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AN INTERPROFESSIONAL APPROACH TO ARCHITECTURE EDUCATION: COLLABORATION BETWEEN ARCHITECTURE AND OCCUPATIONAL THERAPY

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ABSTRACT

A research study which explored cross faculty collaboration of the professional disciplines of architecture and occupational therapy yielded many teaching and learning lessons learnt for the wider community of practice of interprofessional educators. The academic programmes involved the design and development of a structured intervention program delivered concurrently into the course syllabus of a first year core design unit of an undergraduate architecture course and a third year core professional practice unit of an undergraduate occupational therapy course. The teaching and learning aims sought to increase student engagement of both cohorts with the growing international agenda of social inclusion and provided rich experiences in relation to universal design practice within a framework of inter-professional education. The results of the study evidenced increased and broader student understanding of issues in relation to inclusive design and engagement with different ways of thinking. The study further established a pathway for the embedding of universal design practice within both programs at multiple levels; has captured the interest and eye of key community and industry stakeholders nationally; and, has identified opportunities for cross faculty work integrated learning and research opportunities into the future. This paper presents the outcomes of the research study.

INTRODUCTION

This research was undertaken in 2010 as part of an Australian university strategic teaching and learning grant scheme (STALGS) titled Design 4 Diversity: enhancing interprofessional learning for architecture and occupational therapy students. The focus was interprofessional education for architecture and occupational therapy students in relation to universal and inclusive design practice. Specifically the aims of the project were to: 1) explore the current community, industry and interprofessional philosophy and practice regarding universal design and inclusive design practice; 2) develop and trail flexible blended teaching and learning resources, designed to provide rich experiences regarding raising awareness of inclusive design practice; 3) explore and identify sustainable opportunities for architecture and occupational therapy students to learn about inclusive design practice within a framework of interprofessional education, and, 4) explore and identify sustainable partnerships with key stakeholders that will support ongoing research and work integrated learning intended to drive collaborative practices for both professions forward.

The raison d'etre of interprofessional education is that students from different professional groups, who will work together in future, should engage in learning with, from and about each other, with the aim of promoting collaborative practice and ultimately improving the quality of the service they offer (Ellis, Morison and Purdy, 2008, pp. 77). The reflection of collaborative practice in interprofessional education models used in health and social science programmes were found to be of particular value when applied to built environment programmes (Ellis, Morison and Purdy 2008; Oxley and Glover, 2002 and Allinson et al., 2003). The programmes of architecture and dentistry, (Aurel and Howe, 2010) showed the example of 300 students and staff engaged in professional collaboration to develop leadership in public health education and community engagement. This unlikely collaboration offered the flexibility to bring different audiences together and to offer a platform to collaborate knowledge sharing through diverse networks with multiple partners. In architecture and built environment education, learning design and communication is a typically highly personal process, however the introduction of a blended learning environment increased both individual and cooperative learning.

INTERPROFESSIONAL EDUCATION (IPE)

Interprofessional education emerged as a branch of constructive alignment education applied primarily in health, health planning, social welfare fields and allied health related professions. In 2007, the University of Minnesota adopted the definition of interprofessional education, developed by the Center for the Advancement of Interprofessional Education (CAIPE) that states, "Interprofessional Education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care."™. Interprofessional education occurs when students from the health professions and related disciplines learn together about the concepts of health care and the provision of health services toward improving the effectiveness and the quality of health care (CAIPE 2007).

Although effective interprofessional education may occur in different ways, it generally involves the following elements: collaboration; respectful communication; reflection; application of knowledge and skills; and experience in interprofessional teams. Hugh Barr from the UK Centre for the Advancement of Interprofessional Education offered this definition of IPE:

> "The application of principles of adult learning to interactive, group-based learning, which relates collaborative learning to collaborative practice within a coherent rationale which is informed by understanding of interpersonal, group, organisational and inter- organisational relations and processes of professionalisation."

Within this framework, IPE is distinguished from multi- professional education (also known as shared learning or common learning) because the latter relates to circumstances when different professional groups learn together for whatever reason with common content of learning. The former focuses on learning from and about each other to improve collaboration and consequently the quality of care. The use of varied descriptions for inter-professional practice where 'prefixes such as inter, multi, and trans are used randomly' (McCallin, 2001). Barr's (1996) definition is well established and widely accepted in these fields, and focuses on interprofessional (as opposed to multidisciplinary) education, where the ultimate intention is to improve collaborative practice, rather than simply as an end in itself.

DESIGN FOR DIVERSITY agenda

The process by which environments are designed and constructed is the medium through which inclusive design can be implemented. Insufficient best practice examples to guide practitioners were considered impediments (Hitchcock, et al., 2001) and further developments were needed to improve developments in current methodologies (Keates and Clarkson, 2003). Dalcher (2006) advocated for the borrowing of knowledge from other disciplines to promote effective universal design. "No one area can give the entire answer and the essence of design activity is, therefore, in the reconciliation and resolution of multi-issue, multi-disciplinary dilemmas, decisions and trade offs."(Dalcher, 2006, pp. 264). The work of occupational therapists (OT) and architects in universal design practice has been separated in practice due to differences in professional socialization and language. A recognition of and respect for the strengths of each group would facilitate, along with early collaboration in the design process their collaborative practice.

The Design 4 Diversity agenda sought to bridge this distance between the two professions through increased emphasis on equity, diversity and access in social and political agendas at the local and national levels. Several local, national and global initiatives currently operating demonstrated the need for graduates who are able to work in new and emerging areas of practice. These include the United Nations Convention on the Rights of Persons with Disabilities (2008); Review of Australian Standards for Access and Mobility: AS 1428 (2009), Disability (Access to Premises) Standard, Victorian Government's Build for Life campaign (2010), Livable Housing Design standards (Federal) and others that consider place making and healthy cities in recent years have also made traction in this arena. The literature review conducted by the Design for diversity research team found little evidence of educational initiatives in relation to these movements. No precedent instances where architecture and occupational therapy students have been brought together within the context of interprofessional education about a shared area of practice, that is, universal design/inclusive design were reported.

methodology

Conceptualisation of IPE approach

A range of teaching and learning strategies designed and developed jointly by the faculty staff involved saw the collaborative architecture and occupational therapy program embedded into the respective curricula (Refer Figure 1 and Table 1). The conceptualization of IPE approach was realized as an "intervention" model and saw students from both cohorts take part in an infused program of delivery of specific themed content and through focused engagement by academic staff from both disciplines.

Evaluation of three aspects of both qualitative and quantitative data were conducted: 1) the experiences of students in relation to the teaching and learning program; 2) measurement of the level of self reported readiness for interprofessional learning at pre and post intervention; and 3) measurement of the level of self reported achievement of the student intended learning outcomes at pre and post intervention. A pre and post evaluation survey elicited information from students at the

beginning and end of the intervention program. Additionally, a standardised instrument that measures the readiness for interprofessional education was utilised.
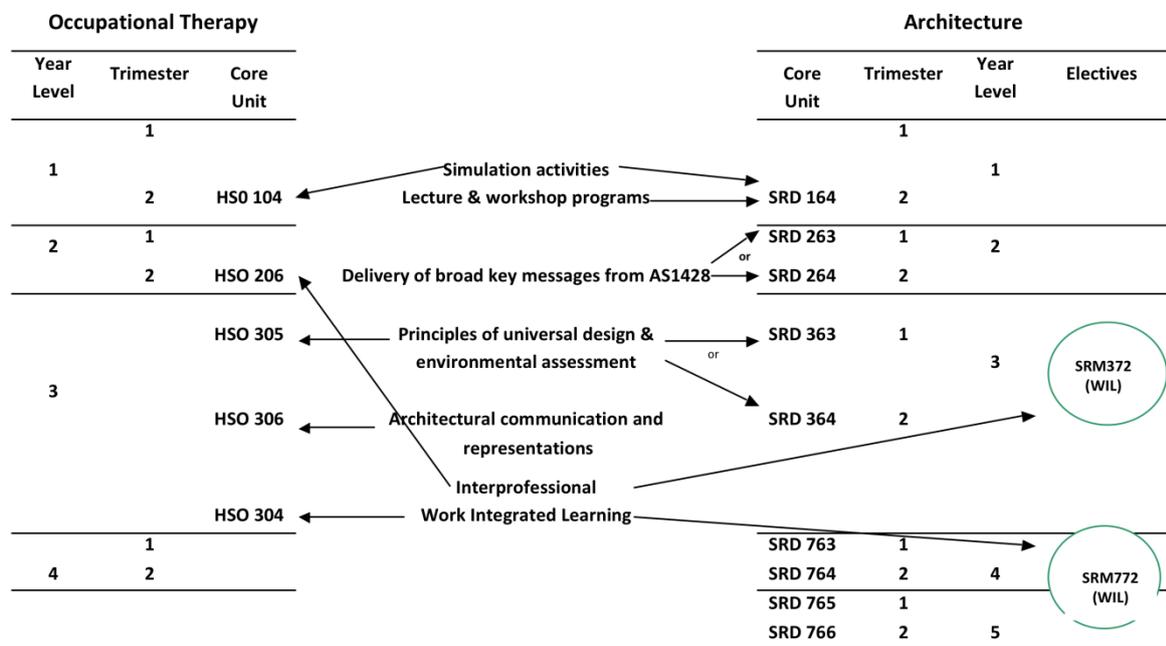

Figure 1: Architecture and Occupational Therapy Curriculum Infusion

Delivery of themed content and student learning experiences

Teaching and learning strategy delivered to 114 architecture students and 49 occupational therapy students.	Themes
Themed lecture content by academic staff and guest lecturers	• Designing for diversity • Mobility and accessibility • Australian Standards that related to accessibility • Disability and dignity • Proxemics • International Classification of Functioning (WHO, 2001) introduced as the model of considering diversity of abilities in the community. • Principles of universal design (North Carolina State University, Centre for universal design)
Student immersive and interactive practical workshop and small group discussions.	• A range of experiences designed to provide "real life" simulation of wheelchair use and vision impairment. • Virtual simulation environments (Second Life) via avatar use of wheelchair.

Cross school academic staff were involved in each other's curriculum	OT staff participated in design studio reviews.

Architecture staff and students participated in OT curriculum in relation to design literacy and architectural communication for occupational therapy practice. |
| Shared online learning resources including multi media (View Quest) made available to both cohorts of students, online narrated power points, references and weblinks. | Showcasing a series of interviews with key stakeholder representatives around key issues regarding inclusive and universal design. |

Table 1 Table of summary of content of collaboratively designed and delivered program

study findings

<center>Student outcomes and evaluation</center>

In architecture students' final design project presentation, students were required to show evidence of how they had considered the principles of universal design within their final design solutions. Many had gone to considerable effort to make their design accessible for a broader group of people than those typically considered. While not conforming totally to the Standards, the intent was to take these things into consideration while at the same time not to inhibit their consideration and thinking in relation to the design elements. Students made a link between early exposure to other influential parties and the development of suggested recognition and respect. Views about the status of universal design as a specialist area or core skills were mixed. OT students recognised it as a specialist area and distinguishuised it from their other fields of practice; architecture students argued that universal design was essentially good design and therefore fundamental. End users were identified as extremely important. Issues identified as being factors, which restrained or damaged the ongoing development of universal design in the community included the historical and current focus on disability or many as a narrow view of the subject saw aging.

The readiness for inter-professional education (RIPL) evaluation showed architecture students to be significantly less ready for inter-professional education than occupational therapy students. Given the different year levels of the two student groups and the experience of OT students with a previous inter-professional practice unit in the Faculty of Health, this is unsurprising. A post evaluation showed the pattern was similar although some items on the 19-item scale were no longer statistically different in relation to the gap between architecture and occupational therapy students. Of some concern, was that OT students as a group showed a trend in some items to be less positive about the benefits of interprofessional education after their collaborative education experience. Given the literature that has shown this to be the case in some studies, this is understandable.

Overall, findings suggest that this group of architecture students saw less value in shared inter-professional learning opportunities and were less positive about the concept, and the teaching and

learning interventions did not bridge to any great extent the gap between the two student groups. Some students offered comment that they wanted to see more contact hours where architecture and occupational therapy students could come together so that they could gain greater benefit from the opportunities. Both groups of students reported feeling more confident in relation to describing the Principles of Universal Design and to demonstrating evidence of this in a design solution and critiquing a design solution against the Principles.

Stakeholder consultations

In addition to student participation, three focus groups and twelve telephone interviews were held with representative community and industry stakeholders. The 28 participants included representation from a range of professional backgrounds including architecture, occupational therapy, access consultancy, service management and a variety of health, education, and law professions. Thematic analysis of the data revealed six key themes: 1) What is inclusive / universal design; 2) Multiple stakeholders; 3) What's holding us back; 4) Making it happen; 5) Skills required, and 6) The bureaucracy.

Discussion revolved around the nature of the design process. Early involvement of all key parties at the beginning of the design process was advocated. Too often access consultants felt they were brought in at the last moment to ensure that a design conformed to the relevant standards for accessibility. This meant that the final design solution compromised both form and function, not to mention additional costs related to changes specified. The view was that good universal design is both interprofessional and inter-industry and is the result of the intersection of a broad range of viewpoints and that no one profession will ever have the remit for universal / inclusive design. Stakeholder participants felt that where architects and others had experience, either directly with family members or friends or colleagues, their understanding of the importance of universal design and its implementation is better understood.

There was the opinion that community education; greater inter-professional education; having champions of change; promoting people with disabilities in community leadership positions; and, architects with greater exposure to life experiences will together with statutory requirements, contribute to greater implementation of inclusively built environments. There was agreement that universal / inclusive design is not just about physical access and the built environment. Overall, participants confirmed the findings of the literature review that there is no general agreement regarding preferred terminology. Broad application of universal or inclusive design could not progress until the design industry recognises the need for built environments to be designed from a 'cradle to grave' perspective. Participants commented that in recent years the focus on accessibility has diminished as the sustainability movement has become more dominant. Some did not see this as an either / or phenomenon but rather that accessibility and the impact of built environments on people's health and wellbeing is integral to the sustainability argument and the design process.

Difficulties in translating discussion into tangible change were identified, and both the trades and general community were highlighted as group requiring more education on the need for universal design. Many could see the potential benefits and advantages universal design offers, whilst identifying economic pressures as a major barrier to universal design and that universal design was being constrained by the current focus on disability, rather than a whole population approach.

reflection and pLan of action for 2011

Architects were seen to focus on form and the creative elements of the design process and were often trained to defend their design. In contrast, occupational therapists focused more on function and its application to individuals or groups and there were clear need for a balance between the two. This begs the question of how to bring the various stakeholders together so that the design process is collaborative and promotes respect and recognition for each group's expertise and skills. The interprofessional collaboration increased understanding of the impetus that had seemingly been lost in recent years. The project team are continuing the work into 2011 and identifying how this work can be extended further into upper levels of the architecture course units.

With last year's first year cohort now in second year, a second year unit has been earmarked for intervention, where students' consideration of the issues and subject area can be extended. In this unit, students are required to design a shelter and three sites have been identified for this purpose, each student working in relation to one site. The shelter that they are to design needs to be able to provide shelter for up to five people. In order for students to consider the needs of a broader group of people, it has been proposed that one of the sites needs to accommodate a person who uses a wheelchair, the second site needs to accommodate a person who is blind (i.e. legally blind) and the third site needs to accommodate a person who is elderly and frail and uses walking frame or single point stick. One aspect of the marking criteria for their projects will take account of the degree to which students' designs have considered their design within these considerations. A lecture presentation by access consultants will introduce a little more formally the Australian Standards relevant to accessibility. In this presentation the political and social context to the Standards (i.e. why do we have them) will be introduced and then some broad information about them provided. The primary focus of the presentation will be about aspects of the Standards relevant to the three conditions that students will need to be investigating (i.e. vision impairment, wheelchair use and frail aged). It is therefore envisaged that information about aspects of the Standards relevant to these conditions e.g. steps / ramps / height of door handles and signage / color contrasts etc. it will be part of the presentation. In this way students can start to understand what are the issues for people with these conditions that students need to consider without necessarily students having to know the specifics of the Standards in detail.

Collaborative work integrated learning opportunities have now also been identified and October 2011 will see the pilot of an architecture student placed alongside an occupational therapy student in an access consultancy organisation.

CONCLUSION

The Design 4 Diversity study has major implications in relation to universal / inclusive design practice at a local, national and global level. This paper focused on the interprofessional approach to

architecture education and in this context, we are able to conclude the findings support the available literature, expand our understanding of universal design as it is practiced in industry while other aspects address key gaps in the literature and educational initiatives internationally. A key message is that regardless of the terminology used, it can only be aspirational at best and that design for all is as much about the quality of the process within a context of inter-professional and inter-industry practice as it is about a focus on the end product. There is a need to see design for all as being so much more than just designing for people with disabilities and that the designing of buildings that are universally welcoming and accessible is an integral part of sustainability. The move towards exploring interprofessional work integrated learning opportunities for architecture and occupational therapy students has proven a positive step towards progressing this agenda towards best practice with regard to design for all.

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