Student perceptions of an interprofessional clinical experience at a university clinic

Daniel O'Brien *MHSc (Hons)*
Lecturer, Physiotherapy Department, AUT University

Antoinette McCallin *PhD*
Associate Professor, School of Health Care Practice, AUT University

Sandra Bassett *PhD*

Senior Lecturer, Physiotherapy Department, AUT University

ABSTRACT

Evidence suggests that interprofessional collaborative practice (IPCP) leads to better patient care and staff satisfaction. Interprofessional education (IPE) encourages those studying to be health professionals to develop the skills required to practise in this manner. Few studies have explored students' beliefs and attitudes regarding clinical placements that aim to develop IPCP. This study explored students' perceptions of the placement and the utility of an interprofessional education questionnaire. Student beliefs were measured by the IPE Student Questionnaire, which included the Interprofessional Socialization and Valuing Scale (ISVS) consisting of three subscales (self-perceived ability to work with others, value in working with others, and comfort with working with others), a short-answer section with closed- and open-ended questions about student placement perceptions, and a demographic questionnaire. Quantitative data were analysed descriptively. Qualitative data were analysed using content analysis. Thirty-seven students completed the questionnaire. The Cronbach alpha for ISVS was acceptable (0.91). The ISVS subscale scores were high (4.92, 4.70, 4.47), and their respective Cronbach alpha scores were acceptable (0.77, 0.85, 0.74). Short-answer question results suggest that 83% of students had a good experience; 91% stated it changed how they related to other health professionals; and 78% gained a better understanding of what other health professionals did. Results suggest that students' inter-professional experience is valuable. Limitations with the IPE Student Questionnaire were identified.

O'Brien D, McCallin A, Bassett S (2013) Student perceptions of an interprofessional clinical experience at a university clinic New Zealand Journal of Physiotherapy 41(3): 81-87.

Keywords: Mixed methods, interprofessional education, interprofessional learning, interprofessional socialisation, collaborative practice, student clinic.

INTRODUCTION

The implementation of interprofessional collaborative practice (IPCP) in health care has been proposed as a potential strategy to address patient safety issues, improve quality care and health outcomes for patients, and reduce workforce shortages (Garling 2008, WHO 2010). IPCP occurs when "multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, carers, and communities to deliver the highest quality of care across settings" (WHO 2010, p. 13). It does not occur automatically. Though collaboration may develop informally through learning by trial and error (Freeth 2010). However it is more efficient if promoted through a formal interprofessional education (IPE) programme. IPE is defined as occurring "when two or more professions learn with, from, and about each other to improve collaboration and the quality of care" (Barr 2002, p. 17). Nonetheless for many years there has been international debate about the promotion of interprofessional education, when it should take place, how it should be managed, who will be involved, and what should be taught (Thistlethwaite 2012).

Traditionally, professionals are socialised in their own professions where they develop a professional identity. They become familiar with the values, attitudes, beliefs, and behaviours that are inherent in their profession. It is not until these professionals join the workforce that some may branch out to develop collaborative working skills (Trede 2012). Teamwork and interprofessional communication are key interprofessional competencies, as are patient centred care, role clarification, collaborative leadership, and interprofessional conflict resolution (Canadian Interprofessional Health Collaborative 2010). If health professionals are to collaborate in practice they need interprofessional socialisation experiences as undergraduates. This type of experience is thought to improve understandings of interprofessional roles and team communication (Abu-Rish et al 2012, McCallin and McCallin 2009).

The evidence base however is variable. Curran et al (2010) argue that general health science students have positive attitudes about IPE, although negative attitudes are evident in medical student groups. In contrast, an evaluation of a long-term interprofessional training ward in Sweden found that doctors exiting the programme had developed interprofessional skills over their six-year training (Wilhemsson et al 2009). Similarly, Anderson et al (2011) report there is some evidence that students engaging in formal IPE experiences are more likely to have constructive attitudes towards colleagues from other professions. Therefore, the earlier students engage in IPCP the better.

There have been numerous IPE initiatives in pre-registration health professional education programmes internationally (Abu-Rish et al 2012, Kenaszchuk et al 2012, Reeves et al 2011), with some development in New Zealand (Horsbugh et al 2006, Pullon et al 2013). While there is support for IPE programmes (Ministry of Science and Technology 2009), there are considerable costs and challenges associated with developing and sustaining such programmes (Clark 2004, Rees and Johnson 2007). The promotion of IPCP is important in New Zealand, which faces a significant challenge in meeting the health needs of an ageing, ethnically diverse population (Paterson 2012). AUT University is responding to that challenge by helping create a health workforce which collaborates across multifaceted disciplines and sectors. There is limited research in this area in New Zealand (Horsbugh et al 2006, Pullon et al 2013). This paper adds to the very limited body of knowledge, and provides feedback to aid the development of IPE and IPCP taking place at a University Clinic.

The University Clinic

The University Clinic (Akoranga Integrated Health) is part of the School of Interprofessional Health Studies and is located on AUT University's North Shore Campus in Auckland. The Clinic accommodates many health science students who undertake clinical placements as part of their studies. The students come from a number of different professions including nursing, physiotherapy, podiatry, counselling / psychology, occupational therapy, and oral health. The University Clinic provides opportunities for the students to participate in interprofessional learning and clinical practice. This allows the University Clinic to meet one of its objectives of preparing students for an interprofessional approach to health care delivery. The development of an interprofessional learning and working culture is a complex task that requires work at many levels. For example, final year students within the University Clinic need to be organised to attend weekly interprofessional in-services, regularly participate in interprofessional tutorials, and participate in combined treatment sessions with patients requiring input from two or more professions. The University Clinic has been developing and running these sessions since 2011.

Student placement structure and duration vary between professions. Some placements are short observational placements (one to two days), whereas others extend for the entire academic year and are the foundation for the development of the students' clinical skills. While on placement the students participate in the regular interprofessional learning activities that occur. The main interprofessional learning activities include in-services, which are weekly sessions that run for 45 minutes at the start of a clinical day. Attendance at the sessions is compulsory for students on placement in the clinic, and the sessions are presented by a number of different people ranging from those with teaching, clinical, and community health care backgrounds. The sessions cover topics such as chronic pain, interprofessional communication, managing conflict in the clinic, and role clarification. The interprofessional tutorials involve students working on and presenting their management strategy for a case based scenario in small mixed professional groups. These sessions have typically included students from two professions (i.e. physiotherapy and podiatry students) and are two hours in length. The combined care sessions involve students from two of more professions working together to provide a single treatment session for a patient. These are scheduled where it is felt a patient would benefit from the input of more than one profession (i.e. physiotherapy and psychology in the case of the patient with hyperventilation syndrome).

The University Clinic provides clinical services for staff, students, and the local community. Therefore the clientele includes a wide range of different people, with a great variety of different presentations both acute and chronic. The University Clinic's 'staff' includes the students, as well as a mix of Clinical Educators (Clinical Supervisors) and academic staff. The University Clinic management has spent considerable time and energy developing the skills of the Clinical Educators and academic staff so that there is a consistent understanding of IPE and IPCP held by all. Furthermore, regular workshops have been run to develop the skills and confidence to supervisor across professions.

AUT University has adopted and developed The University of British Columbia model of IPE (Charles et al 2010) in its undergraduate health programmes over the last ten years. The model involves three phases of learning; *exposure, immersion,* and *integration*. *Exposure* occurs in the first year of the students study and involves an introduction to the concept and the key interprofessional competencies (interprofessional communication, role clarification,and client centred care). *Immersion* occurs in the second and third years of the students' study and involves the application of their knowledge. This phase also includes education on and application of more advanced interprofessional competencies (team functioning, interprofessional conflict, and collaborative leadership). *Integration* is the third and final phase and involves the integration of the skills and competencies into clinical practice. The purpose of the University Clinic is to provide a place where health science students can integrate IPCP into their practice and have opportunities for IPE in clinical situations. The students' feedback provides insight as to whether the University Clinic meets its objectives to prepare students for IPCP when they graduate. The feedback allows for further development of the University Clinic and may also identify if the various professions view and value IPCP in different ways.

Aims of the Study

The aims of this investigative study were to (1) explore the students' perceptions of their interprofessional clinical experience; and (2) evaluate the utility of an interprofessional education questionnaire with a group of New Zealand health science students who had completed an interprofessional clinical placement.

METHODS

Participants

Health science students who had completed a clinical placement at the University Clinic during 2012 were eligible to complete the Interprofessional Education (IPE) Student Questionnaire. There were no exclusion criteria. Approximately 100 students were eligible for the study. The student mix was approximately

30 physiotherapy, 30 podiatry, 30 oral health, and 10 other (nursing, occupational therapy and counselling psychology students).

Measures

Data were collected using the IPE Student Questionnaire (Brewer et al 2010). The questionnaire has a mixed measures structure, as it contains components that require either quantitative or qualitative analysis. The questionnaire was selected because it includes a combination of data types that are more likely to provide an in-depth understanding of the students' experiences. The questionnaire is sub-divided into three separate questionnaires. The first questionnaire collected data about the students' interprofessional clinical experience using the Interprofessional Socialization and Valuing Scale (ISVS). The second questionnaire, the Clinical Placement Short Responses Questionnaire, collected data about personal experiences. The third questionnaire collected information about the students' demographic characteristics, and previous educational and health care work experiences.

Interprofessional Socialization and Valuing Scale

The ISVS was developed by King et al (2010), and consists of 24 items that measure the students' perceptions of their attitudes, beliefs, and behaviours acquired as a consequence of working with health professionals and students from other disciplines in an interprofessional health care environment. Students are asked to respond to each item using a six point Likert scale (1 = *not at all* to 6 = *to a very great extent*). King et al (2010) undertook a factor analysis of the ISVS, and found that the 24 items load onto three subscales which had acceptable Cronbach alphas: self-perceived ability to work with others (9 items, $\alpha = 0.89$); value in working with others (9 items, $\alpha = 0.82$); and comfort with working with others (6 items, $\alpha = 0.79$). In addition, the Cronbach alpha for the entire scale was found to be 0.90 (King et al 2010). Examples of items include: *I feel comfortable in accepting responsibility delegated to me within a team* (self-perceived ability to work with others); *I feel able to act as a fully collaborative member of the team* (value in working with others); and *I feel comfortable about initiating discussions about sharing responsibility for client care* (comfort with working with others).

Personal Experiences about the Clinical Placement

Participants were required to report their personal experiences about the clinical placement using a combination of written closed- and open-ended questions, with the latter being in the form of short responses. This questionnaire was developed by Brewer et al (2010). Examples of the items in this questionnaire provide an overall rating of the student experience of the placement using a five-point Likert Scale (1 = *very poor* to 5 = *very good*); whether the placement experience had changed their understanding of other health professionals (*yes*/*no*) and how attitudes had changed; the beneficial and challenging aspects of the placement; how the learning experiences might impact on future work plans; and which professions they interacted the most with during the placement.

Design and Procedure

This study was an exploratory cross-sectional design in which the students completed the IPE student questionnaire at the end of their clinical placement. The mixed measures approach was seen to be useful, as it gives access to wide-ranging information and provides 'multiple ways of seeing and hearing' the data (Greene 2007). Ethical approval was granted by the Institutional Ethics Committee (AUTEC: #12/7). Permission to conduct the study and access students was obtained via the Clinic Manager, who invited the students to participate but was otherwise not involved in the study. Towards the end of the clinical placement students were asked to complete the questionnaires either at the final weekly clinic in-service, or in their own time away from the clinic. Participation was voluntary. Those who completed the questionnaire in their own time were supplied with a postage paid addressed envelop to return the completed questionnare. Students were reminded about the questionnaire by their clinical supervisors two to three days after it was given out.

Data Analysis

The ISVS and the closed ended reponses from the Personal Experiences about the Clinical Placement questionnaire were analysed using SPSS (version 20) with the alpha level set at .05. Data from the ISVS and its three subscales, the closed ended Personal Experiences about the Clinical Placement Questionnaire, and the demographic and previous tertiary education experiences, were analysed descriptively. Cronbach alphas were used to analyse the internal consistency of the ISVS and its subscales. As the ISVS response mode was a Likert scale, data were treated as non-parametric for the subsequent analyses. Spearman correlations were used to analyse the relationships between the ISVS and its subscales. Comparisons of the professional groups' scores on the ISVS and its subscales were analysed using the Kruskal-Wallis test. Because there were small numbers of oral health and other affiliation groups (four and three respectively), the two groups were collapsed into a new group (oral health and others) that provided feasible numbers for statistical comparisons. Kruskal-Wallis and Chi-square tests were used to compare perceptions of students from the three professional groups' perceptions of the overall experience of the placement, and whether their understanding of other health care professionals had changed as a consequence of the placement.

Qualitative data were analysed using content analysis. The short response questions were evaluated for frequently occurring concepts (Holloway 1997). Concept frequency was counted. For example the concept *referral* occurred in the data 10 times. Other concepts such as *understanding, awareness, roles, knowledge, appreciation, professional thinking, and other professions,* were collapsed into a category labelled as *interprofessional understanding*. The frequency identified the significance of the concept. Concepts that were mentioned in less than half the responses were omitted from the analysis.

RESULTS

Participants

Forty-two students (n=42) completed the questionnaire; however, five questionnaires had to be removed due to incomplete data. Table 1 outlines the descriptive analysis of the demographic, professional affiliation, and previous educational qualifications and health care experience. The majority of respondents were female, in the youngest age bracket, and were studying either podiatry or physiotherapy. Most respondents did not have a prior tertiary qualification; very few had health qualifications; and a few had previous health care work experience as a health care assistant in either oral health or rehabilitation. No data were available for students who chose not to participate in the study.

Table 1: Participants' demographic characteristics, professional affiliation, and previous educational and health work experience

		Frequency	Percentage
Gender			
	Male	12	29
	Female	27	64
	Unspecified	3	7
Age			
	20 to 25 years	25	60
	26 to 30 years	6	14
	31 to 35 years	4	10
	36 to 40 years	2	5
	41 years and older	1	2
	Unspecified	4	10
Professional Affiliation			
	Oral Health	4	10
	Physiotherapy	14	36
	Podiatry	18	46
	Other	3	8
Previous Tertiary Qualification			
	Yes	16	41
	No	23	55
	Unspecified	3	7
Previous Tertiary Health Qualification			
	Yes	6	14
	No	15	36
	Unspecified	21	50
Previous Work Experience in Health Care			
	Yes	8	19
	No	30	71
	Unspecified	4	10

ISVS ANALYSIS

The internal consistency of the ISVS was $\alpha = 0.91$, and for the three subscales it was $\alpha = 0.77$ for self-perceived ability to work with others, $\alpha = 0.85$ for value in working with others and $\alpha = .61$ for comfort with working with others. With the deletion of one item (*I believe that interprofessional practice is difficult to implement*) from the comfort with working with others subscale the Cronbach alpha increased to an acceptable level (0.74). Therefore this item was omitted from the remainder of the analyses of the ISVS and the comfort of working with others subscale. The means of the ISVS and the three subscales were relatively high ranging from 4.47 to 4.92 out of a possible maximum score of 6. The correlations showed that there were moderate to strong associations between ISVS and the three subscales. See Table 2 for the means, standard deviations, and correlations of the ISVS and its subscales.

Table 2: Descriptive data and correlations of the ISVS and its subscales for all respondents

	Mean (SD)	1	2	3	4
1. ISVS (23 items)	4.66 (.56)		.91**	.93**	.74**
2. Ability to work with others. (9 items)	4.92 (.57)			.79**	.58**
3. Value working with others. (9 items)	4.70 (.67)				.55**
4. Comfort working with others. (5 items)	4.47 (.74)				

Note: The ISVS is measured on a six point likert scale where items are rated from 1 to 6, 1 = 'not at all' and 6 = 'to a very great extent', ** = $p < .01$, SD = standard deviation

Comparisons of Professional Groups' ISVS and its Subscales Scores

There were 37 complete sets of data for the analysis of the three professional groups' mean scores on the ISVS, and its subscales. As can be seen in Table 3, the mean scores for all the analyses were high. There were no significant differences between the groups on any of the comparisons.

Personal Experiences of the Clinical Placement

There were no significant differences between the ratings for the three professional student groups regarding their overall experience of the placement (physiotherapy mean = 3.81(SD 0.75), podiatry mean = 3.90 (SD 0.54) and oral health and other mean = 3.84 (SD 0.41), Kruskal-Wallis statistic $\chi^2(2) = 0.59$, $p = .743$). As a consequence of the placement, thirty five students indicated that their understanding of other health professionals had changed, whereas two students (one each from physiotherapy and podiatry) stated there was no change in this understanding. A Chi-square test showed that there were no significant differences between the groups on their level of change in understanding of the other health professions ($\chi^2(2) = 0.64$, $p = .726$).

Short Response Questions

Data from 37 questionnaire responses were collated and analysed. Five of the questionnaires had insufficient data to analyse. The results of the short answer questions are presented in Table 4. The data indicated that most of the students who completed the questionnaire viewed the interprofessional clinical placement positively with regards to their overall experience,

Table 3: Three professional student groups' descriptive data and comparative analysis of the ISVS, and its three subscale scores

	Physiotherapy (n = 11)	Podiatry (n = 21)	Oral Health and Other (n = 5)	Kruskal-Wallis Statistic $\chi^2(2) =$	p =
ISVS	4.47 (SD .91)	4.84 (SD .38)	4.41 (SD .91)	4.44	.109
Ability to work with others	4.69 (SD .56)	5.08 (SD .42)	4.77 (SD 1.03)	4.19	.123
Value working with others	4.54 (SD .59)	4.86 (SD .42)	4.38 (SD 1.40)	2.84	.241
Comfort working with others	4.27 (SD .54)	4.70 (SD .54)	4.09 (SD 1.04)	3.07	.215

Note: The ISVS is measured on a six point Likert scale where items are rated from 1 to 6, 1 = 'not at all' and 6 = 'to a very great extent'

Table 4: Short response question results regard participants beliefs of IPE and IPCP

Key Student Responses
83% of students reported that their overall experience of the interprofessional clinical placement was good
91% of students stated that the placement had changed how they related to and understood other healthcare professionals
78% of students stated that they had an increased understanding of what other health professional students did. Understanding included reference to awareness, appreciation, insight, knowledge, roles, learning about, and professional thinking
59% of students reported that they found the interprofessional approaches to treatment most beneficial. In this instance knowledge about approaches was gained from interprofessional discussions, tutorials, lectures, and from working together
The question inviting feedback on the challenges of the placement had wide-ranging answers from getting up in the morning to information overload. The breadth of responses was such that these were not counted
The final question about the effect of the interprofessional placement on future work plans identified that 27% of students thought they would seek an interprofessional working environment if they could once they graduated

their understanding of other professions, and the perceived benefit to patients receiving the service.

DISCUSSION

The two aims of this study were fulfilled. Firstly, the students' perceptions of their interprofessional clinical experience were identified. Findings suggest that the majority of the students in the survey viewed the interprofessional clinical experience positively. Secondly, the results indicate that the IPE Student Questionnaire does capture the perceptions of health science students who had completed an interprofessional clinical placement. However some limitations of the tool were identified.

The results of the ISVS suggest that those final year students who responded (42% of the students placed in the clinic) valued the interprofessional clinical placement highly and had positive attitudes towards IPCP. Additionally as there were no significant differences between professional student groups on their ISVS scores and the closed ended questions about their personal experiences it appears that each professional group valued the placement in a similar manner. These findings are similar to those of De Vries (2012), who also used the ISVS as a measure of allied health professionals' beliefs and the value of interprofessional practice. Our results point to the placement being successful in improving interprofessional socialisation, which is one of the desired outcomes of such clinical placements (Abu-Rish et al 2012, McCallin and McCallin 2009). On the whole the responses of the short answer questions back up these findings with the majority of students indicating that they have a better understanding of the other professions' clinical roles. However, only 27% of this group of students envisage seeking employment in an interprofessional workplace. In light of this finding it appears that this clinical placement provides a starting point for the development of positive interprofessional attitudes in a clinical setting, but students require further exposure to interprofessional clinical placements. A true appreciation of the value of undergraduate interprofessional clinical placements may only be realised once the students have graduated, and are working collaboratively to achieve optimal patient treatment outcomes (Pollard et al 2012).

As our study was cross-sectional it did not investigate change over time, and therefore caution is needed in interpreting the findings. We have no way of knowing whether these attitudes are enduring in this group of students. Other literature has suggested that healthcare students with well-defined stereotypical views (both negative and positive) about each other may influence, if not compromise, future interprofessional interactions (Curran et al 2010, Hean et al 2006, Hind et al 2003, Horsburgh et al 2006, Nisbett et al 2008, Tunstall-Pedoe et al 2003, Wood 2004). Further a longitudinal survey by Coster et al (2008) suggested that "some interprofessional education courses may have little impact on attitudes and cause a minority of students to develop more negative attitudes" (p. 1668). This may have been the case in our study with two students indicating that the placement did not change their beliefs, but it is not known whether these students had positive or negative attitudes at the beginning of the placement.

There are some methodological aspects of the IPE questionnaire that warrant discussion. While the internal consistency of the entire ISVS scale, and the self-perceived ability to work with others and value in working with others subscales were acceptable, the comfort of working with others subscale was not adequate (0.61). This subscale's internal consistency reached an adequate level with the deletion of the item *I believe that interprofessional practice is difficult to implement*. It is not surprising that this item did not fit with the other items in the scale, as it differed from them temporally and conceptually. Students were required to envisage implementing IPCP in the future, and it did not contain any sentiments about interacting with other health professionals, whereas the remaining items in the comfort of working with others scale measured how comfortable the students felt during this clinical placement with their communication and clinical work with the other professional students. The moderate to strong correlations amongst the subscales of the ISVS suggest that they are measuring similar yet slightly different aspects of a similar underlying construct, namely interacting with other health professions in the workplace (Field 2009). Similar limitations of the ISVS have been highlighted in other research (De Vries 2012).

Students reported that the short answer items in the the Personal Experiences about the Clinical Placement Short Responses Questionnaire took too long to answer. To some extent this may have been due to the ambiguity of some items. For example one question asked whether the placement had changed how the students related to and understood the other healthcare professionals? Yes/No. If so how? Confusion occurred because the direction of the influence, positive or negative was unclear. Like the item deleted from the comfort of working with others scale two of the open ended questions requested information about which of the learning experiences the students were likely to use in the future and how the placement would affect the students' future professional plans. Questions about future expectations are known to cause confusion and false reporting (Hoerger et al 2010). At the time of answering the questionnaire the final year students were at an undergraduate level and had little or no work experience in their chosen profession, and hence it is conceivable that their beliefs about their work in the future would be unclear. There were some inconsistencies in the demographic section of the IPE. For example the age range categories were not uniform. Since the inception of this study, another tool has been identified which overcomes some of the limitations presented with the IPE Student Questionnaire. The University of West England Interprofessional Questionnaire (Pollard et al 2004, 2005), has fewer short answer questions, is valid and reliable, and is currently being used internationally as well as with other projects at other AUT University interprofessional clinics (The Wellsford IPE Programme: Boyd and Horne 2008).

Four strengths of the study include the use the mixed methods design of the tool, which provided both qualitative and quantitative data that supported each other, suggesting that the responses were trustworthy. Other strengths were the fact that this study adds to the limited body of literature in New Zealand on this topic, and that the sample size and questionnaire return rate (42%) were acceptable. The main limitations were the relatively small representation of some of the professional groups and the study's cross-sectional design, which only revealed the students' attitudes at that time point, and was unable to show change over time. Future studies would benefit from employing a longitudinal design that would give insight into potential changes in IPCP attitudes over time.

CONCLUSIONS

The results of the study would indicate that on completion of the clinical placement at the University Clinic, students view inter-professional experiences as valuable and beneficial. The results suggest the ISVS is a reliable tool but would benefit from with some modification. There are limitations with the other two sections of the IPE Student Questionnaire. What remains to be shown is whether interprofessional education translates into interprofessional collaborative practice and in turn, if this practice translates into better patient care.

KEY POINTS

On completion of an IP clinical placement at the University Clinic:

- Graduates indicated that they have a better understanding of what other professions do and how they could work together on graduation to provide patient centred care.
- Graduates appeared to equally see merit in IPE regardless of their professional background.
- The long term expectation is that the graduates will be better prepared for the working in more complex collaborative environments but this expectation still needs to be investigated.

ACKNOWLEDGEMENTS / FUNDING

The authors would like to acknowledge AUT University's 2012 Learning and Teaching Development Fund Fellowship for their scholarship that funded the lead researchers' time for this study.

CORRESPONDING AUTHOR

Daniel O'Brien, Physiotherapy Clinic , Akoranga Integrated Health Clinic, AUT University, Private Bag 92006, Auckland 1142
Email: dobrien@aut.ac.nz

FUNDING

Funding Source AUT Learning and Teaching Development Fund Fellowship 2012 and University staff salaries.

REFERENCES

Abu-Rish R, Kim S, Choe L, Varpio L, Malik E, White A, Craddick K, Blondon K et al (2012) Current trends in interprofessional education of health sciences students: A literature review. *Journal of Interprofessional Care* 26: 444-451.

Anderson ES, Thorpe LN and Hammick M (2011) Interprofessional staff development: Changing attitudes and winning hearts and minds. *Journal of Interprofessional Care* 25: 11-17.

Barr H (2002) Interprofessional education: Today, yesterday and tomorrow (Occasional Paper No. 5). London: Centre for the Advancement of Interprofessional Education.

Boyd M and Horne W (2008) Team working in in primary health care. Team working and interprofessional education. Auckland: Three Harbours Trust.

Brewer M, Franklin D and Wolf L (2010) IPE Student Questionnaire: Health Science Student Manual. Curtin University. Australia.

Canadian Interprofessional Health Collaborative. A National Competency Framework (2010) http://www.cihc.ca/files/CIHC_IPComptencies_Feb1210.pdf. (Accessed 12 September, 2011).

Charles G, Bainbridge L and Gilbert J (2010) The University of British Columbia model of interprofessional education. *Journal of Interprofessional Care* 24: 9-18.

Clark PG (2004) Institutionalising interdisciplinary health professions programs in higher education: The implications of one story and two laws. *Journal of Interprofessional Care* 18: 251-261.

Coster S, Norman I, Murrells T, Kitchen S, Meerabeau E, Sooboodoo E, and d'Avery L (2008) Interprofessional attitudes amongst undergraduate students in the health professions: A longitudinal questionnaire survey. *International Journal of Nursing Studies* 45: 1667-1681.

Curran V, Sharpe D, Flynn K and Button P (2010) A longitudinal study of the effect of an interprofessional education curriculum on student satisfaction and attitudes towards interprofessional teamwork and education. *Journal of Interprofessional Care* 24: 41-52.

De Vries D (2012) Therapists value of interprofessional collaboration. Central Michigan University, USA. Unpublished Thesis.

Field A (2009) Discovering statistics using SPSS (3rd ed.). London: SAGE Publications.

Freeth D (2010) Interprofessional education. In T. Swanwick (Ed.) Understanding medical education (pp. 53-68). London: Wiley-Blackwell.

Garling P (2008) Final report from the Special Commission of Inquiry: Acute Care Services in NSW Public Hospitals. Sydney Australia: State of NSW Special Commission of Inquiry.

Greene J (2007) Mixed methods in Social Research. Thousand Oaks, CA: Sage.

Hean S, Macleod Clark J, Adams K and Humphris D (2006) Will opposites attract? Similarities and differences in students' perceptions of the stereotype profiles of other health and social care professional groups. *Journal of Interprofessional Care* 20: 162-181.

Hind M, Norman I, Cooper S, Gill E, Hilton R, Judd P and Jones S (2003) Interprofessional perceptions of health care students. *Journal of Interprofessional Care* 17: 21-34.

Hoerger M, Quirk S, Lucas R and Carr T (2010) Cognitive determinants of affective forecasting errors. *Judgment and Decision Making* 5: 365-373.

Holloway I (1997) Basic concepts for qualitative research. Oxford, United Kingdom: Blackwell Science.

Horsburgh M, Perkins R, Coyle B and Degeling P (2006) The professional subcultures of students entering medicine, nursing and pharmacy programmes. *Journal of Interprofessional Care* 20: 425-431.

Kenaszchuk C, Rykhoff M, Collins L, McPhail S and Soeren M (2012) Positive and null effects of interprofessional education on attitudes towards interprofessional learning and collaboration. *Advances in Health Science Education* 17: 651-669.

King G, Shaw L, Orchard C and Miller S (2010) The interprofessional socialization and valuing scale: A tool for evaluating the shift toward collaborative care approaches in health care settings. *Work* 35: 77-85.

Ministry of Science and Technology Report (2009) *Health delivery research landscape: An overview of New Zealand research capability and health delivery*. Report to the Minister of Science and Technology. Wellington, New Zealand.

McCallin AM and McCallin MCH (2009) Factors affecting successful team working and strategies to facilitate collaborative teamwork. *NZ Journal of Physiotherapy* 37: 62-68.

Nisbett G, Hendry G, Rolls G and Field M (2008) Interprofessional learning for pre-qualification health care students: An outcomes-based evaluation. *Journal of Interprofessional Care* 22: 57-68.

Paterson R (2012) The good doctor: What patients want? Auckland NZ: Auckland University Press.

Pollard K, Miers M and Gilchrist M (2004) Collaborative learning for collaborative working? Initial findings from a longitudinal study of health and social care students. *Health and Social Care in the Community* 12: 346-358.

Pollard K, Miers M and Gilchrist M (2005) Second year scepticism: Pre-qualifying students' midpoint self-assessment, attitudes and perceptions concerning interprofessional learning and working. *Journal of Interprofessional Care* 19: 251-268.

Pollard K, Miers M, and Rickaby C (2012) "Oh why didn't I take more notice?" Professionals' views and perceptions of pre-qualifying preparation for interprofessional working practice. *Journal of Interprofessional Care* 26: 355-361.

Pullon S, McKinley E, Beckingsale L, Perry M, Darlow B, Gray B, Gallagher P, Hoare K and Morgan S (2013) Interprofessional education for physiotherapy, medical and dietetics students: a pilot programme. *Journal of Primary Health Care* 5: 52-58.

Rees D and Johnson R (2007) All together now? Staff views and experiences of a pre-qualifying interprofessional curriculum. *Journal of Interprofessional Care* 21: 543-555.

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

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

Thistlethwaite J (2012) Interprofessional education: A review of context, learning and the research agenda). *Medical Education* 46: 58-70.

Trede F (2012) Role of work-integrated learning in developing professionalism and professional identity. *Asia-Pacific Journal of Cooperative Education* 13: 159-167

Tunstall-Pedoe S, Rink E and Hilton S (2003) Student attitudes towards undergraduate interprofessional education. *Journal of Interprofessional Care* 17: 161-172.

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

Wood D (2004) Not if I was very ill. *Medical Education* 38; 684-687.

World Health Organisation (2010) Framework for action on interprofessional education and collaborative practice. Geneva, Switzerland: WHO.