants of the *All Together Better Health International Conference 2010*) and the document explicitly draws on the World Health Organization's *Framework for Action on Interprofessional Education & Collaborative Practice* (2010).

The GU *Framework* aims to contextualise and justify, as well as plan the implementation of a program of IPE activities with the goal of ensuring that all health care graduates from the institution will be competent in collaborative IPP. In addition, it pays attention to the process of acquisition of the desired characteristics in graduates, the pedagogy, as well as defining the desired outcomes of that process.

As the document of an educational institution, the GU *Framework* unsurprisingly chose the language of 'learning outcomes', rather than competencies. In particular, it defines 10 *threshold* learning outcomes (TLOs) that all Griffith Health graduates should achieve. The term 'threshold' here is meant to imply that they represent minimum levels of achievement but without the implication that a minimal level of competence is all that is to be sought. This usage was chosen to be coherent with the high-level outcomes detailed in the *Health, Medicine and Veterinary Science Learning and Teaching Academic Standards Statement* that had been just been promulgated by the then Australian Learning and Teaching Council at the time of the *Framework's* development (O'Keefe, Henderson & Pitt 2010).

The GU document's TLOs span very similar territory to the BC *Framework* but do so more briefly and with a coarser grain. Like the BC competencies, the GU TLOs include knowledge, skills and attitudes. GU TLOs begin with an active verb to facilitate measurement. Examples include 'describe the roles, responsibilities, practices and expertise of effective members of their own profession' (knowledge), 'express their professional opinions competently, confidently and respectfully to colleagues in any health profession' (skill) and 'recognise and challenge stereotypical views in relation to the roles, practices and expertise

of particular health professions in their own thinking and in the communication of others' (skill based on attitude). Inevitably, several of the GU TLOs are rather broad, such as 'work effectively in a team, both in the role of team member and of team leader' but nonetheless convey meaningful concepts and have proven to be reliably assessable by clinical and clinical simulation facilitators utilising simple Likert-type scales (Rogers, personal communication).

The GU *Framework's* additional focus on pedagogy describes a three-phase approach based on a contention that the timing and sequencing of particular types of learning activities are essential to the efficient achievement of the TLOs and competence for collaborative practice. It identifies mastery of what has been dubbed 'health professions literacy', that is 'an understanding of the history, theoretical underpinnings, philosophy, roles and contributions of the major health professions, including the participants' own' (Rogers, Chan & Buys 2012). This mastery is an important precursor to optimising the acquisition of skills and changes of attitude in subsequent IPL activities, first in simulated and then in real patient and client care settings.

Whilst the document is brief, it is important to note that it is intended for use as an addition to disciplinary learning outcomes in each profession, which would already include references to common competencies such as ethical practice.

Of interest is the scope of the GU TLOs:

for community level health activity: synthesise the input of multiple professional colleagues, together with the values and priorities of the community concerned, to reach consensus on optimal interventions and how they should be implemented. (Rogers 2011)

This outcome applies the principles of collaborative IPP to a wider range of health workers, in that it ensures that the GU *Framework* includes those health professions that are primarily focused at community and population levels, as well as individual and family-level practitioners.

Linköping University (LP) – Sweden

Linköping University has had an international reputation since 1986 for developing and delivering an interprofessional problem-based curriculum with a strong community orientation (Wilhelmsson 2011). When first designing the program the faculty staff considered a variety of ways in which the curriculum could be delivered. They wanted a problem-based curriculum that provided opportunities for the students from different professions to learn together, learn from each other about their respective roles, and see the client as the main focus of their professional learning activity.

The LP authors sought an alternative curriculum model that would bring the students together at various points throughout their programs to learn common areas. Majoor and Snellen-Balendong (1990) outline how the core curriculum was broken down into three main areas:

- Elements specific to the individual profession
- Common curriculum, which includes areas of study

such as Anatomy and Physiology, Research Methods, Management, Education and Independent Studies

- Elements of professional practice, i.e. problem-based activities and common clinical scenarios, areas of interprofessional and collaborative practice.

The development of profession-specific curriculum areas at Linköping provides a relevant and realistic context for the study of basic sciences and the development of generally applicable professional competencies, with the 'common curriculum' areas and the 'elements of professional practice' (joint professional or interprofessional areas) being established in parallel as core elements of practice.

A comprehensive process for evaluating the program and changes in health and social care nationally and internationally, as well as changes in politics, emerging technologies, demographic and health indices has recently been undertaken and a renewed framework designed. This new curriculum incorporates four domains of interprofessional collaborative practice competencies:

1. Values/Ethics for Interprofessional Practice
2. Roles/Responsibilities
3. Interprofessional communication
4. Teams and teamwork

The new curriculum aims to develop leaders for change, ensure students strive for quality improvement and have strong ethical values (Abbrandt Dahlgren, Dahlberg & Dahlgren 2012). It maintains a problem-based interprofessional learning methodology. The overall aim is to ensure that at graduation students have the skills and competencies they will require in their future professional roles.

Sheffield Hallam University and Sheffield University (SH) – UK

In 2003, funding was provided for a two-year project aimed at bringing the interprofessional expertise of two Sheffield Universities together with service providers, establishing the Combined Universities Interprofessional Learning Unit (CUILU). This arrangement ensured that the students' learning environment was 'authentic' in that the professions that the student would meet in practice were studying together. It also allowed the needs of the service providers to be incorporated into the design of the curriculum (Gordon 2006).

The objectives of the project were to:

- Map curricula of health and social care courses in both universities
- Draw together initiatives currently being undertaken separately
- Stimulate change in the use of existing and new resources to promote new approaches
- Train and support academic and clinical staff as facilitators of student learning, using a multi-method approach
- Evaluate the interprofessional learning outcomes
- Embed interprofessional learning within the current curricula

- Research further developments in interprofessional learning outcomes
- Disseminate good interprofessional learning practice methods and materials through conference communications, publication, reports and through the internet
- Explore, inform and facilitate meaningful patient and public involvement in interprofessional education that meets the needs of service users, students and educators.

The project used a grounded theory methodology to underpin its review of the factors required to develop a *Framework for Interprofessional Capability* with four domains: Knowledge in Practice, Ethical Practice, Interprofessional Working, and Reflection (learning).

The framework utilised the Sainsbury Centre for Mental Health conceptualisation of capability (Lindley, O'Halloran & Juriansz 2001, p. 2):

- A *performance* component, which identifies what people need to possess and what they need to achieve in the workplace
- An *ethical* component that is concerned with integrating a knowledge of culture, values and social awareness into professional practice
- A component that emphasises *reflective* practice in action
- The capability to *effectively implement* evidence-based interventions in the service configurations of a modern mental health system
- A commitment to working with new models of professional practice and responsibility for Lifelong Learning.

Once developed, the framework formed the basis for the curriculum's design with all learning activity, including face-to-face sessions, e-learning, interprofessional mentoring and facilitation, and practice-based learning as well as assessment, focused on the development of the students' interprofessional capabilities.

Maintaining a connection between the classroom and practice was seen as vital in facilitating this capability development. As each profession differed in the scheduling of its placement activity a method needed to be devised to facilitate the students in their interprofessional activities whether they were in practice or in the classroom. Towards this end e-learning resources, increasingly seen as a means of facilitating continuity of the learning experience (Bromage et al. 2010), were developed by the Centre for Interprofessional e-learning which combined staff at Sheffield Hallam University and their colleagues at Coventry University.

The decision-making process

The complexity of teaching, learning and assessment within curriculum design cannot be overestimated. In an interprofessional context the complexity increases significantly due to a number of factors including those described by Gilbert (2005): differences in prerequisites for professional programs; differences in the length of these programs; the extent and type of practice experiences within the programs; differences in approaches to teaching, learning and assessment; students' freedom, or lack thereof, in the selection of activities within curricula; timetabling differences and conflicts across professional programs; teaching and research loads; methods of administration within the various programs; and the funding implications for inter-program activities.

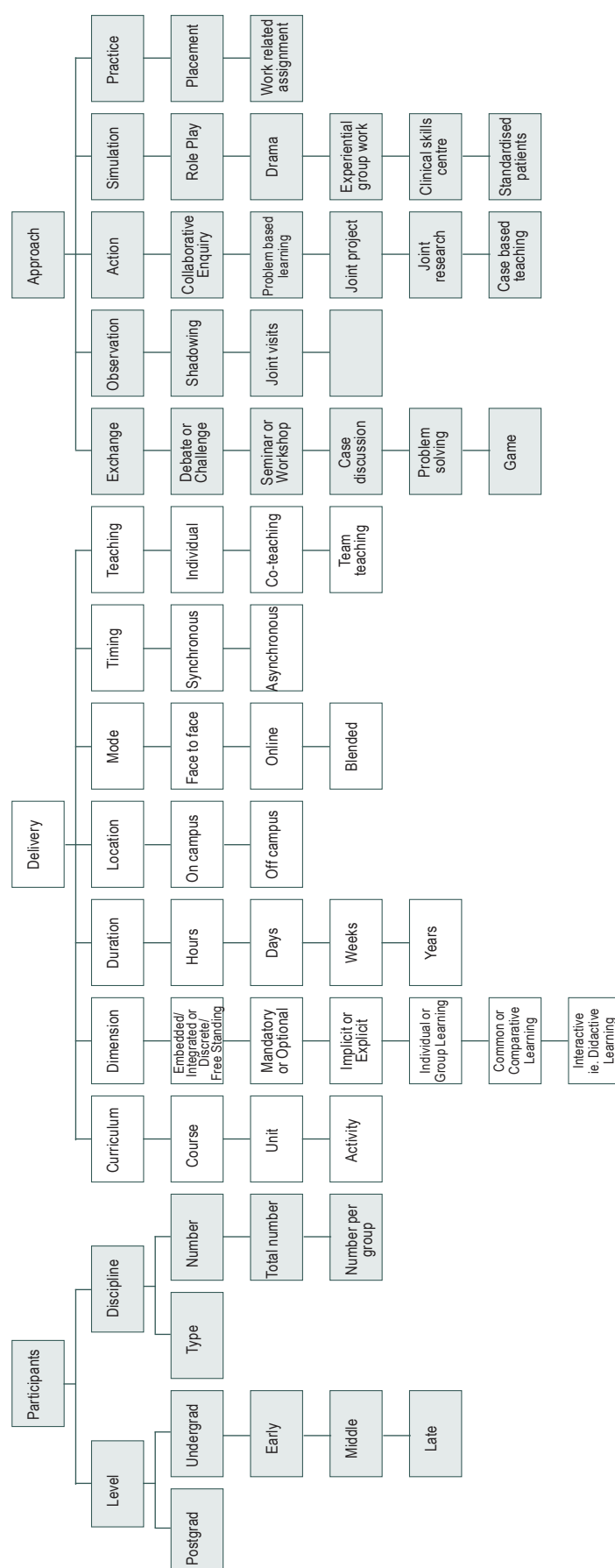
As a consequence of these factors a diverse range of approaches to IPE have emerged, a finding supported by this national CRS. Reducing the complexity of teaching, learning and assessment in IPE is a crucial step in both the uptake and sustainability of this education approach. As a way of addressing this complexity, we offer two decision-making trees or algorithms together with a range of related resources to facilitate curriculum design and delivery. The constructive alignment process proposed by Biggs (2003) underpins this design process:

- Begin with an examination of the learning intentions – what you want the students to know or demonstrate
- Organise the learning experience and resources so that these outcomes are achieved
- Assess the students so that you can see to what extent the learning intentions have been achieved.

Freeth and Reeves' (2004) well-known presage, process, product (3P) model for IPE is also informed by Brigg's work. The 3P begins with the presage factors that exist before the learning experience and influence the creation, conduct and outcomes of learning experiences – the context along with the characteristics of those involved. Next are the process factors – the approaches that describe the particular learning and teaching mix. Finally is the product – the outcomes of learning that need to be assessed.

To assist with decision making in the complex area of IPE design and implementation we present two decision-making trees; the first (this page) relates to teaching and learning, the second relates to assessment. Three key decision areas in the teaching and learning design process are included: the participants, the delivery, and the approach. The assessment process (page 54) includes seven key decision areas: timing, grade, weight, assessor, competence/capability, type and moderation. At all points in the decision making process the desired learning outcomes must be considered to ensure adherence to the constructive alignment approach.

Figure 11: Teaching and Learning Decision-Making Tree



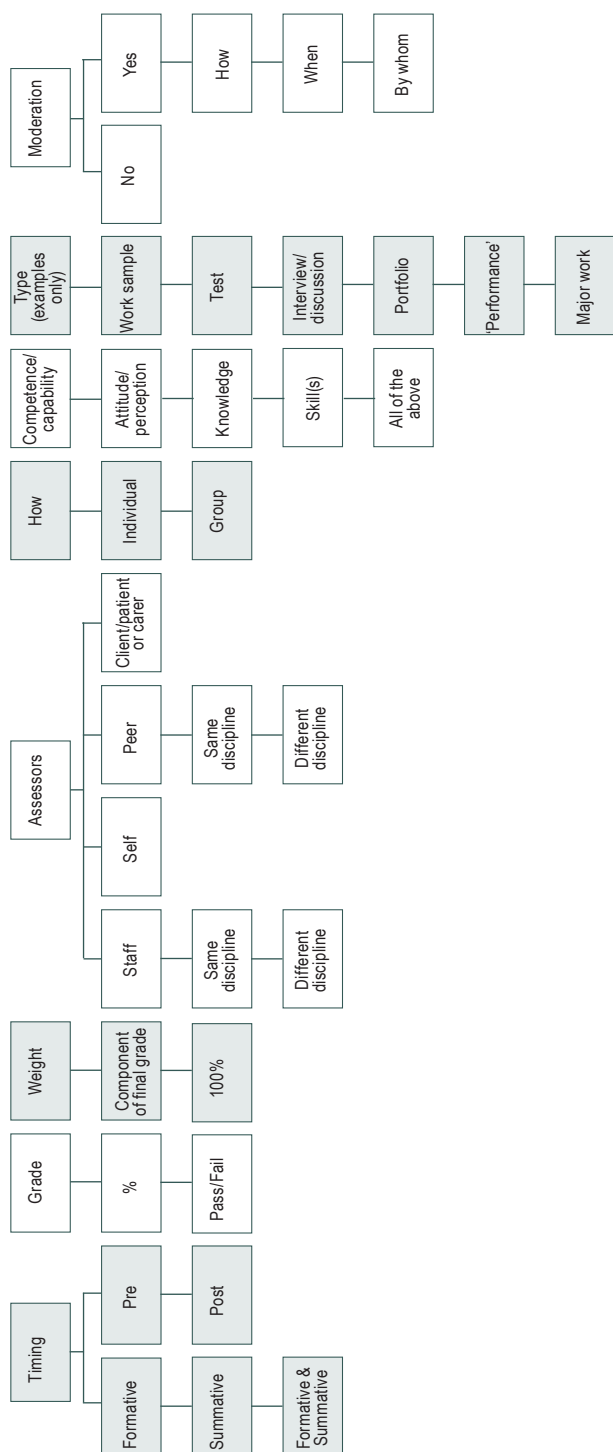


Figure 12: Assessment Decision-Making Tree

Teaching and learning decisions

This section identifies a number of key factors that can be considered when designing effective IPE. These need to be aligned with desired learning outcomes and the local context. It should be read with reference to Figures 11 and 12.

Participants

The learning experience must be appropriate to the **level** of the participants i.e. undergraduate or postgraduate and to their progression within their course. As described in Section 3, different terms are applied to these stages of progression – early/middle/late; novice/intermediate/entry to practice level. Others, such as many universities in Canada, refer to their stages by attributes such as exposure/immersion/mastery. Learning outcomes, the learning experience and the assessment differ depending on these key decisions (Charles, Bainbridge & Gilbert 2010).

The other key decision with regards to the participants is to ascertain which students will be involved in the IPE. This includes the particular **professions** as well as the **numbers** – total number of students, numbers from each discipline and, as they are generally assigned to work within groups, the number of students per group. In considering the disciplines involved it is important that the learning experience is relevant to their course and to their future practice. This level of relevance will significantly influence the students' level of engagement and the retention of what is learned. It has been proposed that the ideal small group size is a maximum of 8–10 students with equal proportions of disciplines (Reeves, Goldman & Oandasan 2007). This is often challenging due to significant differences in the number of students within the various courses e.g. nursing generally has more students than courses such as dietetics or speech pathology. Where a significant imbalance exists skilled facilitation is required to ensure a positive learning environment. It is also highly context specific. For example, a much smaller group would be appropriate for a clinical encounter with a client/patient. It may also be appropriate to match the mix of students to usual practice in the clinical setting.

Delivery

A decision is required as to whether IPE is at the course, unit or activity **level**. The implications for each are vastly different with a high level of organisational change required to implement IPE at the course and, to a lesser degree, at the unit level. The World Health Organization in their *Framework for Action on IPE and Collaborative Practice* (2010) outline several actions that are required to advance IPE. These are to:

1. agree to a common vision and purpose for IPE with key stakeholders across all faculties and organisations
2. develop interprofessional education curricula according to principles of good educational practice
3. provide organisational support and adequate financial and time allocations for the development and delivery of IPE
4. ensure staff responsible for developing, delivering and

evaluating IPE are competent in this task, have expertise consistent with the nature of the planned IPE and have the support of an IPE champion.

Once a decision has been made about where IPE will be situated within the curriculum, several **dimensions** require consideration (as adapted from Barr (1996)):

- *Discrete or integrated* – IPE may be freestanding or it may be integrated into curricula. The issue of compatibility of the learning outcomes, content and learning methods is likely to be greater in the embedded option. Figure 13 below represents the *National Audit* findings in relation to this point.
- *Mandatory or optional* – IPE can influence the rate of uptake by students as well as their level of engagement. Optional IPE has been available at many universities and has provided a positive learning experience for students and staff. However it can also be associated with lower uptake. There is also the complex issue of attempting to blend students in the same IPE activity where it is optional for some and mandatory for others.
- *Implicit or explicit* – IPE occurs implicitly when students from different professions communicate in one-to-one or group exchanges. It is clearly important, but ad hoc, uncontrollable and unpredictable. Explicit IPE tends to occur during the different approaches outlined in the decision-making tree i.e. during activities designed to promote collaboration.
- *Individual or group* – IPE may focus on individual learning or group (collective) learning or a combination of both. Assessment of this learning may need to distinguish individual from group contributions. Within the Australian context, an OLT funded study *Work Based Assessment for Teamwork: an interprofessional approach*, is currently developing a tool for assessment of observable teamwork behaviours that can be used as part of broader formative assessment of pre-qualification health professions students.
- *Common or comparative* – IPE may be based on learning that is common across the professions or learning where comparisons are made to facilitate understanding about different roles, duties, perspectives and perceptions.
- *Interactive or didactic* – effective IPE generally utilises interactive learning methods in small groups with didactic methods utilised sparingly.

Finding 5

Of the 70 IPE activities reported, more were delivered as discrete stand-alone activities (55.7%) than as an activity integrated into an existing course or module (41.4%).

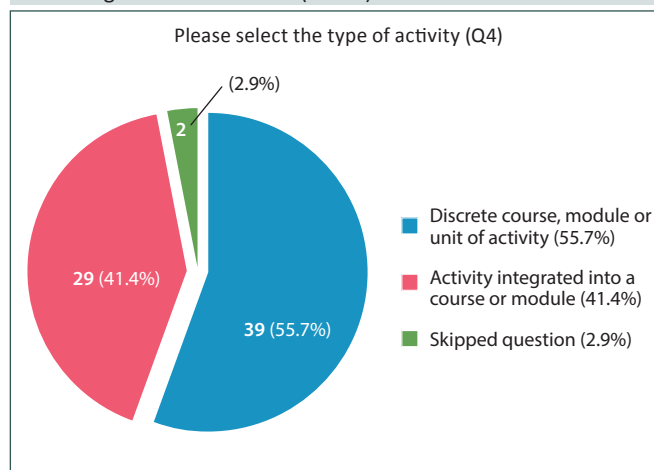


Figure 13: Finding 5 from the *National Audit Study* (2013)

Other approaches capture dimensions not included in this decision-making process such as Chung et al's (2009) 'diamond approach', which focuses on aspects of learning – auditory, visual and tactile/kinaesthetic.

The chosen **duration**, be it hours, days, weeks or years, has a significant impact on shaping the IPE experience. The resource implications and other barriers such as timetable differences, scheduling of venues are likely to increase exponentially according to the length of the activity.

Other aspects of the delivery process to be considered are the **location**, **mode** and **timing** of the IPE. Numerous descriptions of these different delivery options are available in the literature. Few provide a clear framework on which to base the IPE but there are examples such as the e-learning framework of Casimiro et al. (2009). This includes a number of elements including the structure, content, media, service and outcomes.

Solomon et al. (2010) describe an effective asynchronous IPE experience. Two other references are the Luke et al. (2009) description of best practice in online interprofessional health sciences education and the Bromage et al. (2010) comprehensive textbook on e-learning by staff from three leading universities in IPE in the UK: Coventry, Warwick and Sheffield Hallam. Ellaway and Masters (2008) provide a comprehensive guide to IPE in the virtual environment. King et al. (2012) provide a framework for a simulation within an e-learning context for students from health sciences, education and computing science. Another e-learning resource is provided by the PIPER (Program for Interprofessional Practice, Education and Research) at McMaster University: <http://fhs.mcmaster.ca/ipctoolkit>

IPE **teaching** may be undertaken by individual staff, a co-teaching pair or a team. Crow & Smith (2003) and Smith (2005) describe an effective model of co-teaching in IPE.

Methods

There are diverse methods that can be utilised for IPE, some of which are summarised in Table 5 below. The report then expands these with a small number of examples from the literature and resources from the internet.

Table 5: Classification of IPE methods

CLASSIFICATION OF LEARNING	LEARNING METHODS USED
Exchange based	Debate, game, case discussion, problem solving, seminar or workshop
Observation based	Joint visits, shadowing
Action based	Collaborative inquiry, problem-based learning, case-based learning, joint project, joint research
Simulation based	Experiential groups, role plays, skill acquisition
Practice based	Work related assignments, placements

Adapted from Barr (1996)

Exchange based

Case discussions, seminars and workshops are frequently cited in the literature. The use of **games, debates and solving problems** (separate from formal problem-based learning) are less commonly cited. A recent Cochrane review of the use of educational games in IPE by Akl and colleagues (2013) found that only two publications met the stringent Cochrane inclusion criteria. The review provides a summary of a range of games that have been published. Stephens et al. (2007) used English football as an analogy for IPE for a pre-clinical game. Khimdas et al. (2012) published a description of their 'circles of care' game which includes four activities: i) Brain Blitz – a simple multiple choice question; ii) Be a Pro – list two ways they could help the patient; iii) Interaction – focused on bullying; iv) All-play – all teams compete to answer the question correctly. The authors advise this is also best used as a pre-clinical game.

Ferrini and Bordin (2003) describe a seminar for health and human service students detailing the development, structure and case discussions. LaBarbera and colleagues (2012) briefly describe a seminar in the Fort Worth area which comprised three main sections: i) introduction; ii) use of the BATHE (Background, Affect, Trouble, Handling, and Empathy) model of psychosocial interviewing; and iii) a root cause analysis activity. Waterston (2011) describes a large-scale study of an online IPE case discussion in a mixed-mode (face-to-face and online) format. Wellmon et al. (2012) describe improved attitudes to working with other healthcare professionals following a brief (six hour) interprofessional interaction, where students from clinical psychology, education, physiotherapy and social work worked jointly on a case study of a 17 year old with cerebral palsy.

Other exchange-based resources and web links are presented below. Further examples are provided in the Resource Bank (www.aippen.net)

- Cragg and colleagues from RICE Program included a series of games in their workshop resource package:

Misconceptions; Speed Disciplining; Here's My Card; True or False; Similar / Dissimilar; Magic Hat; Time Capsule; Jargon; Profession Description; First Moments; Ball of Yarn; Superhero; Fairy Tale. Available from: http://www.ruor.uottawa.ca/en/bitstream/handle/10393/19716/RICE_Workshop_en.pdf?sequence=1

- Jefferson InterProfessional Education Center's didactic modules with teaching plans and presentations provided on topics including patient centredness and hospital discharge planning. Available from: <http://jeffline.jefferson.edu/jcipe/learning/didactic.cfm>
- The University of British Columbia (UBC) College of Health Disciplines provides a number of online modules on topics such as pain management, patient safety, collaborative learning, care of the elderly and post-partum care. Available from: <http://www.chd.ubc.ca/elearning/>
- The University of Leicester, De Montfort University and the University of Northampton have made available many useful resources on TIGER – Transforming Interprofessional Groups Through Educational Resources. Available at: <http://tiger.library.dmu.ac.uk/>

Observation based

Students at the University of Western Ontario complete an IPE Assignment for Health Program Students which involves them undertaking observation of another health profession. They produce a report on the role, knowledge and skills required of the other health professional discipline and compare this to their own profession. This resource is available from: <http://www.ipe.uwo.ca/Administration/teaching.html>

UBC provides a guide to help structure activities whilst on placement including a shadowing activity and participation in a team meeting. Available from: <http://www.chd.ubc.ca/files/file/resources%20and%20publications/Structured%20Activities%20for%20the%20Practice%20Setting.pdf>

The University of Alberta provide a guide for student shadowing experiences. Available from: <http://www.hserc.ualberta.ca/en/Resources/CurricularResources/PractitionerGuidetoInterprofessionalStudentShadowing.aspx>

Action based

Although proposed as an IPE approach, there is little on action-based methods in the literature published to date. Two key articles on **collaborative enquiry** or **inquiry** (both spellings used) are Glennie and Cosier (1994) and Phelan et al. (2006). Glennie and Cosier describe collaborative inquiry projects at the University of Nottingham to address cross-agency issues in child protection and community care. Phelan et al. also describe the use of this in health service in Canada rather than higher education. Anderson and Lennox (2009) describe the successful Leicester Model of action-based IPE in the practice context which is a four stage process: i) patient interview; ii) service provider interview; iii) analysis of the problems raised; and iv) act as agents of change by providing feedback and recommendations for improvement to the health service.

Problem-based learning (PBL) is another popular IPE approach. Thompson (2010) undertook a review of IPE through the PBL approach. This article covers: the current rationales for delivering IPE through PBL; the practical and theoretical barriers; the current evidence base regarding outcomes for delivery of IPE through PBL from student and staff viewpoints. Anderson and Lennox (2009) published the outcomes of a PBL experience for students from a diverse range of professions whilst on placement in an acute hospital in the UK. D'Eon and colleagues (2010) described the outcomes for PBL with over 300 students from the University of Saskatchewan. This article includes the learning objectives and student case material thus facilitating the replicability of this study. Cusack et al. (2012) published their pilot study of PBL in IPE. This article includes a useful conceptual map describing the development for the module.

Along similar lines is the **case-based learning** approach. Lindqvist et al's (2005) study of case-based learning for students from five professions describes the structure of the control study, the nine week IPE program and the outcomes achieved. Curran et al. (2008) described a blended approach to case-based learning for over 500 students from four professions.

A different type of case-based learning activity is the Team Challenge. Australia's HealthFusion Team Challenge (available from: http://www.healthfusionteamchallenge.com/01_cms/details.asp?ID=1) is based on the successful Health Care Team Challenge developed by the UBC over 20 years ago (available from: <http://www.chd.ubc.ca/students/interprofessional-activities-and-events/health-care-team-challenge>). These challenges involve teams of students from several different disciplines competing to present the optimal patient management plan before a live audience. A complex case study is given to the student teams prior to the challenge. New developments in the case are revealed to increase the level of challenge as the student teams demonstrate best practices in patient care and the effectiveness of interprofessional collaboration in a clinical setting.

Joint research and projects can also provide an effective IPE experience. The US Department of Veterans Affairs Alvin C. York Medical Center in Tennessee offers postdoctoral psychology students fellowships with a strong emphasis on interprofessional teamwork. These positions include undertaking a joint research project with pharmacy trainees on clinical outcome measures related to the IPE program (<http://www.psychologytraining.va.gov/murfreesboro/>). In the Teen Eating and Activity Mentoring in Schools project, Bindler et al. (2012) describe the strengths, challenges and strategies for facilitating an interprofessional research project along with a description of the case study. Turner et al. (2012) describe the use of an interprofessional research project for students on placement and provide reflections from staff and students.

Other action-based resources include:

- Jefferson Inter Professional Education Center's case study videos with accompanying facilitator guides: <http://jeffline.jefferson.edu/jcipe/learning/videos.cfm>
- University of Missouri's geriatric assessment case studies: http://shp.missouri.edu/dean/resources.php/nd/ciga/CIGA_certification.htm
- University of Western Ontario's case studies: <http://www.ipe.uwo.ca/Administration/case.html>

Simulation based

Simulation is another popular approach. A recent review by Zhang et al. (2011) found high levels of student satisfaction and perception of learning in simulated IPE activities. The acquisition of skills, particularly clinical skills, through simulation processes has also been a focus of IPE publications. Stewart et al. (2010) describe a high fidelity simulation workshop. Bandali et al. (2008) describe a model of readiness to practice that includes technical and 'soft' skills. Saunders et al. (2012) describe an approach that combined clinical skills with case based learning within a peer assisted learning simulation context. Simulation in IPE is a significant component of IPE at Edith Cowan University. A number of resources covering communication, clinical handover, chronic disease management, discharge planning, falls management, injury and trauma management are freely available. A detailed facilitator manual is provided for each (<http://www.ecu.edu.au/community/health-advancement/interprofessional-ambulatory-care-program/interprofessional-learning/ipl-through-simulation>). Other resources include the University of Western Ontario's range of resources including four simulation scenarios available from: <http://www.ipe.uwo.ca/>

Experiential groups are less commonly described in the literature. This may be because for many interprofessional group activities are inclusive of an experiential approach. D'Eon (2005) discusses using an experiential learning model to build interprofessional or collaborative learning.

Skills acquisition is often undertaken in simulation or laboratory settings. Freeth and Nicol (1998) provided a guide to an interprofessional approach to learning clinical skills. More recently, Greenstock and Brooks (2011) produced a report on IPL opportunities in simulation for the Australian Health Workforce Institute. Hale et al. (2011) reported on a cannulation education module for medical students, which was developed and taught by graduate nursing students.

Practice based

Practice-based opportunities provide very authentic but often resource intensive IPE experiences. Barr and Brewer (2012) described a continuum model for practice-based experiences with examples to highlight the different approaches. Copley et al. (2007) describe a university clinic for students from occupational therapy, speech pathology and music therapy. Drynan and Murphy (2010) developed the UBC guide to practice-based IPE available from <http://www.chd.ubc.ca/files/file/resources%20and%20publications/IPE%20Guide%20%28FINAL-June%202010%29.pdf>

Other resources are:

- Curtin University's practice-based IPE approach which includes a description of student placements along with summary reports on these, the student preparation for placements and the staff facilitation modules: http://healthsciences.curtin.edu.au/faculty/ipe_practice.cfm
- Four UK case studies, three of which are practice based: shadow team, hospital-based IPE during discipline placements, and patient journey focused experience are outlined in the following paper: <http://www.health.heacademy.ac.uk/lenses/occasionalpapers/col10006/m10203.html#section-5>

- The mentoring program at Alberta Health Services is available at: <http://www.albertahealthservices.ca/careers/docs/WhereDoYouFit/wdof-stu-sp-ip-mentoring-guide.pdf>
- University of Western Ontario Office of Interprofessional Health Education and Research provides a set of tools for IPE student placements on their website www.ipe.uwo.ca
 - Evaluation of IPE placement
 - IPE peer/self group interaction assessment
 - Interprofessional student team learning plan
 - Evaluation of IPE practice facilitators
- The Interprofessional Rural Program of British Columbia Field Guide provides information on activities students will undertake during a rural interprofessional placement in BC: http://www.bcahc.ca/index.php?option=com_docman&task=cat_view&gid=92&Itemid=129
- Collaboration between nine collaborative practice sites from the four western provinces of Canada established projects for building interprofessional collaborative practice and learning environments. Reports and resources related to these are available from the Interprofessional Collaborative Practice and Learning Environments: <http://www.icple.com/>

Assessment

As discussed earlier, the key concept underpinning assessment of IPE is that of 'constructive alignment' in which all aspects of the curriculum including learning outcomes, educational or learning objectives, course design, teaching and learning activities, assessment and evaluation, are aligned so that there is a clear relationship between all aspects (Freeth 2007, p. 21). When designing an assessment Freeth, Hammick et al. (2005) suggest three questions be asked:

- 1 What aspects of learning from the interprofessional experience do we wish to assess?
- 2 What assessment tools are appropriate for the learning outcomes?
- 3 Is there constructive alignment between learning outcomes, the learning process and the assessment processes?

Once the assessable learning outcome, be that an attitude, perception, knowledge or skill, or the competence in its integrated enactment has been determined; a number of factors need to be considered when designing the assessment process. This includes the **timing** of the assessment. Many instruments used in IPE currently involve pre/post measures of attitude or perception. Other assessments lend themselves to a formative and/or summative timing such as those measuring knowledge or behaviour. The **weighting** of the assessment also needs to be considered: will it be pass/fail, percentage or other grade? With regard to the people involved in the assessment process (the **assessor/s**), will there be a moderation process and if so how, when and by whom will this be delivered? Will the assessment

be undertaken individually or in groups? If in a group how will contributions be assessed: individually, as a group or a combination of both?

A number of different **types** of assessment can be utilised, as described by the Queensland Government, Department of Education, Training and Employment (2012) and included in the decision-making tree:

- work samples (writing, drawing, concept map, model)
- tests (verbal, essay, multiple-choice, matching)
- interviews and conferences (taped, verbal, peer assessment, group discussion)
- portfolios (diaries, journals, digital files, notes)
- performances (problem-solving, role play, structured discussions, debates, Team Objective Structured Clinical Examinations)
- major works (exhibition, invention, investigative project)
- work-based assessments.

What did the National Audit say about assessment?

The National Audit Study stated that

The survey results indicated that just over half the IPE activities documented were assessed. Where assessment was reported as occurring, 'written assessment', 'participation/attendance' and 'presentation' were the predominant methodologies employed, with smaller numbers of responses reporting the use of 'reflective journals' and 'online activities' (Interprofessional Curriculum Renewal Consortium Australia 2013).

Finding 16

Of the 70 IPE activities reported in this survey, a majority (59%) were assessed.

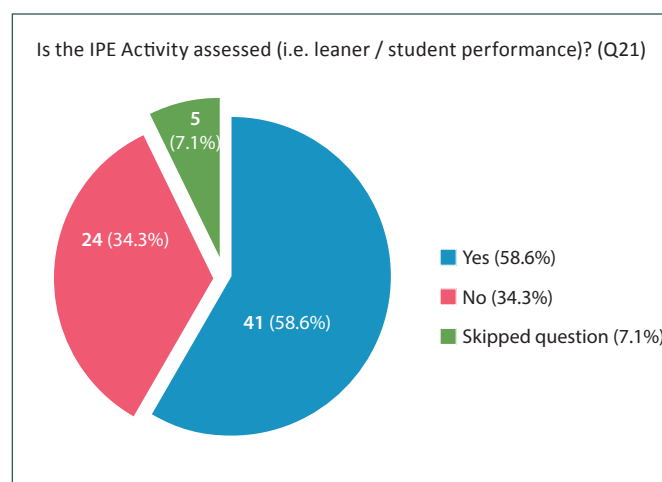


Figure 14: Finding 16 from the *National Audit Study* (2013)

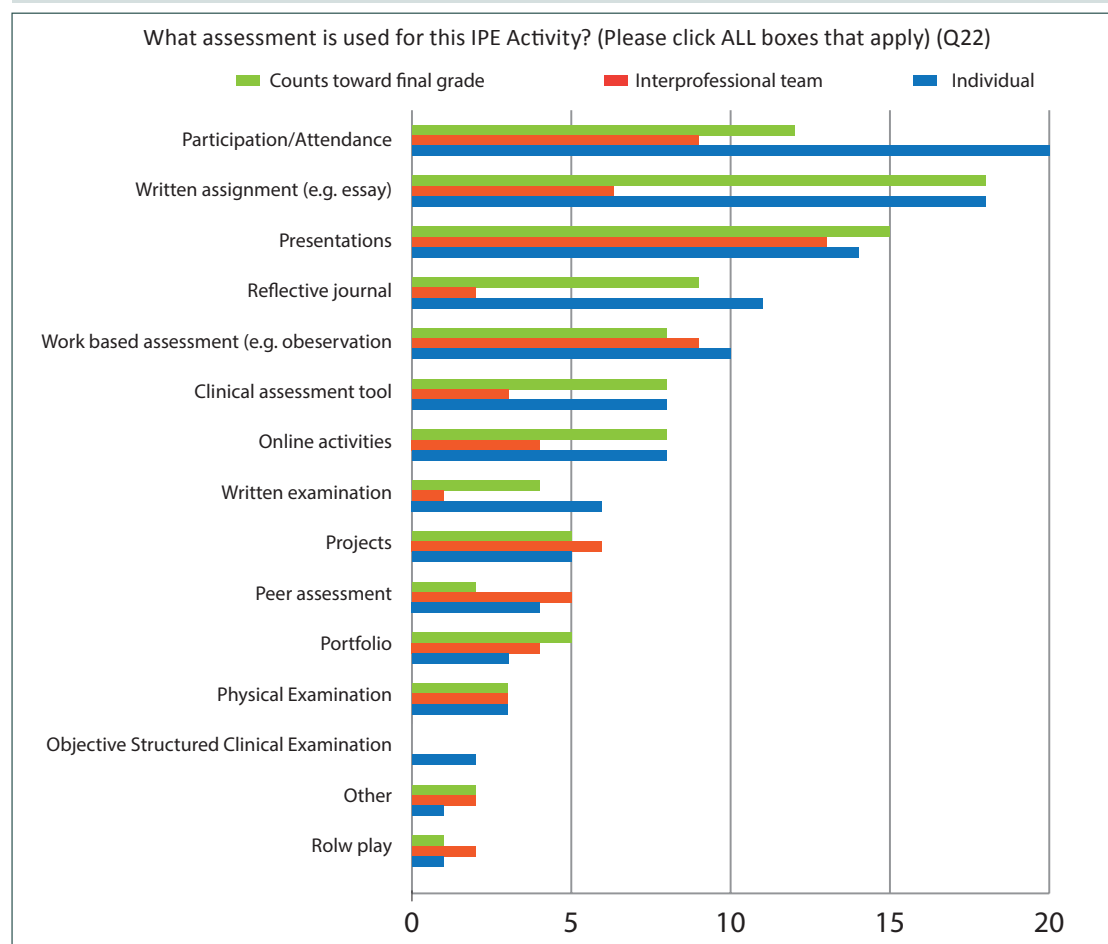
Finding 17

In most IPE activities, students could be assessed as an individual, as part of a team or both.

The most frequent individual assessment methods included written assignments, presentations and attendance/participation.

The most frequent interprofessional assessment methods included group presentations, work-based assessments and participation/attendance.

Written assessments, presentations, and participation and attendance most often counted towards students' final grade.



Note that participants could select more than one response option. Response rate: 41 out of 70.

Figure 15: Finding 17 from the *National Audit Study* (2013)

Finding 18

Of the 41 IPE activities that were assessed, 22 specifically assessed teamwork or team function.

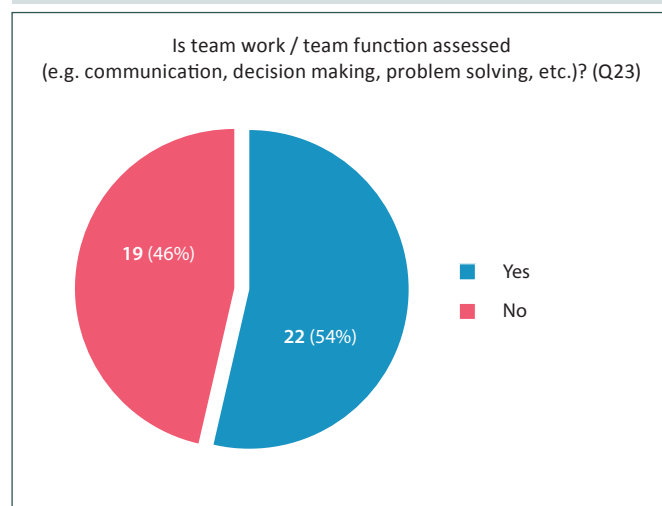


Figure 16: Finding 18 from the *National Audit Study* (2013)

Other studies on assessment

A review of 20 IPE and Collaborative Patient-Centred Practice activities across Canada found a total of 199 evaluation instruments or methods used (Canadian Interprofessional Health Collaborative 2009). The most common of these were the *Attitudes Toward Health Care Teams*, the *Readiness for Interprofessional Learning*, the *Interprofessional Team Performance Scale*, the *Interdisciplinary Education Perception Scale*, the *Interprofessional Reciprocity Pre-Questionnaire*, and the *Collaboration and Satisfaction About Care Decisions Scale*. A description of the approach (quantitative, qualitative or mixed), the purpose and key words, and the project that used the instrument is summarised.

Very little literature is available on using work sample or major works to assess IPE. Interviews with students and other stakeholders are used regularly as well as portfolios such as those by the University of Leicester, De Montfort University and The University of Northampton: (<http://tiger.library.dmu.ac.uk/Example%20Portfolio%20for%20students%20at%20Leicester-Northants-Demontfort%20Unis.pdf>).

Assessments of teams in the health challenges mentioned earlier are a form of performance assessment. Examinations such as adaptations of the OSCEs are described in the IPE literature. These generally involve the assessment of an interprofessional team such as those by Cullen et al. (2003) and Simmons et al. (2011). Morison and Stewart (2005) examined the assessment of clinical, teamwork and communication skills within an IPE context for undergraduate students. Students were provided with a clinical scenario (a child newly diagnosed with insulin dependent diabetes). An OSCE of a clinical skill (giving a subcutaneous insulin injection) was followed by students preparing and giving an

explanation of the condition and its management to the child's parents during an assessed role play. The authors articulated the need to develop and use agreed (IPE) learning outcomes as the basis for developing relevant assessments. Tools that measure interprofessional teamwork have emerged in recent years including the *Assessment of Interprofessional Team Collaboration Scale* (Orchard et al. 2012) and the *Collaborative Practice Assessment Tool* (Schroder et al. 2011). These lend themselves to work based assessment.

Stone (2010) provided a commentary on formal assessment in IPE. Freeth, Reeves et al. (2005) published a self-help guide to the evaluation of IPE. Mann et al. (2009) conducted a systematic review of reflection and reflective practice in health education. Others such as Clark (2009) and Zarezadeh et al. (2009) also focus on the reflective process.

Other resources are:

- CIHC website link to an interactive evaluation framework provides a number of tools for assessing knowledge, skills, attitudes and behavior, available from: <http://cihc.ca/>
- CIHC Research & Evaluation subcommittee, including several publications are available from: <http://cihc.ca/>
- Jefferson InterProfessional Education Center includes a link to several assessment tools: <http://jeffline.jefferson.edu/jcipe/resources/assessment.cfm>
- University of Alberta Interprofessional Reflection Guide: <http://www.hserc.ualberta.ca/en/Resources/CurricularResources/InterprofessionalReflectionGuide.aspx>
- English and French e-learning assessments: <http://ennovativesolution.com/WeLearn/IPE-Instruments.html>

Section 5.

The Evaluation of Interprofessional Education at Pre-qualification level: Methods and Critique

Sandra Carr

Koshila Kumar

Monica Moran

Rosemary Saunders

Jill Thistlethwaite

Section 5.

The Evaluation of Interprofessional Education at Pre-qualification Level: Methods and Critique

This section:

- Identifies the challenges of evaluation in IPE within the broader context of human services and education
- Indicates the extent of evaluation of current IPE activities in Australian universities, drawing on National Audit Study data
- Suggests the need for new ways of conceptualising and conducting evaluation in IPE.

Introduction

Champions and advocates of IPE are frequently asked about the evidence for its efficacy. Does it work? Is it effective? Does it change patient outcomes? Journals focusing on health professional education and practice add to the evidence base by publishing papers describing evaluations of IPE interventions. Systematic reviews further contribute to the evidence by synthesising the results of these evaluations to confirm effects on attitudes and behaviour, as well as the achievement of stated learning outcomes. However, if the aim of pre-qualification IPE is 'to improve collaboration and the quality of care' (Freeth, Hammick, et al. 2005, p. 11) the findings from evaluation and research are at this stage equivocal.

Given the relatively under-developed state of evaluation in IPE, both theoretically and methodologically, this section has three aims.

First, we aim to locate the challenges of evaluation in IPE. We do this by providing data on how respondents in the National Audit Study responded to questions about evaluation. We also locate evaluation in IPE within a larger set of debates involving evaluation in the areas of human services and education.

Second, we provide an overview of evaluation in IPE as this is currently occurring. We summarise the findings of the second Joint Evaluation Team (JET), a review targeting IPE evaluation (Barr et al. 2005) and a review by Reeves et al. (2011). We also include the findings from a narrative study of evaluation methods in IPE conducted specifically for this report. This study reviewed articles from five academic journals for the period 2009 – 2012.

Third, we suggest the need for new and additional ways of conceptualising and conducting evaluation in IPE. In particular, we suggest that 'realist evaluation' as developed by Pawson and Tilley (1997, 2004), with its focus on the relationship between 'mechanisms', 'contexts' and 'outcomes' offers the potential for generating new understandings about IPE as it is developed in a range of educational settings.

Whilst not addressed substantially in this section, we note the complexities of attempting to distinguish research from evaluation in the areas of human services and education. For instance, in the UK the NHS defines research as 'the attempt to derive generalizable new knowledge, including studies that aim to generate hypotheses as well as studies that aim to test them'; whereas service evaluation is 'designed and conducted solely to define or judge current care' (NHS National Patient Safety Agency 2009). We would suggest that this distinction is difficult to maintain in areas such as educational evaluation where evaluation inevitably generates new understandings at the same time as making judgments about effectiveness and outcomes. This is particularly the case where new methods, such as IPE, are being piloted. However, we do think it important to be clear about the distinction between 'student assessment' and 'program evaluation'. We also note that in some national contexts, in particular the USA, the two terms tend to be reversed as to meaning. In what follows, we refer to evaluation as an approach to inquiring into and making judgments about how programs work and what they produce.

What did the National Audit say about Evaluation?

In summary terms, the findings of the *National Audit Study* in relation to the evaluation of IPE reflected the international experience:

With many, but not all evaluation initiatives being focused on student reaction (Level 1)⁶, short-term knowledge acquisition (Level 2b) and impact on attitudes to other professions (Level 2a). What is also strongly apparent is a growing interest in and recognition of the need for new ways of thinking about the phenomena in question (complex social practices with different practice contexts), and conceptualisations and methodologies that allow the generation of data that represents the phenomena of IPE and IPP, for example, the work of Pawson and Tilley (1997) with 'realistic evaluation'. (Interprofessional Curriculum Renewal Consortium Australia 2013)

⁶ The levels referred to in this *National Audit Study* extract refer to the JET evaluation model – see next page.

Finding 19

Of the 70 IPE activities reported, nearly three quarters had been evaluated, at least in part.

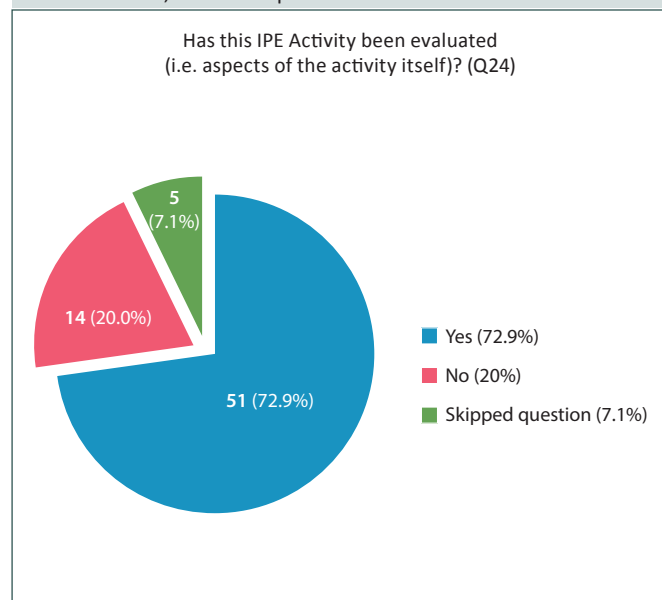
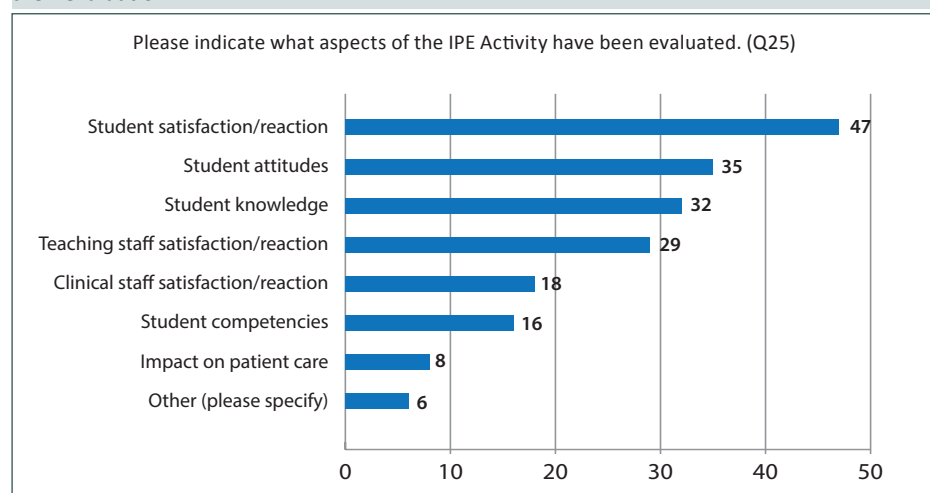


Figure 17: Finding 19 from the *National Audit Study* (2013)

Finding 20

The majority of IPE activities reported included student satisfaction/reaction in their evaluation.



Note that participants could select more than one response option. Response rate: 65 out of 70. Although only 51 out of 70 activities were recorded as being evaluated in Question 24 (see Finding 19), an additional 14 responses were provided for Question 25 on the nature of evaluation, despite previously stating that these activities were not evaluated or skipping the previous question.

Figure 18: Finding 20 from the *National Audit Study* (2013)

The nature and purpose of evaluation

The meaning and purpose of evaluation is defined in diverse ways. For example, evaluation is an activity that aims to determine the value of an object; it is a values-based judgmental activity, designed to answer three questions: 'What?' (what has occurred?); 'So what?' (what difference does or might this make?); and 'Now what?' (what is to be done with what has been learned?) (Patton 2008, p. 5). In a more differentiated sense, Rossi and colleagues (2004) categorise evaluation as a means of answering five questions about: i) cost and efficiency; ii) outcome or impact; iii) whether the implementation is going to plan; iv) whether the design and theory behind the program are working; and v) what the need for the program is.

In relation to education programs or activities, such as IPE, evaluation findings contribute to a range of educational and pedagogical processes: development, clarification, improvement, monitoring and justification (Lambert & Owen 1995). Posavac (2011) presents evaluation as aiming to:

learn the depth and extent of need for a human service and whether the service is likely to be used, whether the service is sufficiently intensive to meet the unmet needs identified, and the degree to which the service is offered as planned and actually does help people in need at a reasonable cost without unacceptable side effects'. (Posavac 2011, pp. 1-2)

Evaluation involves a 'systematic collection of information about the activities, characteristics and results of programs to make judgments about the program, improve or further develop program effectiveness, inform decisions about future programming, and/or increase understanding' (Patton 2008, p. 39).

In the higher education sector, including health professional education, evaluation is an institutional requirement for quality assurance and improvement. Students provide feedback on courses in terms of satisfaction and self-assessment of learning. For educators and those involved in curriculum development, evaluation is the primary mechanism through which understandings about effectiveness and impact are generated. Critical to what information is gathered and how this is structured and interpreted is the question of what constitutes success or effectiveness (summative evaluation) in any program area.

Within the education context, the success or effectiveness of a program is typically taken to mean whether learners have achieved the defined learning outcomes for a program. It is measured, usually, in the short-term through assessment results and, perhaps in the longer term, through measures like rates of employment following completion of the program.

Evaluation is clearly a complex process, with different stakeholder groups rating effectiveness in different ways. The short-term nature of what it is possible to evaluate and research becomes problematic and challenging in terms of methodology and the availability of empirical data. With IPE, the challenge to provide evidence about the impact of an educational intervention on patient care outcomes poses significant methodological and capacity challenges.

For new learning activities, in particular, educators may also be interested in exploring how and why any changes have been effected, as well as the process of delivery (process and formative evaluation). Again, however, such evaluation is likely to be short term only due to the factors noted above.

Outcomes-based evaluation

During the past two to three decades, and as part of broader shifts in public sector management and professional accountability, there has been an increasing policy, funding and institutional focus on outcomes, or goals-based, evaluation. Within health, and increasingly education, outcomes evaluation has become the dominant form of evaluation. Outcomes evaluation looks at the change brought about by a program or intervention, usually limited to short-term data and self reports. Such evaluation is primarily concerned with whether an intervention (such as an activity, program, treatment or management approach) achieves its stated goals. As Patton (2008) points out there are at least three points for comparison: i) at the start or baseline; ii) the goal, which is the ideal outcome; iii) the endpoint and the actual outcome. Other comparisons may also be made, for example with a control group (without the intervention) or with another group receiving a different intervention. In education, short-term outcome evaluation frequently adopts a simple pre/post design. Comparisons with other groups having no or a different intervention are also published, but such comparisons are often considered difficult in education for ethical reasons. Experimental designs, with randomisation, are even less common, while the gold standard of biomedical research – the double blind randomised control trial – is usually not possible as participants cannot be blinded as to which intervention they received (though single blinding, where the evaluators are blinded can sometimes be achieved). Evaluation may be carried out using quantitative, qualitative or mixed method approaches.

Regardless of the type of evaluation activity occurring, it is critical that program goals or, within the education sector, learning outcomes are explicit, specific and meaningfully measured. This returns us to findings from the National Audit study about the need for far greater specification of IPP competencies (see Section 3) and learning outcomes (see Section 4).

Evaluation in IPE – the dominance of the Kirkpatrick and JET model

Arguably, the most utilised and referenced approach to evaluating learning and change as an outcome of an IPE intervention has been the Kirkpatrick Model. Donald L Kirkpatrick is a former professor of management and his evaluation framework was specifically developed for the evaluation of in-house training provided in the manufacturing and sales sectors of the business industry, rather than higher education or health professional learning activities. The Kirkpatrick model is an outcomes-based approach extensively used to evaluate training programs. It was first developed for use in business organisations in 1959 and was adapted for IPE by the Joint Evaluation Team (JET) in a review of evaluations of IPE funded by CAIPE and BERA (British Education Research Association) (Barr et al. 1999, 2000). The original Kirkpatrick format is a four-level model of educational outcomes with evidence in relation to:

- 1 (Learners') reaction
- 2 Learning
- 3 Behaviour
- 4 Results.

For Level 1, 'reaction', participants are asked about their initial reactions to the provided learning experience and whether their learning is relevant and 'immediately applicable to their needs' (Kirkpatrick & Kirkpatrick 2006, p. ix). Level 2 focuses on the single question of how effective the learning is and how sustainable it will be, indicating that there should be some form of longer-term evaluation to check for sustainability and longevity. Level 3 is about what participants do differently and more effectively as a result of the training, implying a pre/post intervention evaluation design. Level 4 is about benefits to the organisation or business (4a in the JET version): the question here is 'what results are these investments in learning having for the business?' (Kirkpatrick & Kirkpatrick 2006, p. ix).

In the various iterations of the framework, writers use different terminology. For example Kirkpatrick refers to steps rather than levels (Craig 1996): Step 1 reaction (trainee's reaction to the program: level of satisfaction); Step 2 learning (trainee's attitude change, increased knowledge, and/or increased skill, due to the training); Step 3 behaviour (on the job change in behaviour because of program participation); Step 4 results (how the organization benefited from the learner's participation in the program) (Kirkpatrick 1994). Others such as Mavin et al. refer to 'segments' and 'stages' (2010, p. 7). For Kirkpatrick, changes should be evaluated through a before and after approach, with a control group where practical. For example, he notes that training alone is insufficient to produce sustained change. Mavin et al. (2010) suggest that the model's strength is its simplicity yet critique its limitations, in particular in relation to the difference between evidence and proof. Proof is associated with the objective before and after measurements, control groups, reliable instruments and attention to confounding factors.

In the IPE context, the Kirkpatrick framework has been further expanded to six categories (Table 6) at both Level 2 and

Level 4 to distinguish between outcomes that relate to people and those that have an impact on service delivery (Barr et al. 2000; Freeth et al. 2002). While acknowledging that this model has its critics, Barr et al. (1999) chose it for 'its apparent simplicity' (p. 540) but made provision in the review for other outcomes which did not fit the classification. This JET model is now ubiquitous in health professional education evaluation.

Table 6: Classification of interprofessional outcomes

Level 1: Reaction	Learners' views on the learning experience and its interprofessional nature.
Level 2a: Modification of perceptions and attitudes	Changes in reciprocal attitudes or perceptions between participant groups. Changes in perception or attitude towards the value and/or use of team approaches to caring for a specific client group.
Level 2b: Acquisition of knowledge and skills	Including knowledge and skills linked to interprofessional collaboration.
Level 3: Behavioural change	Identifies individuals' transfer of interprofessional learning to their practice setting and their changed professional practice.
Level 4a: Change in organisational practice	Wider changes in the organisation and delivery of care.
Level 4b: Benefits to patients/clients	Improvements in health or well being of patients/clients.

From: Barr et al. (2000) and Freeth et al. (2002)

There has been much debate about whether the levels are hierarchical. Barr et al. refer to 'Kirkpatrick's hierarchy' (1999, p. 540), but Kirkpatrick himself does not use this description. Kirkpatrick and Kirkpatrick (2006) write that the levels:

represent a sequence of ways to evaluate programs. Each level is important and has an impact on the next level. As you move from one level to the next, the process becomes more difficult and time-consuming, but it also provides more valuable information. None of the levels should be bypassed simply to get to the level that the trainer considers the most important. (p. 21)

Thinking of the levels as steps is different to considering them as having lower and higher values when moving from Level 1 to 4.

Evaluation in IPE – a summary of what is occurring

The second Interprofessional Education JET review aimed to answer the question: 'What types of IPE, under what circumstances, result in what types of outcome?' (Barr et al. 2005, p. 42). It presented the evidence from 107 higher quality studies published between 1966 and 2003 and gave a thorough breakdown of the content of the papers in terms of demographics, context, participants, study design and the Kirkpatrick outcome level of evaluation. The majority of the papers (47%) included in the Barr et al. review (2005) were focussed on evaluating learner

satisfaction and were positioned at Level 1 of the Kirkpatrick model. It is to be noted that this review included a high proportion of post-qualification studies (79%) and classified self-reports of behaviour change as Level 3. This contrasts with the Kirkpatrick's instruction that behaviour change should be evaluated by survey of, or interview with, persons who know the behaviour of the subject(s) under scrutiny (Kirkpatrick & Kirkpatrick 2006). Self-assessment and self-reporting of behavioural change is difficult to classify as it does not meet the requirements for Level 3 but is not really the same as Level 1 either.

More recently, Reeves et al. (2011) reviewed the literature to develop a theoretically based and empirically tested understanding of IPE and interprofessional collaboration (IPC)⁷, which included summarising the evaluations of studies captured during the review process. They included 37 papers focusing on pre-qualification IPE (of a total of 104 studies on IPE and IPC activities). Their review also showed that the majority of papers were focussed on evaluating participant reactions, and changes in attitudes or knowledge, rather than skills or practice. Similarly, of the 14 reviews considered by Yardley and Dornan (2012) in their analysis, only three included more than 50% of the papers with evaluations at Kirkpatrick Level 3 or 4.

A narrative review of evaluation methods – 2013

To investigate and categorise more recent evaluations of pre-qualification IPE interventions, we searched the following five journals from 2009 to 2012

- *Journal of Interprofessional Care (JIC)*
- *Medical Education*
- *Focus on Health Professional Education*
- *Nurse Education Today*
- *Journal of Research in Interprofessional Education (JRIPE)* (from the first edition in 2010).

We did not intend to capture all papers on IPE evaluations but rather to gain a narrative view of the types of evaluation being undertaken in order to make appropriate recommendations for future work. Our inclusion criterion was: interprofessional education intervention (according to the CAIPE definition) for pre-qualification students with evaluation of the intervention. We excluded post-qualification programs and interventions such as qualified health professionals from one discipline teaching students from another or multi-professional learning with no evidence of collaborative learning.

Our aim was not to answer the question of whether IPE is effective (a systematic review of the studies' findings) but rather to consider the nature of evaluation and the methods being used, in order to make recommendations for future work in this area. Nor did we evaluate the studies in terms of rigour and method.

Seventy-three papers met the inclusion criterion (Appendix 6). Full citations for these papers are available in Appendix 7. There was great diversity in the learning activities, which ranged from a few hours to programs lasting a whole semester. There was moderate diversity in evaluation methods and approaches used, but the majority were short-term evaluations taking place soon after an educational intervention had been implemented (Appendix 8 – those using standardised evaluation instruments are included in Appendix 8a, while those using other methods are included in Appendix 8b). Only five papers referenced Kirkpatrick or the modified JET framework and two of these were reporting on the same intervention but from different perspectives. While many of the other papers could be linked to one of the Kirkpatrick's levels, most reported on Level 1, learner reaction (Appendix 9), and not all evaluation methods fitted neatly into the framework. In line with the original Kirkpatrick instructions, we only included behaviour change in learners if this was measured rather than being self-reported.

There were four sets of linked papers with similar authors. They reported on the same intervention with either different types of evaluation data or with more cohorts of learners across more years. We have treated these as separate papers except where specified.

The learner reaction questionnaires were mainly developed specifically for the studies described. Most used a combination of Likert scales and free text comment boxes. They assessed student satisfaction, self-perceived change in knowledge, understanding of roles and suggestions for changes to the intervention. Six studies used a controlled trial method and pre/post intervention testing (reported in seven papers). Three employed direct observation of students. Only four studies conducted follow-up evaluation more than three months after the end of the intervention. Four studies included faculty questionnaires and one a patient evaluation. Other common data gathering methods included: student one-to-one interviews (11); student focus groups (16); faculty one-to-one interviews (4); faculty or clinical managers focus groups (5); service user interviews or focus groups (3); clinical team interviews (1); student written reflections such as diaries (9) – one of these studies asked newly qualified professionals about their reflections on the learning four years later (Appendix 6).

The most commonly used validated attitudinal instrument was the *Readiness for Interprofessional Learning Scale* (RIPLS) (Parsell & Bligh 1999). However, this was commonly modified for use in different studies, as stated in seven papers included in this review. Eight papers used the *Attitudes Toward Health Care Teams Scale* (ATHCTS) (Heinemann et al. 1999), although two of these were reporting on the same intervention. Two papers reported on a student knowledge test.

⁷ 'IPC' – interprofessional collaboration is the term used in the Reeves paper.

Beyond Kirkpatrick and JET: realist evaluation for health professional education

Whilst constituting a broadly accepted approach to evaluating the outcomes of IPE, the Kirkpatrick model has also been strongly critiqued. Yardley and Dornan (2012) reviewed the suitability of the Kirkpatrick levels for evaluating interventions specifically in medical education. They concluded that, because they were originally designed for industry training, the levels are unsuitable for other than relatively simple educational programs. Moreover they were never advocated for use 'to evaluate how professionals become expert practitioners through deliberate practice and social learning' (2012, p. 100). As Yardley and Dornan rightly point out, the Kirkpatrick model is for evaluation of 'short-term and tangible endpoints like sales volumes, quality and profitability' (2012, p. 100) and not for the complexity of health profession education and practice.

One potential alternative approach to evaluation in education is that of 'realism', or more specifically, the 'realist evaluation' approach developed by Pawson and Tilley (1997, 2004). Since 1997 other authors have used 'realist' rather than 'realistic' with the former now seeming to have become the preferred nomenclature (Pawson & Tilley 2004). When applied to health professional education, realist evaluators aim to answer the following questions: what kinds of educational interventions will tend to work, for what kinds of learners, in what kinds of contexts, to what degree and what explains such patterns? (Wong et al. 2012).

As the name suggests, realist evaluation is rooted within realism – a philosophy of science situated between positivism and relativism/constructivism. Realism conceptualises the world as an open yet complex system with structures and layers that link to mechanisms and contexts. Realist evaluation aims to identify underlying causal mechanisms and how they work under varying conditions rather than assuming simple cause and effect solutions. The conceptual and theoretical focus of realist methods is the relationships between context (C) + mechanism (M) = outcome (O). In this equation a mechanism is 'an underlying entity, process or structure which operates in particular contexts to generate outcomes of interest' – in IPE, the particular educational 'unit' (Astbury & Leeuw 2010). Realistic evaluation has the potential for developing explanatory theory and is being recommended as an alternative to randomised controlled trials to help build knowledge about the links between educational interventions and learner outcomes (Wong et al. 2012). In fact, the theory-testing purpose of realist evaluation draws attention to the underpinning theory or theories of an educational program or initiative (Pawson & Tilley 2004).

Pawson and Tilley (1997) present realist evaluation as a means for testing and developing knowledge and understandings in areas where practice and context are complex and dynamic, very much the domain of IPE. Realist evaluation may involve a quasi-experimental design where randomisation is not practical but where there may be two or more existing groups that could

be meaningfully compared: for example, students from different years or locations. However, because realist evaluation focuses solely on outcomes in context, the question of generalisability still remains.

Of interest is that Barr and colleagues (1999) refer to Pawson and Tilley (1997) in relation to two of the objectives of their review of IPE: 'to uncover a link between a particular IPE type/format and outcome; to discover what factors determine the effectiveness of IPE' (1999, p. 541). Thus their wording reflects the aims of realist evaluation – what works for whom and in what circumstances? Indeed Barr's group goes on to refer to context factors, mechanisms and outcomes (1999). However, their paper does not include evaluation data but rather provides a description of the method of the systematic review. In contrast, their 2000 review (Barr et al. 2000) does not refer to Pawson and Tilley, nor to mechanisms.

What might realist evaluation look like?

As a suggested alternative approach to evaluation in IPE/P what might a realist approach look like? The realist evaluation cycle is similar to the traditional positivist cycle of theory, hypothesis, observation and empirical generalisation. It both tests, and has the potential to generate, knowledge and theory. The theory is framed in terms of its overarching conceptualisation of mechanisms (M), context (C) and outcomes (O). The hypothesis frames the study of what might work for whom, and in what circumstances. The learning intervention is devised and delivered; then data is collected to analyse the M, C, O relationships. Data collection is usually multi-method and may include quantitative and qualitative approaches, comparisons, ethnography, and longitudinal case studies. Information is typically collected about: i) the key features of an educational resource/activity/intervention; ii) the resources that support this intervention; iii) key actors (i.e. people), relationships and networks; iv) features of the environmental and institutional context and locale; v) baseline, process and outcome measures; vi) procedures and processes; and vii) the outcomes for a range of stakeholders (in areas such as equity, quality, relevance, cost effectiveness, partnership, capacity building) (Pawson & Tilley 2004).

The endpoint is unlikely to be a simple generalisation, but rather an understanding of how particular program mechanisms and principles have been taken up and interact with particular individuals and groups in particular contexts. We believe this approach to knowledge generation, outcomes evaluation and learning offers considerable possibilities for a new phase of IPE evaluation (and research). Such an approach is also in alignment with research in Australian and internationally that is approaching professional practice, IPE and IPP as a socio-material achievement negotiated across complex professional and organisational boundaries in particular settings (Dunston forthcoming; Hager, Lee & Reich 2012). Far more dynamic, longitudinal and situated approaches to understanding education, learning and practice are required.

Concluding comments

As consistently noted in the National Audit consultations, the need for a more substantial focus on evaluation in IPE looms large. Claims for locating IPE as a core element of all health professional education curricula require an ability by the IPE community to more substantially address questions of the effectiveness, impacts and outcomes of IPE.

In responding to these questions, there is a growing body of evaluation and research evidence indicating the beneficial impacts and outcomes of IPE. Most recently, with our own narrative study, all the papers included in our review showed some change (when measured pre/post intervention) or enhancement of learning, mainly in the short term. However, many publications have noted the considerable diversity in what is termed IPE. For the most part the identification of IPE was predicated mainly on the 'two or more professions' (Centre for the Advancement of Interprofessional Education 2002), with attention to 'learning about, from and with' to some extent visible, but rarely with recognition of the element 'to improve health outcomes' (World Health Organization 2010). This final point is not surprising, as research in other areas of pre-qualification health professional education rarely focuses on the impact on patient outcomes.

However, considerable work remains to be done in terms of evaluation and research, with a particular emphasis on the need to describe and understand the impacts and outcomes of IPE over time, and where possible, to trace these into the area of professional practice and patient outcomes. There is also a need to generate greater understanding of the processes, impacts and outcomes of the pedagogy and methods of IPE. We see the use of realist evaluation as of particular value in this area.

In terms of methods there is less diversity than with learning outcomes, with questionnaires being most commonly employed to gather student feedback. Pilot projects or new larger initiatives often include interviews and focus groups, which begin to explore what works for whom. We believe this is an important development, as a focus on whether attitudes and values have changed tells us little about how attitudes or values have changed, and, just as importantly, why not? While outcomes are important for institutional data collection, particularly in relation to student satisfaction and learning, we would advocate more intense evaluation focusing on what works, why and how, plus the relationships between mechanisms, contexts and outcomes.

New theorisations of professional practice and learning also offer new ways to conceptualise and design evaluation and research. Hean and colleagues (2009) have highlighted the inclusion of socio-cultural theory that recognises the social aspect of learning, emphasising that we learn through interactions with others and with the environment in which we work. Such collaborative learning, through shared tasks and discussions, is said to achieve shared understanding (Duffy & Jonassen 1992). The growing influence of socio-material theories and what have been generically termed 'practice theories', also offer new ways of understanding professional practice, learning, change, evaluation and research (Dunston forthcoming; Hager, Lee & Reich 2012; Schatzki 2001).

Section 6.

Local Implementation: Case Studies and Exemplars

Jane Hager

Gillian Nisbet

Rosalie Pockett

Tagrid Yassine

Section 6.

Local Implementation: Case Studies and Exemplars

This section:

- Analyses data from both the National Audit survey and consultations with key stakeholders about the principal elements in implementing IPE in diverse institutional settings
- Presents nine case studies of implementation of IPE across Australia
- Identifies the common elements in successful implementation of IPE in terms of structures and pedagogical approaches.

Introduction

Whilst respondents noted the importance of such things as policy directives, curriculum guidelines, accreditation requirements and funding for the development of IPE, the way in which these aspects were brought together in local curriculum development was also identified as a critical issue in its own right. Many local factors including differing understandings, material conditions, competing agendas and politics could and did significantly shape curriculum possibilities. Many respondents identified two further matters: the first was the need to recognise and identify the importance of local understanding, negotiation and decision making in building IPE curriculum. The second was the need to learn from the experiences of others. As noted in many of our previous reports, e.g. Dunston et al. (2009), IPE activity has tended to be confined to local contexts. There have to date been few mechanisms for information sharing and learning beyond the local context.

In responding to these two issues, we have identified 'local implementation' as an important issue in its own right and as the fourth dimension of the 4DF.

What did the National Audit say about IPE implementation?

The National Audit Study provided a range of perspectives on IPE as experienced by a broad range of individuals and organisations involved with the design, development and delivery

of IPE within Australia. The discussion was sourced from two data sets. First, from the open text questions in the national survey; and, second, from audio recordings and notes made during consultations with key stakeholder groups.

Given the differing nature of the two approaches, with the consultation data tending to be more complex and nuanced and survey data more discrete, we presented material from the two data sets separately.

Survey Data: Findings of the Thematic Analysis

Analysis of survey data produced a thematic categorisation as follows:

- *Curriculum and Course Design*
IPE implementation enablers related to the design of curriculum included 'embed IPE into curriculum (not an add-on)', 'embed IPE early in courses', 'starting with completely new course model; not trying to attach IPE onto something that already exists', 'multi-disciplinary programs – core subjects', and 'curriculum flexibility'. A major challenge identified by participants in relation to sustaining IPE was whether those involved in shaping health professional curricula would be sufficiently responsive to the place and contribution of IPE.
- *Leadership*
Enablers to IPE implementation demonstrated a strong focus on the leadership, identification of 'champions' and organisational support for IPE. Challenges mostly referred to lack of leadership and critical support from senior levels in the university.
- *Stakeholders/Industry Links*
Enablers of IPE implementation within this theme were attributed to factors spanning the patient, student, staff, and the strength and ability of institutions to build and sustain industry relationships.
- *Funding/Support*
Issues of sustainable and adequate funding were understandably recognised as both enablers and challenges for implementing IPE to curriculum: enabling when they existed and highly constraining when they didn't.
- *Collaboration/Communication*
Within this theme, broadly, communication across disciplines, maintaining relationships and breaking down traditional 'silos' were identified as enablers of IPE implementation. Challenges experienced by participants reflected perceptions of a long-established hierarchy and reinforcement of stereotypical views.
- *Dispersed Structures*
Health disciplines spread across different schools and dispersed geographic locations were identified as inhibiting IPE implementation. Such dispersal adds to the complexity of coordinating shared learning activities.

Consultation Data: Findings of the Thematic Analysis

Analysis of data from the consultations with key stakeholder groups produced a thematic categorisation as follows:

- *The current position*
There was consistent and widespread support for IPE and IPP. Whilst this emphasis has been developed in health policy, workforce development and in the work of a number of national bodies, many participants reported considerable diversity in how IPE exists across different universities. In some universities, it was clear that significant developments were under way; in others IPE remained on the margins of the curriculum, minimally resourced and dependent on the work of champions.
- *A lack of clarity about the meaning, scope and focus of IPE*
There was much uncertainty as to the meaning and scope of IPE. The most frequent discussion in this area was around the meaning and curriculum implications of an educational focus on the 'relational' and 'interactive' elements of health professional practice – the 'learning with' and 'learning from' others.
- *The central place of IPE in the development of more effective health services*
There was for the most part a strong recognition of the place of IPP in improving the quality and effectiveness of health services and of IPE in educating students for IPP. There were however, some more cautious views. A well developed theme was about the difficulty of embedding IPE into a curriculum defined within a uni-professional paradigm.
- *The 'overcrowded curriculum'*
Discussion in this area revolved around two areas – the careful design of IPE – when and how best to introduce IPE into the curriculum. Linked to this were discussions as to the complexity of achieving this. There were very different views about how this should occur and concerns expressed about whether IPE equated with the idea of the 'generic health professional'. Others saw the issue differently, with IPP adding interprofessional capabilities to uni-professional capabilities.
- *Legitimacy, knowledge and evidence*
The legitimacy of IPE/IPP knowledge was frequently raised. Concerns were expressed about knowledge deficits and the need for a far more active research program. For the kinds of investments required to establish IPE as a core of professional education, many participants commented on the need for the accrediting bodies of the professions to adopt IPE/IPP in their accreditation standards. Whilst knowledge gaps were identified, some participants noted how much was already known about what can occur when health professionals do not have a good understanding of working with their colleagues.
- *Career long learning – learning in the workplace*
The need for a focus on learning about IPP to continue after registration was identified by many participants. Concerns were expressed about the loss of learning that occurred when graduating students entered a practice world that often did not reflect a commitment to IPP (Interprofessional Curriculum Renewal Consortium Australia 2013).

IPE case studies and exemplars

This section of the report focuses on 'local implementation'.

We had initially conceptualised this section as providing an 'implementation guide'. However, it became clear to us as we discussed this issue with partners and stakeholders that the idea of an implementation guide did not do justice to the complexity and unique design requirements of those involved in IPE curriculum development. As an alternative approach and with a focus on information sharing and learning from others, we present nine 'case studies' of how particular institutions have addressed matters of local implementation.

The case studies

The case studies were produced, mainly by partner universities, as a way of sharing the 'journey' of implementation. The case studies have been developed using a narrative approach and provide a perspective on 'how we did it over time' together with practical examples and guidance on overcoming the challenges in the design and delivery of IPE, such as sustainability, logistical concerns and educational innovation. They also present local accommodations and solutions.

The exemplars

The exemplars are brief summaries of IPE activities that have been submitted to the project by a number of stakeholders (universities and health services) in response to a request for exemplars highlighting educational innovation, spread and sustainability. We have not attempted to provide any analysis – they are far too short and diverse for this to be meaningful. They are presented in the Resource Bank (www.aippen.net) in their original format to provide information and illustrations of IPE in practice.

We hope that the case studies and exemplars provide useful insights and guidance to those involved in curriculum development. We anticipate they will also be useful for other groups involved in workforce development and health professional education more generally.

In the remainder of this section, we:

- Comment on methodology
- Provide a brief overview of the nine IPE case studies – what we have called 'snapshots'. Full case studies are available in Appendix 10 and in the Resource Bank.
- Present a thematic analysis of the case studies with a focus on identifying factors associated with implementation success.

Methodology

Case studies

Case studies were developed and reviewed by a working group consisting of three project partners, the project research associate and project manager⁸.

The working group requested case studies from partner organisations in the study, using an Implementation Case Study Template developed by the working group. The questions extended what had been asked in the National Audit survey (Interprofessional Curriculum Renewal Consortium Australia 2013). The questions sought to elicit a narrative account rather than an aggregated and summarised account of IPE curriculum development. All relevant resources are located in Appendix 10 including the original Implementation Case Study Template and the responses received from the nine universities. Although we requested educators presenting case studies to address all questions, we also asked that they expand on areas where they felt they had been particularly innovative, creative or resourceful.

A total of nine case studies were reviewed. Seven were received from partner universities. Two non-partner organisations case studies are also presented. These were identified from consultations with a wide range of universities.

Once the studies were received, members of the group, working independently, undertook a thematic analysis of each case study reviewing them to assess for factors that appeared to be associated with successful implementation. These themes were then collated into a final comparative review.

Exemplars

The exemplars were invited from any organisation wishing to contribute. The invitation was distributed through the project newsletter and was identified on the project web site. The study team developed a template containing key headings available to any organisation or group wishing to respond. Several exemplars are presented in the Resource Bank (with very few changes) as compiled by contributors. See www.aippen.net

Snapshot of case studies

The case studies in this report provide a variety of approaches to delivering IPE as part of health professional education. Case studies range from a description of individual units of study to a sketch of a 'whole-of-faculty' program. Face-to-face, online and blended presentation modes are included, in both undergraduate and postgraduate programs. The description also discusses the impact of local circumstances on IPE activities.

Case study 1

The University of Sydney's teamwork module for undergraduate social work students demonstrates learning for interprofessional practice within a single profession⁹. Theoretical presentations of working interprofessionally and reflecting critically are teamed with a group project, with the goal of developing teamwork skills. Groups construct a project management plan that identifies team members' roles and responsibilities, states milestones and outcomes with mechanisms for monitoring progress and includes a plan for dealing with anticipated problems.

Case study 2

Griffith University's case study details an overall faculty approach to IPE, guided by the *Implementation Framework for Interprofessional Learning* at Griffith Health (see Section 3). Activities occur at different phases in student development and include learning about the history, philosophy and roles of the major health professions as well as interprofessional student teams working on paper-based case scenarios and attending workshops and simulation of patient care experiences. Griffith University plans to implement real patient or client care experiences through either attachment to an interprofessional team of qualified practitioners or interprofessional teams of students providing care under supervision. The development of the Griffith Health Framework is described.

Case study 3

The University of Sydney's three year Interprofessional Learning Project produced a *Curriculum Framework* to guide the implementation of IPE across its then College of Health. The project developed a suite of IPE activities that could be undertaken in clinical placement programs, a teamwork module and one-day IPE workshops for senior students. This case study raises the important issue of sustainability as many of the IPE activities no longer run due to university restructuring, the end of project funding, and the loss of pioneering IPE champions to other roles.

Case study 4

Curtin University used their own Interprofessional *Capability Framework* to shape the online case-based IPE workshops described in their case study. Interprofessional student teams consider a case-based scenario involving complex health and social issues and produce an integrated client care plan. The workshops blend face-to-face and online learning opportunities and involve teams of senior undergraduate students from 10 different diagnostic and therapeutic disciplines.

⁸ The final case study was provided by a doctoral student and gives details of an IPE initiative post registration.

⁹ See comments in Section 1, Definitions, where we discuss a spectrum of educational experiences to support the aims of IPE.

Case study 5

Deakin University's fully online IPE unit includes self-directed topics, group discussion and case conferences in which a care plan is developed. The case conferences are real time and involve synchronous voice, text and document sharing. Occupational therapy, nursing, social work, medicine, psychology, dietetics and clinical exercise students from Deakin's four campuses participate in the unit. The unit is designed for students who are graduating as health professionals in the following twelve months, and includes both undergraduates and postgraduates.

Case study 6

The University of Sydney's Postgraduate Roundtable Discussion Activity is undertaken in the Graduate Certificate or Masters in Pain Management program and focuses around an asynchronous online interprofessional team meeting that produces an interprofessional care plan for a complex pain management case. Students may take on the role of a profession that is not their own, giving an interesting insight into another profession. The original learning design was derived from a geography curriculum and repurposed to a health-based curriculum context.

Case study 7

The University of Sydney's local implementation of the Health Care Team Challenge is an extra-curricular competition where interprofessional student teams develop a care plan. This activity is based on earlier initiatives at The University of Queensland in developing and running the Challenge (Moran et al. 2007). Health Care Team Challenges are now run at a number of universities. Senior undergraduate/graduate entry students from nursing, medicine and allied health are eligible to enter. Students meet face-to-face over five weeks to produce a plan involving both acute and rehabilitation components. Teams then present their plan to an audience of academics, students and health care professionals, with the winning team going on to compete in the National Health Care Team Challenge, where they repeat this process in competition with teams from universities across Australia.

Case study 8

Researchers from **Newcastle University**, the **University of Tasmania** and the **University of Wollongong** developed an IPE program 'Quality Use of Medicines' that includes online modules of audio-visual presentations, critical reflection questions and documentation. Each module is based on a clinical scenario derived from coroners' cases and incident reports and contrasts good and poor practice. The modules offer online IPE for undergraduate nursing, pharmacy and medical students, but they can also be used in single discipline situations and in face-to-face teaching. The aim is to develop communication and teamwork skills based on a modified version of the *Oxford NOTECHS Scale*. The NOTECHS (non-technical) scale is used to measure communication skills (Mishra, Catchpole & McCulloch 2009).

Case study 9

The Foetal welfare Obstetric emergency and Neonatal resuscitation Training program (FONT) is a postgraduate program for midwives, obstetricians and general practitioners, which includes an online training component and two face to face IPE clinical days. It was developed in response to the identification of adverse clinical events in maternity services. FONT is delivered across urban, rural and remote areas in New South Wales by local trainers. This project was funded by New South Wales Department of Health and documented in a **University of Technology, Sydney**, PhD project.

Thematic analysis

A thematic analysis of the case studies was undertaken and the following key themes identified.

Formal IPE structure

The case studies that seemed to be the most sustainable were those where a formal structure for IPE had been established within the university organisation. These arrangements varied and reflected the diverse organisational structures that exist across the university sector in Australia.

There were, however, common themes and these included:

- Dedicated IPE positions
- Clear reporting lines to senior levels within the university
- Visibility through the formal recognition of IPE as a desirable organisational activity.

Larger cross-faculty programs had dedicated IPE positions such as program directors, managers and coordinators. While many of these were fixed term positions, the positions provided the initial leadership and visibility for IPE and enhanced the credibility of the commitment of the organisation to IPE.

A key success factor for the larger cross-faculty programs was high-level (Dean or above) support for IPE development within the faculty/university and its integration within Teaching and Learning directorates. It is acknowledged that all university structures are different but where IPE sat in the university structure appeared to influence its visibility and long-term sustainability. The case studies suggest that reporting lines that give IPE a voice at high levels of the organisation are more sustainable in the longer term. A well-documented risk with fixed term positions is their vulnerability to competing priorities in university budgets. This has been evident in a number of Australian IPE projects over time, including The University of Sydney IPE Project, and has been a common theme in consultations with stakeholders.

Pedagogical approaches

The case studies reflect a spectrum of approaches to IPE with different foci illustrating diversity of content and delivery. However, the use of adult learning principles and theoretical frameworks in the development and delivery of IPE activities was

consistent among case studies. IPE activities were relevant and authentic. Comprehensive curriculum frameworks underpinned several programs. A number of pedagogical themes were identified in the case studies, including the following:

Flexibility of delivery

The case studies indicated an emphasis on online delivery – both full and blended delivery. Online delivery was adopted as a solution to the geographical obstacles of reaching students across multiple campuses and bringing together students on clinical placement with those on campus schedules. Online delivery using asynchronous as well as synchronous technology enables greater flexibility in delivery times. Some of the identified challenges are the need for ongoing eLearning and design, and IT support across campuses and programs.

Staged developmental approach to IPE

Case studies 2, 3 and 4 reported a staged approach to IPE delivery where individual IPE activities are introduced at particular stages in student learning for optimal effectiveness. This addresses an ongoing issue in IPE – at what stage should IPE be introduced into curriculum? A sequenced approach enables introductory exposure in the early years of study. This is then built on developmentally and in more complex ways in later years. This developmental approach builds on more sophisticated theoretical inputs combined with experiential approaches that continue to build on students' integrated learning that in later years included their clinical placements and field experience. University and practice/clinical educators working together to support and reinforce this learning enhances follow-through and connectedness between curriculum and placement experiences.

Health and well-being

A broad definition of 'health' was evident in some case studies and this was consistent with understandings of health as more than the physical or biological condition. These case studies reflected the broadness of the health and social care disciplines within their universities. Case studies 1 and 2 highlighted the relevance of considering health and wellbeing in its broadest sense. This extends the scope and focus of IPE from a 'clinical' activity into one that has relevance to the perspectives of many disciplines and enables greater connection with, and potential for, widening IPE. It was argued that this more inclusive approach results in the greater 'buy-in' to IPE generally as well as enriching the curriculum content and learning opportunities.

A 'means and ends' approach for improved client health outcomes and client-centred practice

The articulation of the purpose of IPE beyond student competencies underpinned case study 2 and was implied in several others. Rather than listing a series of student competencies, this study in particular developed 'threshold learning outcomes' which were closely linked to client-centred practice.

The positioning of IPE in this way has the effect of clearly differentiating IPE as both 'an end' in itself i.e. improving students' capabilities in this type of work, but also as 'a means' to the more overarching objective of improving the health outcomes for patients/clients and all service users.

Many of the case studies have IPE as a core focus and desired outcome of the activity. Curriculum is geared towards providing students with relevant and authentic IPE experiences to improve their ability to work with and learn from other health professionals when in the workplace.

Epistemology of IPE

Several case studies recognised the importance of theorised and assessed knowledge building. One effect of this approach was to legitimise IPE as a body of knowledge and practice equivalent to other curriculum content. Theorised approaches include students developing their abilities to interrogate knowledge and critically reflect on its application in practice. Most case studies use assessments that are both summative and formative. Higher levels of complexity in case studies that include interprofessional relationships with organisational systems may prove a way forward as an iterative process of knowledge building for practice. Case studies that combine IPE learning outcomes with other learning outcomes, reflect challenging and complex scenarios and are linked to client/patient outcomes result in more sophisticated educational outcomes.

Conclusion – case study analysis

Analysis of the case studies suggests themes relating to formal IPE structure, pedagogical approach and the epistemology of IPE.

A formal IPE structure appears to support the sustainability of IPE activities. Formal IPE structures portrayed in the case studies include the existence of dedicated IPE manager positions and support for IPE development at senior levels within a faculty, university, or health department.

The pedagogical approaches applied to the case studies include online delivery to enhance flexibility, a staged developmental approach to IPE delivery and the use of a broad definition of health to widen the focus and content of the IPE experience.

In terms of the epistemology of IPE, some case studies recognise the significance of the development of theorised (and evaluated) interprofessional knowledge. As a consequence, IPE is more likely to be viewed as a legitimate body of knowledge and practice equivalent to other curriculum subjects.

Educators planning and executing IPE activities can use the case studies in this report as a practical resource and as an indication of the kinds of local adaptations that have worked well. The case studies demonstrate that different models can be chosen to successfully address the local context associated with the implementation of IPE.

Section 7.

Deliverables + Change:

Maximising the Impact of a Study

Roger Dunston

Lynda Matthews

Rosalie Pockett

Section 7.

Deliverables + Change: maximising the impact of a study

This section:

- Outlines the design and implementation of the four related studies on IPE in health
- Discusses the complex process of working in this area with twelve different, geographically-dispersed partners
- Highlights the approach, which aimed to engage stakeholders and facilitate a lasting process of change, as well as delivering the agreed study outputs.

Introduction

This section outlines and discusses how the four studies discussed in this report were designed and implemented. They incorporate a strong focus on change or, more particularly, building capacity, connection and community between individuals and organisations involved with IPE/IPP across Australia. When discussing our approach to designing and implementing the four studies we frequently used the idea of a ‘parallel process’. By this we meant that each study was designed to do two things. The first was to achieve the various deliverables or outputs identified in the study proposal – a national scoping report, an in-depth review of IPE development across four WA universities, and a national profile of IPE activities in pre-registration health professional education. The second was, within the scope of the studies, to contribute to change or, more realistically, to contribute to conditions or possibilities through which change could occur. We refer to this parallel process as Deliverables + Change.

While we have always aspired to enable change, it has been harder to design for change. Given the requirements of various studies to deliver specific information-based outputs in relatively short periods of time, it has been more complex to use the study process as a mechanism of change. Sadly, what we have often witnessed is that well-written reports with far reaching conclusions are consigned to a bookcase or cabinet with many other reports. This is, of course, a simplistic and over-generalised framing of what occurs. However, with the series of IPE studies we embarked on in 2007, we have emphasised the idea of designing for change as well as achieving particular information outputs.

As part of completing this final study we comment on a number of issues related to how we sought to do this. For instance – how did this focus shape the design of the studies? what did we do? did it work? how did we manage unforeseen circumstances?

did we maintain the balance between producing outputs and working at change? what were the tensions? and what were the impacts or outcomes? In doing this, we hope to stimulate thinking and discussion about how time-limited studies can be designed and implemented to better effect and, in particular, to recognise that a project is in its own right an ‘intervention’ in the particular investigative space of the study. Our informing proposition is that how we think about, design and conduct a study makes a difference to what can and does occur.

How to tell the story of the studies?

We wondered how best to tell the story of the four studies. We have not attempted to provide a narrative account of what happened. Rather, we have identified two time periods during which the studies were conducted. Within these periods we comment on events, choices, decisions and learning. We have tried to provide some sense of how we experienced the journey. Whilst a rich journey, it was not easy!

Stage 1: 2007 – 2009

Our starting point was a response to an ALTC call for proposals to undertake national scoping and development studies in designated areas of education and curriculum development. Our proposal, L-TIPP (Dunston et al. 2009), was conceived by a small interdisciplinary group of colleagues from the University of Technology, Sydney and The University of Sydney, with a broad range of expertise and experience in health professional education, health practice and management, professional and workplace learning.

Our proposal was funded.

We also received funding to support the project from WA Health. Broadly stated, our task was to scope existing pre-registration IPE activities in Australian health professional education. Additionally, we were asked to make comment and recommendations about the future, that is, to address the question of where to from here?

In ‘simple’¹⁰ terms, this task – a study to focus on acquiring, organising and analysing information about diverse IPE activities – was practically complex, but did not present any major challenges in methodology or study management. However, we also recognised that the study provided an opportunity to work at stimulating change, so we also designed it to achieve this outcome. For some time we had been considering questions of how to maximise the change possibilities of small time-limited studies, and what this might mean for the design and conduct of a study.

¹⁰ Of course, no study or project is ever simple.

Our starting point for the L-TIPP study (indeed, all the studies) was to draw from a number of theoretical and research literatures, in particular from the professional practice, professional learning and change management literatures. In the area of professional practice we had been tracking developments in thinking about the nature of practice, predominantly socio-material theorisations of practice (Schatzki 2001). Briefly, there is a growing body of theory and research suggesting the need to understand practice and change less as individual technical and competency accomplishments, and more as socio-cultural accomplishments that are collective as well as individual. Viewed in this way, proposed or required changes in practice inevitably raise challenging questions – questions about identity, about knowledge, about status, and about role. Their implications for the design and conduct of studies engaging with professional practice and change are substantial.

The second area of literature we drew on was change management. In other research and writing we had been interested in the evolution of thinking about change (Hager, Lee & Reich 2012). The diffusion of innovation literature (Greenhalgh et al. 2004) clearly marks a significant shift in how the complexity of change was being construed and addressed. Schatzki (2001) and other socio-material theorists (Fenwick, Edwards & Sawchuk 2011) have much to say about the importance of the material and social context in thinking about and intervening in a change process. We had also become interested in thinking about ‘communities of practice’ (Wenger, McDermott & Snyder 2002) as a form of collective and collaborative learning that has much to offer in areas such as professional practice and practice change.

How did we translate these ideas into a coherent study design?

It seemed to us that working with issues where much is at stake would require a respectful, appreciative and developmental approach to engaging with stakeholders. We also recognised that if we were to contribute to change, as opposed to simply developing information resources, we would need to ensure that all relevant stakeholders were involved, their views heard, valued and well represented. To do this we would need ways of interacting and building relationships with key bodies and individuals. We talked of these initial tasks in terms of ‘engagement’ and ‘representation’. In a more active sense we were interested in building connections and developing discussions across professional boundaries. Given the fragmented and disconnected nature of the IPE community, the idea of strengthening and connecting individuals and organisations as part of a ‘community’ seemed to us useful in thinking about the change-oriented dimension of the study. Such an approach required time, multiple conversations, and ways of structuring and resourcing those conversations. Information gathering and sharing across professional boundaries was, we believed, useful to connect the information development focus of the project to the change focus of the project.

Study design

At a practical level, our study design was developed in a number of ways. First, we distributed a short survey about IPE to all relevant universities (universities providing health professional education). It also asked participants to comment on enablers, constraints and future directions for IPE. Our aim was to demonstrate inclusiveness and make sure all relevant stakeholders were included in the process. Further, gathering information across jurisdictions and sectors would resource discussion and reflection. Second, we utilised consultative strategies where we engaged face-to-face or over the phone in semi-structured discussions with key stakeholders in higher education, health and government. In addition to information gathering, we focused on relationship building. Third, we reviewed the national and international literature. Whilst our focus was Australian IPE, we wanted to capture and describe something of what our international colleagues had experienced. Importantly we wanted to avoid recreating what already existed and to capitalise on what others had learned. This information would also become an important resource for informing and enriching our national discussions. Fourth, to verify information and further engage stakeholders, we returned transcripts of consultation discussions and asked that stakeholders correct and elaborate their transcripts. Fifth, we developed an active communication strategy, recruiting as many people and organisations as possible. Finally, we used a national launch event to further engage key stakeholders – senior government, health, higher education and profession representatives. We believe this was successful in locating the work of the study alongside key government policy directions. This event, and the exposure we received, added a certain weight of authority to study reports; it also strengthened relationships with key stakeholder groups that we have built on in the subsequent studies.

The reports generated by the study were as follows:

- *Interprofessional Health Education in Australia: A Literature Review* (Nisbet et al. 2011)
- *Interprofessional Health Education in Australia: The Way Forward* (Dunston et al. 2009)
- *Interprofessional Health Education in Australia: Report of the Launch of the proposal ‘The Way Forward’* (Dunston et al. 2010)

The project also generated other articles (Matthews et al. 2011; Thistlethwaite et al. 2009).

In finalising the penultimate report – *The Way Forward* – we decided to identify national recommendations as a more active way of inviting a response to study findings and also as a way of progressing the development of IPE as a national rather than local achievement. We have been surprised by how well this structure worked. *The Way Forward* report and the national directions identified in it have often been quoted back to us as an authoritative statement of what is required.

The change-focused outcomes that emerged from the L-TIPP study were:

- The beginnings of a national and cross-sector view of and discussion about IPE. The consultative process had allowed us to begin conversations with key policy, practice, professional and higher education bodies.
- Increased connections between universities and educators interested in IPE.
- The identification of organisations and individuals who were interested in taking a more active role in developing collaborative projects focusing on IPE.
- A set of reports that could be used to resource and focus workforce, policy and curriculum discussions.
- A useful positioning for the team that had undertaken the study.
- A sense of momentum and energy for the next step.

In overarching terms, we felt we had managed to design a study that had worked well with the idea of a parallel process – working to achieve specific outputs and also working purposefully and coherently to establish conditions supportive of change.

Stage 2: 2010 – 2013

The next period of development started with one new funded study, and quickly became three new funded studies. In terms of partners, we moved from two partner organisations in the L-TIPP study, to twelve partner organisations in the next three studies. The degree of interest expressed by different universities in participating as partners in the new studies was pleasing and, we think, an outcome of the broad-based communication and relationship work we had initiated in the L-TIPP study.

In making design choices about deliverables and change we now had a much better picture of the characteristics of Australian IPE derived from the L-TIPP study. Australian IPE was:

- Led by individual champions rather than being embedded in the curriculum.
- Locally focused.
- Minimally connected – there were few mechanisms or activities whereby IPE educators shared across organisational boundaries. Indeed we also noted the lack of communication about IPE within many individual universities.
- Minimally documented – we have identified a limited number of Australian publications. Many educators noted their workload made documenting programs, activities and outcomes difficult.
- Little researched. As we discussed this issue it was clear that many factors operated to constrain research, capacity being a major issue, but conceptual and methodological issues all played a part.

- Characterised by minimal information sharing. There have been, and still are, very few avenues within Australia for educators to share information and learning about IPE – the AIPPEN network and the annual Australian and New Zealand Association for Health Professional Educators conference being notable exceptions.
- Located in a tentative and vulnerable way within the curriculum. IPE was often identified as existing on the edges of the curriculum, with little legitimacy and with much further work required across all areas of curriculum activity.

Designing a new study

In discussing the above issues and developing a focus for a new study, two issues became constants in our conversations. First, we needed an effective way of bridging the immense diversity of perceptions and understandings experienced in the L-TIPP study concerning how IPE had been understood and developed within the curricula of different universities. For example, there was often a lack of detailed specification of competencies and/or learning outcomes, assessment practices that focused predominantly on student satisfaction, and major gaps in evaluation work and methodologies. It was also clear that local agendas, perceptions and politics were frequently the dominant factors that shaped the design and positioning of IPE within the broader curriculum. Second, we talked about a way to structure and focus a national conversation that, whilst responsive to stakeholders, presented a framework related to curriculum development, an area constantly described as underdeveloped.

A curriculum development focus seemed to address a number of issues. It would address major gaps that had been identified in teaching, learning, assessment and evaluation. It would address competencies/learning outcomes for IPE – issues not well articulated in existing IPE curricula. Importantly, it would provide a focus and opportunity for shared thinking across all stakeholder groups in relation to arguably one of the most fundamental discourses of higher education – curriculum. It would also allow for a focus on the value-adding proposition of IPE, that is that IPE pedagogy is different from and adds to what can be achieved through a uni-disciplinary pedagogy.

As a consequence, the aims and deliverables of our next proposal were directed at IPE curriculum development. In particular we committed to the development of a future-oriented curriculum framework and the development of a resource bank of materials to support teaching, learning, assessment and evaluation. We also committed to the development of a participatory and inclusive approach to stakeholder involvement.

As in the L-TIPP study, we were determined to retain and build on our deliverables + change parallel approach.

We were funded.

Set up and meeting the unanticipated

As we talked through the operational aspects of the project we quickly concluded that we would maintain the range of methods or strategies used in the L-TIPP study. We would combine a small survey with a range of consultations, supported by an active communications strategy. Moving forward with the project would allow us to reconnect with the many stakeholders who had become involved with the L-TIPP study. With our new partners – twelve in all – we felt sure we could extend and strengthen the still tentative IPE community.

Whilst developing our approach to implementation, we were presented with two invitations to present proposals to conduct additional and related IPE studies. The opportunity of additional funding and an extended scope of study generated a range of views in the group – a mix of enthusiasm, caution and concern. We pushed ahead. Both additional proposals were funded. One study became the National Audit Study (HWA funded), in which we developed a detailed national profile of IPE across all relevant Australian universities (Interprofessional Curriculum Renewal Consortium Australia 2013); the other became an in-depth qualitative study of IPE curricula in four WA universities, the WA qualitative study (funded by WA Health) (Nicol 2012).

With a larger study scope and with additional funding, we were able to review our approach. Whilst our methods did not change, how they were applied, their spread and detail, changed significantly. Given the data gathering requirements of the National Audit, the survey process became large scale and substantial. We had not realised the challenging implication of this. It was not simply a change in the scope of our representational work but a change in almost everything – survey development, software used, data verification and analysis, for example. We also saw a great opportunity to extend the scope of our direct face-to-face consultative process. This interactional and relationship-building work was for us the core of how we imagined the conditions for change would be created. We spent considerable time identifying and refining a list of stakeholders to meet, including health, government, higher education and the professions. We sought broad engagement – peak bodies, influential organisations, universities, and the like. We were clear that we would make the work of the three studies visible through a number of reports. We revised our thinking about how we might finalise the project. In addition to the one or two national forums originally proposed, we instigated a number of consultative presentations with key bodies.

Deciding on a division of labour – the work of partners and the project team

An important decision concerned how we would define the roles of the lead team, the central study team and study partners. Whilst there was some flexibility in how we managed workload, we made an early decision to work actively with partners to generate much of the text and analysis for the study reports. There was considerable debate around this issue. A number of divergent views were identified. Using the expertise of the study partners would add greatly to the richness of the reports we authored and the resources we developed. However, using

partners to undertake substantial analysis and writing tasks might burden partners and make deadlines less predictable for the lead and central study teams who were coordinating the study outcomes. Conversely, limiting the input of partners would diminish the depth and richness of what we produced.

This was not an easy discussion. What was also difficult was that none of us could predict what would occur twelve or eighteen months into the study. This was a methodological issue, but it was also an issue of project and risk management. Adding additional complexity and great distress into the study was the death of one of the study co-leads. This event with all its personal, leadership and workload management implications posed immense challenges for the study, in particular for the other co-lead and the study team. Discussion during this time also involved the study's external evaluator who again raised issues of risk and manageability.

We maintained a view that partner contribution was too important to miss. Our workload management strategy was to develop writing teams or sub-groups. These writing teams were supported by guidance on how data should be managed and analysed, and by the work of the study manager, a reconstituted lead team, and the two part-time research assistants employed by the project. The lead team then became active in bringing together, editing and ensuring conceptual continuity in the work of the various writing teams. Lead team members and whenever possible partners participated in first round consultations. We constituted consultations with a team member from the profession engaged and a team member from a different profession. Our aim was to demonstrate an interprofessional approach.

All of the above and more – risk management

Discussions with our external evaluator were always valuable, always supportive but also frequently challenging. Possibilities, opportunities and potential synergies were discussed and valued but then juxtaposed with discussion of manageability and risk. These matters ultimately became decisions for the project lead team to make. We achieved much; however, we were aware that there were periods of considerable risk for the project. We could have made different decisions and used different approaches to structure and conduct the three studies. We could have said 'no' to the two new study possibilities. We could have differentiated the three projects, established separate management groups and study boundaries. We could have limited the scope, pulled back significantly on the relationship building/interactive work. No doubt, there were a number of other possibilities.

What made the study successful?

Thinking about how we achieved what we did, a number of things stand out. This list order is in no way related to degrees of importance. All of the factors below came together to make the study what it was:

- A team of partners who committed deeply to the study and produced as required. All partners were prepared to share their views and experiences – we learned much. We worked hard at communication but this was not easy, particularly during the initial year of the project. We needed time to get to know each other and to know how we all thought.
- All partners demonstrated considerable trust and support for the lead and study teams. This made an immense difference. A good example of this was the preparedness of all the writing teams to hand over their text to the lead team and study team, knowing that we would at times reshape and often re-sequence the material.
- The ‘quality’ – energy, enthusiasm, skill, pro-activeness, flexibility and responsiveness – of the central study team was exceptional. As project lead, I am quite clear that the study would have achieved far less without this exceptional team of people.
- A strong interest and preparedness to work with a parallel process – deliverables + change.
- Understanding and responsive funders. We required additional time from all three funders. These conversations were comfortable, our situation was understood and time flexibility was supported.
- While not so visible to many, the input, support and positive critique from our external evaluator were invaluable. As project lead, in particular, conversations with the evaluator allowed me to reflect outside the operational rush of the project.

Clearly this was a very particular convergence of positive factors.

How did we go – impacts, outcomes and change?

Responding to these questions is not easy, as we have just completed the final study.

Returning to the idea of a time-limited study or project providing an opportunity to intervene and influence beyond the particular and formal remit of the study’s aims is, we think, an idea of considerable interest. It focuses attention on the process aspects of a study – what occurs, when it occurs, how it occurs and with whom it occurs. How such decisions are made, how design and implementation occurs, inevitably make a difference.

Within the four studies, we made a very clear choice to work at establishing the conditions that we believed would support and enable change or, at least, that would enable interprofessional conversations about change that might not occur or might occur far more slowly, if the study had not operated in the way it did.

We have found the idea of a parallel process useful. Such a term makes visible something that is always there – the process aspects and possibilities of a study.

The connections created by the project, the conversations that have developed, the across the board interest and preparedness to devote time to consulting with the study team provide evidence of the usefulness of designing in many and iterative consultation opportunities. It seems to us that without these events and interactions we would have learned far less and far less would have happened.

Whilst clear and coherent about our parallel process approach, we were opportunistic in how we developed the study. We certainly increased the level of risk by taking on and integrating two additional projects within the framework and time frame of the original project. We could have said yes to these projects and thought through alternative design options.

Final comment

Our view is that by attending to the process possibilities of the study, in particular by designing in an extensive, inclusive and invitational approach to consultations with key bodies, we were able to achieve both additional understandings and change-oriented outcomes that would not have been possible if the design had been exclusively focused on information outputs. These methods created valuable opportunities for dialogue, exploration and relationship/community building. Whilst we cannot know for certain what was different about outcomes achieved through our deliverable + change approach, we do have some indication as to the very positive impacts of the study through the comments of our external evaluator.

Section 8.

Conclusion and Recommendations

Roger Dunston

Dawn Forman

Gary Rogers

Jill Thistlethwaite

Section 8.

Conclusion and Recommendations

This section:

- Comments on the focus, purpose and significance of the CRS
- Presents five national development and capacity-building recommendations
- Proposes an inclusive national forum to be held in 2014 on the future of IPE in Australia.

This final report documents the work and learning that has occurred as an outcome of the CRS. As discussed, the work and development of the CRS was informed and shaped by the findings of the earlier studies (L-TIPP, National Audit Study, and WA Qualitative Study), two national surveys and many discussions with key bodies, groups and individuals from higher education, the professions, health services and government. It was also shaped by advice and comment from the international reference group and from a number of broad and specific literature reviews (Nisbet et al. 2011) engaging with IPE and its development in Australia and globally.

Unlike the earlier reports, which largely aimed to describe Australian IPE in all its complexity and diversity, the CRS had a particular task to inform and resource stakeholders involved with developing curricula and their aligned education activities, and with building an Australian workforce equipped with interprofessional practice and collaborative competencies.

Methodologically, the CRS has also sought to build on and strengthen a developing IPE community of practice in Australia. We have discussed this in terms of a deliverables + change approach. We see a number of indications that this approach is making a difference to the degree of connection, communication and learning about IPE that is occurring across higher education, the professions, the health services and government.

Importantly, the work and accomplishments of the CRS have been achieved through an interprofessional collaborative approach. Twelve partner organisations – nine universities, two peak government bodies and one NGO – have worked together on the CRS and other projects. This large and geographically dispersed team has representatives from a range of constituencies – medicine, nursing, allied health – as well as members with a particular focus on professional education, curriculum development, health workforce and health policy development.

In developing the above resources, the CRS has drawn from and contributed to a growing worldwide knowledge base and learning network – the global IPE community. As discussed, we have drawn extensively from the work of peak bodies and eminent scholars nationally and internationally. We have focused on contributing to existing understandings and resources to ensure that they are fit for purpose in contemporary Australia rather than attempting to reinvent them.

Why is this work important?

In the Preface, we identified the increasing focus on IPE and IPP as central elements of the health reform agenda and requirements for future professional practice in health. In response to and as part of these developments, the CRS has sought to bring together a wide range of resources to assist educators and others with designing, implementing, assessing and evaluating IPE curriculum and education activities. The report itself links to a Resource Bank hosted by AIPPEN, where more than 100 resources are located. We hope that establishing the Resource Bank will be the first step in an evolving, well-organised and user-friendly curriculum development resource.

Finally, we think the CRS study is timely. Currently, there is a strong national and global focus on development, learning and research in the areas of IPE and IPP.

Where to from here?

In this final section we bring together what we have learned across the four studies. We express this in terms of five recommendations that emphasise national development and capacity building and that address the question: **what will be required to enable and sustain the development of IPE as a central and systemic element of Australian health professional education?** We also propose an initial step in developing national leadership in IPE: a national forum to be held in 2014 to bring together key stakeholders from higher education, health services, the professions, government, students and health consumers.

These recommendations strongly align with national health workforce and health professional education development priorities.

In presenting these recommendations we wish to acknowledge the momentum that has been building in relation to IPE and IPP during the past five to ten years. It is critical not to lose this momentum, which has been developed through the work of many important and creative projects that have contributed to interprofessional, collaborative and team-based education and practice in health. Bodies such as the OLT and HWA have made significant investments in supporting these developments. However, as we noted in the National Audit Study (Interprofessional Curriculum Renewal Consortium Australia 2013), there is no existing mechanism, process, structure, or national leadership activity, through which we can develop and progress a coherent approach to the development of IPE/IPP in pre/post registration education and in workplace learning. What is needed now is commitment to a plan and timeline in which key bodies from different sectors can come together to design and lead what will be a uniquely Australian solution to national IPE development.

Recommendations

Recommendation 1

Establish inclusive and ongoing structures and processes to provide national leadership in the development of IPE across higher education, health, the professions and government.

Recommendation 2

Develop a nationally coordinated approach to building IPE curriculum and related faculty capacity.

Recommendation 3

Incorporate IPP standards and interprofessional learning outcomes into the accreditation standards of all Australian health professions and recognise that meeting these learning outcomes will require the application of IPE pedagogies.

Recommendation 4

Establish ongoing research to ensure the development of new knowledge and learning to inform IPE curricula and practice.

Recommendation 5

Develop a virtual knowledge repository that organises and disseminates information and knowledge about IPE. This repository would link with other international IPE networks.

Recommendations elaborated

Recommendation 1: Establish inclusive and ongoing structures and processes to provide national leadership in the development of IPE across higher education, health, the professions and government.

This recommendation has been developed against the backdrop of findings from the L-TIPP and National Audit studies which concluded that Australian IPE can mainly be characterised as localised; existing on the margins of curriculum; with few mechanisms to share information or learning; limited scope to develop research or to build knowledge and capacity; and, as a consequence, is frequently unsustainable (Interprofessional Curriculum Renewal Consortium Australia 2013, p. 112).

Establishing a nationally coherent, coordinated and enabling approach to IPE development is a way in which Australia can utilise, benefit from and build on existing IPE activity. It would need to include all relevant stakeholders, be carefully planned and resourced with what we already know and have achieved in the area of IPE. This approach to national leadership would demonstrate and role model an interprofessional and collaborative approach. The experience of our colleagues from Canada, the USA, the UK and Sweden shows us that building a joint national and local approach to IPE development and improvement is effective and the preferred option.

We have purposely not specified a particular approach to leadership. We think there are many ways in which this could be developed. Our view is that decisions regarding how to move forward need to be developed in consultation with key stakeholders. We see this as a major agenda item for the proposed national forum.

Recommendation 2: Develop a nationally coordinated approach to building curriculum and faculty capacity in IPE.

This recommendation was developed in response to the findings of the National Audit Study (Interprofessional Curriculum Renewal Consortium Australia 2013). It addresses the consistent plea for an ongoing, nationally coherent approach to building and delivering IPE curricula across the higher education sector.

The work of the CRS, in particular the development of an IPE curriculum framework and related curriculum development resources, lays a conceptual and practice foundation for further work, customisation, information sharing and research in IPE curriculum development. This work involves conceptual and curriculum development activity. However, it also involves creating learning and capacity building opportunities for discipline-specific educators in the area of IPE. Ideally we think this development work could be undertaken as part of ongoing cross-university collaborations that feed back into the Resource Bank established by the CRS and hosted by AIPPEN. We would also see such activity providing the basis for building and sustaining a network and community of practice and learning.

As a starting point for this work, we recommend a focus on IPP competencies and how these may be articulated as meaningful and assessable learning outcomes. Such work would

be immediately useful at the curriculum development level and would provide a set of shared foci for curriculum alignment, including learning outcomes, teaching and learning, and assessment. This development would also address a major gap identified as part of the National Audit, in that many IPE units/programs did not define IPP competencies or IPP focused learning outcomes (Interprofessional Curriculum Renewal Consortium Australia 2013).

The urgent need for more effective, robust and meaningful ways of assessing student learning in relation to IPP has been identified globally. The findings and work-based assessment tool/framework to be developed by the OLT-funded project, *Work-based assessment of teamwork in healthcare: an interprofessional approach* – <http://aippen.net/wathaboutus> – will provide a new impetus in this area.

Recommendation 3: Incorporate IPP standards and interprofessional learning outcomes into the accreditation standards of all Australian health professions and recognise that meeting these learning outcomes will require the application of IPE pedagogies.

The importance of this issue, and its link to the uptake and development of IPE as a systematic part of health professional education was a constant and strong recommendation from many of the stakeholders with whom we spoke. Their view was that embracing such standards would provide the greatest impetus for the systematic adoption and development of IPE and IPP as part of Australian health professional education. This view was also expressed by our international reference group and is identified in the IPE development literature.

Recommendation 4: Establish ongoing research to ensure the development of new knowledge and learning to inform IPE curricula and practice.

One of the most consistently raised issues identified by all groups of stakeholders was the urgent need for action to address major deficits in the knowledge base underpinning IPE and its relationship to IPP in the Australian context.

Responding to such deficits will involve a coordinated approach to research and evaluation that is theoretically informed and methodologically sophisticated. There is a strong case for a range of research and evaluation designs to be utilised. Section 5 provides an overview of existing evaluation practices and proposes a method different from existing approaches for evaluating IPE, its process, impacts and outcomes. Although we have only briefly touched on the lack of well-developed mixed-methods research in the area of IPE, we see an immense opportunity and need for such evaluation and research to be developed through Australian and international partnerships. The added value produced by such an integrated program would contribute considerably to Australian health professional education, work place learning and workforce development.

More specifically, considerable interest has been shown by individuals and groups we consulted with in:

- Curriculum design and implementation studies.
- Assessment studies. This work will be given impetus with the findings and recommendations from the recently commenced OLT funded project, *Work-based assessment of teamwork in healthcare: an interprofessional approach*.
- Evaluation studies. As noted above, we propose the piloting of initial evaluation studies utilising the realist framework.
- Longitudinal studies that track students after exposure to different IPE interventions and activities into and across their first year or two of practice: what we may describe as building our evidence base about the challenges and opportunities of this critical transitional period.

Recommendation 5: Develop a virtual knowledge repository that organises and disseminates information and knowledge about IPE. This repository would link with other international IPE networks.

The importance of well-developed, up to date, interactive and easily searchable virtual knowledge repositories is a given in the way we think about knowledge formation, translation and dissemination, professional learning, practice development and virtual communities of practice. This is an issue that we, amongst many others, have been discussing with a range of government and industry bodies for some years. With the support of the OLT, the CRS has made a significant contribution to the important but unfunded efforts of a number of individuals who have established the basic virtual and governance architecture for such a repository – AIPPEN.

As part of the national development of IPE, we believe that support and funding for a body such as AIPPEN is critical.

A National Forum – an initial step in national leadership¹¹

We conclude this section and the report with a proposal for a national forum to be held during 2014 on the future of IPE in Australia. This proposal is a response to Recommendation 1. The design and governance of such an event would be critical. It would need to include all relevant stakeholders, be carefully planned and resourced with what we already know and have achieved in the area of IPE. In discussion with many, many stakeholders across sectors and professions, we believe such a forum could establish the development contours and priorities of IPE development – curriculum, research, evaluation, professional learning, impact and outcomes – for the next five to ten years.

¹¹ As noted above this has now been funded.

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Appendices

Appendices Table of Contents

Appendix 1:	National Audit Study Recommendations _____	93
Appendix 2:	Institutions that participated in the National Audit survey _____	94
Appendix 3:	Consultations _____	95
Appendix 4:	IP Competency Framework Review Template _____	96
Appendix 5:	IP Competency Framework Reviews _____	97
Appendix 6:	Empirical papers included in narrative review _____	111
Appendix 7:	References for empirical papers included in narrative review _____	125
Appendix 8:	Evaluation instruments/methods and approaches _____	128
Appendix 8a:	Evaluation studies using standardised instruments or methods _____	128
Appendix 8b:	Evaluation studies not using standardised instruments or methods _____	134
Appendix 9:	Empirical papers categorised according to Kirpatrick's modified framework of educational outcomes _____	136
Appendix 10:	Implementation Case Studies _____	137

Appendix 1: National Audit Study Recommendations

Key Areas for Development and National Capacity Building

1. Establishment of a structure and process to provide national leadership and national coordination across higher education, health, the professions and government.
2. Agreement on a common language for the development of IPE curricula in Australia.
3. Agreement on an Australian statement of core competencies and learning outcomes for IPP.
4. Adoption of IPP/IPE requirements in the accreditation standards of all Australian health professions.
5. Adoption of IPP/IPE in the continuing professional development (CPD) requirements for ongoing registration.
6. Development of a national approach to building curriculum and faculty capacity, knowledge and research in IPE.
7. Development of a national approach to IPE/IPP knowledge management and information sharing and learning.

Reference

Interprofessional Curriculum Renewal Consortium Australia, 2013, *Interprofessional Education: a National Audit. Report to Health Workforce Australia*, University of Technology, Sydney, Sydney, pp. 111–116.

Appendix 2: Institutions that participated in the National Audit survey

The following institutions participated in the National Audit survey.

Australian Catholic University
Australian National University
Bond University
Charles Darwin University
Charles Sturt University
Curtin University
Deakin University
Edith Cowan University
Flinders University
Griffith University
James Cook University
Monash University
Southern Cross University
The Bobby Goldsmith Foundation (closely affiliated with a university)
The University of Melbourne
The University of Newcastle
The University of Notre Dame Australia
The University of Queensland
The University of Sydney
The University of Western Australia
University of Canberra
University of New England
University of Tasmania
University of Western Sydney
University of Wollongong
Victoria University

Appendix 3: Consultations

Organisations/bodies that participated in the project consultation process. Organisation names were accurate at the time of consultation, although some have since changed.

ACT Health
Allied Health Professions Australia Ltd
Ankali Project
Australian Association of Social Workers
Australian Commission on Safety and Quality in Health Care
Australian Council of PVCs and Deans of Health Sciences
Australian Health Practitioner Regulation Agency
Australian Healthcare and Hospitals Association
Australian Medical Association
Australian Medical Council Limited
Australian Nursing Federation
Australian Osteopathic Association
Australian Sonographers Association
Coalition of National Nursing Organisations
Consumers Health Forum of Australia
Council of Academic Public Health Institutions Australia
Council of Deans of Nursing and Midwifery (Australia & New Zealand)
Department of Health and Ageing
Forum of Australian Health Professions Councils
Health Education and Training Institute
Health Workforce Australia
Maternity Support Network, NSW
Medical Deans Australia and New Zealand
National Rural Health Alliance Inc.
Nepean Hospital, NSW
NSW Department of Education and Training
Occupational Therapy Australia
Queensland Department of Health
Royal Australian College of General Practitioners
Royal College of Nursing, Australia
Royal Prince Alfred Hospital, NSW
Royal Rehabilitation Centre Sydney
Rural Health West
St Vincent's Hospital, NSW
The Children's Hospital at Westmead, NSW
The Salvation Army, Broken Hill, NSW

Appendix 4: IP Competency Framework Review Template

Background and context

- Name of framework
- Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)
- Country
- Year developed
- Is it the framework discipline specific? Which discipline?
- Who is the primary audience? (Undergrad/postgrad/CPD, etc)
- How was the framework developed? What was the process? Who was involved?
- What are the philosophical/theoretical underpinnings of the framework?
- Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)?

Evaluation

- Has it been evaluated and how?

The framework

- Are competencies, capabilities or something else used? How are these defined?
- What are the features of the framework?
- Is the framework structured according to levels? E.g. beginner to advanced?
- Gems
- Any other comments?

Implementation

- Are there instructions as to how the framework should be implemented?

Assessment

- Does the framework provide information regarding assessment?

Appendix 5: IP Competency Framework Reviews

National Interprofessional Competency Framework (CIHC) Canada

Background and context	
Name of framework	A National Interprofessional Competency Framework
Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)	<p>Canadian Interprofessional Health Collaborative Competencies working group</p> <p><i>Leads:</i> Carole Orchard & Leslie Bainbridge</p> <p><i>Members:</i> Sandra Bassendowski Lynn Casimiro Katherine Stevenson Susan Wagner Leah Weinberg Vernon Curran Luciano Di Loreto Brenda Sawatzky-Girling</p>
Country	Canada
Year developed	2010
Is the framework discipline-specific? Which discipline?	No
Who is the primary audience? (Undergrad/postgrad/CPD, etc)	All – students and practitioners, regardless of skill level or practice setting or context; each competency can be integrated into every new experience without compromising any of the competencies.
How was the framework developed? What was the process? Who was involved?	<ol style="list-style-type: none"> 1. Peer reviewed and review of grey literature related to competencies, competency-based education and existing competency frameworks [by external group] 2. Stakeholder consultation 3. Four anonymous reviewers.
What are the philosophical/theoretical underpinnings of the framework?	<ul style="list-style-type: none"> • The work of Roegiers (2007) and Tardif (2006), Peyser, Gerard & Roegiers (2006) – Roegiers' competencies 'enable the learner to master those situations he will have to deal with in his professional and/or private life'. • Tardif – five characteristics key to integration of competencies: Complexity, additive, integrated, developmental, evolutionary. • Competencies underpin curricula in most health professional courses; competencies inform practice. • Competencies enable learners to master professional situations. • Strong, well-articulated competencies stand the test of time. • Competency statements and descriptors must acknowledge the developmental nature of education (i.e. IPE is additive and reflects a continuum of learning and professionalization). • IPE/IPP is essential for improvement in patient care. • Quality IPP is dependent on the exposure to quality IPE opportunities. • Adoption of IPE will require a shift in the concept of collaboration.
Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)	<ul style="list-style-type: none"> • Local pressure to describe IPE and collaborative practice tasks and behaviours in ways that would allow educators and policymakers to build successful IPE approaches. • Funding from Health Canada
Has it been evaluated and how?	The framework is being reviewed through a Delphi process that is being conducted with colleagues around the world (including Australia). The developers report that to date, the global consultation has been productive, although input from developing countries has been difficult to achieve. The competencies have been well received in Canada and a number of provinces are using them. They competencies have also been adopted in recent US initiatives.

The framework	
Are competencies, capabilities or something else used? How are these defined?	<p>Competencies.</p> <p><i>Competency</i>: ‘A complex “know act” that encompasses the ongoing development of an integrated set of knowledge, skills, attitudes, and judgments enabling one to effectively perform the activities required in a given occupation or function to the standards expected in knowing how to be in various and complex environments and situations’ (Canadian Interprofessional Health Collaborative 2010, p. 24).</p> <p><i>Interprofessional competency</i>: ‘Describe the complex integration of knowledge, skills, attitudes, values, and judgments that allow a health provider to apply these components into all collaborative situations. Competencies should guide growth and development throughout one’s life and enable one to effectively perform the activities required in a given occupation or function and in various contexts’ (Canadian Interprofessional Health Collaborative 2010, p. 24).</p>
What are the features of the framework?	<p>Creators of this framework believe it is unique in that rather than just focusing on demonstrated behaviours to determine competency, it relies on the ability to integrate knowledge, skills, attitudes and values in arriving at judgements.</p> <p>The framework is integrative, meaning that it can be implemented at any time and in any program.</p> <p>The framework is based on six competency domains:</p> <ol style="list-style-type: none"> 1. Interprofessional communication: ‘Learners/practitioners from different professions communicate with each other in a collaborative, responsive and responsible manner’. 2. Patient/client/family/community-centred care: ‘Learners/practitioners seek out, integrate and value, as a partner, the input and the engagement of the patient/client/family/community in designing and implementing care/services’. 3. Role clarification: ‘Learners/practitioners understand their own role and the roles of those in other professions, and use this knowledge appropriately to establish and achieve patient/client/family and community goals’. 4. Team functioning: ‘Learners/practitioners understand the principles of team work dynamics and group/team processes to enable effective interprofessional collaboration’. 5. Collaborative leadership: ‘Learners/practitioners understand and can apply leadership principles that support a collaborative practice model’. 6. Interprofessional conflict resolution: ‘Learners/practitioners actively engage self and others, including the client/patient/family, in positively and constructively addressing disagreements as they arise. To support interprofessional collaborative practice, team members consistently address conflict in a constructive manner’ (Canadian Interprofessional Health Collaborative 2010, pp. 12-17). <p>The first two domains support and influence the other four, and there are multiple competencies that define each of the domains. The framework acknowledges that interprofessional collaborations will differ in terms of their complexity, context and the need for quality improvement. It therefore provides descriptors or indicators of collaborations that are ‘individualized based on the level of experience of learners or practitioners, and reflect their learning or practice context’ (Canadian Interprofessional Health Collaborative 2010, p. 8).</p>
Is the framework structured according to levels? E.g. beginner to advanced?	No, designed so all can learn no matter their skill level or type of setting.
Gems	<ul style="list-style-type: none"> • First framework that is applicable to all health professions. • Rather than focusing on demonstrated behaviours to determine competence, the framework relies on the ability to integrate knowledge, skills, attitudes and values in arriving at judgments.
Implementation	
Are there instructions as to how the framework should be implemented?	<ul style="list-style-type: none"> • The framework document provides examples of how the framework can be applied to several contexts: educators, learners, regulators, practitioners/employers, accreditors. These can be located on the CIHC website. • The framework can be implemented within any relevant practice or learning setting. • The framework has become a foundation for accreditation of IPE work – see www.aiphe.ca.

Assessment	
Does the framework provide information regarding assessment?	Assessment resources are available and are provided on the CIHC website.
References	<p>Canadian Interprofessional Health Collaborative 2013, <i>The Canadian Interprofessional Health Collaborative (CIHC)</i>, viewed 19 June 2013, <http://cihc.wikispaces.com/CIHC%3E>.</p> <p>Peyser, A., Gerard, F.-M. & Roegiers, X. 2006, 'Implementing a pedagogy of integration: some thoughts on a textbook elaboration experience in Vietnam', <i>Planning and Changing</i>, vol. 37, no. 1/2, pp. 37–55.</p> <p>Roegiers, X. 2007, 'Curricular reforms guide school: but, where to? Curriculum change and competency-based approaches: a worldwide perspective', <i>Prospects</i>, vol. 37, no. 2, pp. 155–86.</p> <p>Tardif, J. 1999, <i>Le transfers des apprentissages (Transfers of Learning)</i>, Les Editions Logiques, Montreal.</p>

Core Competencies for Interprofessional Collaborative Practice (IPEC) USA

Background and context	
Name of framework	Core Competencies for Interprofessional Collaborative Practice
Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)	<p>Interprofessional Education Collaborative (IPEC)</p> <p>American Association of Colleges of Nursing</p> <p>American Association of Colleges of Osteopathic Medicine</p> <p>American Association of Colleges of Pharmacy</p> <p>American Dental Education Association</p> <p>Association of American Medical Colleges</p> <p>Association of Schools of Public Health</p>
Country	USA
Year developed	2011
Is the framework discipline-specific? Which discipline?	No, health professionals generally.
Who is the primary audience? (Undergrad/postgrad/CPD, etc)	Pre-licensure/pre-credentialing student – though possible application beyond student level.
How was the framework developed? What was the process? Who was involved?	<ol style="list-style-type: none"> Panel of experts: <ul style="list-style-type: none"> Reviewed existing literature, including 2010 WHO report and CIHC framework Identified four core competency domains: 1) values and ethics; 2) roles and responsibilities; 3) interprofessional communication; 4) teamwork and team-based care Developed 38 competencies that describe essential behaviours across the domains. Draft competency statements shared with 82 education and clinical practice participants (at a purpose-held conference on team-based competencies) for review and comment. Participants unanimously endorsed the set of competencies.

What are the philosophical/theoretical underpinnings of the framework?	<ul style="list-style-type: none"> • Interprofessionality (D'Amour & Oandasan, 2005): 'the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population ... It involves continuous interaction and knowledge sharing between professionals, organized to solve or explore a variety of education and care issues all while seeking to optimize the patient's participation ... Interprofessionality requires a paradigm shift, since interprofessional practice has unique characteristics in terms of values, codes of conduct, and ways of working. These characteristics must be elucidated' (2005, p. 9). • Framework for Action on Interprofessional Education and Collaborative Practice (WHO 2010) – goal of IPE as preparation of 'collaborative practice-ready' work force. • Commission on Education of Health Professionals for the 21st Century (Frenk et al., 2010) – ideas of social accountability and social equity used to make recommendations to reform health professions' education and workforce more responsive to actual population health needs. "Developers of these three frameworks target interprofessional education as a means of improving patient-centered and community/population-oriented care." (Interprofessional Education Collaborative Expert Panel 2011, p. 11) • The Canadian Interprofessional Health Collaborative (2010) and Barr's (1998) three types of professional competencies: <ul style="list-style-type: none"> o Individual professional competencies: Complementary o Common (overlapping) competencies o IP collaborative competencies. • Builds on the existing 'work in interdisciplinary teams' core competency for health professionals identified in the Institute of Medicine (IOM, 2003) report.
Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)?	<ul style="list-style-type: none"> • Widespread interest in transformation of health professions' education • To build safer and better patient centred and community/population-oriented health care system.
Has it been evaluated and how?	No, not that we can determine.
The framework	
Are competencies, capabilities or something else used? How are these defined?	Interprofessional competencies in health care: "Integrated enactment of knowledge, skills, and values/attitudes that define working together across the professions, with other health care workers, and with patients, along with families and communities, as appropriate to improve health outcomes in specific care contexts" (Interprofessional Education Collaborative Expert Panel 2011, p. 2)
What are the features of the framework?	<p>A panel of experts reviewed the existing literature, including the 2010 WHO framework and CIHC framework. From this activity, they identified four core competency domains:</p> <ol style="list-style-type: none"> 1. Values and ethics: 'Work with individuals of other professions to maintain a climate of mutual respect and shared values'. 2. Roles and responsibilities: 'Use the knowledge of one's own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served'. 3. Interprofessional communication: 'Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease'. 4. Teamwork and team-based care: 'Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable'. <p>(Interprofessional Education Collaborative Expert Panel 2011, pp. 17–25).</p> <p>A further 38 competencies were then identified that described essential behaviours across these domains. These draft competency statements were then shared with 82 education and clinical practice participants from various professions (at a conference on team-based competencies) for review and comment. The participants unanimously endorsed the set of competencies.</p> <p>The competency statements reflect the endpoint of initial health professional education (pre-licensure or pre-credentialing).</p>
Is the framework structured according to levels? E.g. beginner to advanced?	Competency statements reflect the endpoint of initial health professional education (pre-licensure or pre-credentialing).

Implementation	
Are there instructions as to how the framework should be implemented?	<p>Competencies are considered behavioural learning objectives. They are linked to learning activities and assessments of the effectiveness of the activities in achieving the objectives.</p> <p>There is a discussion on pedagogy, nature of activities, optimum ways to assist students to learn, stages in education, use of educational technologies, and so on.</p> <p>Examples of learning activities are provided but not those involving their own competencies.</p>
Assessment	
Does the framework provide information regarding assessment?	No, not that we can determine.
References	<p>Barr, H. 1998, 'Competent to collaborate: towards a competency-based model for interprofessional education', <i>Journal of Interprofessional Care</i>, vol. 12, 181–187.</p> <p>Canadian Interprofessional Health Collaborative 2010, <i>A National Interprofessional Competency Framework</i>, viewed 21 June 2012.</p> <p>D'Amour, D. & Oandasan, I. 2005, 'Interprofessionalism as the field of interprofessional practice and interprofessional education: an emerging concept', <i>Journal of Interprofessional Care</i>, vol. May Supplement 1, pp. 8–20.</p> <p>Frenk, J., Chen, L., Bhutta, Z. et al 2010, 'Health professional for a new century: transforming education to strengthen health systems in an interdependent world', <i>Lancet</i>, vol. 376, pp. 1923–1958.</p> <p>Institute of Medicine 2003, <i>Health Professions Education: A Bridge to Quality</i>. The National Academies Press, Washington DC.</p> <p>Interprofessional Education Collaborative Expert Panel 2011, <i>Core competencies for interprofessional collaborative practice: report of an expert panel</i>, Interprofessional Education Collaborative, Washington DC.</p> <p>World Health Organization (WHO) 2010, <i>Framework for Action on Interprofessional Education and Collaborative Practice</i>, WHO, Geneva.</p>

Interprofessional Capability Framework (Combined Universities Interprofessional Learning Unit, Sheffield) UK

Background and context	
Name of framework	The Interprofessional Capability Framework as developed by the Combined Universities Interprofessional Learning Unit, Sheffield Hallam University and Sheffield University.
Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)	<p>Professor Frances Gordon</p> <p>F.Gordon@shu.ac.uk</p> <p>Sheffield Hallam University Sheffield.</p>
Country	UK
Year developed	2004
Is the framework discipline-specific? Which discipline?	Medicine, Dentistry, Nursing, Midwifery, Radiography, Physiotherapy, Occupational Therapy, Social Work.
Who is the primary audience? (Undergrad/postgrad/CPD, etc)	Undergrad/post grad/Graduate Entry Masters (GEMS): They prefer to use capability statements as they see competencies as too static – this allows flexibility. They do not have a GEMS program but the capabilities are for UG and PG and would be appropriate to GEMS.
How was the framework developed? What was the process? Who was involved?	The framework of capabilities was devised for The Capable Practitioner (Lindley et al. 2001) and the UK Department of Health Knowledge and Skills Framework (Department of Health 2003).

What are the philosophical/theoretical underpinnings of the framework?	<p>Interprofessionalism (D'Amour & Oandasan, 2005): 'the process by which Perceived limitations of competency acquisition centre on the view that 'competence' is frequently interpreted as a fixed-point, context-free, outcome-based measure. This interpretation becomes problematic where there is a requirement for changeability and responsiveness. CUILU draws from the Sainsbury conceptualisation of capability outlined below:</p> <ul style="list-style-type: none"> • A performance component, which identifies what people need to possess and what they need to achieve in the workplace • An ethical component that is concerned with integrating a knowledge of culture, values and social awareness into professional practice • A component that emphasises reflective practice in action • The capability to effectively implement evidence-based interventions in the service configurations of a modern mental health system • A commitment to working with new models of professional practice and responsibility for lifelong learning. (Sainsbury Centre for Mental Health, 2001, p. 2)
Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)?	The framework of capabilities was devised for The Capable Practitioner (Lindley et al., 2001) and the DoH Knowledge and Skills Framework (Department of Health 2003). The framework was developed with funding from the government following a combined bid for research and development funding from SHU and Sheffield Universities.
Has it been evaluated and how?	Evaluations and refinements have been undertaken. All documentation can be found at http://www.cuilu.group.shef.ac.uk/documents.htm
The framework	
Are competencies, capabilities or something else used? How are these defined?	Capabilities are assessed by the individuals in the team, the mentors and the clinical supervisors, patient and service users.
What are the features of the framework?	<p>The four domains of the Interprofessional Capability Framework are:</p> <ol style="list-style-type: none"> 1. Knowledge in Practice: 'captures awareness of "others"' professional regulations in the interprofessional team, the structures, functions and processes of the team in the specific area of practice and how anti-discriminatory, non-judgemental practice informs a patient-/user-centred participatory service'. 2. Ethical Practice: 'focuses on the promotion of patient-/user-participation in the decision-making processes of the interprofessional team; the need for practitioners to be sensitive both to the demands made in law of the other professions, with regard to their duty of care, and the underpinning ethos of the different professional groups'. 3. Interprofessional Working: 'captures participation, assessment and communication strategies, again patient-/user-centred, developing the skills to identify and work towards mutual adaptation between patient/user and the team. This domain also identifies co-mentoring activities across professions and the importance of this aspect of work to successful interprofessional teams'. 4. Reflection (learning): This component harnesses and promotes an important aspect of contemporary practice. It identifies the development of a reciprocal approach across professions, along with the utilisation of Evidence Based Practice and an integration of Continuous Professional Development (Combined Universities Interprofessional Learning Unit 2004). <p>From these domains are derived the 16 capabilities and learning achievements which are assessed.</p> <p>The reference list contains a number of publications about the development and review of this capability framework (Gordon et al. various dates; Marshall et al. 2004, 2010; Walsh et al 2005).</p>
Is the framework structured according to levels? E.g. beginner to advanced?	<p>Each capability has three levels (not named beginner to advanced but similar. For example:</p> <p><i>Capability: EP.1</i></p> <p>The interprofessional team member continually develops, promotes and practises understanding and respect for others' cultures, values and belief systems.</p> <p><i>Learning Achievement:</i></p> <p>L1 Recognises the importance of respect and cultural awareness when providing any service and can relate this practice to consider own culture, value and belief systems.</p> <p>L2 Can discuss differing cultural and value belief systems and begin to engage with these issues in practice team working.</p> <p>L3 Shares knowledge of other cultures' beliefs and value systems to inform patient/user centred care and promote good practice.</p>

Implementation	
Are there instructions as to how the framework should be implemented?	Yes guidance is provided along with staff development sessions which are held regularly throughout the year.
Assessment	
Does the framework provide information regarding assessment?	Yes the learning outcomes are assessed.
References	
	<p>Combined Universities Interprofessional Learning Unit 2004, <i>Interprofessional Capability Framework: a framework containing capabilities and learning levels leading to interprofessional capability</i>, The University of Sheffield and Sheffield Hallam University, Sheffield UK.</p> <p>Department of Health UK 2003, <i>The New NHS Pay System: an overview</i>. Department of Health, London.</p> <p>Gordon, F. & Marshall, M. 2007, 'Interprofessional learning in practice in South Yorkshire: The CUILU project', In H. Barr (ed), <i>Piloting Interprofessional Education: Four English Case Studies</i>, Higher Education Academy, London, pp. 43–55.</p> <p>Gordon, F. & Pengelly H. 2012, 'Competence and capability: A framework for collaborative learning and working', in K. Kilgallan & J. Thompson (eds), <i>Mentoring in Nursing and Healthcare: A Practical Approach</i>, Wiley-Blackwell, London, pp. 168–193.</p>
	<p>Gordon, F. & Walsh, C. 2005, 'A framework for interprofessional capability: Developing students of health and social care as collaborative workers', <i>Journal of Integrated Care</i>, vol. 13, no. 3, pp. 26–33.</p> <p>Gordon, F. 2004, 'Combined Universities Interprofessional Learning Unit (CUILU) capability framework for interprofessional education', <i>Centre for Health Sciences and Practice Newsletter [Learning and Teaching Support Network]</i>, no. 13, Autumn, 9.</p> <p>Gordon, F., Walsh, C., Marshall, M., Wilson, F. & Hunt, T. 2004, 'Developing interprofessional capability in students of health and social care – the role of practice-based learning', <i>Journal of Integrated Care</i>, vol. 12, no. 4, pp. 12–8.</p> <p>Gordon, F., Walsh, C., Marshall, M., Wilson, F. & Hunt, T. 2005, <i>Combined Universities Interprofessional Learning Unit: Summary Report</i>, Sheffield Hallam University and University of Sheffield, Sheffield, UK.</p> <p>Gordon, F., Walsh, C., Marshall, M., Wilson, F. & Hunt, T. 2006, <i>Combined Universities Interprofessional Learning Unit: Final Report</i>, Sheffield Hallam University and University of Sheffield, Sheffield, UK.</p> <p>Marshall, M. & Gordon, F. 2010, 'Exploring the role of the interprofessional mentor', <i>Journal of Interprofessional Care</i>, vol. 24, no. 4, pp. 362–74.</p> <p>Marshall, M., Gordon, F., Walsh, C., Wilson, F. & Hunt, T. 2004, 'Interprofessional mentorship: Taking on the challenge', <i>Journal of Integrated Care</i>, vol. 13, no. 2, pp. 38–43.</p> <p>Lindley, P., O'Halloran, P. & Juriansz, D. 2001, <i>The Capable Practitioner</i>. Sainsbury Centre for Mental Health, London.</p> <p>Walsh, C., Gordon, F., Marshall, M., Wilson, F. & Hunt, T. 2005, 'Interprofessional capability: A developing framework for interprofessional education', <i>Nurse Education in Practice</i>, vol. 5, no. 4, pp. 230–7.</p>

CanMEDS Framework (Royal College of Physicians and Surgeons of Canada)

Background and context	
Name of framework	The CanMED Framework (Royal College of Physicians and Surgeons of Canada).
Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)	Jason R Frank MD, MA(Ed) FRCPC, Director, Speciality Education, Strategy and Standards, Office of Education at the Royal College of Physicians and Surgeons of Canada.
Country	Canada but now used in 26 jurisdictions around the world.

Year developed	<p>It was initially conceived in the early 1990s. The initial tool was developed in 1996, revised in 2005 and is being revised again for 2015.</p> <p>The CanMEDS Framework has been in existence for twenty years. It was started in the early 1990s following research which investigated what the societal needs of doctors were rather than the needs of the professionals. The first research into this area was government funded. From this initial research a number of white papers were developed on how the health service should be reconfigured, and a number of medical and health professionals, health managers and clients contributed to the research.</p> <p>As a result of substantial research, white papers and consideration, a competency framework was developed which looked at the roles of the medics: in particular, how they should package the curriculum and how they should review the competences of the physicians, as physicians working as part of a team, and how they should deploy those skills.</p>
Is the framework discipline-specific? Which discipline?	The CanMEDS programme was initiated for medical professionals but has been adapted for 13 other professions.
Who is the primary audience? (Undergrad/postgrad/CPD, etc)	The primary audience was postgraduate and CPD but it can be used at undergraduate level. (The majority of medical students do have a degree prior to entering into medical education and therefore the GEMS component doesn't really apply in Canada.)
How was the framework developed? What was the process? Who was involved?	The framework was developed as a result of change project research undertaken to look at societal needs rather than the needs of the profession. Initially the research was a government-funded project which resulted in a number of white papers on how the service should be reconfigured, and therefore how the curriculum of the medics should be reconfigured. Wide scale research was undertaken which involved medics, other health professions and clients as part of the research process, and the competence framework was developed as a result of this.
What are the philosophical/theoretical underpinnings of the framework?	The philosophy both in the development of the framework and its current use is that health professionals working effectively in teams provide better care to the clients, and that the competences needed to work effectively in a team can be assessed.
Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)	The framework was developed as a result of the research that was undertaken into the needs of the health service in Canada to provide a different way of delivering services, and therefore the need for the curriculum for medics to be changed.
Has it been evaluated and how?	The framework has been evaluated and a validation study was undertaken which looked at recent graduates two to five years out in practice; the framework was endorsed by practice. Whilst a lot of work and publications have resulted from the use of the framework the evaluation itself is not published.
The framework	
Are competencies, capabilities or something else used? How are these defined?	Competences are used including medical expert, communicator, collaborator, manager, health advocate, scholar and professional. Aspects of these are broken down to ensure that the competences do look at the medic as an effective team collaborator and do look at team-conflict issues which are measured as part of the competences. Each time the term medic is used however another health professional could be inserted.

What are the features of the framework?	<p>Competences are used including medical expert, communicator, collaborator, manager, health advocate, scholar and professional. Aspects of these are broken down to ensure that the competences do look at the medic as an effective team collaborator and do look at team-conflict issues which are measured as part of the competences. Each time the term medic is used however another health professional could be inserted.</p> <ol style="list-style-type: none"> 1. Medical expert: 'As Medical Experts, physicians integrate all of the CanMEDS roles, applying medical knowledge, clinical skills, and professional attitudes in their provision of patient-centered care. Medical Expert is the central physician Role in the CanMEDS framework'. 2. Communicator: 'As Communicators, physicians effectively facilitate the doctor-patient relationship and the dynamic exchanges that occur before, during, and after the medical encounter'. 3. Collaborator: 'As Collaborators, physicians effectively work within a healthcare team to achieve optimal patient care'. 4. Manager: 'As Managers, physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions about allocating resources, and contributing to the effectiveness of the healthcare system'. 5. Health advocate: 'As Health Advocates, physicians responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations'. 6. Scholar: 'As Scholars, physicians demonstrate a lifelong commitment to reflective learning, as well as the creation, dissemination, application and translation of medical knowledge'. 7. Professional: 'As Professionals, physicians are committed to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour' (Frank 2005, pp. 9–24).
Is the framework structured according to levels? E.g. beginner to advanced?	There are now a number of variations in terms of the framework which can be utilised for beginners and advanced levels for different health professionals, for different contexts within a country and for different countries. These have been widely reviewed and widely published, and for medics in Canada it is mandatory to pass the elements of the competences framework.
Implementation	
Are there instructions as to how the framework should be implemented?	There are instructions on how the framework should be implemented in a variety of contexts; training is given to educators in how to utilise the framework and what features to look for when assessing the competences.
Assessment	
Does the framework provide information regarding assessment?	The framework does provide information regarding assessment and how the assessment tools should be utilised. In essence medics assess medics within the team. Other health professionals assess the medic within the team and clients assess the medic within the team in accordance with the competences.
References	Frank, J.R. 2005, <i>The CanMEDS 2005 Physician Competency Framework. Better standards. Better physicians. Better care.</i> , The Royal College of Physicians and Surgeons of Canada, Ottawa.

An Implementation Framework for Interprofessional Learning at Griffith University, Australia

Background and context	
Name of framework	An Implementation Framework for Interprofessional Learning at Griffith Health, 2011–2014.
Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)	Griffith Health Institute for the Development of Education and Scholarship, Griffith University.

Country	Australia
Year developed	2011
Is the framework discipline-specific? Which discipline?	No
Who is the primary audience? (Undergrad/postgrad/CPD, etc)	Undergraduate
How was the framework developed? What was the process? Who was involved?	‘In order to respond to this challenge, the Griffith Health Institute for the Development of Education and Scholarship (Health IDEAS) conducted a symposium on Friday March 18, 2011. Some 35 academics from the Health Group attended this meeting and their discussions, expertly facilitated by Prof Alf Lizzio, formed the basis for this framework’ (Griffith Health IDEAS 2011, p. 1).
What are the philosophical/theoretical underpinnings of the framework?	<p>‘On the basis of an extensive review of the literature, the World Health Organization has suggested a range of educational “mechanisms” through which an effective interprofessional learning program should be built. In order to fulfil its commitment to ensure that health professional graduates from Griffith University are “collaborative practice-ready”, the Griffith Health endorses the following principles, developed from the WHO’s proposed mechanisms, as a basis for the development of its interprofessional learning programs:</p> <p>Educator-related principles</p> <ol style="list-style-type: none"> 1. The leadership of the Group is committed to implementing an effective program of interprofessional learning. 2. The Group’s policy framework and resource allocation decisions will support the implementation of interprofessional learning. 3. Educators across the schools of the Group will communicate with each other clearly and openly to support interprofessional learning programs. 4. Members of the Group will work cooperatively to develop a shared understanding of the benefits of interprofessional learning and effective interprofessional practice, as well as a shared sense of enthusiasm about these developments. 5. The Group will foster the development of champions in each school and support their efforts to implement interprofessional learning activities. 6. The Group will provide appropriate professional development activities to support educators who undertake to create and facilitate interprofessional learning activities under this framework. (Griffith Health IDEAS 2011, p.4) <p>Curricular and pedagogical principles</p> <ol style="list-style-type: none"> 1. Interprofessional learning activities will be based on sound pedagogical practices, for which there is evidence of effectiveness in optimising the learning of adults. 2. Most interprofessional learning activities will include or accurately simulate real world practice experience. 3. Most interprofessional learning activities will include interaction between students from different professional disciplines. 4. Interprofessional learning activities will ultimately be incorporated as compulsory components in health professional programs. 5. Interprofessional learning activities will have clear learning outcomes that ultimately will be summatively assessed in health professional programs. 6. Health professional students will participate in interprofessional learning activities at multiple points during their educational programs and activities at each level will be appropriate to both their competence and their degree of professional identity formation at that point’. (Griffith Health IDEAS 2011, p. 4).
Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)	‘In the 21st century almost all health and human services practitioners work in interprofessional teams. Arguably, the ability to work interprofessionally has become a core competency for all graduates in the health professions. In order to respond to this challenge, the Griffith Health Institute for the Development of Education and Scholarship (Health IDEAS) conducted a symposium on Friday March 18, 2011. Some 35 academics from the Health Group attended this meeting and their discussions, expertly facilitated by Prof Alf Lizzio, formed the basis for this framework. The framework aims to see Article 3 of the Sydney Interprofessional Declaration fulfilled in relation to health professional graduates of Griffith University by 2014’ (Griffith Health IDEAS 2011, p. 1).

Has it been evaluated and how?	The framework has been under continuous informal review by the Steering Group that has carriage of it, and has generally been found fit for purpose. The group anticipates undertaking formal evaluation in the near future.
The framework	
Are competencies, capabilities or something else used? How are these defined?	Threshold learning outcomes 'developed from those suggested by the WHO', even though WHO uses 'domains'.
What are the features of the framework?	<p>Threshold (minimum) learning outcomes in relation to interprofessional practice are used. The framework states that upon graduation, Griffith-trained health professionals will be able to:</p> <ol style="list-style-type: none"> 1. Articulate the purpose for effective interprofessional practice in relation to optimisation of the quality, effectiveness and person-centredness of health and social services, in order to assist patients and clients to maximise their health and wellbeing. 2. Work effectively in a team, both in the role of team member and of team leader. 3. Describe the potential barriers to effective teamwork and strategies through which they may be overcome. 4. Describe the roles, responsibilities, practices and expertise of effective members of their own profession. 5. Describe the roles, practices and expertise of effective members of each of the other major health professions. 6. Recognise and challenge stereotypical views in relation to the roles, practices and expertise of particular health professions in their own thinking and in the communication of others. 7. Express their professional opinions competently, confidently and respectfully to colleagues in any health profession. 8. Listen to the opinions of other health professionals effectively and respectfully, valuing each contribution in relation to its usefulness for the patient, client or community concerned, rather than on the basis of the professional background of its contributor. 9. * <i>For individual level care</i>: synthesise the input of multiple professional colleagues, together with the beliefs, priorities and wishes of the patient or client and their significant others, to reach consensus on optimal treatment, care and support and how it should be provided. * <i>For community level health activity</i>: synthesise the input of multiple professional colleagues, together with the values and priorities of the community concerned, to reach consensus on optimal interventions and how they should be implemented. 10. Reflect critically and creatively on their own performance in health professional team settings (Griffith Health IDEAS 2011, p. 6).
Is the framework structured according to levels? E.g. beginner to advanced?	<p>Three phases:</p> <ul style="list-style-type: none"> o Phase I: Introduction to the health professions o Phase II: Simulated professional team experience o Phase III: Real service professional team experience.
Gems	In the framework document, it is very useful to have the descriptions about what should be delivered at each phase (p. 8), as well as issues that need to be addressed before implementing the framework (p. 9) and project plan provides a suggested order of implementation activities (p. 10).
Implementation	
Are there instructions as to how the framework should be implemented?	A broad schema for interprofessional learning activities in Health Group professional programs is offered on the basis of the existing scholarly literature and of discussions at a Griffith symposium on IPE – see page 8 of the framework document. Each core activity needs to be compulsory and appropriately assessed.
Assessment	
Does the framework provide information regarding assessment?	See above.
References	Griffith Health IDEAS 2011, <i>An implementation framework for interprofessional learning at Griffith Health 2011–2014</i> , Griffith University.

Curtin University Interprofessional Capability Framework, Australia

Background and context	
Name of framework	Curtin University Interprofessional Capability Framework.
Who developed it? (Name of person, group, institute and any information you have about this group e.g. disciplinary background)	Ms Margo Brewer Director of Interprofessional Practice, Teaching and Learning Faculty of Health Sciences, Curtin University Associate Professor Sue Jones Dean, Teaching and Learning Faculty of Health Sciences, Curtin University.
Country	Australia
Year developed	2011
Is the framework discipline-specific? Which discipline?	No, designed for students from the health science disciplines.
Who is the primary audience? (Undergrad/postgrad/CPD, etc)	Undergraduate through to entry level master's degree.
How was the framework developed? What was the process? Who was involved?	<p>Development began in 2010 with a review of two frameworks:</p> <ol style="list-style-type: none"> 1. the National Interprofessional Competency Framework [CIHC] (Bainbridge et al. 2010) 2. the Interprofessional Capability Framework (Combined Universities Interprofessional Learning Unit 2011). <p>Brewer and Jones (2013) decided that neither of these frameworks met Curtin University Health Sciences Faculty's requirements for a framework with:</p> <ul style="list-style-type: none"> • a main focus on clients rather than on health professionals • a clear focus on safety and quality • an ability to measure varying levels of achievement of the framework's defined capabilities • an expansive notion of health that includes disciplines (such as health promotion professionals, environmental scientists, and food and biomedical science graduates) that work with families, communities and organisations, rather than just disciplines that work mostly with individuals. (Brewer & Jones 2013). <p>Brewer and Jones developed the Curtin University Framework using the information found in a literature review to meet the requirements described above.</p> <p>They consulted widely with stakeholders including staff, students, industry representatives, international experts in the field of interprofessional education and health consumer representatives during the development of the framework and whilst it was being applied to curricula (Brewer & Jones 2013).</p> <p>The framework had been applied to first year curriculum, case-based interprofessional educational workshops and during interprofessional practice placements.</p> <p>The framework has an acknowledgement stating that it was adapted from Sheffield Hallam University Interprofessional Capability Framework 2010 and the Canadian Interprofessional Health Collaborative National Competency Framework 2010.</p>
What are the philosophical/theoretical underpinnings of the framework?	<p>The framework is based on two main concepts (Brewer & Jones 2013):</p> <ol style="list-style-type: none"> 1. The client is at the core of interprofessional practice 2. The main aim of collaborative practice is making sure that clients get safe, high quality services. Clients can be individuals/families/communities. <p>The assumptions behind the framework are (Brewer & Jones 2013):</p> <ul style="list-style-type: none"> • 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.

Why was the framework developed (e.g. as part of a research project, government initiative, curriculum activity)	<p>The Curtin University Interprofessional Capability Framework is a response to the World Health Organization's mandate (2010) that interprofessional education should be a core component of the health science curriculum. The framework is a model for teaching and assessing the capabilities needed to be a collaborative practice-ready health professional, who can work in an interprofessional team and provide safe, quality service to clients, families and communities (Brewer & Jones 2011).</p> <p>The Framework was developed for Curtin University Health Sciences faculty, which has around 10,000 students and teaches 23 different health science disciplines including psychology, nutrition, health promotion, occupational therapy, speech pathology, social work, psychology, physiotherapy, nursing, pharmacy, health promotion and medical science.</p>
Has it been evaluated and how?	<p>Not at this stage, but the developers plan to evaluate the framework in the future.</p> <p>Whilst this framework has not yet been evaluated it has been used when designing evaluation tools for interprofessional education in Curtin Health Sciences Schools, such as qualitative questions used in staff and student interviews, surveys and focus groups (Brewer & Jones 2013).</p>
The framework	
Are competencies, capabilities or something else used? How are these defined?	Capabilities.
What are the features of the framework?	<p>The framework has five collaborative practice capabilities:</p> <ol style="list-style-type: none"> 1. <i>Communication</i>: 'The collaborative worker consistently communicates in a sensitive and professional manner demonstrating effective interpersonal skills'. 2. <i>Team function</i>: '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'. 3. <i>Role clarification</i>: 'The collaborative worker understands their own role and the roles of other relevant parties and uses this knowledge to improve client services'. 4. <i>Conflict resolution</i>: 'The collaborative worker actively engages in addressing different perspectives among colleagues and clients in a positive and constructive manner as they arise'. 5. <i>Reflection</i>: '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' (Brewer & Jones 2011, pp. 8–11). <p>These five capabilities actively combine to produce the three core elements that are the focus of the framework. The three core elements are:</p> <ol style="list-style-type: none"> 1. <i>Client centred service</i>: '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'. 2. <i>Client safety and quality</i>: '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 (Barracough et al. 2009). Therefore safety and quality form the overarching structure of the framework'. 3. <i>Collaborative practice</i>: 'Collaborative practice occurs when multiple health and human service professionals from different backgrounds work together with clients to deliver high quality care' (Brewer and Jones 2011, pp. 6–8).
Gems	<p>The simple, concise visual representation, aids quick understanding of the aims of the model.</p> <p>This model links interprofessional collaborative practice, client-centred services and safety and quality of services directly as equal central aims of the model. This contrasts with most other models that have interprofessional collaborative practice as their chief aim (Brewer & Jones 2013).</p>
Implementation	
Are there instructions as to how the framework should be implemented?	Not directly, however the importance of stakeholder feedback during implementation is discussed.

Assessment	
Does the framework provide information regarding assessment?	A description of the capabilities expected at different levels (student years) is given. The framework was used in the development of the Interprofessional Capability Assessment Tool (Brewer et al 2009), which is utilised in clinical and fieldwork settings to assess student interprofessional practice capabilities.
References	<p>Bainbridge, L., Nasmith, L., Orchard, C. & Wood, V. 2010, 'Competencies for interprofessional collaboration', <i>Journal of Physical Therapy Education</i>, vol. 24, no. 1, pp. 6–11.</p> <p>Brewer, M. & Jones, S. 2011, <i>Interprofessional Capability Framework</i>, pamphlet, Faculty of Health Sciences, Curtin University, Perth.</p> <p>Brewer, M.L. & Jones, S. 2013, 'An Interprofessional Practice Capability Framework focusing on safe, high-quality, client-centred health service', <i>Journal of Allied Health</i>, vol. 42, no. 2, pp. 45–49E.</p> <p>Brewer, M., Gribble, N., Lloyd, P., Robinson, A. & White, S. 2009 (Revised 2012), <i>Interprofessional Capability Assessment Tool (ICAT) 2012 – Final Year Students</i>, Curtin University, Perth.</p> <p>Combined Universities Interprofessional Learning Unit 2004, <i>Interprofessional Capability Framework: a framework containing capabilities and learning levels leading to interprofessional capability</i>, The University of Sheffield and Sheffield Hallam University, Sheffield UK.</p> <p>World Health Organization 2010, <i>Framework for Action on Interprofessional Education and Collaborative Practice</i>, WHO, Geneva.</p>

Appendix 6: Empirical papers included in narrative review

		Context	Type and number of learners.	Evaluation type (qual, quant, mixed) and design	Instruments and quality	Findings	Comments
<i>Authors</i>	Ajawi et al	IP=inter-professional UP=uni-professional HP=health profession	MS=med student PT=physio RR=response rate SW=social work	Pre/post design looking at change in attitudes; extent of learning and changes in understanding	Attitudes to Health Professionals Questionnaire (AHPQ) + 2 focus groups	Pharm students reported small but significant +ve change in attitudes toward medical students on AHPQ caring scale (p=0.001)	Students reported added value of IPE activity i.e. change in attitudes
<i>Journal</i>	Focus on Health Professional Education (FoHPE)	2 x 2 hour interprofessional (IP) PBL tutorials (1 week apart) on Home Medicines Review	19 medical and 20 pharmacy students 4 groups of 10 (5 from each discipline)				
<i>Year</i>	2010						
<i>Location</i>	Sydney, Australia						
<i>Authors</i>	Anderson et al	One-day patient safety workshop based on a DVD depicting the hospitalisation and rehabilitation of an elderly patient	Undergraduate students (n=199) were allocated to either MS only (control) or experimental groups in which MS learnt with other HPs (professions not given).	Controlled pre/post multi-method evaluation, using knowledge acquisition Q and FG, and Self-assessment and K1 post only in terms of content, design etc. RR 89%	Self-developed	Students in both groups increased their knowledge in all the learning outcomes. However, of the key learning themes, medical students in the UP group achieved significantly higher scores than those in the IP group. Medical IP students enjoyed learning interprofessionally; input of students from other disciplines helped them appreciate team-working roles.	Results focused primarily on MS and these were the only ones in both UP and IP groups. Some attempt to look at the differences and why certain aspects worked. The link between team factors and the safety agenda is increased when students learn interprofessionally – but difficult to say much given numbers and activity.
<i>Journal</i>	Medical Education						
<i>Year</i>	2009						
<i>Location</i>	Leicester, UK						
<i>Authors</i>	Anderson et al	These are the same 3 groups as the Ateah study below, same numbers; more details, more instruments discussed here.	Quant – pre/post design; surveys as the Ateah paper – same timings; plus K1 survey of student reaction/ satisfaction; 5/12 surveys as well.		Attitudes Towards Health Care Teams Scale (ATHCTS); IEPS; Interdisciplinary Team Concepts (ITC); Inter-disciplinary Team Intelligence Quotient (ITIQT); Geriatric Inter-disciplinary Team Training (GITT); Team Skills Scale (TSS). ATHCTS validated by Heinemann et al 1999*. IEPS validated by Luecht et al 1990; Hawk et al 2002*.	No difference in professions pre scores; many differences in post. Both interventions significantly improved attitudes, perceptions, knowledge and skills on self-report; immersion better than education; only immersion improved perceived importance of sharing leadership; changes persisted at 5/12.	The instruments looked at acquisition of knowledge; modification of attitudes; modifications of perceptions; acquisition of teamwork skills (all self-assessed), lots of data given.
<i>Journal</i>	JRIPE						
<i>Year</i>	2011						
<i>Location</i>	Manitoba, Canada				ITC and ITIQ modified slightly to reflect health care delivery in Canada. TSS and TFT developed for used in GITT program.		
<i>Authors</i>	Anderson & Lennox	10 years of the Leicester model; description of evaluation models used.	Total student numbers = 2226	Mixed methods: FG (1988-2000); Q post course [K1] (2000+); pre/post course knowledge gain and attitude change instrument (2003+); med students asked to reflect on the course 4 years after completion (2004-04).		Appears to enable deep learning as medical students had long-term recall of their time in the model.	Self perception of knowledge change and attitudes. Lots of data – some published previously; change in evaluation over time.
<i>Journal</i>	JIC						
<i>Year</i>	2009						
<i>Location</i>	Leicester, UK						

<i>Authors Journal Year Location</i>	<i>Context</i> IP=inter-professional UP=uni-professional HP=health profession	<i>Type and number of learners.</i> MS=med student PT=physio RR=response rate SW=social work	<i>Evaluation type (qual, quant, mixed)</i> FG=focus group, K=Kirkpatrick, Q=questionnaire	<i>Instruments and quality</i>	<i>Findings</i>	<i>Comments</i>
Armitage et al JIC 2009 UK	TUJLIP (Trent Universities IPL in Practice Project) initial evaluation at pilot site: a rehab ward in community hospital.	Mix of students not given.	FG & interviews (10) documents and e-Q (24); students, service users, clinical team.		Agreed appears to be progressing well with students' gaining greater understanding of roles – but how this was known is not clear; students stated they gained valuable insights into IP teamwork.	Short paper with little detail.
Atack et al JIC 2009 Ontario, Canada	IP course in disaster management (DM) competency: IDEAS (IP Disaster Emergency preparedness Action Studies): online course + simulated live mass casualty exercise; 8 weeks, 3 hrs pw.	74 students started from paramedic, nursing, social services, pharm tech, medicine, resp therapy, med radiation, police; 47 (64%) completed. 77% RR for pre/post DM; 41.6% RR for pre/post RIPLS.	3 surveys: DM survey pre/post; RIPLS 2x post (asked to recall perceptions at start of course) [K2a]; self-rating of competency.	Demographic; Disaster Management Competency Survey (adapted from Ryan et al 1999); RIPLS – 29 items.	Students made greatest gains in defining processes and personal responsibilities during disaster; communication; describing safety measures to take. Student online feedback: course enhances client care through devt of IP and DM skills; increased readiness for IP practice.	RIPLS not pre and post – possibly an afterthought? Small numbers and of each profession.
Ateah et al Nurse Education Today 2011 Manitoba, Canada	Does IPE intervention make a difference to stereotyping? 3 groups: control (C) group: education-only intervention (E) group: IP immersion experience intervention (I) group (n=18).	51 students: MS (23.5% of participants); nursing (19.6%); occupational therapy (13.7%); PT (13.7%); dental hygiene (9.8%); pharmacy (11.8%) and dentistry (7.8%)	Experimental pre-test / post-test design. Self-rating of attitudes towards other professions. Pre/post (immediately and 4-5/12 later). I group did the Q 4 x [K2a]	Student Stereotypes Rating Questionnaire (SSRQ) adapted by Hean et al	Significant increase for the I group in the summary mean score of all traits between baseline (first survey) and post-education (second survey), and between first survey and post immersion (third survey). However, there was no further (statistically significant) increase in the summary mean score of all traits for any profession between the second survey and the third survey	Small numbers in each group. Significant changes in perceptions of +ve traits of professions (summary mean score) occurred following the education session and did not increase again following the immersion experience. This is interpreted to indicate the value of even a relatively brief IP classroom-based education intervention. Doesn't say if C group changed in any way.
Baker et al JRIPE 2012 Canada	Suctioning modules – to raise learners' awareness of the culture of their own and others' HPs and to develop cohesion among the learners and facilitators while mastering the task: integration of competencies being taught.	Historical control group of 23 nursing and 23 PT students in UP groups from previous modules; 45 students IP.	Mixed methods: Direct observation of 1 UP nursing, 1 UP PT, 4 IP labs; 3 FGs; self-report of confidence; performance checklist of suctioning (with assessor) – all post	Communication and Teamwork Scale (Pollard et al, 2004)	PT and nursing students had different experiences prior to the sessions – nurses had been on clinical placement and used simulation and PIs had not – these differences were mentioned in the IP FG; positive and valued IP; instructors did not really work together in IP groups; little evidence that the IP groups increased students' readiness for IP teamwork; not much difference in performance or self confidence.	Theoretical framework for this study is cultural competence – viewing professions as cultures; Durkheim social cohesion; action research model; FGs only had 2 questions about the IP part – closed questions; note that the nursing and PT facilitators had different ways of facilitating the lab; not surprised by results – too short an intervention really and the lack of IP facilitation skills must have affected outcomes. States that IP students did become aware of other's culture but no real evidence for this; also not sure this is action research.
Bilodeau et al JIC 2010 Quebec City, Canada	45 hour UG curriculum in 3x 15-hr courses in setting of family medicine in primary care. Part of University integrated IPE curriculum.	112 nursing 38 pharmacy 29 kinesiology 14 nutrition 11 OT 4 psychology 3 MS 3 PT 1 comm health	Student perception of benefits of program, all collected post [K2a]	Project specific questionnaire administered post the learning experience	Students identified significant change in their knowledge of the benefits of IPE from pre to post program	Students completed questionnaire at end of program. Asked their perceptions of the benefits of IPE before and after their program

<i>Authors Journal Year Location</i>	Context IP=inter-professional UP=uni-professional HP=health profession	Type and number of learners. MS=med student PT=physio RR=response rate SW=social work	Evaluation type (qual, quant, mixed) and design FG=focus group, K=Kirkpatrick, Q=questionnaire	Instruments and quality	Findings	Comments
Bowden et al Nurse Education Today 2012 London, UK	CPR – web-based video and feedback of simulation sessions.	19 MS 11 nursing students (NS)	Student reaction [K1] – structured Q and FGI interview. Post only 5 MS interviews FG: 1MS, 2 NS FG: 4MS, 1NS Q: completed by 10/30	Project specific Q	Not only looking at IP aspects (and ? LOs for this) but also feedback etc. Did have comments that became aware of whole team.	Highlights difficulty in RR. Again – not specifically about IP and minimal data in terms of findings.
Bradley et al Medical Education 2009 Peninsula and Plymouth, UK	To identify the effects of IPE experiences on MS and nursing students' attitudes, leadership, team-work and performance of resuscitation skills. 1 day intermediate life support (ILS) program taught by accredited advanced life support instructors.	2nd year med and nursing students from a population of 215 students. 51 randomly selected students were allocated to either the UP (control) group or the IP (experimental) group	Controlled pre/post and 3-4/12 later for RIPLs [K2a] 5 FGs 3-4/12 after: UP Rest were post only. 100% RR pre and post, dropping to 81% long term.	RIPLS Team work — Performance instruments were post only: Leadership Behaviours Description Q (LBDQ); Emergency Team Dynamics (ETD); Resuscitation Team Task (RTT)	Scores on the RIPLS subscales of professional identity and team-work scores increased significantly post-intervention for the IP groups but returned to pre-test levels by 3–4 months. Nursing students had significantly higher scores than MS on the roles and responsibilities subscale at all three data collection points. No other significant differences across the three sets of RIPLS scores and performance.	Longer term – no difference on other scales Shows short term effect of IPE but does not explore the questions of how learning is taking place nor what students do with the learning. About attitudes to learning.
Britt et al JIC 2012 Melbourne, Australia	Via a broadband link, students observed DVD footage of a clinical session then participated in discussion with clinicians at Children's Hospital.	790 students; from 6 professions; 26 tutors and 34 clinicians. RR 664/790 = 84%.	Post-videoconference evaluation surveys. K1 (+tutors!)		Student responses were +ve with 84% indicating that videoconferences increased their understanding of IPP and 95% agreeing that the sessions were an effective learning tool. Supports use of videoconferencing to provide IP clinical education.	
Buckley et al JIC 2012 Birmingham, UK	Half-day sessions of interprofessional simulation.	191 Students from medicine, nursing, PT, radiography and operating department practice. RR=95%	Q: Likert type, visual analog and open comment Qs explored perceptions of sessions as a learning experience [K1]; attitudes toward IP learning [K2a – pre / post] and the factors important for good patient care either post, or pre/post. Analysis included descriptive stats, tests for difference or thematic coding.	Q (Davison 2008) – adapted from this previously used by this collaboration - ? validated.	Most students reported increased understanding of patient experiences and contributions of other professions to patient journey Attitudes – more +ve after on whole.	In order to maximise the educational value of such sessions, particular attention should be paid to the benefits anticipated for individual professions, as well as those for all groups; to the wider educational context in which sessions lie and to the careful management of debriefing.
Collins et al JIC 2011 Philadelphia USA	Chronic illness care, longitudinal IP mentorship program; weekly meetings at mentor's home	1st & 2nd year MS, PT, OT, therapy, nursing, pharmacy.	Student reflection essays analysed.		May be promising tool for development of high quality practising health care teams.	
Cragg et al JIC 2010 Ontario, Canada	Rural clinical placement where students attended weekly 1 hour IP clinical meetings	14 students from medicine, PT, nursing & spiritual care, 7 preceptors	Mixed methods: pre/post data collected	IEPS plus qualitative interview	No signif change on IEPS (small N). Improved attitudinal qual data Students reported that they would practice differently in the future [K2a]; preceptors introduced weekly IP rounds [K3]	Small numbers of students. Relied on local clinicians to facilitate IP student sessions

		Context	Type and number of learners. MS=med student PT=physio RR=response rate SW=social work	Evaluation type (qual, quant, mixed) and design	Instruments and quality	Findings	Comments
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Curran et al JIC 2010 NFL Canada	IPE curriculum developed as extra curricula model across university programs. Nine (2 week) modules developed	Nursing 2078 MS 1301 Pharm 286 SW 434	Time series study design over 3 years (longitudinal) [K2a]. K=Kirkpatrick, Q=questionnaire	Two scales used: Attitudes towards IP Health Care Teams Scale; Attitudes towards IPE Scale (based on RIPLs) plus open comments.	Overall positive attitude towards and satisfaction with IPE. Significant differences in attitudes and satisfaction of students from different professions towards IPE. Online learning rated less satisfaction than face to face	Students from different professional groups completed different numbers of modules with med students completing the most and having lower satisfaction.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Curran et al JIC 2011 Canada	Exploring insight of novice IPE facilitators in 4 IPE programs – perceptions and experiences of preparing for and delivering IPE.	Nursing, MS, PT, social work, OT, dietetics.	Multiple case study. Interviews analysed – pre/post program delivery.		Despite a 3-fold FD strategy to support facilitators, many felt unprepared and to have a poor conceptual understanding of IPE and collaboration principles.	
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	D'Eon et al JRIPE 2010 Canada	PBL module on people with HIV/AIDS: HIV/AIDS objectives; knowledge of contributions of other HPs; student skills in patient care and management; self-directed learning.	Began with PT only and expanded to include MS, pharm, psych, nutrition, nursing, SW. By 2007 = 307 students from 7 programs	Mixed methods: student satisfaction surveys; Q at end each module; self-assessment of learning. From 2007 pre/post test design [K1 and K2a]		Self-assessment – learned a lot about HIV; learned about others but not as much as HIV; high satisfaction.	Those who did not enjoy thought not reflective of true IP collaboration; cannot tell if IP adds to knowledge about HIV – added value?
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Ericson et al JIC 2012 Stockholm, Sweden	IPE in emergency department – 2 weeks	Teams of 1PT, 2 MS, 2 nurse. 75% RR of 312	Q post about change in attitudes [K1]	Q validated by Ponzer (2004)*	All appreciated setting and team training; increased knowledge of prof role and others' roles. All +ve pre and post.	Is this 2a if asked about attitudes before experience in a Q after it?
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Forte & Fowler JIC 2009 London, UK	Common learning unit – preparation for practice	PT, OT, diagnostic and therapeutic radiography	Explored student and lecturer experiences, barriers and facilitators of IPL – post, 4 UP FGs, 1 IP FG and 1 staff FG; numbers not clear [K1].		Students reported increased understanding of other professions and enhanced communication; some students more challenged than others to work IP	Certainly different from asking 'is this effective?' Volunteer interviewees. Has informed ongoing development of unit
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Furness et al JIC 2011 Sheffield, UK	TULIP project – Exploring role of service users, various practice settings.	27 in qual arm – out of many more who were involved, included 3 students.	FGs; interviews (service users)		+ve reaction. Learning (self-reported) – IP insights, service user perspectives, increased confidence. Change in behaviour (self-reported) thought of different ways of doing things. Impact and sustainability – +ve immediate impact but no long term evaluation in this area.	Mentions uses Kirkpatrick framework (1996).
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Galle & Lingard JIC 2010 Toronto, Canada	Single MS reflecting on multiple IP experiences in clinical settings	Med student x 1	Autoethnography: reflective journaling during 5 week placement – thematic analysis	Qualitative [K2a]	Student explored issues of access to patients and impact on resultant relationship with other health students, the impact of shadowing another HP and complexities of IP relationships.	Reflexive activities highlighted as way to promote understanding of roles, critical thinking and professional growth

<i>Authors Journal Year Location</i>	Context IP=inter-professional UP=uni-professional HP=health profession	Type and number of learners. MS=med student PT=physio RR=response rate SW=social work	Evaluation type (qual, quant, mixed) and design FG=focus group, K=Kirkpatrick, Q=questionnaire	Instruments and quality	Findings	Comments
Grymonpre et al JRIPE 2010a Canada	Same as project below but focusing on the learners: students were embedded in the teams and observed practice	32 interventions students; 11 controls	Mixed methods: controlled pre/post + 6/12 follow up design; IEGC knowledge Q developed for this project; self-reflective Q.	GITT used pre/post; encom-passes Attitudes Toward Health Care Teams Scale (ATHCTS), Team Skills Scale (TSS), Knowledge Q [K1].	Valuable; no change in ATHCTS or TSS pre/post; 6/12 Qs indicated lasting impact on practice – increased likelihood of communication with other profs, more effective communications skills.	Small numbers and do not really have sense of what the differences are between the intervention activity and control groups; main impact was increase in knowledge at post-test and at 6 month follow up
Grymonpre et al JRIPE 2010b Canada	IP clinical placements: IEGC = IPE in geriatric care: to develop, implement and evaluate IP clinical placements for senior students (MS, nursing, OT, pharm, PT); 15 hours of IPL over 4 week clinical block – at least 3 of 5 types of student involved	3 GDH as intervention sites and 1 as control; 11 IP clinical placements over the 3 site NB – that while this is a student intervention the evaluation is of the teams and faculty; total of 39 staff over 4 sites [K4 – organizational changes]	Mixed methods: controlled pre/post design. Specifically mentions K outcomes via the JET modifications: control site; mixed methods: IEGC knowledge Q developed for this project – MCQs; also facilitators and staff in the teams completed evaluation with some qual data	TOS – Team Observation Scale but not included in data analysis; GITT pre/post (= ATHCTS + TSS)	K1 – positive reaction. K2a & b – no signif change in ATHCTS or TSS or knowledge over time for either interv or control groups. K3 – self assessment change in behaviour. K4 – organizational change – could not really measure this. No significant differences between groups and pre/post evidenced by quant analysis.	This only looks at staff not students – but is interesting as impact of UG teaching. Became more aware of IP 'teaming' and reflective of their own practice. Based on transformative learning – what students bring to clinical settings and how that affects tutors.
Guitard et al JRIPE 2010 Canada	IP rehab uni clinic in PHC (IRUC-PHC) created to promote IPC at student level; 8 professions, for roles and responsibilities and collaborative skills	74 students from 6 HPs over 500 days; but only include rehab student data as over 12 days (audiology, OT, PT, speech). RR = 15/18.	Qualitative: single-group post-test only design. New tool.	Developed own Personal Reflective tool to assess KSA and behaviour – development not described.	Knowledge did increase as self-assessed and recognized importance of collaboration.	Piloting tool and evaluation. Small numbers. No statistical evaluation of tool. Lots of free text comments. Usual student reaction.
Hall et al JRIPE 2011 S Carolina, USA	IP Day for all 1st and 2nd year HP students (actually ½ for Yr 1 and ½ for Yr 2). Aim: to acquire and demonstrate teamwork competencies; values and beliefs of other HPs; apply teamwork competencies in collaborative health care delivery.	About 640 students in Yr 1; 500 Yr 2; running since 2006; data for 2006-09. RR Yr 1 – > 90% Yr 2 – 77-91%	Quantitative: post IP day surveys students and facilitators; includes satisfaction [K1] and self-assessment of knowledge.	RIPLS and IEPS used at graduation and not pre/post in this short intervention. RIPLS validated by Parsell et al (1999)* IEPS validated by Luecht et al (1990)*.	Self assessment and reaction ? developed teamwork competencies	Another short intervention with a lot of data! Appears to be a useful introduction for Yr 1 students of who is on campus and importance of IPC; Yr 2 reinforces this; but cannot tell about teamwork competencies
Hansen et al JIC 2009 Denmark	Same project as Jacobson et al, below. IP TU – UQ IP Training Unit	134 patients' data admitted to the ITU (orthoptic)	Evaluation of cost-effectiveness of the ITU – non-randomised concurrent inter-vention design – ITU (62) vs conventional orthop ward (COW) (72). Economic evaluation; effect of intervention [K4a and b]	Health Related Quality of Life (HRQOL) self-reported.	Average cost per stay less in ITU of COW; patient outcomes same; length of stay in ITU is less – due to collaboration between students and working in evening.	Noted that this was 2 years after start up - interesting and different evaluation.

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<i>Authors</i>	Hattingh et al, 2010	Six 2-hour PBL IPL sessions over one year in context of a clinical pain management case	90 MS and 56 pharmacy students	Pre/post design; self-reported changes in knowledge and attitudes to IP collaboration	Self-developed survey. Post survey included items from RIPLS	Both groups showed significant improvement in self-rated knowledge (p<0.0001) but no significant change in IP collaboration attitudes. Pharm students more +ve toward IPL post intervention (on RIPLS).	Med students in grad entry program but Pharm students in a Masters program
<i>Journal</i>	FoHPE						
<i>Year</i>	2010						
<i>Location</i>	Gold Coast, Australia						
<i>Authors</i>	Hawala-Druy & Hill	Culturally Congruent Care for Clinical Health Professions elective activity, 3 hrs per week for 14 weeks.	106 – nursing, pharmacy, allied health students.	Outcomes; pre/post Qual: periodic written reflections: analysed for changes in perceptions [K2a].	Inventory for Assessing the Process of Cultural Competence – Student Version (IAPCC-SV): measures the level of cultural competence and culture desire among HP students. Self-assessment – attitudes and knowledge	Statistically significant changes in IAPCC-SV scores before and after the course. Level of cultural competency improved post-educational intervention. RR not given.	No discussion at all of IP/ID learning.
<i>Journal</i>	Nurse Education Today						
<i>Year</i>	2012						
<i>Location</i>	Washington DC, USA						
<i>Authors</i>	Hayashi et al	IPE program at Gunma – lectures Yr 1, clinical training Yr 3 teamwork in practice settings.	364 students, 4 professions. RR=79%	[K2a]	Modified ATHCTS, modified RIPLS pre and post	Scores decreased after lectures, but increased after training	
<i>Journal</i>	JIC						
<i>Year</i>	2012						
<i>Location</i>	Japan						
<i>Authors</i>	Hollenberg et al	To help illuminate the contextual influences, mechanisms, and overarching impact of the initiative on the hospital teaching network: 6 IPE programs and 1000 participants – diff institutions in same network over 9/12.	142 interviews; 37 interviewed once, 68 twice (pre/post); included 60 learners (Stage)	Qual: multiple case study approach (i/view and documents); facilitators asked to describe how program planned or implemented, learners to describe learning experience – changes in perceptions etc.		Results presented as context, mechanisms and outcomes; educational, professional, and organizational outcomes explored as well as factors impacting sustainability.	Uses realistic evaluation framework. Does not use micro theories or develop theories so lacks some realistic rigour.
<i>Journal</i>	JRIPE						
<i>Year</i>	2009						
<i>Location</i>	Canada						
<i>Authors</i>	Howell	OTs in collaborative learning with other AH. To generate a theory of the learning process of OT students engaged in collaborative learning.	Interviews with 9 OT students from 4 different IP learning experiences and 3 universities.	Grounded theory: post		Students saw prime objective as learning to work on an IP team in practice to be work ready; respect important; different levels of learners is a problem.	Interesting to think how to classify this – looking at mechanisms – what works in terms of collab learning; 1 author though.
<i>Journal</i>	JIC						
<i>Year</i>	2009						
<i>Location</i>	Kentucky, USA.						
<i>Authors</i>	Jacobsen et al	Evaluation of IP Training Unit (IPTU) ortho student training ward – started 2004; up to 12 students for 2/52, nurse, med, OT, PT.	8 students, 2 from each prof, 3 heads of studies, 4 tutors.	Qual: FGs and interviews of students and tutors, managers etc, to see if goals of IPTU being met – post. K1 as self-reported.		Interview data – analysis across pre-chosen themes (systematic text condensation). Presented as a 'narrative' of what happens on the ward. Overall interviewees felt the IPTU is fulfilling its aims – enhances SDL, students work across professional boundaries.	The data does give a sense of what works for the students, and the tutors as role models; as noted by authors does not give any sense of long term effects; not completely clear what is learned about IP teamwork
<i>Journal</i>	JIC						
<i>Year</i>	2009						
<i>Location</i>	Holstebro, Denmark						

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<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Jacobsen & Lindqvist JIC 2009 Denmark	IP=inter-professional UP=uni-professional HP=health profession IPTU as above. This evaluation specifically about attitudes	162 students from 4 professions SW=social work	K2a pre/post (final day of 2 weeks) K=Kirkpatrick, Q=questionnaire	AHPQ – translated into Danish.	Differences in how students perceived each others' professions pre IPTU significant but changed during the 2 weeks. All viewed as more caring after; attitudes to doctors' caring change most	Is this sustainable change? How does it manifest itself in later practice?
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Jakobsen et al JIC 2011 Denmark	To compare which learning outcomes from the IPTU (as above) experience were found to be most important by the students and whether their short term impressions are sustainable.	428 students from OT, physio and nursing	Q – 5 point Likert scale; statement comparing learning outcomes analysed and categorised – inductive approach. Developed for this study – K1.		Over time the perceived outcome of learning experiences change in priority	All statements were rated with a high degree of agreement. Is this an evaluation?
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Jensen et al JIC 2012 Denmark	3-year project was initiated to establish the Interprofessional Clinical Study (ICS) unit in the Department of Orthopaedic Surgery at Lillebaelt Hospital, Denmark. Each placement lasted for 14 days	Medicine, PT, occupational therapy, nursing, radiography and medical laboratory science students, but no details about numbers as program evaluation.	Program theory was constructed using material about the CS (eg project descriptions; website) and info from 2 FGs with the steering committee. Interviews had pre-defined Qs re goals and expectations of ICS, and conditions necessary for ICS to function. Interviews with project manager (n=1), ICS charge nurse (n=2), clinical supervisors (FGs with 5 and 8 respectively), managers from other departments.		The results suggest that although the ICS had taken into account stakeholders' requests, it was not possible to fully implement all the necessary conditions identified as essential for the unit to function successfully.	Evaluation of program rather than students' learning.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Just et al JRIPE 2010 Germany	Examine effects of IPE course on IP communication skills and patient care. Two day seminars of 6 h of teaching covering palliative care, geriatrics, communication and organisation. Intervention designed to deliver IP competencies.	20 nursing 20 medical students – volunteers	Quant: RCT – single blind. Intervention group had IP facilitator; control group only written materials. Probably counts as change in behaviour though not in clinical setting??	Pre and post the seminars pairs of students (MS, NS) worked through a care vignette and devp care plan together. Assessors blind re group. Pre and post care objectives, items of information exchanged.	Both groups improved in relation to integration of psychological aspects and guarding patient's autonomy; IP group also in pain therapy. Numbers of items exchanged in pairs increased for both groups. Exposure to IPE experiences also resulted in a moderate +ve effect on IP communication style.	In the IP pairs the change was that all post-intervention interactions were initiated by the nurses which shows an interesting effect.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Kapelus et al JIC 2009 Toronto, Canada	Pilot IP health promotion field placement – variable times depending on type of student	22 students from dental hygiene, fitness & lifestyle management, nursing, medicine. Teams of 3-8 members.	Student feedback K1 through FGs		Welcomed opportunity and benefited from collaboration; depended on time able to work together, needed more guidance.	Short research report only.

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<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Kinnair et al JIC 2012 Leicester, UK	Adaptation of Leicester model to develop IPE in mental health practice. The research phase consisted of three cycles of teaching and evaluation.	Health and social care students: 300 (89 MS, 109 SW students, 77 mental health nurses and 25 others).	Both qualitative and quantitative data collected from all stakeholders, patients (n = 6), students (n = 300) and facilitators (n = 6). Qual data (FGs, interviews and free text Qs) analysed using grounded theory principles. Stages 1 and 2 quant data were analysed using SPSS.	ATHCT	Self-report of increased knowledge pre/post. On average, the medical and SW students increased their perceived knowledge while mental health nurses did not. The outcomes of this action research demonstrate how to take an evaluated model to offer this learning when students are together in practice.	
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Lennon-Dearing et al JIC 2009 Tennessee, SA UUSA	IP bioethics course; Fri evening and Saturday course over 4-5 weekends; CBL.	Students in groups of 3-4; nursing, SW & seminar; MS recruitment poor.	Appears to be a post evaluation Q at K1 and K2a attitudes pre/post		SW and nursing students realized how close the 2 professions are in their approach to holistic care; group activities more meaningful than individual activities; +ve attitudes pre and improved post	Long description of development, nature and content of course but not so much on evaluation. No numbers given.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Levinson & McGillion FoHPE 2011 Victoria, Australia	Impact of one IP task; history taking; patient examination; formulation of integrated management and discharge plan.	Undergraduate nursing and medical students. Total n=18; discipline numbers not known.	Pre/post design, outcomes include change in attitude to other profession & increased awareness of Collaboration.	Self-developed – consisted of questions from RIPLS & another developed by Carpenter et al (1995)*.	Descriptive analysis, both groups reported changes in perceptions and opinions about other group.	Small numbers and poor methodology. Not much IPE or support for task.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Lewis Nurse Education Today 2011 Sheffield, UK	SMART® (Student Management of Acute Illness – Recognition and Treatment). 1/7 program	Pilot: 72 nursing, 16 medical students. RR=97%	Outcomes: pre/post self-assessment of knowledge, confidence and perceptions of IP working.	Developed from ALERT™.	Overall improvement in each of the categories for each student group.	Asking about comfort with IP working doesn't really indicate much. Short term evaluation only.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Lewitt et al JIC 2010 Sweden	Case based discussions.	Med 61 Bio-Med 106	Post evaluation Q with open and closed questions and rating scale. FG with smaller group. [K1]		Stereotyping already present at UG level.	Self selection to FG. Students asked to rate the IP course on 4 point Likert scale (very good, good, bad, very bad). It is unclear what was being evaluated with this scale.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Lidskog et al JIC 2009 Sweden	IP training word at Linköping, older persons/nursing home; 3/52 long attachments in teams; evaluation mainly focusing on the ward as a community of practice (CoP).	Nursing (39), OT (22), social work (7) = 68 in study.	Qual: interviews, group interviews, participant observation, students' written descriptions, course documents and minutes of meetings – student interviews post the attachment; supervisors and staff pre and post.		Students found the collaboration valuable, though some ward activities irrelevant, partic for SW; discussion about the ward as a CoP.	Wide range of evaluation methods used but none longer term; mostly data presented about what participants said; little about observation of what was seen; but does answer to some extent what works for whom and in what contexts within the theoretical framework of CoPs.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	McFadyen et al JIC 2010 Scotland	All Yr 1 students from 6 health programs. One year of students acted as a control group. CG students had annual IPE modules over 4 years.	Nursing, OT, Podiatry, PT, Prosthetics, Radiography: 260 in C Group 313 in E Group	Controlled longitudinal design over 4 years. 2 Qs administered pre/ post focusing on attitudes and perceptions. [K2]	RIPLS IEPS	Students commence their studies with strong positive views that may be idealistic. Differences in responses noted across professions.	

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<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	McKee et al JIC 2010 Canada	PBL Palliative Care Module in University. 2hr sessions over 3 weeks.	Nine volunteer students from Medicine, Nursing, Pharmacy.	Post only – 18 item Likert survey. Post FG. Pre/post knowledge test about Pall Care [K2a&b]	Self-developed Q	Students more aware of psychosocial and family issues after module and aware of roles of more professionals in Pall Care	Very small group
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	McLelland et al Nurse Education Today 2012 Monash	Peer Assisted Learning (PAL). Education for Clinical Practice: To explore the educational and professional benefits of using IP PAL by UG midwifery students teaching skills for UG paramedic students. Assist them develop theory and skills to teach others from both their own and other HPs.	Midwifery = 37 (64.9% RR), Paramedics = 73 (44% RR). [K1 – reaction really as not measuring change]	Post only – Q 4-6/62 after sessions. FGs following semester (10 MW and 5 PM). [K1 – reaction really as not measuring change]	Clinical Teaching Preference Questionnaire (CTPQ) for paramedics. Peer Teaching Evaluation Q (PTEQ) for midwives.	Mostly in relation to importance of learning about teaching. Reaction to IP experience – enthusiastic and should be more.	Bit superficial in terms of how and why.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Meffe et al JIC 2012 Toronto, Canada	Maternity care: 6 workshop modules, 2 clinical shadowing activities	9 students interviewed; 3 med, 3 nurse, 3 midwifery	Multiple interviews over time post [K1]		Positive about experience and importance of collaboration	Longer term effect – self report of intention to continue practising IP collaboration one year after. States 2a and 2b though self-report for 2b and interview data for 2a
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	O'Carroll et al JIC 2012 Scotland	FIPE - interprofessional clinical skills model; sessions run 2-3 hours.	Nursing, med, AH; 44 students attended a session; 10-12 per session.	Q to students (K1) + self-report knowledge & skills & attitudes. Post Q based on K model but no details.		Participants reported that they developed better understanding of each other's roles and responsibilities; identified that this would be transferable knowledge to their future practice.	Highlights that the practice placement setting is a valuable opportunity to provide students with relevant and motivating IPE learning experiences.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Owens et al JIC 2010 UK	1st yr semester-long IPE module with flexible PBL and online asyn-chronous activities plus intro lectures. Students in groups of 9-10 containing 3 different HPs.	Midwifery Nursing OT PT Radiography (334 in total)	Mixed methods evaluation with Q and FGs. Students recruited for FG by purposive sampling and volunteering. 59 students in FGs. [K1]	Self-developed Q	Students did not think their knowledge of other professions had increased. Students wanted module later in their programs. Some anxiety with online expectations and varying levels of familiarity with PBL.	Quant results not reported here

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<i>Authors</i>	Packard et al	IP=inter-professional UP=uni-professional HP=health profession	5 students from each discipline at end of pre-clinical:	Quant: pre/post randomized controlled surveys, debriefing of all 18. Perceptions of working as part of IP team. Faculty assessment of team skills – this was only post so not a change in behaviour as such unless as comparison.	IP team Reasoning Framework (IPRF), intended to foster effective collaboration between various disciplines and to improve patient care – instrument to facilitate learning rather than an evaluation tool. Modified Team Skills Scale pre/post. DVD of one team interaction was assessed by 15 faculty using rubric based on Uni-Toronto Framework for Devt of IPE values and core competencies collaboration	Team skills improved for groups 2 and 3 but no diff between them; from DVDs group 3 performed significantly better than 1 and 2.	Only 3 groups – 1 for each of the formats. Useful example of CBL Acknowledges limitations and is attempting to look at what facilitates learning Intervention development and implementation; Data collection and analysis methods described in detail N=6 participants per group and only one group per format (NB: only 1 participant from each discipline per group)
<i>Journal</i>	JRIPE		med, dent, pharm, OT, PT, nursing (3 randomised and 2 back-up) – total 18 in study – into 3 groups: case only, case + IPRF, case + IPRF and video of faculty.				
<i>Year</i>	2012						
<i>Location</i>	Creighton, USA	Study was actually to evaluate the IPRF.					
<i>Authors</i>	Pahor & Rasmussen	International IP IT- supported UG course on palliative care; mix of reading & PBL with 4 topics, online.	Nursing, med, OT, PT, psych, SW students (n=44) in 2 countries over 2 years of project	Evaluation not described in detail. Student feedback K1 – ‘evaluation answers’		IP aspect important part of choosing to do course. Gained insight in teamwork and became sensitive to cultural issues as working with students from another country	Student volunteers; says teacher evaluation but no findings from this.
<i>Journal</i>	JIC						
<i>Year</i>	2009						
<i>Location</i>	Slovenia & Sweden						
<i>Authors</i>	Pelling et al	2 week rotation on training ward – looking at effects on professional roles and value of teamwork.	841 students who had been on ward.	Q: how strengthened insight into own future prof roles and teamwork – analysis of difference between student groups [K1]		All students reported rotation strengthened insight about prof roles and value of teamwork.	Not a validated instrument and had only 3 questions
<i>Journal</i>	JIC						
<i>Year</i>	2011						
<i>Location</i>	Linköping, Sweden						
<i>Authors</i>	Playford & Hague	6 stage IP PBL case on Indigenous stroke over 1 Week.	Medical, nursing, allied health students on clinical placement.	Pre/post design; open ended survey	Self-developed survey – difficulties and challenges of IP, attitudes and opinions	Findings showed general value of interprofessional activity.	No student demographic data or numbers given except they were from 4 units and 5 disciplines
<i>Journal</i>	FoHPE						
<i>Year</i>	2009						
<i>Location</i>	Western Australia						
<i>Authors</i>	Priddis et al	IPL in community health organisation	Nursing and allied health	Post interviews [K1]. Weekly reflective practice sessions recorded. Asked about expectations for IPE experience		Increased awareness of benefits of both IPE and infant health principles - and common language across the professions.	Short report
<i>Journal</i>	JIC						
<i>Year</i>	2011						
<i>Location</i>	Curtin, Australia						
<i>Authors</i>	Procter et al	IP community experiences – interdisciplinary population health project IPHP – 10 hours collab group project: develop skills for successful ID teamwork, popn health, community resources, health determinants, attitudes to poverty should change – over 5 weeks	193 students – kin, MS, nursing, PT, SW – teams of 9-10; 162 took part in evaluation (RR=84%)	Student reaction – post project evaluation survey [K1].	Attitudes towards Poverty Scale (APS), Beliefs about Relationships between Poverty and Health (BRPH) pre/post [K2a]	SI increase in +ve attitudes. Some diffs across professions. The IP part of the evaluation was a simple K1 – enjoyed learning with other students but this is only covered in 1 sentence.	This does not really evaluate any added value of working together but focuses mainly on the poverty/health aspects.
<i>Journal</i>	JRIPE						
<i>Year</i>	2010						
<i>Location</i>	Canada						

		Context	Type and number of learners. MS=med student PT=physio RR=response rate SW=social work	Evaluation type (qual, quant, mixed) and design	Instruments and quality	Findings	Comments
<i>Authors</i>	Ragucci et al	IP=inter-professional UP=uni-professional HP=health profession	40 selected students per year from 12-14 professions – 241 students so far; 84 pre and 76 post in evaluation; control post = 55	Student survey pre and post with control group IIC [K2a]; Control only did post IIC; K1 pre and post – what hope to gain and what gained.	Adapted survey from one developed for social work – Index of Interdisciplinary Collaboration (IIC)	PSP students have significantly greater understanding of each other and deeper appreciation of value of IPC at end of year; IIC increased significantly post and v controls.	Self-report in survey, no FU of graduates' did show short term effect of PSP – did not really explore what worked in terms of the program – 'working together' mainly.
<i>Journal</i>	JIC	Presidential Scholars Program (PSP); 2-semester IP experience; now in 7th year	13 students (preclinical or in early stages of their clinical education) from 7 faculties (pharmacy, medicine, nursing, economics, engineering, health policy management and evaluation, and radiation sciences)	Participants asked to write a reflection on the following open-ended statement about experience in group: "What were your most significant learnings? How would you evaluate the experience as compared to other IP experiences you have had thus far?" FG		Participating in a quality improvement project can be also be an excellent vehicle to promote interprofessional collaboration.	The participation of the project champions in the focus group may have influenced student answers as the group may have been hesitant to criticize the project or team. Three of the investigators were also members of the QI team both contributing to and analysing the data.
<i>Year</i>	2009						Small numbers.
<i>Location</i>	South Carolina, USA						
<i>Authors</i>	Robichaud et al	Quality improvement project in promoting IP collaboration.	Class of 2011	Facilitated by an external researcher with expertise in QI, IP and clinical research using a semi-structured FG interview guide based on Anderson et al (2010) [K1]. 10 students participated.		While examining students' perceptions in general, focused on yr 1 event; would prefer more authentic experience/observation than 'skits' in the large group.	Small research project – similar participants to paper below though added extra data below. The research carried out by students.
<i>Journal</i>	JIC	Evaluation of one event in 1st year – mandatory for 10 disciplines (see below)		3 FGs with 4 students in each to examine students' experiences and general perception of IPE and preferences for future IPE [K1].		Students value IPE but would prefer more interaction rather than such a large seminar as first exposure.	Participants in FGs were volunteers. Evaluation focusing on event rather than learning.
<i>Year</i>	2009						
<i>Location</i>	Toronto, Canada						
<i>Authors</i>	Rosenfield et al	Large urban university; all 1200 year 1 health profession students have formal 3 hour IPE seminar to introduce rationale and concepts	3 FGs – only med students (12) in 2008 but also added data from earlier (2007) study of 23 students from 5HPs.	Exploratory case study - learners' initial perceptions of IPE [K1], focus groups post event.		Students found support from one another and engaged in changes in practice together.	
<i>Journal</i>	Medical Education						
<i>Year</i>	2011						
<i>Location</i>	Toronto, Canada						
<i>Authors</i>	Salm et al	14 wk full time IP internship in elementary schools without previous IPE uni based learning. Cohorts of 3-6 students per school. Students had to complete an IP project together	Education Nursing Justice studies Kinesiology & Health Studies Social Work - Total of 41 students over 5 semesters (2.5 years)	Multi-case study over 5 semesters and 2.5 years. Mixed methods: mostly qualitative (recordings, journals, interviews) plus use of self-developed questionnaire adapted from RIPLS [K2a-K3]	Self-developed questionnaire adapted from RIPLS.		
<i>Journal</i>	JIC						
<i>Year</i>	2010						
<i>Location</i>	Canada						
<i>Authors</i>	Selby et al	Pilot IP stroke care learning package created by and for students – online and F2F.	2nd yr medicine, pharm, nursing, PT	Asked to give 3 words that described their profession and other members of the team FGs [K1]. Pre/post survey.	Modified RIPLs – 19 + 5 extra [K2a]	Participants enthusiastic – suggests improvement in understanding of each other's roles. F2F gave more out of experience.	Volunteers and more medical students
<i>Journal</i>	JIC						
<i>Year</i>	2011						
<i>Location</i>	Nottingham, UK						

		Context	Type and number of learners. MS=med student PT=physio RR=response rate SW=social work	Evaluation type (qual, quant, mixed) and design FG=focus group. K=Kirkpatrick, Q=questionnaire	Instruments and quality	Findings	Comments
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Shyanbola et al JIC 2012 S Dakota, USA	Evaluation of a student-led IP innovative health promotion model for an underserved population with diabetes; pilot project to determine whether student understanding of diabetes management and the role of HPs in diabetes care improved post implementation of IP health promotion program (the Alphabet Strategy).	2 community clinics: Clinic A and Clinic B, in a city of 150 000; 63 students from 5 health professions led 6 educational sessions concentrating on critical components of diabetes management. 47 students completed the program.	Pre/ post-survey (self-report, understanding, confidence) and descriptive stats used to examine students' socio-demographic characteristics [K1]. Paired-sample t-tests compared continuous variable changes in students' proficiency and knowledge of IP work and diabetes management [K2b] and in patients' outcomes. Patient data looked at [K4b]		There were significant improvements in students' knowledge of diabetes care, understanding of the roles of healthcare professionals and ability to work with other healthcare professionals. 19 patients completed the study. There were no significant differences in patients' diabetes knowledge, understanding of diabetes care and clinical outcomes. This study acknowledged the potential value of an IP team approach to care.	4a data not presented in any detail
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Shrader et al JRIPE 2010 S Carolina, USA	IP student elective – evaluate changes in student attitudes to IP healthcare, pro/roles and teamwork. From 2005 – 50 students from 4 profs – med, PA, pharm, PT; 11 lectures over 11 weeks and student run clinic in group of 4 – 5 evenings per semester	113. RR= 82% pre and 65% post	Quant pre/post survey 1/52 pre and 1/52 post – developed 17 Q survey – included 8 RIPLS questions, for attitudes [K2a]	Used part of RIPLS – not validated	No differences in RIPLS pre/post; signifc diff pre/post re understanding prof roles	Self-selected/volunteer students so results not surprising re change in attitudes but change in knowledge re roles. Basic evaluation.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Solomon & Geddes JIC 2010 Ontario, Canada	Online case based module on health care ethics at large university. Delivered over 7 weeks.	OT 6 Med 2 PT 2 Nursing 2	Qualitative evaluation using interviews with 4 students and FG with 7 students. [K2a]		Students reported increase in knowledge about role of other students.	Very small numbers
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Van Soeren et al JIC 2011 Canada	Simulated IPE – looking at nature of T&L processes embedded in IP simulation activities. 8 hour workshop.	152 clinicians 101 students 9 facilitators	Videotaped observations during activities; themes emerging: collective case study approach.		5 main themes: enthusiasm & motivation; professional role assignment; scenario realism; facilitator style & background; team facilitation. All played role in learning.	Would call this a process evaluation – looking at what works.
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Vi et al JIC 2011 Canada	Student developed IP workshop – pilot	Health sci 4; med 3; OT 1; dietetics 4; nursing 6; PT 3; pharm 1; resp ther – 3; SW.	Student surveys – modified from previously used surveys.		Voluntary student-led initiatives that focus on peer-to-peer learning may create a more +ve intro to IPE; highlights similarities and differences between professions.	Small sample size
<i>Authors</i> <i>Journal</i> <i>Year</i> <i>Location</i>	Vingilis et al JRIPE 2011 Canada	CIPHER-MH – Collaboration in IP Health Education & Research – Mental Health. To facilitate IP client-centred mental healthcare. 9 x 2 hr workshops based on Orchard's conceptual framework: to stimulate networking; to socialize student and other HPs in working together. These were 9 different work-shops; cd choose which to attend.	About 50% participants were students of 734 in total – OT, nursing, med, psychol SW, PT; between 71 and 133 per workshop	Qual. workshop feedback form [K1]; self-reported knowledge change (post).	Developed 3 surveys as 'no available instruments to measure IP collaborative care or socialization' in this particular setting. Developed through expert panel: IIS – Interprofessional Interest Survey (3 items) to assess perceived importance of IPE.	Student reaction – liked meeting people from other disciplines, gave opportunity to network with others; increased knowledge re jargon, being client-centred, conflicts within IP situations, leadership criteria, barriers to effective IP collaboration.	Results across UQ and PG so not always able to tell who has learnt what. Lots of data; RR not clear for various workshops and overall; mostly free text – no results re IIS. Overall students appear to be interested in learning about IPP and were able to reflect on changes.

<i>Authors Journal Year Location</i>	Context IP=inter-professional UP=uni-professional HP=health profession	Type and number of learners. MS=med student PT=physio RR=response rate SW=social work	Evaluation type (qual, quant, mixed) and design FG=focus group, K=Kirkpatrick, Q=questionnaire	Instruments and quality	Findings	Comments
Wamsley et al JIC 2012 UCSF, USA	Interprofessional Standardized Patient Exercise (ISPE) - evaluates impact on students' attitudes toward working in IP teams. ISPE is a 4-hour exercise held at the Clinical Skills Center, a training facility designed to observe learners during clinical skills examinations.	101 dental, medical, nurse practitioner, pharmacy and physical therapy students.	Jan-April 2010, ISPE occurred 6x. Students in teams of 4-5; one from each professional school. Evaluated attitudes toward IP team-based care using a quasi-experimental design comparing attitudes of participating students pre/ post ISPE and comparing participating students to a convenience sample of non-participating student- volunteers. [K2a]	ATHCT pre and post	Students' attitudes toward team- based care improved significantly on the team value and team efficiency subscales of the ATHCT. There were significant differences in attitudes toward team-based care by profession. Faculty and student satisfaction with the ISPE was high.	Study was limited to a single institution. Lack of authenticity of the ISPE was also mentioned as a challenge in most FGs. For some students, participation in the ISPE was voluntary, raising concerns that volunteers had more positive attitudes toward IP teams and could bias results.
Wilhemsson et al JIC 2009 Linköping, Sweden	Review of the 20+ years of the IPE curriculum – of interest due to long term nature of part of the evaluation.	Medicine, social care, nursing, biomed science, OT, PT.	K1 each year of students and faculty; Swedish National Agency for HE data on employability; Swedish Medical Association data comparing graduates from medical schools over last 6 years.		Students report insight into competence and skills of other professions after training ward experience; Swedish National Agency for HE reports that students are highly attractive in labour market and are easily employed; Linköping medical graduates report more confidence in IP skills and abilities compared to students from other universities.	Use K1 feedback to make changes to curriculum/courses; national evaluation; long term.
Williams et al JIC 2011 Monash Australia	Looked at student attitudes to IPE – in relation to IP workshop	Paramed, nursing, midwifery, OT, PT, dietetics	Paper Q pre, post and after 6/12 from workshop [K1; K2a]	RIPLS	By and large +ve attitudes - improved on and retained for some time after workshop	
Woodroffe et al JRIPE 2012 Rural Australia	Rural IP Program Educational Retreat (RIPPER) Tasmania; to provide a unique opportunity for students to work in a rural setting where elements of IPP are seen as integral to effective health care; rural healthcare scenarios; 2/7 in rural setting for first 2 years then on campus for 3rd year. This is a 3 year evaluation.	90 students – pharm, med, nursing – about 30 per year	Pre-post mixed methods over 3 years; Q (K1) facilitator FGs; 92% RR; Students: self-developed questionnaire Staff: informal focus group discussions at the end of the program and informal written feedback by email	Used own Q' - some adapted from RIPLS – validation not described	pre most students positive to team learning but changed from agree to strongly agree; enhanced understanding of IPP and benefits (self-reported)	Used some of RIPLS questions but 'did not measure attitudes to IPE but rather students' attitudes to experiences of IPE' ; Results not surprising; no major change in attitudes as such around teamwork and importance; does not state if students volunteers or not (which would affect results) or whether the rural site of 1st 2 years was different to the campus experience in Yr 3.

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Appendix 8: Evaluation instruments/methods and approaches

Appendix 8a: Evaluation studies using standardised instruments or methods

Evaluation instrument or method	Instrument purpose	Previously validated (Yes or No)	Evaluation design	Scale modified	Outcomes measured	Outcome results (PR=Participant reaction, K=knowledge, S=Skills, A=attitudes, B=behaviour/performance, PO= Patient outcomes)	Papers (see Appendix 7)
AHPQ – attitudes to health professionals questionnaire	Measures attitudes toward various HCP, 2 subscales – caring & subservient	Yes (Lindqvist, et al 2005)*	Pre post, no control, + focus groups (FG) Pre post no control	Not mentioned AHPQ translated to Danish	Change in attitudes; in understanding and extent of learning, Change in attitudes	A=small but significant change in attitudes of pharmacy students on caring subscale (p=0.001); A= change in attitudes (reported in FG) A= pre intervention differences in how students perceived each other's professions; post intervention change in attitudes across professions on caring subscale	Ajawi et al, 2010 Jacobsen & Linqvist, 2009
APS – attitudes towards poverty scale	No focus on IPE/IPP	Can't locate info about development & validation	Post intervention survey, no control Also used BRPH (see below)	Not mentioned	Student reaction and attitudes	PR= enjoyed learning with other students A= increase in positive attitudes, some differences across professions	Procter et al, 2010
ATHCTS – attitudes towards healthcare teams (also named ATHT)	Self-reported acquisition of knowledge; modification of attitudes; modifications of perceptions; acquisition of teamwork skills	Yes (Heinemann et al 1999)*	Pre/post with 5 month follow up; control group & 2 intervention groups i.e. education-only (E) & interprofessional immersion experience (I)	Used with IERS; ITC; ITIQ; and TSS, and TFT	Attitudes, perceptions, knowledge and skills; student satisfaction	A = both intervention groups significantly improved in self-reported attitudes, perceptions, knowledge and skills; - immersion group better than education group; - immersion group improved perceived importance of sharing leadership; - changes persisted at 5 month follow up	Anderson et al, 2011
			Mixed methods, controlled pre/post, 6 month follow up.	Used in combination with Team Skills Scale (TSS) + self-developed knowledge survey (IEGC)	Student reactions and attitudes	PR= valuable; A = No significant differences between groups and pre post	Grymonpre et al, 2010a Grymonpre et al, 2010b (focus on faculty)
			Pre/post x 2 –after lectures and clinical training	Modified + modified RIPLS	Attitudes	A= scores decreased after lectures, but increased after training	Hayashi et al, 2012
			Post intervention	Used in combo with self-developed satisfaction survey	Student reaction and attitudes	PR= group activities more meaningful than individual activities A = +ve attitudes pre and improved post	Lennon-Dearing et al, 2009
			Pre/post; non-equivalent control group		Attitudes	A = significant improvement in attitudes toward team-based care on the team value and team efficiency subscales – significant differences in attitudes toward team-based care by profession.	Wansley et al, 2012
BRPH – Beliefs about relationships between poverty and health	No focus on IPE/IPP	No	Post intervention survey, no control	Not mentioned if scale modified Used with Attitudes to Poverty Scale (APS)	Student attitudes	PR= enjoyed learning with other students A=increase in positive attitudes, some differences across professions	Procter et al, 2010
CTPQ – clinical teaching preference questionnaire	No focus on IPE/IPP Focus on importance of learning from peers	Developed by Iwasiw & Golden-berg (1993)*; validated by McKenna and French (2011)*	Post intervention; 2 professional groups ; no control	Slightly modified for study	Satisfaction /reaction	PR = enthusiastic and should be more IPE	McLeiland et al, 2012

Evaluation instrument or method	Instrument purpose	Previously validated (Yes or No)	Evaluation design	Scale modified	Outcomes measured	Outcome results (PR=Participant reaction, K=knowledge, S=Skills, A=attitudes, B=behaviour/ performance, PO= Patient outcomes)	Papers (see Appendix 7)
Communication and teamwork scale		Yes (Pollard et al 2004)*	Post intervention; historical control group	Combined with Direct observations; Focus groups; Self-report checklist	Attitudes	A = IP valued - not much difference in performance or self-confidence, or readiness for IP post intervention	Baker et al, 2012
Disaster management competency survey	Measures changes in disaster management competencies No focus on IPE/IPP Developed for this project	No	Pre post design; no control	Adapted from survey developed by Ryan et al (1999)* Used with RIPLS	Knowledge	K=gains in disaster management competencies	Atack et al, 2009
ETD – Emergency team dynamics	Aimed at measuring change in performance	?	Controlled Pre post design	Used with RIPLS; Leadership Behaviours Description Questionnaire (LBDQ); Emergency Team Dynamics (ETD); and Resuscitation Team Task (RTT)	Students' attitudes, leadership, team-work and performance of resuscitation skills	S= no difference in performance	Bradley et al, 2009
HRQOL (patients)	Self-reported health related quality of life	Need to check	Non-randomised concurrent intervention design	Jacobsen & Linqvist, 2009 have looked at IP attitudes in same context using AHPQ	Economic evaluation; patient quality of life	PO= patient outcomes same Service = cost and length per stay is less	Hansen et al, 2009
IEGC – interprofessional education in geriatric care	Developed specifically for this project		Mixed methods, controlled pre/post, 6 mth follow up.	Used in combination with TSS + ATHCTS	Knowledge	K = increase in knowledge at post-test and at 6 month follow up	Grymonpre et al, 2010a (6/12) Grymonpre et al, 2010b
IAPCC-SV – inventory for assessing the process of cultural competence, student version	Measures the level of cultural competence among healthcare professionals across 5 cultural constructs of desire, awareness, knowledge, skill and encounters No focus on IPE/IPP	Developed by Campinha-Bacote, (2007)* and extensively evaluated	Pre/post design, no control	Used in combination with portfolio/journal entries	Self-reported attitudes and knowledge	A= increase of cultural competence scores post intervention This is really a multiprofessional activity	Hawala-Druy & Hill, 2012
IEPS – interdisciplinary education perception scale	Measures perceived competence & autonomy; perceived need for cooperation; perceptions of actual cooperation; understanding others' values)	Originally Luecht et al. (1990)*. Revised and validated by McFadyen, Maclaren and Webster (2007)*.	Pre post design with 5 month follow up; 3 groups -control group (C), an education-only inter-vention group (E) & IP immersion experience intervention group (I) Pre post design	Used in combination with ATHCTS; ITC; ITIQ; and TSS, TFT	Self-reported changes in attitudes, perceptions, knowledge and skills	PR, A, K, S = self-reported increases at post intervention; changes persisted at follow up	Anderson et al, 2011
				Used in combo with qual interviews	Self-reported changes in attitudes, perceptions, knowledge and skills, changes in practice	A & K = No significant change on IEPS; attitudinal change in student qual data	Cragg et al 2010
			Post inter-vention (at graduation)	Used with RIPLS	Satisfaction and self-assessment of changes in knowledge	PR=useful Self-assessed K= no significant improvement	Hall et al, 2011
			Longitudinal design over 4 years; pre/ post design; One year of students were control group	Used with RIPLS	Attitudes and perceptions	A= Students commence their studies with strong positive views that may be idealistic; differences across professions	Mc Fadyen et al 2010

Evaluation instrument or method	Instrument purpose	Previously validated (Yes or No)	Evaluation design	Scale modified	Outcomes measured	Outcome results (PR=Participant reaction, K=knowledge, S=Skills, A=attitudes, B=behaviour/performance, PO= Patient outcomes)	Papers (see Appendix 7)
IIC – index of interdisciplinary collaboration	Measures perceptions of interdisciplinary collaboration;	Originally developed by Bronstein (2002)* in social work context. Revised and validated by Oliver et al (2007)*	Pre/post design with control group (control only did post test)		Reaction/Satisfaction and attitudes	PR, A = significantly greater understanding of each other and deeper appreciation of value of IPC	Ragucci et al, 2009
IPRF – interprofessional team reasoning framework	Instrument intended to foster effective collaboration and to improve patient care – Facilitates learning rather than being an evaluation tool	Pre/post randomised controlled surveys, 3 groups – case study only (grp 1); case study and IPRF framework (Grp 2) and case study, framework and video (Grp 3)		Used with modified Team Skills Scale	Tool has been used to facilitate learning rather than evaluate impact of learning	Tool has been used to facilitate learning rather than evaluate impact of learning	Packard et al, 2012
ITC – interdisciplinary team concepts	Self-reported knowledge regarding interprofessional concepts	Initially developed for use within the GITT program (2003). No evidence of extensive validation.	Pre post design with 5 month follow up; 3 groups -control group (C), an education-only intervention group (E) & IP immersion experience intervention group (I)	Modified to reflect healthcare delivery within Canada Used in combination with ATHCTS; IEPS; ITIQ; and TSS, TFT	Knowledge	K=improved knowledge at post test	Anderson et al, 2011
ITIQ – interdisciplinary team intelligence quotient		Initially developed for use within the GITT program (2003). No evidence of extensive validation.	Pre post design with 5 month follow up; 3 groups -control group (C), an education-only intervention group (E) & IP immersion experience intervention group (I)	Modified to reflect healthcare delivery within Canada Used in combination with ATHCTS; IEPS; ITC; and TSS, and TFT	Knowledge	K=improved knowledge at post test	Anderson et al, 2011
LBDQ – leadership behaviours description questionnaire	Includes two sub scales— "extent to which leaders show consideration toward members of the team" and "initiating structure" which denotes time bound command and control behaviours.	Developed by Stogdill (1974)* Validated by Cooper and Wakelam (1999 and 2001)*	Controlled pre post and 4 month follow up	Adapted for study Used with RIPLS; Emergency Team Dynamics (ETD); and Resuscitation Team Task (RTT)	Effects of IPE on students' attitudes, leadership team-work and performance of resuscitation skills	No significant or long term changes	Bradley et al, 2009
PTEQ – peer teaching evaluation questionnaire	No focus on IPE/IPP	Development & validation info can't be located (might be based on CTPQ)	Post intervention, 2 professional groups, no control	Adapted for study	Reaction/satisfaction	PR = enthusiastic about IP experience and should be more	McLelland et al, 2012
RTT – resuscitation team task		Can't locate info about development or validation	Controlled pre post and 4 month follow up	Used with RIPLS; ETD; and LBDQ	Students' attitudes, leadership, team-work and performance of resuscitation skills	No significant or long term changes	Bradley et al, 2009

Evaluation instrument or method	Instrument purpose	Previously validated (Yes or No)	Evaluation design	Scale modified	Outcomes measured	Outcome results (PR=Participant reaction, K=knowledge, S=Skills, A=attitudes, B=behaviour/ performance, PO= Patient outcomes)	Papers (see Appendix 7)
RIPLS – readiness for	Measures self-reported readiness for IPL	Yes (Parsell & Bligh, 1999)* Has been revised and validated by (McFadyen et al 2005)*	Post survey administered twice	Combined with disaster management competence survey	Students' attitudes regarding interprofessional learning	A= development of IP skills. And increases in readiness for IP practice	Atack et al, 2009
			Controlled pre post and 4 month follow up	Adapted for study Used with ETD; LBDQ; ITIQ; RTT	Students' attitudes, leadership, team-work and performance of resuscitation skills	A = Scores on the RIPLS subscales of professional identity and team-work scores increased significantly post-test for intervention group although they returned to pre-test levels by 3–4 months.	Bradley et al, 2009
			Time series study design over 3 years (longitudinal)	Self -developed scales based on RIPLS (Attitudes towards Interprofessional Health Care Teams scale and Attitudes towards Interprofessional Education scale)	Reaction and attitudes	PR = positive reaction towards IPE A = positive attitude towards IPE; differences across professions	Curran et al 2010
			Post intervention (at graduation)	Used with IEPS	Satisfaction and self-assessment of changes in knowledge	PR=useful Self-assessed K= no significant improvement	Hall et al, 2011
			Pre-post design; outcomes include	Self-developed knowledge survey (post survey included items from RIPLS)	Self-reported changes in knowledge and attitudes to IP collaboration	K=significant improvement in self-rated knowledge A = no significant change in Interprofessional collaboration attitudes	Hattingh et al, 2010 (modified)
			Pre post at 2 time points –after lectures and clinical training	Modified RIPLS Used with ATHCTS	Attitudes	A= scores decreased after lectures, but increased after training	Hayashi et al. 2012 (modified)
			Pre/post design	Self-developed survey consisting of questions from RIPLS & another developed by Carpenter et al (1995)*	Changes in attitude to other profession & awareness of collaboration	A = changes in perceptions and opinions about other group	Levinson & McGillion, 2011 (modified)
			Longitudinal design over 4 years; pre post design; One year of students were control group	Used with IEPS	Attitudes and perceptions	A= Students commence their studies with strong positive views that may be idealistic; differences across professions	Mc Fadyen et al 2010
			Longitudinal, Mixed methods, mostly qualitative (recordings, journals, interviews)	Self-developed questionnaire based on RIPLS (but only a limited mention of the survey)	Attitudes and change in behaviour	A = Students found support from one another B = students engaged in changes in practice together * these changes not evidenced solely by RIPLS. Study fits more with the mixed methods studies	Salm et al 2010 (modified)
			Pre/post surveys, and focus group	Modified RIPLS	Changes in attitudes	A = improvement in understanding of each other's roles	Selby et al 2011 (modified)
			Pre/post survey	Modified RIPLS	Student attitudes to IP healthcare, professional roles and teamwork	A = No differences in RIPLs pre/post; difference at post-test regarding understanding professional roles	Shrader et al, 2010 (modified)
			Pre/post and 6 month follow up		Attitudes	A= improved on and retained for some time after workshop	Williams et al 2011
			Pre/post mixed methods over 3 years	Self-developed questionnaire based on RIPLS	Self-reported Attitudes	A = students very positive about team learning at post; enhanced understanding of IPP and benefits	Woodroffe et al, 2012 (modified)

Evaluation instrument or method	Instrument purpose	Previously validated (Yes or No)	Evaluation design	Scale modified	Outcomes measured	Outcome results (PR=Participant reaction, K=knowledge, S=Skills, A=attitudes, B=behaviour/ performance, PO= Patient outcomes)	Papers (see Appendix 7)
SSRQ - student stereotypes rating questionnaire (adapted from Hean et al 2006)	Attitudes towards other professions	Validated by Hean et al (2006)*	Experimental pre post design with follow up; 3 groups: control (C), education-only Inter-vention group (E) and IP immersion experience intervention group (I)	Not mentioned	Attitudes	A = significant changes in perceptions of positive traits of professions following education session	Aleah et al, 2011
TFT – Team Fitness Test	Evaluates self-perceptions of an individual's skills in teamwork within group		Pre/post design with 5 month follow up; 3 groups	Used in combination with ATHCTS; IEPs; ITIQ; and TSS, TSS.	Knowledge	K=improved knowledge at post test	Anderson et al 2011
TOS – team observation scale			Mixed methods, controlled pre/post, 6 month follow up	Used in combination with ATHCTS and + self-developed knowledge survey (IEGC)	Performance or behaviour	B = Self-assessment of change in behaviour e.g. likelihood of communication with other profs, more effective communications skills	Grymonpre et al, 2010b
TSS – team skills scale	Measures perception of capabilities for effective team interactions skills	Yes (Fulmer & Hyer, 1998b; Hyer et al., 2002)*	Pre/post design with 5-month follow up; 3 groups.	Used in combination with ATHCTS; IEPs; ITC; and, and TFT	Knowledge	K=improved knowledge at post test	Anderson et al, 2011
			Mixed methods, controlled pre/post, 6 month follow up,	Developed specifically for the project Used in combination with ATHCTS + self-developed survey (IEGC)	Skills and behaviour	B = Self-assessment of change in behaviour e.g. likelihood of communication with other profs, more effective communications skills	Grymonpre et al, 2010a (6/12) Grymonpre et al, 2010b
			Pre/post randomized controlled surveys, 3 groups – case study only (Grp 1); case study and IPRF framework (Grp 2) and case study, framework and video (Grp 3).	Modified for study	Skills	S = Team skills improved for groups 2 and 3 but no diff between them	Packard et al, 2012 (modified)

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Appendix 8b: Evaluation studies not using standardised instruments or methods

In this table we have categorised papers which have not made use of standardised evaluation instruments or methods to illustrate the diversity and variability of methods used in evaluating educational outcomes related to IPE.

Evaluation instrument or method	Scale modified	Papers (see Appendix 7)	
Controlled trial with pre/post evaluation		Anderson et al, 2009 Ateah et al, 2011 Bradley et al, 2009	Grymonpre et al, 2010a Grymonpre et al, 2010b Just et al, 2010
Direct observation		Baker et al, 2012 Lidskog et al, 2009	Salm et al 2010
Self-developed evaluation questionnaires/feedback forms (mixed) – straight after intervention * includes the: - IEGC survey developed by Grymonpre et al 2010a, b - Disaster Management Competency survey developed by Attack et al 2009	Diverse range of questionnaires usually developed specifically for the intervention; can include: student satisfaction, self-assessment of change in knowledge, understanding of roles, suggestions for change etc; may be post only or pre/post	Anderson et al, 2009 (post only) Anderson et al, 2011 (post only) Armitage et al, 2009 Baker et al, 2012 Bilodeau et al 2010 Bowden et al, 2012 Britt et al, 2012 Buckley et al, 2012 D'Eon et al, 2010 Ericson et al, 2012 Hall et al, 2011 Jakobsen et al 2011 Lennon-Dearing et al, 2009 Lewis, 2011 Lewitt et al 2010	McKee et al 2010 O'Carroll et al, 2012 Owens et al 2010 Packard et al, 2012 Pahor & Rasmussen, 2009 Pelling et al 2011 Playford & Hagues, 2009 Procter et al, 2010 Ragucci et al, 2009 Salby et al 2011 Shiyanbola et al, 2012 Vi et al 2011 Vingilis et al, 2011 Wilhemsson et al, 2009 Woodroffe et al, 2012
Student evaluation questionnaires/feedback forms (mixed) – more than 3/12 after intervention		Anderson et al, 2011 (5/12) Grymonpre et al, 2010 (6/12)	Kinnair et al, 2012 Williams et al 2011
Faculty evaluation questionnaires		Britt et al, 2012 Hall et al, 2011	Kinnair et al, 2012 Woodroffe et al, 2012
Patient evaluation/feedback questionnaires		Kinnair et al, 2012	
Student one-to-one interviews (qualitative)		Armitage et al, 2009 Cragg et al 2010 Hollenberg et al, 2009 Howell et al, 2009 Jacobsen et al, 2009 Kinnair et al, 2012	Lidskog et al, 2009 Meffe et al, 2012 (multiple over time) Priddis et al 2011 Salm et al 2010 Solomon & Geddes 2010
Faculty one-to-one interviews (qualitative)		Curran et al 2011 Jacobsen et al, 2009	Kinnair et al, 2012 Lidskog et al, 2009
Service user/patient/client interviews		Armitage et al, 2009 Furness et al 2011	Kinnair et al, 2012
Clinical team interviews		Armitage et al, 2009	

Evaluation instrument or method	Scale modified	Papers (see Appendix 7)	
Focus groups – students (qualitative)		Anderson et al, 2009 Anderson & Lennox, 2009 Armitage et al, 2009 Bowden et al, 2012 Bradley et al, 2009 (4/12) Forte & Fowler, 2009 Jacobsen et al, 2009 Just et al, 2010	Lewitt et al 2010 Lidskog et al, 2009 McKee et al 2010 McLelland et al, 201 Robichaud et al, 2012 Rosenfield et al, 2009 Rosenfield et al, 2011 Solomon & Geddes 2010
Focus groups faculty/managers (qualitative)		Baker et al, 2012 Forte & Fowler, 2009 Jacobsen et al, 2009	Jensen et al, 2012 Woodroffe et al, 2012
Student reflection/written descriptions (diaries etc.)	Not always clearly described but mention reflection as part of the tool	Anderson & Lennox, 2009 (4 years later) Collins et al 2011 Galle & Lingard 2010 Grymonpre et al, 2010 (6/12)	Guitard et al, 2010 Hawala-Duy & Hill, 2012 Lidskog et al, 2009 Robichaud et al, 2012 Salm et al 2010
Student knowledge test	MCQs	Grymonpre et al, 2010b	McKee et al 2010
Care vignette	Worked through by students to assess change in behaviour	Just et al, 2010	
Document analysis		Armitage et al, 2009 Hollenberg et al, 2009	Lidskog et al, 2009
Economic evaluation		Hansen et al, 2009	
Program evaluation	Using program theory	Jensen et al, 2012	
Patient data	Patients' knowledge of diabetes	Shiyanbola et al, 2012	
Higher education reports	Swedish National Agency	Wilhemsson et al, 2009	

Appendix 9: Empirical papers categorised according to Kirkpatrick's modified framework of educational outcomes

Kirkpatrick level	Papers		Number (total n=72 papers)
K1 – reaction	Anderson et al, 2009 Anderson et al, 2011 Anderson & Lennox, 2009 Armitage et al, 2009 Baker et al, 2012 Bowden et al, 2012 Bradley et al, 2009 Britt et al, 2012 Buckley et al, 2012 Collins et al 2011 D'Eon et al, 2010 Ericson et al, 2012 Forte & Fowler, 2009 Grymonpre et al, 2010a Grymonpre et al, 2010b Guitard et al, 2010 Hall et al, 2011 Hollenberg et al, 2009 Howell et al, 2009 Jacobsen et al, 2009 Jakobsen et al 2011 Kapelus et al, 2009 Kinnair et al, 2012 Lennon-Dearing et al, 2009	Lewis, 2011 Lewitt et al 2010 Lidskog et al, 2009 McKee et al 2010 McLelland et al, 2012 Meffe et al, 2012 O'Carroll et al, 2012 Owens et al 2010 Packard et al, 2012 Pahor & Rasmussen, 2009 Pelling et al 2011 Playford & Hagues, 2009 Priddis et al 2011 Procter et al, 2010 Ragucci et al, 2009 Robichaud et al, 2012 Rosenfield et al, 2009 Rosenfield et al, 2011 Selby et al 2011 Shiyanbola et al, 2012 Wilhemsson et al, 2009 Williams et al 2011 Woodroffe et al, 2012	n = 47
K2a – Modification of perceptions & attitudes	Ajjawi et al, 2010 Anderson et al, 2011 Atack et al, 2009 Ateah et al, 2011 Baker et al, 2012 Bilodeau et al 2010 Bradley et al, 2009 Buckley et al, 2012 Cragg et al 2010 Curran et al 2010 Grymonpre et al, 2010a Grymonpre et al, 2010b Hall et al, 2011 Hattingh et al, 2010 Levinson & McGillion, 2011 Hawala-Duy & Hill, 2012 Hayashi et al. 2012	Jacobsen & Linqvist, 2009 Lennon-Dearing et al, 2009 Lewis, 2011 Mc Fadyen et al 2010 McKee et al 2010 Packard et al, 2012 Procter et al, 2010 Ragucci et al, 2009 Salm et al 2010 Selby et al 2011 Shrader et al, 2010 Solomon & Geddes 2010 Vi et al 2011 Vingilis et al, 2011 Wamsley et al, 2012 Williams et al 2011 Woodroffe et al, 2012	n = 34
K2b – Acquisition of knowledge & skills	Grymonpre et al, 2010b McKee et al 2010	Shiyanbola et al, 2012	n = 3
K3 – Behavioural change	Cragg et al Just et al, 2010	Salm et al 2010	n = 3
K4a – Change in organisational practice	Hansen et al, 2009		n = 1
K4b – Benefits to patients/clients	Hansen et al, 2009	Shiyanbola et al, 2012	n = 2

Appendix 10: Implementation Case Studies

Implementation Case Study Template

Introduction

This activity requires documentation of the process and learning around local implementation of an interprofessional learning program or unit.

Basically, the aim is to provide the details of the IPE activity via a survey, then to provide a narrative about their process and learning with regard to local implementation of the activity, using the 4D framework to guide this conversation. The detail regarding the activity will have already been provided in the survey, so this account is really about highlighting challenges, success factors, and things to consider for each dimension. Rather than skim over the four dimensions, we thought it would be better to provide in detail, information about one of the four dimensions. Hopefully this will make this task easier for you, and allow you to focus on a dimension that you excel in; for example, some may be doing simulation well and would have a focus on Dimension 3: Teaching, Learning and Assessment. Others may have a focus on competencies, so they would focus on Dimension 2: Defining and understanding capabilities.

An optional task is to provide a short video regarding the IPE activity if you already have one. However this is only optional.

Detailed instructions follow below.

Instructions

1. Please complete the implementation guide survey. [CLICK HERE](#) to access. Please be sure to include your name and institution.
2. Complete the 4D framework template – see next page:
 - a. Decide which dimension you will have as your focus – for example, if you have a significant focus on simulation, your focus will be Dimension 3: Teaching, learning and assessment. Please provide at least two pages for your focus dimension.
 - b. For all other dimensions, please provide at least one page per dimension.
 - c. Please provide as many resources as you can relating to the activity you are describing. You may not want to provide your own resources, and may prefer to provide a link to existing open source resources as an example to which people can refer.
3. Video – optional:

If you have a video about the IPE program you are reporting on you can submit that if you wish. If you do submit a video, please let Jane know and she will discuss the various ways in which to upload the video.

4. Due date: 22nd of March 2013 – Please email Jane once you have completed the survey, and attach your 4D framework document and relevant resources.

Dimension 1: Identifying future healthcare practice needs

Please provide as much information as possible regarding your IPE activity in reference to this dimension. Below are some guiding points:

1. What aspects of this dimension, if any, did you take into account when planning, developing and implementing this activity?
2. Why were these things considered?
3. Did they have a significant impact on the planning, development and implementation of this activity?
4. What advice would you give others regarding this dimension of curriculum development?
5. Can you provide resources relating to your work on this dimension, including publications?

Dimension 2: Defining and understanding capabilities

Please provide as much information as possible regarding your IPE activity in reference to this dimension. Below are some guiding points:

1. What process did you go through to develop your learning outcomes, capability statements, competencies, etc?
2. Was your work around this based on what others have done previously?
3. What advice would you give others regarding this dimension of curriculum development?
4. Can you provide resources relating to your work on this dimension, including publications?

Dimension 3: Teaching, learning and assessment

Please provide as much information as possible regarding your IPE activity in reference to this dimension. Below are some guiding points:

1. What process did you go through to develop your teaching, learning and assessment tools?
2. Was your work around this based on what others have done previously?
3. Which tools did you use, and why?
4. What advice would you give others regarding this dimension of curriculum development?
5. Can you provide resources relating to your work on this dimension, including publications?

Dimension 4: Supporting institutional delivery

1. What aspects of this dimension, if any, did you take into account when planning, developing and implementing this activity?
2. What were the challenges/barriers
3. What were the enablers?
4. What advice would you give others regarding this dimension of curriculum development?
5. Can you provide resources relating to your work on this dimension, including publications?

4D Framework: Background information

As a central strand in the development of the Curriculum Renewal study, partners had identified the importance of identifying a conceptually coherent approach to curriculum renewal. Our experience in earlier IPE-focused projects, in particular the Learning and Teaching for Interprofessional Practice Project (L-TIPP, see <http://www.rilc.uts.edu.au/projects/ltipp>) and more broadly in the area of curriculum development, identified the considerable variability in how a curriculum is often conceptualised and approached. In particular, it highlighted the localisation of a curriculum as a pragmatic response to institutional circumstances:

the term “curriculum” tends to be used in its limited sense, often referring to the development of written syllabi for courses where learning objectives, activities and assessments are identified for localised needs. In this regard, little systematic attention is paid in the curriculum development process to the impact of curriculum decisions on the health of citizens or the future development and sustainability of the health professions; that is, there is little theoretical framing of the curriculum development process. (Lee et al. 2013)

As an initial contribution and resource, a working group comprising project partners with extensive curriculum expertise in health professional education and more generally in educational research, undertook the task of generating a curriculum framework that could be used within the project but also more broadly. At the macro level, a central feature of the framework is that it identifies the need for curriculum conceptualisation to engage with a range of socio-political and economic factors. At the micro level, it identifies the need for attention to the particular circumstances of the institutions involved.

It [the process] recognises the need to connect health curricula directly to the larger political, social and economic issues surrounding the profession(s) for which they aim to prepare graduates, as well as acknowledging the cultural and historical forces that underpin these influences. (Lee et al. 2013)

The outcome of the working group has been the development of a curriculum framework – the ‘four-dimensional model of curriculum development’ (in its abbreviated form, the ‘4DF’) that has been used to organise and analyse data and to communicate findings across all three studies. In developing the 4DF working group members drew on the work of Bernstein (1971) and Ball (1990). Bernstein identified three message systems, knowledge, pedagogy and assessment, while Ball (1990) added a fourth, that of the organisational dimensions of curriculum (Yates 2009).

What follows is a brief overview of the 4DF, which has been

a major feature of many of our peak body consultations. The 4DF has also generated much interest at conference presentations. [Attachment is the same as contained in Section 2 of this report.]

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Case Study 1: University of Sydney



Social Work & Policy Studies: Learning for Interprofessional Practice within a single discipline curriculum

Dimension 1: Identifying future health care practice needs

Rationale for activity

Working in teams has been a longstanding theme in the social work curriculum, historically being included in 'skills-based' units of study about professional practice. These units are run in the semester preceding the first field education practicum. Other references to teamwork have been dispersed through the curriculum without an experiential component. The pedagogical approach in the final two years of BSW at the University of Sydney (USyd) is that of 'issues-based learning' or IBL. Each IBL unit has components of theory, practice, policy and research around a key social issue.

When the interprofessional (IPL) activities in which social work students were previously involved came to an end, (see a fuller description later) the teamwork project was modified and continued in the IBL unit of study concerning health issues. This was due in part to the interest of the academic staff member who had carriage of the project and the original connection of IPL as a health education activity.

In this example, although students from the same discipline are working with each other, the activity occurs prior to their first field education placement. The students have undeveloped understandings of social work practice and have not been exposed to professional socialization processes to any significant extent. They don't have a clear identity as social work practitioners. In coming together in this activity, students come as individuals with their own 'biographies' that influence their attitudes and engagement with the task. These differences have a similar impact on team dynamics as the interdisciplinary differences that may be apparent in more 'identity mature' students. As a result, the focus of student learning is about the process of engagement and group functioning as opposed to more specific learning about the roles of different disciplines and the scope of their work with patients/clients. This more specific learning occurs as part of their field education which is explained in Dimension 2.

Planning, developing and implementing the activity

The teamwork module that is offered in semester 1 third year is a modified version of an interdisciplinary IPL activity undertaken by social work students and students in the Faculty of Health Sciences in 2007/8/9. These IPL activities involved teamwork activities between groups of students from different disciplines and also involved team teaching and assessment by faculty from different disciplines. Social work students were involved in two modules, one with Indigenous health students from Cumberland Campus FHS and one that ran sequentially with speech pathology students using the same material but undertaken at different times in the semester. When funding for the IPL coordinator ceased, the module was adapted for use by social work students

within the SW&PS program as an experiential activity embedded within the health IBL unit of study.

The context for the interprofessional activity is linked to the curriculum content of the unit that concerns health inequalities, inequities and the social determinants of health. Learning objectives are linked to the thematic content, theorized understandings of interprofessional working and practice skill development, achieving the project 'deliverables' through a team process. The literature that supports students' learning includes references used in the original IPL activities and also a specific chapter written by the USyd coordinator on working in teams and working interprofessionally in the text book used for skill based learning in third year. Working interprofessionally is theorized drawing on group work theory and critical reflection. The project is outlined in the attachments to this summary.

In the field education practicum in the following semester, the theme of interprofessional practice is revisited in placement classes and is included in the learning agreement that each student develops at the commencement of their field placement. At this point there is emphasis on learning about the roles of other professionals with whom they are working. Students develop learning goals that are linked to the AASW Practice Standards and Code of Ethics. These documents by the accrediting body include references to teamwork and collaborative practice.

Dimension 2: Defining and understanding capabilities

Social work as a profession is not exclusive to the health field, and social work students may have field education placements in a range of non-health agencies including government departments involved with families and children; with refugees and asylum seekers; in Centrelink; in aged care and schools for example. In the non-government sector placements may be in community development, in charitable organisations and other not-for-profit organisations providing social support services. Within these organizational contexts, social workers and students may be working with other professionals and will usually be working in teams. The learning goals for IPL have been broadened beyond the health sector as a key part of professional practice in social work. Although the interprofessional activity being described is located within a health unit of study, the teamwork activity could be located in any of the IBLs and linked to the curriculum content in the same way.

The overall objective for the USyd with regard to interprofessional learning is that on completion of the unit, students will be able to:

Identify and develop skills in working individually and in small groups

Each activity within the project has specific criteria against which the work is assessed.

In field education, IPL is linked to relevant sections of the AASW Practice Standards (AASW, 2003) and the Code of Ethics (AASW, 2010). For example from the Code of Ethics:

Section 5.3 Responsibilities to colleagues

Social workers will utilise the expertise of other team members and disciplines for the benefit of the clients when working in teams.

Social workers will co-operate with other disciplines to promote and expand ideas, knowledge, theory, skills, experience and opportunities that improve professional expertise and service provision.

Section 5.4 Responsibilities in the workplace

Social workers will promote effective teamwork and communication and an efficient and accountable social work service.

Students' learning agreements that are developed at the beginning of the placement require specific learning objectives and indicators of achievement in these key areas.

Dimension 3: Teaching, learning and assessment

An introductory lecture on working interprofessionally is presented as part of a series of lectures on small groupwork. This provides one of several theoretical frameworks for the activity. A second lecture is given on critical reflection focusing on theorized and integrated reflection in practice. (This is revisited throughout years 3 & 4).

In the tutorial following the introductory lecture, class teachers randomly allocate students to teams. Each team had approximately 8–9 members.

Over a period of 4–6 weeks the teams are required to select and work on a project with the final deliverable being presented to the whole year in a 15 minute presentation.

The teamwork activities include the development of a Project Management Plan and the Project Presentation. Clear links must be made to the curriculum content of health inequalities, inequities and the social determinants of health.

A final individual essay is completed by students in which they critically reflect on their experiences, their learning in the project and its relevance for field education placement and for future professional practice.

Students receive team marks for the project management plan and the project presentation that is collectively marked by the teaching team. They receive an individual mark for their essay. Students' final mark is a combination of these three marks. The marking is structured in a way that students cannot fail the piece of work (or the unit of study) as a result of a low mark in this activity. This is a safety net built in to ensure fairness and sustain academic merit and individual achievement.

Dimension 4: Supporting institutional delivery

The support of IPL initiatives in the SW&PS program can be attributed to several key factors being in place that have led to the recognition of interprofessional learning as pedagogically sound with an articulated theoretical foundation.

These factors are:

- the delivery of the experiential learning activity with clearly articulated links to theorized practice literature
- the integration of the interprofessional activity as an embedded part of the unit of study with direct relevance to the content and not an additional or added on component
- the development of assessment criteria consistent with other levels of assessment that continue to support academic merit as well as practice proficiency
- the successful publication track record in ERA recognized journals and books on interprofessional education by teachers committed to interprofessional

learning for practice

- the 'follow through' and further integration of the experiential (but still largely academic) activity in field education with clear links to the workplace and future practice
- the mapping of interprofessional learning to the related goals and objectives of external accrediting bodies.

In this approach, resourcing and curriculum issues can be effectively managed within the delivered unit of study and they are not as dependent on competing demands and external relationships with other schools and faculties. However a limitation is that students do not experience more structured interprofessional learning with students from other disciplines. This remains largely hypothetical until the possible exposure to this in field education.

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Rosalie Pockett

Social Work & Policy Studies
Faculty of Education and Social Work
The University of Sydney
April, 2013.

Case Study 1 – ATTACHMENTS

SCWK 3006 IBL 1

Illness, Inequality and Intervention

Unit of Study Coordinator: Dr Rosalie Pockett*

Team Work Assignment – How to do this project

- Discuss and choose a project from the five listed below that best suits the interests and talents of the team
- Establish a process for communicating with each other (e.g. email, phone, face to face meetings)
- Design and develop a project outline: define the task and break down into smaller units
- Refer to the relevant literature about health inequalities and the social determinants of health using the essential text for this unit of study
- Define the important issues that need to be covered – these should be decided upon following information gathering activities such as a mini-literature review, internet search, other information gathering etc
- Allocate tasks
- Set time lines
- Complete assigned tasks
- Prepare class presentation

Time Allocated

Completion of this project will be undertaken as an independent study project and it is anticipated that a total of 4 hours of group time plus time to complete independent tasks should be allocated.

Team Project Management Plan (500 words – one per team)

This plan should outline the project selected and how the team has agreed to work on the project.

Assessment Criteria:

- (i) a statement of project
- (ii) a statement of each team member's roles and responsibilities
- (iii) mechanisms for monitoring performance and progress
- (iv) a statement of outcomes and milestones to be achieved
- (v) anticipated problems and how they will be dealt with

Presentation of the Project Design and Outcome (class presentation of 10–15 minutes)

Each team should present the outcome of their work on the project.

Assessment Criteria:

- (i) presentation of the Project design, outcome and achievability
- (ii) clear links to understandings of health inequalities, social determinants and social inclusion
- (iii) a discussion of the team processes used to achieve the final outcome e.g. team activities; problem solving; communication processes established

Individual Critical Reflection Essay (individual work 1,000 words)

Drawing on readings, lecture material and experience undertake a critical analysis of your experience in the team project.

Assessment Criteria:

- (i) demonstrated understanding of the key concepts of working interprofessionally
- (ii) demonstrated understanding of critical reflection and its use in practice

- (ii) demonstrated understanding of the relevance of working interprofessionally
- (iii) minimum of three references/readings from the unit of study outline
- (iv) a well written and presented scholarly essay
- (v) APA referencing

Project Options

Project 1:

The Compass Project at the University of Sydney aims to encourage pre-tertiary students from low socioeconomic status (SES) backgrounds to participate in higher education. The key goal of the project is to build attainment and aspiration. More information can be found at:

<http://sydney.edu.au/compass/about/index.shtml>

http://sydney.edu.au/compass/partnerships/smith_family.shtml

As part of the project each year the Compass – Smith Family Experience Day is held for high school students in Year 9 and 10. This day enables students to learn more about the university and about some of the courses that are offered. Each year we have hosted small groups of students who are interested in finding out more about Social Work.

Criteria for the Day:

- All students are in Year 9 & 10
- Activities should be both educational and as 'hands on' and interactive as possible
- 45 minutes in duration
- Groups will have 12-15 students
- Suitable to be held in a seminar room or other facility on campus
- Informative as well as fun

Develop an interactive activity/activities suitable for the Day.

- Identify some key messages about Social Work for example, social justice, human rights, working with people from diverse backgrounds.
- Develop an interactive activity/activities that can be used each year
- Produce material/resources to support the activity
- Develop a memento or similar that students can take away on the Day
- Budget: \$1,000

Project 2:

Recently a number of elderly residents living alone in Department of Housing accommodation have died in their homes, and been found months later by police or neighbours.

Develop a 'program' that can be implemented by residents in an accommodation complex that will raise awareness of the issue and put in place a preventative scheme. All accommodation complexes have culturally diverse communities of residents of all ages.

- Plan and advertise a community residents meeting
- Outline an approach to ensure that the needs of all residents will be addressed in the planning
- Develop a program that can be implemented by the residents
- Produce publicity material that can be used by residents in other facilities to implement the program.
- Budget: \$20,000 – 25,000 for the project which should be self-sustaining by the residents once completed.

Project 3:

Design an interactive, cross media campaign aiming to improve dental health among Aboriginal and Torres Strait Islander Youth in remote rural settings.

The campaign should have:

- A website and one other form of publicity (e.g. TV, Pamphlet, newspaper)
- The target audience is Aboriginal and Torres Strait Islander youth between 12 – 16 yrs of age.
- Budget is \$50,000 – \$100,000.

Project 4:

The University is undertaking a review of the Camperdown campus to ensure that it meets the objective of ensuring easy and effective access for students with a disability.

Develop a plan to improve campus access for students with a disability.

- Identify existing services for students with a disability
- Investigate the current situation in the university for students with a disability from a student perspective
- Prepare a short presentation to the University Campus Planning Committee using two different types of media e.g. written and audiovisual.
- Based on your findings include recommendations for the committee.
- Budget: \$8,000 to investigate the situation, develop a presentation and prepare a short report with recommendations for the committee.

Project 5:

The social worker at a local hospital on the Central Coast has recently received a number of referrals for young mothers who live in a local caravan park. At the monthly interagency meeting she recounted a recent case study about a family who were facing significant social distress as a result of their low income, inadequate housing and limited social support networks. The interagency meeting suggested that local businesses and community organizations be approached for possible funding for a new community program.

‘Develop’ a plan for an innovative family support initiative that would lead to improved social and economic opportunities for these young families.

Produce a presentation using at least two media for use with potential funding bodies.

The presentation should include:

- A ‘snapshot’ of life in the caravan park for the parents and children using a range of media
- Examples of innovative activities including educational and social support
- The active involvement of the residents
- An estimated budget for the funds requested.

** Based on a teamwork activity originally developed by Steven Cummings in the Faculty of Health Sciences, University of Sydney.*

Case Study 2: Griffith University



Implementation Framework for Interprofessional Learning at Griffith Health

Dimension 1: Identifying future health care practice needs.

Rational for development of the implementation framework for interprofessional learning at Griffith Health.

Griffith University is a multi-campus institution located along the Brisbane-Gold Coast corridor in South East Queensland. Its large Health Faculty has more than 7,000 students enrolled in a comprehensive range of health and human service professional programs, provided by nine schools across five campuses.

Prior to 2010, several small-scale interprofessional learning projects had been undertaken at Griffith, generally involving two or three professions and without a clearly-articulated ‘justification’ in relation to Dimension 1.

In 2010, the major impetus for the formalisation of an IPE initiative appears to have been the All Together Better Health V conference having been held in Australia and, particularly, the promulgation of the Sydney Interprofessional Declaration in April of that year. This document, with its strong exhortations to action on the part of educational institutions and explicit declaration of an entitlement to ‘fully integrated, interprofessional collaborative health and human services’ for all service users, appears to have provided a means through which IPE ‘enthusiasts’ within the institution were able to secure the attention of the leaders of the Health Faculty.

In October of 2010, the newly-formed Griffith Health Institute for the Development of Education and Scholarship (IDEAS), within the Office of the Dean (Learning & Teaching) for Health, seconded a senior academic from the School of Medicine on a half-time basis for a period of three years to formulate a program through which interprofessional learning could be implemented at the institution.

An initial period of scoping was undertaken and deep engagement with the literature on the area achieved, including the then recently-published World Health Organization Framework for Action on Interprofessional Education & Collaborative Practice, which highlighted the high-level rationale for interprofessional learning programs under Dimension 1. Interviews with eleven academic ‘enthusiasts’ confirmed widespread agreement that ‘skills in collaborative practice represent an essential competency for all health care workers in the 21st century’ and a view that interprofessional learning to achieve this capability needed to be ‘core business’ for the institution (Rogers, 2010, p.1).

A faculty-wide symposium was held on March 18th, 2011, where delegates were first introduced to the concepts of interprofessional education and collaborative practice, then brought up to date on international developments and informed about examples of interprofessional learning activities that had already been developed at Griffith and elsewhere, before undertaking a strategic planning exercise. On the basis of these discussions, An implementation framework for interprofessional

learning at Griffith Health 2011 – 2014, with the bold aim of ensuring that by the end of 2014 all health graduates from the institution would be equipped for collaborative interprofessional model of practice, was developed and subsequently endorsed by the Faculty Board later in the year (Rogers, 2011).

Dimension 2: Defining and understanding capabilities

As part of the development of the Griffith Framework, ten broad 'threshold learning outcomes' were developed, drawing on the learning outcomes identified in the WHO Framework, but aligned to Griffith University's highest level 'graduate outcomes' and incorporating the breadth of health and human service professions represented in the Griffith Health Faculty. The language of 'threshold learning outcomes' was chosen to echo that used in the very high level Health, Medicine and Veterinary Science Learning and Teaching Academic Standards Statement that was in development at the same time by the (then) Australian Learning and Teaching Council (O'Keefe, Henderson & Pitt, 2010) and represented an explicit rejection by the authors of the language of 'competencies' used in some other curriculum documents. The Griffith Framework developers also took particular pains to ensure that the threshold learning outcomes were inclusive of the broadest range of health and social service practitioners, including those who focus at a community and population, rather than individual and family, level of activity. They were also couched using active initial verbs in the hope of ensuring that their achievement could be readily measured and verified.

Dimension 3: Teaching, Learning and Assessment

The Griffith team articulated a clear suite of principles (categorised as 'educator-related principles' and 'curricular and pedagogical principles') to guide its program, loosely based on the 'mechanisms' outlined on the WHO Framework, but again shaped by the experience and values of the academics involved.

Particular attention was paid to the long-standing controversy surrounding the optimal timing for interprofessional learning activities within health professional education programs. The developers of the Griffith model saw past the false dichotomy that required a choice between undertaking IPE early in programs, before students had been negatively acculturated to professional tribalism but at a time when their sense of professional identity was only rudimentary, on the one hand, and running them late in programs when students had a clearer idea of who they were professionally but when unhelpful attitudes had already been acquired. Instead, they suggested a three-phase pedagogical approach that saw multiple different IPE activities timed for optimal effectiveness at different points in student's pre-registration development.

Uniquely, their first phase elaborated the concept of 'health professions literacy', which refers to a foundational 'understanding of the history, theoretical underpinnings, philosophy, roles and contributions of the major health professions, including the participants' own' (Rogers, Chan & Buys, 2012). This capability, which need not necessarily be acquired through a truly interprofessional pedagogy, is seen as a prerequisite to the efficient acquisition of higher level understandings, skills and attitudes through more elaborate learning activities with students in other professions at later time points.

The second phase of the Griffith pedagogy comprises interprofessional learning experiences in a simulated setting undertaken around the middle of students' professional programs. This might be as simple as a paper problem-based learning case, undertaken collaboratively by students from multiple professions and amplified by guided reflection on each profession's approach to particular aspects of the clinical story. On the other hand it could be more involved, such as the major interprofessional workshop developed by Morrissey and colleagues (2011), where mental health students from multiple professions consider detailed video examples of team function together, examining how the perspectives and practices of different professions impact on team function, as well as outcomes for patient and clients. The highest level of complexity in phase two of the Griffith Framework is represented by the CLEIMS program, where students from multiple professions undertake an extended multi-method simulation of team-based continuing patient and client care experiences incorporating human patient simulation (utilising trained actors), as well as online modules to simulate 'on call' experiences, virtual progressions of the client's clinical story and mannequin-based critical care scenarios, all amplified by reflective journaling to optimise learning in the affective domain (Rogers, Jones de Rooy, McConnell & Lombard for the CLEIMS Teaching Team, 2011).

The third pedagogical phase in the Griffith Framework, undertaken towards the end of health professional programs and still being operationalised at the time of writing, provides real patient or client care experiences either through attachment to an interprofessional team of qualified practitioners or, preferably, participation in a team of students from multiple professions providing collaborative care to patients and clients under supervision. The third phase will also be augmented by the use of reflective journaling to facilitate learning, especially in relation to attitudinal and skill based learning outcomes.

The Griffith Framework also calls for IPE activities to be compulsory and to be assessed, in order to underline to learners the institution's recognition of the importance of their acquiring interprofessional capabilities (Dimension 1). These remain the most challenging areas within Dimension 3, but facilitator-observation assessment instruments, based on the ten Threshold Learning Outcomes, are currently being trialled and evaluated.

Dimension 4: Supporting Institutional Delivery.

Implementation of the Griffith Framework has faced the same challenges related to timetabling, cohort-size mismatch, differential semester lengths and availability of experiences at different campuses documented in many IPE programs. Utilisation of a Steering Group with official status, comprising explicit nominees of the head of each professional school, as well as emphatic endorsement of IPE by the leadership of the Faculty, are having some impact on overcoming these barriers, but progress remains slow.

A major dilemma currently being considered is the choice between attempting to ensure achievement of interprofessional learning outcomes within existing program structures or constructing a system of verification additional to uniprofessional academic programs, as three Canadian institutions have done through the use of 'interprofessional education passports' (Eccott, Wagner & Jung, 2012). Early indications are that the institution may need to adopt the latter strategy as an interim measure while the difficult process of fundamental program change is achieved.

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Prepared by:

Gary D. Rogers
Associate Professor of Medical Education
Program Lead in Interprofessional Learning
Griffith Health Institute for the Development of Education
And Scholarship (Health IDEAS)
Griffith University
Queensland
Australia

Case Study 3: University of Sydney



IPE Project

This report covers a project that is no longer active. However, it was a forerunner to many IPE activities currently running within the University of Sydney. Some aspects of the project are still present and continue to influence IPE activity within the health and social science faculties and disciplines.

Dimension 1: Identifying future health care practice needs

Rationale for activity

In 2005 the University of Sydney's College of Health set interprofessional learning (IPL) as a clear learning and teaching strategic direction. This was based on the rationale that graduating health care students will be required to work with and learn from other health professionals in providing safe and effective care for their patients/ clients. To prepare for this, students should have an opportunity to develop the necessary skills, knowledge and attitudes prior to graduation.

The University of Sydney was influenced by international leaders in the field of IPE. An earlier visit to Linköping University by a senior academic in the Faculty of Medicine had convinced him of the need to incorporate IPE into the medical curriculum. Likewise, the IPE developments in the UK showed promise. At the time, there was limited IPE activity in Australia, this being confined mainly to the rural setting.

The University of Sydney was also influenced by earlier pilot work of an interprofessional clinical placement program run in an acute care hospital in Sydney (Nisbet, Hendry, Rolls & Field 2008). This program demonstrated positive student outcomes and offered promise as a way of providing students with authentic and relevant interprofessional learning experiences.

Thus, in 2005 the College of Health committed 3 year funding towards expansion of IPE at The University of Sydney. A project team was established consisting of an academic project leader (0.8FTE), senior academic (0.8FTE), IPE co-ordinators (1.2FTE) and administrator (0.4FTE). This team was supported by a cross-College steering committee.

The commitment of the University to interprofessional learning and its value was further strengthened by its inclusion as a goal in the 2007–2010 Learning and Teaching Plan:

- Identify and promote opportunities for interdisciplinary and interprofessional learning.

Likewise, individual health care faculties incorporated a similar goal within their faculty learning and teaching plans.

Dimension 2: Defining and understanding capabilities

An initial task of the IPE Project was to develop a model or framework to underpin and guide the implementation of IPE across the College (the Framework for this case study is included in the IPE Resource Bank: www.aippen.net). Development of this framework was based on a review of the literature. It was also strongly influenced by the NHS "leading edge" funded IPE projects running in the United Kingdom (e.g. The New Generation Project) (O'Halloran, Hean, Humphris & Macleod-Clark, 2006).

Learning outcomes were closely linked with the University's graduate attributes to demonstrate their relevance in graduating work-ready health professionals. The idea was that, on graduation, students would be expected to have met the IPE learning outcomes. Over the period of their degree program, students would be provided with learning opportunities to develop the skills, knowledge and attitudes to meet these learning outcomes. Learning outcomes were incorporated into core curricula and fell under three broad IPE themes: interprofessional teamwork; professional roles; and interprofessional communication.

Dimension 3: Teaching, learning and assessment

The University of Sydney IPE Curriculum Framework was based on a pedagogical approach of:

1. capitalising on both the informal and formal structured IPE opportunities
2. capitalising on existing opportunities within degree programs to promote IPE
3. staging IPE activities to be suited to either early stage or later stage of a student's degree program. Later stage activities had added complexity and tapped into the previous IPE experiences of students.

A suite of self-directed/ student led IPE activities were developed that deliberately allowed flexibility in relation to how and when individual faculties and disciplines incorporated them into curricula. Activities were designed to be incorporated into clinical placement programs. The idea was that faculties could "pick and choose" activities for their programs. Activities were not necessarily reliant on students interacting with each other, but rather, capitalised on the expertise and role-modelling of existing health professionals and teams. For example, one activity involved students shadowing another health professional and then reflecting on similarities, differences and overlaps in roles and approaches to care compared with their own profession. Later stage activities involved interaction between students.

Whilst the IPE Project is no longer funded, some faculties continue to use the suite of IPE activities within their programs. For example, Physiotherapy students, as part of their clinical placement are required to submit a reflection on their observations of a multidisciplinary team in action.

In addition to the above activities, a module ("Teamwork in Health") was developed to introduce students to the concepts of teamwork and provide them with "hands-on" experience in working and learning in teams. It was based on a social constructivism theory of learning and included both face-to-face delivery on campus and online delivery. The module was run interprofessionally with social work, indigenous health, pharmacy and speech pathology students, covering over 1000 students in its three years of running. Social work has continued to run a modified version of this module.

Within the clinical setting, 1-day IPE workshops were run with senior year students. These workshops drew on principles of experiential and case-based learning. A patient representative was a central part of the workshop. Clinical educators and academic staff were also involved to serve as a resource and role-model for the students. Due to lack of resources to support coordination of these workshops, they are no longer run.

From a pedagogical perspective, we recommend thinking broadly about IPE opportunities. This should include thinking about how interprofessional concepts can be incorporated into uniprofessional teaching and the role of both informal and formal

interprofessional learning opportunities. Offering both extra curricula IPE activities as well as mandated activities might also enhance the IPE opportunities for students.

Assessment

The University of Sydney IPE Curriculum Framework proposed a portfolio-based assessment as a means of demonstrating that learning outcomes had been met. This approach was considered appropriate as students may be exposed to different IPE experiences throughout their course. These could be included as evidence of learning with reflection.

Of the IPE activities described above, the "Teamwork in Health" module was formally assessed and counted towards the degree program. Assessment of the clinical placement IPE activities varied between faculties and disciplines. For some, the activities were formatively assessed; for others, they counted towards a summative assessment; for others, IPE participation was not explicitly recognised. This inconsistency in assessment adds to the perception by some students that IPE is of little value.

Further detail on the pedagogical approaches incorporated within the IPE curriculum framework are outlined by Thistlethwaite, Nisbet and Ajjawi (2010).

Dimension 4: Supporting institutional delivery

When the IPE Project commenced at The University of Sydney, the faculties and disciplines were under a college structure, with all health faculty Deans responsible to the College Pro-Vice Chancellor. The IPE Project Leader also reported directly to the Pro-Vice Chancellor. A re-structuring of the University resulted in the disbanding of the college structure resulting in an arguably less direct influence of the IPE Project. Additionally, in the 3 years of the project, it moved "homes" 3 times. Again, this might have influenced buy-in from faculties.

The experiences at the University of Sydney highlight the need for (i) high level institution support, (ii) champions at the "ground level" and (iii) staff resources to progress IPE from small scale pilot programs to whole of College implementation. Once funding for the IPE Project ceased and the pioneering champions moved elsewhere, it was difficult to maintain the momentum generated throughout the project. This raises important issues for sustainability of IPE.

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Prepared by
Gillian Nisbet
Faculty of Health Sciences
The University of Sydney
April 2013

Case Study 4: Curtin University



Case Based IPE Workshops

Dimension 1: Identifying future healthcare practice needs

Health science graduates are increasingly required to work collaboratively with staff from a diverse range of professions and non-professions to ensure high quality health services (World Health Organization, 2010). A number of drivers lead to educational reform in health science education at Curtin University. These drivers were at all levels - local, national and international, with most being applicable to other universities within Australia.

Locally providing increased interprofessional education (IPE) opportunities for our students links closely with the restructuring of key health organisations to include a focus on IPE and interprofessional practice (IPP) within their service delivery model. It also links with the university's triple i curriculum which aims to ensure our students have a range of experiences which are (i) industry based, (ii) interdisciplinary, and (iii) intercultural, international, Indigenous.

Nationally IPE and IPP are on the agenda of a number of organisations including Health Workforce Australia (HWA) and the Australian Safety and Quality Council. Each organisation has embedded IPE and/or IPP in their frameworks – the *National Health Workforce Innovation and Reform Strategic Framework for Action* (HWA, 2011) and the *Australian Safety and Quality Framework for Health Care* (Australian Commission on Safety and Quality in Health Care, 2010).

Internationally IPE had already been embedded in higher education in many countries as described in the *World Health Organization's Framework for Action on Interprofessional Education and Collaborative Practice* (2010).

In addition to these IPE/IPP drivers the design of the IPE experience is also impacted on by the new Tertiary Education Quality and Standards Agency, which requires that students' learning experiences are of the same standard in any location or mode. This required us to carefully consider the workshops for our students who were in rural and international locations. For example, workshops had to be available in fully online versions with students able to collaborate synchronously and/or asynchronously to complete the team based activities.

To ensure our graduates are provided with high quality learning experiences in which they can develop the collaborative practice capabilities to meet the different agendas outlined here the case based IPE workshop at Curtin University's Faculty of Health Sciences were designed to provide entry level (or near entry level) students with an opportunity to learn about, from and with their peers.

Dimension 2: Defining and understanding capabilities

The design, implementation and evaluation of our case based IPE workshops was informed by our Interprofessional Capability Framework (Brewer & Jones, 2013). The framework was based on the other competency/capability frameworks

published at the time (Walsh, Gordon, Marshall, Wilson and Hunt, 2005; Wood, Flavell, Vanstolk, Bainbridge & Nasmith, 2009; Bainbridge, Nasmith, Orchard and Wood, 2010). Learnings from these frameworks were then placed in our own local context. For example, many competency or capability documents used the word "patient" which narrows the focus to a clinical and illness context. This excluded several of the 22 professions within our very diverse faculty. Even adopting the word "client" required clarification in the supporting documentation to explain that this includes individuals, families, communities and organisations. Another concern was the central focus in published IPE framework on collaborative practice. We felt strongly that the focus needed to be on the client and their outcomes rather than the health professionals and their outcomes.

Curtin's framework outlines the capabilities relevant to effective interprofessional practice within three domains: Client centred service, client safety and quality, and collaborative practice. Five collaborative practice elements interlink with this: communication, team function, role clarification, conflict resolution and reflection. This framework guides the learning outcomes, learning experience and assessment of the case based workshops.

The initial learning outcomes for the workshops relate to the students ability to identify the key health and social issues for the case study; their ability to describe the role of their own profession with the case; their knowledge and respect for the other health professions in their team; their ability to collaborate effectively with their team members to complete the required activities; their ability to reflect on how their learning in this workshop was likely to impact on their future practice.



Curtin's capability framework booklet and a report on the suite of workshops offered in 2011 and in 2012 are available at http://healthsciences.curtin.edu.au/faculty/ipe_publications.cfm

Dimension 3: Teaching, learning and assessment

The IPE Workshop leadership team, comprised of the Director of Interprofessional Practice, the IPE Workshop Coordinator and the IPE Instructional Designer, engaged in a high level of collaboration with staff throughout the Faculty in developing these learning experiences. Interprofessional teams of staff with representation from across the faculty were involved in the design of the case studies, the overall learning experience and the assessment. Regular meetings, emails and discussions were conducted with academic staff particularly the coordinators of the units the workshops were embedded within. Facilitators, recruited both from the university and the community, were employed on a sessional basis.

A range of factors is taken into considerations in the design of the workshops. Firstly, best practice in IPE was ascertained from

three sources (1) current literature; (2) discussions with other universities engaged in IPE nationally and internationally; and (3) attendance at international IPE conferences. This was integrated into a set of best practice guidelines for IPE that are provided to staff. As mentioned previously having a clear framework assisted greatly in shaping the workshops so that they incorporated learning outcomes related to the framework and provided opportunities for students to develop the key capabilities identified in the framework.

The workshops are targeted at students at an advanced stage in their course to ensure that they had a high level of discipline specific knowledge and some practical experience. This allowed a student-centred approach incorporating facilitation that encouraged the learning experience to be student-led. Training for staff recruited from the relevant disciplines is provided which includes an introduction to IPE followed by two modules on facilitating interprofessional teams. Advice covers facilitating in an online environment and what staff should expect from student team participation. Instructional videos on how best to access conversations in the discussion areas, how to track student participation and how to access the WIKI are provided. Staff are then invited to contact the instructional designer if they require help with technology.

Each workshop is eight hours in length and has a similar structure. Awareness and knowledge of interprofessional collaborative practice is developed by providing students with an opportunity to participate in client-centred authentic case-based learning scenarios that incorporate complex health and social issues. Learning is scaffolded throughout the workshop incorporating reflective practice at key steps. To make the online learning environment user friendly and engaging a “Before you begin” section provides students with instructions on how to participate in the workshop with links to required plugins, explicit information on what is required for successful participation and what they can expect from their facilitators. The tools that are used for online collaboration within teams such as discussion boards for activities and a WIKI for completing care plans are scaffolded with instructional videos demonstrating how to use these tools effectively and examples of the good discussion strategies. Students are encouraged to contact their facilitator with any questions or concerns. These are then passed on to relevant staff member – the unit coordinator for issues related to the unit they are studying or the instructional designer for technology issues.

The format is as follows:

- General information about engaging in effective collaborative learning in an online context is provided. Students identify their own technological skills and confidence and are then provided with guidelines on how to increase these to the required level – includes videos, tutorials, ‘tips and tricks’.
- The scene is set for the learning scenario e.g. they are the first interprofessional health care team in a new hospital unit
- Overview of IPE and IPP – definitions, drivers, benefits for key stakeholders, etc.
- Curtin’s Interprofessional Capability Framework and IPE at Curtin (video)
- Introduce themselves to their team members and establish ground rules for team
- Reflect on previous experiences in teams
- The client case study is provided. These vary slightly in

how they are presented but all endeavor to create a rich, authentic narrative through videos, audio interviews, client notes, clinical notes and so forth.

- Teams identify the client’s key strengths and establish common client-centred goals as well as any additional health, social or personal issues. Additional resources scaffold the case study content and provide to assistance to determine who needs to be involved in the health care team and to identify existing services that could be involved. Teams then generate an integrated interprofessional care plan
- Reflect on the workshop experience and complete their unit specific assessment

Facilitators focused on the *process* of the students’ interprofessional collaboration rather than the on the *content* of the workshop. The assessment has two components: (1) the level of the students’ participation in the workshop, and (2) the assessment set by their unit coordinator. Their level of participation is assessed as a ‘pass’ or ‘fail’ by the staff facilitators using a simple rubric. This information is provided to the unit coordinators. The unit assessment, generally a written reflective paper or blog, is undertaken by the unit coordinator. Advice with the design of this is provided by the IPE Team.

Evaluation of the workshops has been undertaken. Both quantitative and qualitative data were gathered from student using pre and post workshop questionnaires. Three different quantitative tools have been used – the Readiness for Interprofessional Learning Scale Revised (McFayden, Webster & Maclaren, 2006), the Interprofessional Socialization and Valuing Scale (King, Saw, Orchard & Miller, 2010) and more recently the University of West England Interprofessional Questionnaire (Pollard, Miers & Gilchrist, 2005). Students and staff were asked to comment on the most and least beneficial aspects of the workshops and make suggestions for improvement. Some workshops were evaluated separately in the first year as part of our quality management process. Summary reports on the workshops in 2011 and 2012 are available from: http://healthsciences.curtin.edu.au/faculty/ipe_publications.cfm

Dimension 4: Supporting institutional delivery

There were challenges and barriers but also enablers in the planning, developing and implementation of these workshops. The context in which we had to operate was complex given the scale of our faculty i.e. approximately 10,000 students, from 22 disciplines and seven schools – Biomedical Sciences, Nursing and Midwifery, Occupational Therapy and Social Work, Pharmacy, Physiotherapy, Psychology and Speech Pathology, and Public Health. Our goal was to provide opportunities for all students to participate in the workshops but due to resource limitations thus far this has been limited to only ten disciplines who are involved in either diagnostic or therapeutic health services. In the future we plan to design workshops for our disciplines that will provide an authentic learning experience for students from public health and laboratory based disciplines.

The organic nature by which these workshops began was both an enabler and a challenge. For example, early on a number of local champions from pharmacy, nursing and physiotherapy with assistance from the University’s Office of Teaching and Learning emerged as leaders. Their passion and the support this engendered within their Schools meant that they were very

successful in developing a small number of discrete workshops that began with three or four professions. However, when the decision was made by to increase the scale and sustainability of these this small number of champions located in separate school did not have the resources required to manage this. The responsibility for the management of the workshops was then handed to the Faculty's Teaching and Learning Team, more specifically to the Director of Interprofessional Practice. This, along with a clear engagement and communication strategy, was successful with the workshops growing from 48 students from three professions in 2007 to over 1,000 students from ten professions in 2012.

The level of negotiation required to ensure that staff were engaged in the workshops from design through to implementation and evaluation were significant and very resource intensive. The support of key executive staff but particularly the head of the faculty, the Dean of Teaching and Learning and the Directors of Teaching and Learning within each school was critical. Their leadership, along with the Director of Interprofessional Practice, ensured within a short period of time the workshops were embedded into ten courses within the Faculty of Health Sciences plus in the Medical Imaging Science course within the Faculty of Science and Engineering.

Along with effective leadership the success of these workshops required additional administrative resources funded by the Faculty. A workshop coordinator was employed two days per week to manage many of the routine aspects including: the scheduling of the workshops to fit with the timetables for the ten courses; the promotional information for staff and students; the recruitment of the IPE facilitators for both face to face and online components; the workshop registration process; the manual allocation of students into workshops and interprofessional groups; booking of all venues, catering and guest presenters; collation of the results and communication of these to the relevant academic staff.

An instructional designer has also been essential to the development and implementation of these. This staff member provides the necessary resources for developing the online learning resources delivered via the learning management system Blackboard and assist both staff and students with managing online learning.

This core staff team was supplemented by other staff as needed or as funding allowed. For example, the Faculty was successful in obtaining funding from the WA Dementia Training Study Centre which assisted the development of three dementia related workshops.

Other successful organisational strategies thus far include:

Timetabling – meetings with all relevant academic staff to get agreement on the scheduling of the workshops; offering the workshops at staggered times throughout the year; running face to face session later in the day (4-7pm) so that these don't class with lectures and/or students don't miss a full day of their clinical placements and also when more venues are available on campus.

Balance of student numbers & managing group size – to try to get a good balance of students the workshops are offered as suite for students or staff to select from and these are repeated each semester; students are manually allocated into these to ensure a good spread of numbers and disciplines across the workshops and within the student groups (8-10 students per group) within each workshops.

The information provided to the students is available on our website link: http://healthsciences.curtin.edu.au/faculty/ipe_education.cfm

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Report prepared by

Margo Brewer
Director Interprofessional Practice
Health Sciences
Curtin University

Case Study 5: Deakin University



Online Interprofessional Education Unit

Since 2009 the Faculty of Health at Deakin University has incorporated interprofessional education (IPE) into its curriculum. While there are several IPE initiatives embedded within the Faculty's curriculum, one of the main components is a fully online one credit point IPE unit called "Interprofessional Collaboration in Healthcare". This unit is delivered across a 12 week trimester and undertaken by occupational therapy, nursing, social work, medicine, psychology, dietetics and clinical exercise physiology students towards the end of their degrees. The students in these courses are geographically spread across Deakin's four Victorian campuses (Burwood in Melbourne, Waurin Ponds in Geelong, Waterfront in Geelong and Warrnambool) along with some off-campus students.

More detail about the content of the unit is discussed in Dimension 3 of this paper.

Dimension 1. Identifying future healthcare practice needs

Approximately ten years ago the Faculty of Health at Deakin identified the need to include IPE in its curriculum. At this time, it was well recognized locally, nationally and internationally that factors such as the ageing population and the shift of the burden of illness from acute to chronic disease meant that a number of different health and social professions needed to be involved in care provision in an interprofessional manner (Stone, 2007). Research demonstrated that interprofessional practice improved patient outcomes, improved patient safety, increased access to health care, resulted in more efficient use of resources and improved satisfaction among both patients and health care providers (Meads, Ashcroft, Barr, Scott & Wild, 2005). However, barriers to interprofessional collaboration, such as a lack of understanding of one another's roles and limited communication, were also well documented resulting in various reports and policy documents beginning to suggest that all health care students and professionals alike should experience IPE to improve their interprofessional collaboration skills (The Bristol Royal Infirmary Inquiry, 2001; Barr, Koppel, Reeves, Hammick & Freeth, 2005).

The Dean of the Faculty of Health at Deakin University acknowledged the importance of the inclusion of IPE in the Faculty's curriculum and convened a working group to review options for its implementation. At this time, there were a small number of well-recognised international IPE programs that were reviewed by the working group with the intention of implementing at Deakin with minor modification. After extensive consultation and consideration it became clear that no existing program, even with changes, could satisfactorily meet Deakin's unique requirements related to geography, timetabling, external accreditation and Deakin's own core commitments at the time, of its program being relevant, innovative and responsive. It was decided that Deakin would need to create its own unique IPE program.

In 2008, an IPE leader and IPE project manager were appointed to lead the Faculty in its development of IPE curriculum. An IPE steering committee was convened including the project leader and project manager, representatives from each of the courses involved, the Faculty of Health's Associate Dean of Teaching and Learning and several other key teaching and learning staff. In 2009, Deakin began offering its fully online IPE unit.

Dimension 2: Defining and understanding capabilities

The unit's initial intended learning outcomes in 2009 were based on the findings of a comprehensive literature review including key work such as Barr et al (2005) and Freeth, Hammick, Reeves, Koppel and Barr (2005). Initially there were twelve intended learning outcomes, but following several revisions, there are currently five key intended learning outcomes. While these outcomes have been influenced by a range of documents, the Canadian Interprofessional Health Collaborative National Competency Framework, 2010, has been particularly influential in recent revisions of the outcomes and associated unit content. The current intended learning outcomes are:

1. Describe the value of interprofessional collaboration in healthcare
2. Explain the roles, responsibilities and perspectives of the various professions in the healthcare team (including their own) and how these roles, responsibilities and perspectives interrelate
3. Reflect on personal factors that influence how they as an individual work in teams
4. Collaborate with others in the interprofessional team, including the patient/client/family/community, to plan care/services to enhance health outcomes
5. Demonstrate ability to communicate with healthcare teams in the online environment.

The learning outcomes are reviewed annually to ensure they remain contemporary and reflect new information such as competency frameworks, programs and other relevant publications. The IPE teaching team firstly revises the learning outcomes reflecting current literature, and then further refinement is undertaken collaboratively with the IPE steering committee.

Dimension 3: Teaching Learning and Assessment

In 2009, there were few published accounts of fully online IPE units and there were sentiments among some academics and health professionals that IPE should only be delivered in a face-to-face manner. The Faculty of Health at Deakin was however committed to offering IPE to as many of its students as possible, and given the significant geographical and timetabling barriers making face-to-face delivery virtually impossible, fully online was the only equitable option. Despite the largely unprecedented history of online IPE at other Australian institutions at the time, Deakin felt equipped to offer IPE in this unique way given its history of being one of the leading universities in Australia in online education. The Faculty of Health also recognized that online communication was expanding in the Australian Health Sector, particularly in rural areas, and hence wanted their students to graduate skilled in online communication. In more recent years online IPE activities have become more common and accepted as a legitimate IPE delivery option.

Given its history of online education, Deakin already had extensive resources, including online teaching and learning

programs that were identified as appropriate to use in the online IPE unit. The asynchronous communication learning management system, “Desire2Learn”, and the synchronous communication program, “Elluminate Live!” were identified as key programs for use in the unit. These programs were already used within other Deakin University programs, which meant experienced support staff were available to provide extensive training and troubleshooting with regard to using these systems.

Description of learning, teaching and assessment tools

Deakin’s fully online IPE unit is based on the well-established principles of adult learning and is guided by the teaching and learning theories of experiential, reflective and case based learning. There are two streams in the online IPE unit that run concurrently throughout the twelve week trimester: the self-directed IPE topics stream and the case conference stream.

1. Self-Directed IPE topics stream

In the self-directed IPE topics stream there are 6 topics for the students to choose from:

1. What is interprofessional collaboration?
2. Health professional roles
3. Personal style
4. Leadership in collaborative teams
5. Conflict management and assertiveness
6. Teams and team development

The first topic, “What is interprofessional collaboration?” is compulsory. The students then choose one or two further topics (depending on their degree) based on their interests and own individual professional development needs.

For each topic, students undertake a range of experiential online activities in their own time, and then complete a reflective piece linking their experience in these activities, with both their previous experience in teamwork and their future role as a health professional. For example, in topic 3 Personal Style, students undertake the Myers-Briggs Type Indicator after which they receive a 20 page detailed Myers-Briggs report about their personality style and how this relates to the way they work in teams. Students then reflect on the content of the report, how they have interacted in teams in the past and how their personality might impact on how they will work in a healthcare team in the future.

2. Interactive Case Conference Stream

In the case conference stream students practically apply the knowledge and skills acquired in the self-directed IPE topics stream to work as an interprofessional team to manage several cases and to explore issues relating to collaborative care. At the start of the trimester, students are allocated into a team of approximately nine students from the range of professions involved in the unit. Each team has a facilitator who is a practicing health professional with experience in tertiary teaching and learning. There are two main kinds of activities that students participate in with their team in this stream.

Firstly, students participate in weekly online discussions with their teams using discussion boards in the learning management system “Desire2Learn” (known as CloudDeakin within Deakin). Each week, the team facilitator posts a topic for discussion, such as how the patient may perceive the overlapping roles of the health professionals. Each student is required to contribute to the discussion several times resulting in an

asynchronous text-based “conversation” among the team. The asynchronous nature of the discussions enables students and facilitators to contribute at any time of the day around their other course and personal requirements.

Secondly the students also participate in four case conferences with their team using the online synchronous (real-time) communication program, Elluminate Live! (known as eLive at Deakin). In these case conferences they collaborate with the other health professionals in their team, via online synchronous voice, text and document sharing, to develop a care plan for four interesting cases. A virtual town “Deakin Point” houses these cases enabling them to read information and view footage about these cases. The case conferences take up to 1.5 hours and occur in weeks 4, 6, 8 and 10 at a time negotiated with the team at the beginning of the trimester. As there are several professions involved with differing timetables and placement/fieldwork commitments these case conferences are usually in the evenings. For students that are unable to attend their team’s case conference there is protocol to follow which requires them to provide an apology to their team and provide a handover document as might occur in a real life setting. Team facilitators participate in each meeting to guide students’ learning.

Student assessment occurs in both streams of the online unit. In the self-directed IPE topics stream, students submit the reflective pieces they complete for each topic. In the interactive case conference stream, students are assessed on the team care plans developed in the case conferences, along with their participation in these case conferences and in the weekly discussion topics.

Evaluation of learning, teaching and assessment tools

Both quantitative and qualitative evaluation has been undertaken of Deakin’s online IPE unit. Students and facilitators have completed questionnaires and participated in semi-structured interviews exploring their experience in undertaking online IPE. The results of this work are currently under review for publication. Quantitative work has examined the extent to which the online IPE unit is effective in improving students’ attitudes and knowledge associated with interprofessional practice. This work used the University of West England Interprofessional Questionnaire (UWEIQ) (Pollard, Miers, & Gilchrist, 2004) and is currently in press (Evans, S nderlund & Tooley, 2013).

Dimension 4: Supporting institutional delivery

Various factors challenged and enabled the development of the online IPE unit. The most significant challenge to implementing IPE at Deakin was the geographical distribution of the students across four campuses (including three in regional areas) and off campus students, and the timetabling requirements of each of the different courses. While these factors seemed significant barriers in the initial development of IPE curriculum at Deakin, they ultimately dictated the decision to deliver IPE online at Deakin, the result of which is online IPE curriculum that is highly valued by the Faculty of Health. Deakin’s significant history in online education and therefore its access to online learning resources and support staff has been a key to the success of the online IPE unit.

Another significant challenge in the implementation of IPE at Deakin was the desire to include both undergraduate and postgraduate students in the IPE curriculum. Some of the professions degrees were undergraduate, such as Bachelor

of Occupational Therapy, while others were postgraduate, such as Master of Dietetics. Regardless of whether they were undergraduate or postgraduate, all of the students undertaking the online IPE unit were in the latter part of these degrees and would all be graduating as health professionals in the next 12 months. Based on the fact that they would be working together as qualified health professionals upon graduation, it was deemed appropriate to include the undergraduate and postgraduate students together. Some small modifications were made to assessment to meet differing requirements of undergraduate and postgraduate assessment.

A key enabler of the initial development of the online unit was the engagement of key stakeholders with the Faculty of Health. The support of the Dean of the Faculty Health was crucial, along with the support of the Heads of Schools, the course coordinators of the various disciplines involved and the IPE steering committee. A collaborative process between these key stakeholders and the project leader and project manager were integral particularly in the development phase of the unit. The appointment of experienced academics as project leader and project manager were also key to the initial development of the unit as this enabled dedicated time and resources to develop the IPE curriculum.

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This Implementation Case Study is based on:

- An Interview with Sherryn Evans, Faculty of Health IPE Coordinator, Deakin University
- Faculty of Health Deakin University (2013). *Interprofessional Collaboration in Healthcare Facilitator Guide*, Trimester 1 2013.

Case Study 6: University of Sydney



The Roundtable Discussion

The Roundtable Discussion Activity occurs in a unit, which is part of the Graduate Certificate or Masters in Pain Management at the University of Sydney.

The activity is interprofessional as there are different professions working together, learning with, from and about one another, however 'multidisciplinary' was the term used in the design of the course.

Dimension 1. Identifying future healthcare practice needs

Incentive for the activity

The need for health professionals to have the skills required to undertake multidisciplinary teamwork, in relation to patient's pain management, was the driver for the development of this activity. Health professionals working in pain management clinics attend regular multidisciplinary meetings to plan patient care. Health professionals working as sole practitioners or on wards also interact with other health professions in relation to management of pain. Educators at the Pain Management Research Institute wanted students to have:

- Insight into how other professionals think.
- Skills in the process of planning patient care in a multidisciplinary way.
- Knowledge of the breadth and variety of pain management techniques.

Dimension 2: Defining and understanding capabilities

The Roundtable Discussion unit's objectives are that students will:

1. Collaborate with other health professionals in the management of a complex clinical case.
2. Explore the challenges and benefits of a multidisciplinary approach in the management of complex cases.

The activity presents opportunities for the development of the following outcomes (Devonshire, 2009):

- Acquire understanding of the complexities of clinical decision-making.
- Acquire insights into the viewpoints of other stakeholders
- Acquire collaboration and negotiation skills
- Integrate and synthesize a range of information resources.
- Understand the value of an interprofessional team approach.

The learning objectives and outcomes were aligned with the aims, content and assessment of the unit and derived from the development team's clinical experiences so they would be authentic in terms of student's workplace experiences.

Dimension 3: Teaching Learning and Assessment

Planning the Activity

Initially, Sydney University's postgraduate pain management program had a traditional didactic lecture format. In 1999 it became an online program. Then, from 2004-2005 a revamp

of the course to a two-year part time Masters resulted in the redevelopment of the course content. The director of the unit wanted a more integrated holistic curriculum rather than the previous subject specific format. Small development teams were set up to develop new content for units.

One of the redeveloped units considered the multidisciplinary management of pain. The Curriculum Manager had previously been involved with a Macquarie University geography unit involving role-play. The activity had been evaluated as a very successful learning model and was showcased as an exemplar on the Learning Designs website (2003). Role-play offers learning opportunities that fit well with the objectives of multidisciplinary teamwork such as developing insight into a range of viewpoints about a complex issue and skills in working with other stakeholders to negotiate a result (Devonshire, 2006).

The Curriculum Manager met with the unit's development team and planned the details of an activity using role-play and a roundtable discussion. The unit's development team was composed of the Curriculum Manager and clinicians from the Pain Management Research Institute Clinic including a physiotherapist, doctor and nurse.

Implementation of the Activity

The table below gives an overview of activities undertaken in the unit (Devonshire, 2009).

Stage 1	Roundtable Discussion BRIEFING <ul style="list-style-type: none"> • Activity Briefing • Stakeholder Role Discussion 	Week 1
Stage 2	Roundtable Discussion ACTION <ul style="list-style-type: none"> • Developing Professional Interpretation • Reviewing Professional Interpretations • Multidisciplinary Team (MDT) Meeting • Preparation of MDT Recommendations 	Week 2–3 Week 4
Stage 3	Roundtable Discussion DEBRIEFING <ul style="list-style-type: none"> • Review • Debrief 	Week 5 Week 6

Students participate in a multidisciplinary team meeting where they discuss a complex clinical case. The case scenario is that a General Practitioner (GP) has referred a patient with Chronic Regional Pain Syndrome (CRPS) to a specialist pain clinic for an assessment. The activity simulates what happens in a pain management clinic, where each profession sees the patient separately and then they come together in a team meeting to determine an interprofessional plan for the patients care.

The condition CRPS was chosen by the Unit Development Group as it provides a good example of a complex case and it wasn't covered in other course content. The case was written up by an expert clinician based on examples of CRPS that they see on a day-to-day basis. Students get a comprehensive description of the patient's history, including medications they are taking and what procedures and investigations they have had. Introductory readings about CRPS are also provided to students.

Students are divided up into four groups with 5–10 in each group. Groups are allocated to represent either: a clinical psychologist, a doctor (pain specialist), a clinical nurse specialist or a physiotherapist (Devonshire, 2009).

Students are allocated to groups rather than letting them self select, so that groups have a mix of quieter and more vocal

members. Each of the four role-play professions has one or two students who are allocated to their own profession and other students who are from different professions. Working in different roles helps students to think about how a different profession might think and communicate and so potentially change their communication style slightly so that they get better responses from other health professions. Students have a wide variety of professional backgrounds in addition to the health disciplines role-played in the discussion, such as dentistry, occupational therapy, pharmacy, osteopathy, naturopathy, psychiatry and rehabilitation roles.

Groups meet in private (online) discussion forums and use the case history information to discuss the patient's management and treatment from the viewpoint of the profession the group is allocated too. Each group then posts an online statement about the patient requirements from their allocated disciplines perspective.

The online multidisciplinary team meeting is held in a public discussion forum over a one-week period. In practice a multidisciplinary meeting would occur in real time, but because the student are distance learners it is done asynchronously. Some student evaluation and focus group comments have asked for a synchronous discussion. Logistically this is not possible as not all students would be able to be involved simultaneously.

Whilst all team members can see what is happening at the multidisciplinary meeting, only one person is the voice contributing for that group. Groups can post messages in their private discussion forum whilst the meeting is ongoing, so that the person representing each group can consult with other group members. Having one person representing each group stops the discussion becoming unwieldy.

Recommendations on the interprofessional management of the patients care are developed at the end of the team meeting. Groups then participate in an online reflection and an activity debrief (Student Briefing, University of Sydney, 2012).

Assessment

The Curriculum manager proposed a structure for the assessment materials and the unit development group then discussed this and refined it further. There are two assessment components:

- Online discussion component (group work)
- Written component (individual work)

In the written section students reflect on the process, challenges and opportunities of working collaboratively in a multidisciplinary team to manage cases. This includes considering the different stakeholder roles and drives that determined the management of the case. Students also reflect on what they have learnt about managing CRPS.

The facilitator's assessment criteria are:

- Actively participates in the roundtable discussion activity
- Provides a critical reflection on personal insights gained from participating.
- Uses relevant literature and referencing.

Implementation Advice

The activity was trialed in-house with volunteers. Whilst artificial, the trial was valuable as faults were removed, especially in terms of instructions that weren't clear.

It is important to provide students with scaffolds so they know what they are doing. The unit has both comprehensive student briefings and tutor resource to explain what is expected of students. This is the student's fourth core unit of study. In the initial three units the students gain experience in online discussion and group projects, so they have the skills required for the roundtable discussion unit. The students are at different stages in their careers and so contribute to the group learning in different ways. Students are given ideas on ways to contribute to group work such as being a group leader, summarizing articles or drawing together the threads of the discussion.

Students want to come up with the right answer, and sometimes there is not a right answer. Compromises are often made in real world practice, which is a learning point the students reflect on. Role-play is recognized as a technique enabling situational learning about complex problems and social interactions that don't allow for simple problem solving (Devonshire, 2006).

The facilitator's workload was designed to be manageable and sustainable, as most of the facilitators are also busy clinicians. During the initial activity briefing the facilitator takes on the role of the GP. Then the facilitator moderates the online discussions and meeting, however their online input is mainly during debrief and the written reflection work at the end. Facilitators are given an activity briefing and debriefing guide (1).

Dimension 4: Supporting local delivery

Challenges

Repurposing the original learning design involved challenges.

The design had to be adjusted to new health based curriculum context, learning outcomes and audience (Devonshire, 2006).

Moving to a fully online delivery mode necessitated the development of online supports and resources, facilitator guides and increasing the timeframe for the activity (4). In the original face-to-face geography based activity the number of participants and available stakeholder positions was quite large (16 in total), but in the repurposed activity the stakeholder professions was limited to four, to reduce complexity in an online discussion (Devonshire, 2006).

Cross-institutional relocation of the customized student and administrative online interface proved too difficult. The two universities were using different version of WebCT, resulting in the need for the customised tools to be modified to be used by Sydney University's learning management system (LMS). There were also complex intellectual property negotiations relating to the transfer of customized components (Devonshire, 2006).

In the end the existing functionality within Sydney University LMS was used to design a new activity interface. This option was inexpensive, simple and the only practical option. However the resultant interface lacked some of the benefits of purpose built features (Devonshire, 2006).

Ensuring there were scaffolds for teachers as well as students was a priority in development, to make it easy for Universities other than Sydney to use the unit's course materials. Various universities have held licenses to use the unit including the University of California, University of Edinburgh and the University of Santo Tomas in the Philippines. An alternative to licensing

would have been developing the unit as a joint activity with other universities. However this would have involved complications such as; differing semesters, intellectual property negotiations and obtaining access to Sydney University's learning management systems for students enrolled at other universities.

With the above challenges in mind, Devonshire, 2006, proposed a model for initial discussions about reusing a learning design in a different discipline or institutional setting. The model employs a slide-rule analogy to assess the difficulty of reuse (Devonshire, 2006).

Enablers

Despite the challenges various enablers aided the successful development of the unit.

- The expertise gained from running original geography based design successfully at Macquarie University, contributed to the Curriculum Manager's ability to develop the new unit.
- Expert assistance on technical set-up was obtained from Sydney University's e-learning support staff whilst developing and trialling the activity. The e-learning support staff also produced a simple graphic representation of a roundtable, which made the online roundtable discussion pages clearly identifiable.
- Having access to people with content expertise from the pain management clinic helped with the design of the activity's contents and guides
- Coordination issues were minimised because the unit is self-contained within one curriculum and all students are distance.
- All the students in the Masters or Graduate Diploma of Pain come from different health disciplines, making it easy to set up an interprofessional activity.

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Case Study 7: University of Sydney Faculty of Health Sciences



Local implementation of the Health Care Team Challenge.

Dimension 1: Identifying future health care practice needs

Rationale for activity

Increasingly, healthcare is delivered by teams of health care professionals. Therefore, on graduation, students will be expected to work with and learn from other health professions in providing care for their patients/ clients. The Health Care Team Challenge was implemented at The University of Sydney (USyd) to assist students develop the necessary knowledge, skills, attitudes and behaviours for working and learning within interprofessional teams. This activity was chosen based on the earlier experiences of The University of Queensland (UQ) with developing and running the Challenge.

Planning, developing and implementing the activity

The Health Care Team Challenge was considered a pedagogically sound way of developing interprofessional teamwork knowledge, skills, attitudes and behaviours. Through the simulated case scenario, students were able to experience working and learning together in an interactive and enjoyable way.

Where possible, team composition mimicked the health care setting. For example, we tried to include a student nurse in all teams. However, this was challenging, particularly for the allied health professions due to low recruitment numbers for some degree programs. As a result, some teams felt disadvantaged. For example, teams without an occupational therapist felt disadvantaged if the case involved substantial occupational therapy intervention. Teams were informed that, in the work setting, this is not uncommon. Teams were encouraged to “think outside the square” to resolve this perceived disadvantage.

Student teams comprised of members from nursing, medicine and the allied health professions. Only senior students with a clinical component to their degree program were recruited to the Health Care Team Challenge. This better ensured students had a sound theoretical knowledge base and that the Challenge would be relevant to their future work practice.

Where possible, teams were configured to have both male and female members. However, this was not always possible. Our experience to date has been a higher proportion of females enlisting for the Challenge. This reflects enrolments for most degree programs included in the Challenge.

Advice to others

We recommend emphasising to students the potential benefits participating in the program have to their current learning and future practice – and potentially their future job prospects (teamwork experience is looked on favourably by health employers).

Dimension 2: Defining and understanding capabilities

Specific learning outcomes were not set for this activity. However, the overarching aim of the Challenge was for students

to develop and exercise interprofessional teamwork knowledge, skills, attitudes and behaviours in providing high quality, safe, evidence-based care to a (simulated) patient.

Dimension 3: Teaching, learning and assessment

The development and implementation of the USyd Health Care Challenge was based on the earlier development work by UQ. Local implementation involved the following:

1. Students initially came together for a 2hr workshop. The workshop was designed to introduce students to concepts of team process, explain the logistics of the Health Care Team Challenge and form the teams.
2. Students were presented with the case at the workshop and given 5 weeks to work on their management plan and presentation. The case scenario was developed collaboratively by academic staff from the various professions involved in the Challenge. The case had an acute and rehabilitation component to broaden the range and scope of professions involved.
3. Students met virtually and/ or face-to-face to develop a written management plan and oral presentation.
4. Profession specific academic mentors were available to assist students. For example nursing students could contact the nursing academic for advice and guidance.
5. The Challenge was formatively assessed: teams submitted a one page abstract of the management plan and presented their plan to an audience of academics, students and health care professionals (8 minute presentation). Presentations were judged following locally developed set criteria (attached). All teams received verbal feedback on their management plan. The winning team earned a place to compete in the national Health Care Challenge run by UQ.

Advice to others

The USyd Health Care Team Challenge is an extra curricula event that students are encouraged to participate in. We consider it worthwhile for students as it exposes them to interprofessional relationships and learning. In future, Health faculties and schools may explore models of integrating aspects of the Health Care Team Challenge into respective curricula to enable more students to be exposed to IPE. For example, a pre-activity to the Health Care Team Challenge might involve all health care students working on-line in teams on cases studies. On-line team presentations would be assessed, with a selection proceeding to the locally run Health Care Team Challenge.

The USyd Health Care Team Challenge currently does not “count” towards a student’s degree program. This quite possibly influences recruitment to the activity. In future, we would like to include a formative assessment, which feeds into a summative assessment in the clinical setting.

In 2013, recruitment of students for the Challenge has been somewhat difficult, with low numbers taking up the opportunity. This might reflect competing commitments, for example part time work and clinical placement commitments - students are often reluctant to take on extra activity when on clinical placement. It might also reflect some negative feedback from the previous year (e.g. feeling disadvantaged due to team composition as discussed previously). As with any voluntary learning activity, recruitment is often dependent on students “spreading the word” - hence the importance of positive student experiences.

Dimension 4: Supporting institutional delivery

The USyd Health care Team Challenge is administratively co-ordinated by one of the participating faculties (Faculty of Health Sciences). Costs are currently absorbed by the Faculty. Given the small number of student teams currently involved in the Challenge (4-6), this is currently not an issue. Participating facilities and schools take it in turns to “host” the presentation evening.

Organisational enablers

Organisational enablers for the USyd Health Care Team Challenge have been the enthusiasm and commitment of senior academic staff to implement and further develop on this activity. This commitment has been mirrored by staff responsible for administration of the Challenge.

This IPE activity also has the financial and philosophical support of the Deans from participating faculties and schools.

Organisational barriers

The USyd Health Care Team Challenge is currently a “boutique” IPE activity – only available to a small proportion of health care students. Across the University there are over 2000 health care students for every year of enrolment. This includes both undergraduate and graduate entry masters programs. Logistics therefore is a big barrier to up-scaling IPE within the organisation. Modifying and up-scaling the Health Care Team Challenge to include all healthcare students requires additional academic and administrative resources.

Advice to others

From an organizational perspective, we recommend thinking broadly about IPE opportunities. For example, consider how interprofessional concepts can be incorporated into uniprofessional teaching; the role of informal interprofessional learning opportunities; offering both extra curricula IPE activities as well as mandated activities.

Report prepared by Gillian Nisbet, Faculty of Health Sciences, The University of Sydney based on interviews/ consultation with the following Activity Leaders at the University of Sydney:

- Dr Chris Gordon, Senior Lecturer, Sydney Nursing School
- Associate Professor Christine Jorm, Associate Dean (Professionalism), Office of Medical Education Sydney
- Professor Michelle Lincoln, Deputy Dean, Faculty of Health Sciences
- Peggy Timmins, Executive Support Project Officer to Associate Dean, Learning & Teaching, Faculty of Health Sciences

Supplementary materials, available in the Resource Bank, were adapted from the Australian National Health Care Team Challenge Event by:

- Dr Chris Gordon, Senior Lecturer, Sydney Nursing School
- Associate Professor Christine Jorm, Associate Dean (Professionalism), Office of Medical Education Sydney
- Professor Michelle Lincoln, Deputy Dean, Faculty of Health Sciences

Case Study 8: Interprofessional Education for Quality Use of Medicines



Implementation Case Study for Online Quality Use of Medicines Modules.

Website: <http://www.ipeforqum.com.au/>

This project produced interprofessional online modules on the quality use of medicines (QUM) for nursing, pharmacy and medical students. The Office of Learning and Training (formerly the Australian Learning and Teaching Council) funded the project, which is being undertaken by researchers from University of Newcastle, University of Wollongong and University of Tasmania.

Dimension 1. Identifying future healthcare practice needs

International and national recognition of the importance of IPE provided impetus for this project. The World Health Organisation (2010) acknowledges IPE as a necessary tool for training a collaborative practice-ready health workforce. The Canadian Interprofessional Health Collaborative (2010) also promotes the need for interprofessional collaboration to produce the best possible health outcomes.

Garlings's (2008) Special Commission of Inquiry into Acute Care Services in NSW Public Hospitals recommended that

- “clinical education and training should be undertaken in a multi-disciplinary environment which emphasises inter disciplinary team based patient centred care.”
- “each member of the clinical workforce should be prepared to work within a multi-disciplinary environment as a member of, or as a contributor to an inter-disciplinary team responsible for the delivery of patient centred care.” (p. xiv)

Bradley's (2008) Review of Australian Higher Education emphasised the necessity for good collaboration between the professions, so that graduates had the qualities required to deal with changes in professional practice.

The quality use of medicines is an ideal topic for IPE involving students from nursing, pharmacy and medicine. The medication team includes the patient, the person who prescribes, the person who dispenses and the person who administers the medicine; so all three disciplines are involved.

Medication errors are the second most frequent type of adverse incident occurring in Australian Hospitals (Roughhead & Semple, 2008). Communication errors are the cause of 70% of sentinel events in health care settings (Leonard, Graham & Bonacu, 2004). Ineffective teamwork has also been identified as factor causing medication errors (World Health Organization, 2007). The British Royal infirmity Inquiry (2001) pointed to the adverse impacts of both poor communication between health professional and patients/colleagues and ineffectual teamwork.

This project aimed to use IPE to improve communication and teamwork and so the likelihood of safe medication practice and better patient outcomes.

Focus groups with recent graduates early in the project, found a lack of understanding of what other health professional could offer in terms of resources and knowledge, which could produce a reduced capacity for teamwork. A further aim of the project was to clarify the roles of the three health disciplines using online media.

Dimension 2: Defining and understanding capabilities

The communication and teamwork skills, which the IPE for QUM modules aims to teach, are based on a modified version of the Oxford NOTECHS (Non-Technical skills) scale. The Oxford NOTECHS scale had been used previously by some project team members who found it to be a robust scale for measuring communication skills. The scale was originally used to describe the teamwork skills required in aviation safety, but had been revised for use in healthcare setting such as surgical teams (Mishra, Catchpole & McCulloch, 2009).

In the project's scale, the teamwork and communication skills fundamental to safe medication practices are broken down into eight domains:

- Person-centred care
- Teamwork and Cooperation
- Communication and Interaction
- Leadership and management
- Problem solving and decision making
- Situational Awareness
- Adherence to guidelines
- Documentation.

Each domain is then broken down into elemental behaviours, attitudes and attributes. A copy of the Oxford NOTECHS scale used in this project can be found in the facilitator and student guides on the IPE for QUM website <http://www.ipeforqum.com.au/resources/facilitator-resources/>, <http://www.ipeforqum.com.au/resources/student-resources/> and also in Levett-Jones, Connor, Lapkin & Hopkin (2012).

Dimension 3: Teaching Learning and Assessment.

The project produced five online modules based on real clinical situations, such as coroner's cases and incidence reports that are relevant to the three target disciplines. Each module uses a uniform pedagogical style. The modules present both positive and negative elements of communication and medication practices from the Oxford NOTECHS scale. Relevant clinicians and students reviewed the scripts, as they were developed, and also the modules in postproduction to ensure they were realistic, relevant and accurate.

An external contractor with experience producing teaching resources, directed filming of the modules. This film production team became involved as soon as the story lines had been developed to ensure involvement in the pre-production process and that they were fully aware of the aims and requirements for each module. The production team and project manager arranged practical elements such as props, actors, and sets. Scheduling filming times that suited all the clinicians' acting in roles was

challenging. The production team's involvement from the outset and their experience working in educational and clinical settings assisted in their ability to meet the project needs.

The Project Team consisted of academics from medical, nursing and pharmacy schools at the University of Newcastle, and a representative each from the University of Wollongong and the University of Tasmania. There was also a Project Reference Group composed of clinicians, academics, government body representatives and a community representative.

The modules can be used in a variety of ways:

- As an e-learning resource or as stimulus material in a face-to-face lecture, tutorial or a workshop (pause and discuss approach).
- Before a clinical simulation or clinical placement to prepare students for what to expect in to an interprofessional setting.
- As an independent learning activity or to promote discussion in group work.
- With student from different disciplines learning together or when teaching individual disciplines.

Students find the modules better demonstrate ideas than a hypothetical discussion

Critical thinking questions for each module aim to: encourage reflection and discussion, highlight the central ideas and improve knowledge and application. Care was taken to ensure the questions were: set at the right level, generic enough for all three professions and focused on the right NOTECHS scale elements. Educators who use the modules can construct additional supplementary questions that meet the learning objectives of their own course.

The modules can be used by students of varying levels of experience, by adjusting the level of depth with which modules are examined. Students at a rudimentary level can use the modules to study and discuss communication behaviours. More experienced students can to examine communication factors that contributed to a medication error. The Facilitator Guide and Student Guides for the modules contain a table that demonstrates the application of Bloom's Taxonomy to the assessment of communication skills and medication safety (<http://www.ipeforqum.com.au/resources/>).

The Oxford NOTECHS Scale and an adapted version of the Oxford NOTECHS Scale can be used to assess behaviour change in clinical simulations or role-plays after completing a module. The elements of the scale make it easy to identify communication and teamwork processes that are otherwise hazy and difficult to measure. A questionnaire based on the theory of planned behaviour has also been developed, which is used to assess changes in behavioural intention.

Dimension 4: Supporting institutional delivery

The process of developing the modules was a genuine interprofessional collaboration. At Newcastle University, the Pro Vice Chancellor of Health and three Heads of School were supportive of the project. Project team members from the University of Tasmania and Wollongong University also had the support of their relevant Heads of School and were able to provide access to students for several components of the project including piloting the online modules. Representatives from medicine, nursing and pharmacy worked together to contribute to

the project.

Universities around Australia are using these modules. At the University of Newcastle the modules have been used in a variety of ways, however, timetabling and curriculum differences are barriers to the delivery of modules in an interprofessional manner. Students are on clinical placements at different times and each health discipline follows different semesters. There are many more nursing students than medicine and pharmacy students. The subjects taught in common to each discipline such as medication safety are taught at different stages and in varying ways. Curriculum integration and some alignment of the various disciplines programs are needed. Work is ongoing to overcome these barriers.

Online learning is not an ideal or 'quick-fix' way to achieve all interprofessional learning outcomes, but it provides a way to address some of the learning needs around interprofessional education, whilst overcoming the logistical problems of different student locations and timetabling. Ideally, online learning should be used as preparatory work for, or a supplement to other interprofessional learning opportunities such as those which occur on clinical placement.

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Case Study 9: University of Technology, Sydney Ph.D

Fetal welfare Obstetric emergency and Neonatal resuscitation Training program, FONT

FONT (Fetal welfare Obstetric emergency and Neonatal resuscitation Training program) is an interprofessional clinical postgraduate program where midwives, obstetricians and general practitioners learn fetal heart rate monitoring skills and the management of maternity emergencies.

Dimension 1. Identifying future healthcare practice needs

Rationale for activity

There are approximately 5,500 maternity services clinicians in NSW working across 80 different hospitals. Each hospital manages 100-5000 births each year (Cooke, Foureur & Giles, 2012). The identification and analysis of critical incidents in these maternity services provided the stimulus for the development of the FONT project.

In 2005, the NSW Department of Health directed that adverse clinical events be graded according to severity and likelihood of recurrence and reported using a new Incident Information Management System. In maternity services, this monitoring revealed incidents resulting in death or serious morbidity relating to: electronic monitoring of the fetal heart rate during labour, maternal emergencies, the assessment of fetal welfare and resuscitation of newborns (Cooke, 2013). Communication issues between maternal services staff and documentation problems strongly contributed to the adverse events.

NSW Health asked their maternity services advisory body, The Maternal and Perinatal Health Priority Taskforce (M&PHPT), to develop a plan to address the issues contributing to adverse events in maternity services. The M&PHPT is made up of clinical experts in obstetrics, neonatology, paediatrics, midwifery and general practice, maternity service managers and consumers of maternity care in NSW. The M&PHPT recommended postgraduate education and noted that the project had to overcome difficulties in providing training in rural areas, such as lack of resources and remoteness.

To further explore the needs of NSW in fetal welfare education, NSW Health held a workshop involving experienced obstetricians, midwives and neonatologists from the NSW Pregnancy and Newborn Services Network, in 2006. This group concluded that none of the current training programs met their requirements, and that NSW should produce a state-wide interprofessional education program for fetal welfare, maternity emergency and neonatal resuscitation. The program would train local trainers to improve local capacity.

The education program clearly aimed to assist NSW Health's policy objective of reducing adverse clinical events in maternity services and so received support. A Project Officer was appointed in 2007 to manage the development and implementation of the education program. The project was funded with an grant from NSW Health of \$450,000 which funded a full time Project Officer for 2 years, an Obstetrician to help train the required trainers, travel across the state, purchase of training equipment and incidental costs like printing

A Project risk assessment process identified the ability to develop a team approach and improve collaboration as significant risks (Cooke, 2013). Education, where midwives and doctors trained together and learned from each other, was chosen as a method to improve teamwork, collaboration and communication. The education program would give all professions:

- A common language to describe fetal heartbeat patterns, which would help midwives feel confident when escalating concerns.
- Common processes to use in maternal emergencies.

At the time interprofessional education was in its infancy and it was only later that it was recognized that the education program was a good example of interprofessional education.

Interprofessional education was consistent with the recommendations of the NSW Government's *Special Inquiry in Acute Care Services in NSW Public Hospital* (Garling, 2008), which stated that there should be a new focus on training clinicians in inter-disciplinary team-based treatment.

The Project Officer was a PhD candidate at the University of Technology, Sydney, during the project and was exposed to projects focusing on interprofessional education such as *Learning and Teaching for Interprofessional Practice*, funded by the Australian Learning and Teaching Council (2009).

Dimension 2: Defining and understanding capabilities

The project set broad learning outcomes for the overall program, rather than learning outcomes for individual clinicians.

The broad learning outcomes were to:

- Build local capacity in the rural and regional areas to teach the education program.
- Improve communication and teamwork through consistency of both language and escalation. This second outcome was to be achieved by:
 1. All maternity services staff learning and using one common guideline for fetal heartbeat pattern evaluation. All staff would then be able to identify problematic heart patterns. The guideline's algorithm for escalation would give midwives confidence in escalating issues and give obstetricians the knowledge that midwives would escalate when needed. (At the time two sets of mismatching fetal heartbeat pattern interpretation guidelines, one from the UK and the from Australia, were being used in NSW. The NSW Health Priority's Taskforce determined that the UK guidelines should be uniformly used.)
 2. Teaching maternity services staff to use emergency pneumonics or a set process in maternal emergencies, which were taught in the skills drills on the maternity emergency day.
 3. Staff from the various maternity services disciplines learning interprofessionally, that is with, from and about each other (CAIPE, 2002), at the training days

There has been debate over whether the program should have expected learning outcomes for individuals. However, it was decided, that the role of FONT was not to identify if an individual's practice was imperfect. Deficiency in practice is better identified whilst the clinician is practicing, not via a multiple-choice test at the end of an education day. FONT can be redone if problems are identified in a maternity services professional's practice.

Dimension 3: Teaching Learning and Assessment.

Development and Implementation

The initial draft of the education materials was based on an existing midwives education program known to the Project Officer. It included fetal physiology, antenatal monitoring, intrapartum monitoring and group work looking at fetal heart rate pattern evaluation. This program was updated with current research findings and altered so that it was suitable for all the professional disciplines involved. The project's Clinical Advisory group further refined the education materials. The Clinical Advisory group was composed of midwives, obstetricians and general practitioners from all the Area Health Services (AHSs). These educational materials were then used in the "train the trainer" sessions.

A state-wide education package using local trainers requires broad engagement in the development of teaching materials. Feedback and practical teaching hints from those trained at the "Train the Trainer" sessions were incorporated into the teaching materials. A feeling of general ownership and satisfaction with the education materials amongst the trainers was achieved by including their input.

Training of trainers to deliver the program occurred from 2007–2008. Initially, 240 midwives, general practitioners and obstetricians were chosen by the AHSs to be trained (40 clinicians from each area health service). The training session ran over two days, one for fetal welfare, one for maternity emergencies. FONT trainers can also train other clinicians locally to be FONT trainers. Over time another 100 trainers, in addition to the initial 240, been trained to teach FONT.

The educators running the "train the trainer" sessions were a midwife and an obstetrician working together to role-play interprofessional education. Clinicians chosen by their AHS to be trainers came from midwifery, obstetrics and general practice. It was hoped that including all maternity services professions as trainers would encourage teamwork.

The rollout of education sessions occurred from 2008 – 2009. FONT is composed of:

- An online K2 computerised training program which covers fetal welfare assessment and interpretation of intrapartum fetal heart rate and,
- Two face-to-face training days. The first day on fetal welfare assessment and the second day on obstetric and newborn emergencies.

The Fetal Welfare day includes four PowerPoint presentations, followed by two small group sessions looking at antenatal and intra-partum heart rate patterns, after which the groups recombine into one class for further discussion of the heart rate patterns. This format has remained unchanged over time.

The Maternity Emergency day initially involved eight PowerPoint presentations on topics including: preeclampsia, ante partum haemorrhage, post-partum haemorrhage and maternal collapse. Hands-on skills drills at three stations, focused on shoulder dystocia, breech birth and neonatal resuscitation, follow the presentations. These skills drills use of models of pelvises, mannequins, ventilators and neonatal resuscitation dolls.

The format of the Maternity Emergency day has been updated as most of the PowerPoint presentations are now available online. The revised program includes scenario interprofessional team based training, using NSW Clinical

Excellence Commission's work on detecting a deteriorating patient and Between the Flags. The three skills drills are still included. Nowadays, the scenarios are undertaken in Hospital's simulation labs when available.

As a postgraduate program, attendees' knowledge on the topics varies. Attendees with significant knowledge in the area are prompted to lead discussion.

Evaluation

NSW had about 30 reportable incidents relating to maternity services every year. Evaluation of any improvement in the number of these reportable incidents is ongoing. However showing a statistically significant change is difficult due to the small numbers. Problematic fetal heart rate can indicate hypoxia that may produce morbidities such as cerebral palsy and learning difficulties. It is hard to prove a causal link between this education program and the number of babies with these issues. However, the number of babies admitted to the neonatal care unit with a significant disease process related to hypoxia appears to be declining, which is a clinical outcome that may indicate an impact of the FONT program.

The clinical advisory group developed a pre and post training test for the Fetal Welfare day. The test consisted of describing two fetal heart beat patterns. Students are assessed on their the clinical decision making and use of appropriate language to interpret the heart rate pattern. Appropriate interpretation language is important to facilitate clear communication. The project found clinicians described deceleration of fetal heart rate patterns in 50 different ways prior to training. FONT training provides clinicians with 6 descriptions of deceleration, allowing clearer communication. Pre and post testing of trainers' knowledge of fetal welfare assessment at their training days showed a significant improvement in their skills and helped obtain ongoing funding for FONT (Cooke, Foureur, Kinnear, Bisits & Giles, 2010).

The Project Officer designed a pre and post multiple-choice test for the Maternity Emergency day that was refined by the project's advisory group.

Individual FONT trainers decide whether to use the pre and post tests or not.

Dimension 4: Supporting local delivery

An initial risk assessment of the FONT program, undertaken by the NSW Government Insurance office, identified the following risks (Cooke et al, 2010):

- Lack of funding to pay for staff training.
- Uncertainty as to the readiness of staff to be trainers.
- Possible staff disinclination to attend training run interprofessionally.
- A lack of experienced staff to provide training.

To address these risks (Cooke et al, 2010):

- NSW Health issued a directive that FONT be implemented
- Attendance was made mandatory for staff in maternity services in NSW public hospitals.
- Funding was provided for training equipment and the statewide online K2 Education program
- NSW Health advised that all clinicians were to attend the same training days i.e. no special days were to be organized for individual professions.

There are six to seven FONT days across the state every

week. It is mandatory for midwives, obstetricians and general practitioners who work in maternity services in public hospitals to attend both the Fetal Welfare and Maternal emergency program once every 3 years. Whilst being mandatory encourages attendance, there is currently no way of evaluating which clinicians have attended the program.

Engaging with private obstetricians who do on-call work in public hospitals, has been challenging, particularly in city areas. To improve private obstetricians attendance, some hospital have run FONT days for obstetricians only (not interprofessional), which may be less intimidating. Private obstetricians also get paid to do an alternative education program called RANZCOG, which may lessen their attendance at FONT.

Staff specialist attendance at FONT has been good. Staff specialists are often FONT trainers. Staff specialists work with the local midwives every day and so the two groups already have an established relationship, whereas private obstetricians may only do an on call shift every few weeks. Medical staff can more easily attend FONT days on a Saturday. Some AHSs have paid their Midwives to attend on a Saturday to maximise attendance.

General Practitioners need to take a day out of their private practices to attend FONT, whereas Staff Specialist and Midwives are funded to attend and replaced on the wards. General Practitioners can apply for rural training scholarships to provide FONT training or attend and get continuing professional development points for attendance.

FONT is particularly popular in rural area, which due to remoteness, get added value from networking with other clinicians from their local health districts and comparing practice in different units.

Support from the Directors of Maternity Services and Midwifery Managers is required for FONT to be implemented successfully. In local health district where it has been given a lesser focus, the same outcomes have not been achieved. Strategies used to increase engagement in these cases have included running further training for trainers and offering to help with local training.

Postgraduate interprofessional education needs to engage widely to be successful. Local acceptance and valuing of FONT has been aided by NSW Health's mandate for FONT and having local trainers from various maternity service professions all teaching the same thing. Local trainers are more likely to champion a program if they feel individually valued and they feel ownership through being able to input into educational materials.

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Implementation Case Study based on an Interview with Helen Cooke, Ph.D. Candidate at University of Technology Sydney, Project Officer – FONT, Clinical Midwifery Consultant - NSW Pregnancy and Newborn Services Network.