Inter-professional education in universal design: An Australian case study.

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Abstract. In this world-first study in 2010, universal design education was introduced into the curriculum of third year occupational therapy students and first year architecture students. The teaching initiative included face-to-face and online teaching as well as an experiential workshop with students reporting positively in relation to their learning experiences. Since this time, the academic staff from both disciplines continue to embed universal design education into the curricula and it has been further extended into second year architecture where architecture students and occupational therapy students take an active role in critiquing students' design studio presentations. In a student-led initiative, architecture students who themselves have a mobility or other impairment present their own personal experiences to their student colleagues regarding the barriers to participation and the impact on their health and well-being, caused by built environments. This paper outlines the initial teaching and research initiative and explores the progress and outcomes since then.

Keywords. Universal design, design for all, inter-professional education, higher education, occupational therapy, architecture

Introduction

The design of built environments is critical to people's participation, health and well-being, regardless of ability. The processes under which buildings both public and private are designed, constructed and modified, rests with a number of disciplines including architects and occupational therapists. The concepts of 'universal design', 'design for all' and 'accessibility' are becoming increasingly influential in design thinking both nationally and globally[1] yet the literature suggests that collaboration between the key stakeholders is poorly understood[2]. At Deakin University in Australia, the potential for embedding inter-professional education in relation to universal design practice for undergraduate occupational therapy and architecture programs was identified as an opportunity to develop graduates who are well prepared to work in these newer and emerging areas of practice[3].

This paper provides an overview on the findings of a study undertaken in 2010 that explored the outcomes of an inter-professional education initiative and describes the ongoing and expanding collaboration between the two faculties in embedding universal design education into both architecture and occupational therapy curricula.

1. Initial teaching initiative in 2010

In 2010, a cross-faculty and cross-divisional representative group introduced inter-professional education in universal design practice to first year architecture (total enrolment of 114 students) and third year occupational therapy students (total enrolment of 49 students). The choice of year levels arose from a decision that architecture students needed to be considering universal design at the very beginning of their education as they start to think about design, while the content for occupational therapy was best placed in third year where there was a pre-existing curriculum component. Student learning outcomes were developed for both groups of students and embedded into specific assessment tasks. Specifically the learning outcomes were for students to be able to:

- Describe the Principles of Universal Design;
- Demonstrate evidence of universal design thinking in a design solution in the built environment; and,
- Critique a design solution from the perspective of universal design.

Both online and face-to-face teaching were delivered. At the beginning of semester, occupational therapy students were taught architectural drawing by architecture academic staff and architecture students were taught the Principles of Universal Design[4] and content related to the International Classification of Functioning[5] by occupational therapy academic staff. Online resources including narrated PowerPoints™, links to external resources and a set of interactive interviews developed by the research team, were made available to both groups of students[6]. Both groups also participated in a full-day workshop which included 'real-life' simulations of mobility and vision impairment and the use of a specifically designed Second Life™ environment to simulate wheelchair use[6]. The workshop also included a presentation by a person with a mobility impairment.

Qualitative data were collected in a pre and post evaluation methodology and all students completed the Readiness for Interprofessional Learning Scale (RIPLS)[7]. Results showed improvement in students' self-reported learning outcomes related to universal design. Students felt more confident and familiar with the principles that were taught and in being able to demonstrate evidence of universal design thinking in a design solution of a built environment and to describe factors that influence participation for people with a range of abilities. Students also reported favourably on the opportunity to speak first-hand with a person who uses a wheelchair in terms of extending their understanding of the impact of the built environment on participation. This supports previous studies where user involvement was found to be useful in facilitating the understanding of students[8,9]

'Real-life' simulations were found to be more useful than virtual simulations from both the self-report quantitative data and also from qualitative comments from participants[6]. Students reported the authenticity of the 'real-life' simulations in relation to physical fatigue levels, social attitudes and safety as powerful learning outcomes. As reported by one architecture student it was … "probably one of the most worthwhile things that I have done/could do as an architecture student"[6]. Whilst using virtual simulations potentially has advantages over 'real-life' experiences in terms of time and resources, student safety and acceptability to people with disabilities, in this study, students reported that the additional tactile, physical and social experiences in the 'real-life' simulations were important for their learning and understanding. It may be however, that in the future an alternative virtual environment could lead to a more authentic experience for students.

In relation to the RIPLS, occupational therapy students were significantly more positive about inter-professional education than architecture students overall and occupational therapy students became less positive on some items on the RIPLS after

completing the universal design initiative with architecture students[3]. These finding are consistent with other studies in inter-professional education in relation to heath care students, where inter-professional experiences can lead to some students becoming less positive[10].

Overall, findings from the study demonstrated positive outcomes for students and a recommendation to further develop this area of inter-professional education within the curricula of both academic programs. One architecture student commented … "this has been a life-changing experience, I now see the world in a different way".

2. Further developments

The academic staff from occupational therapy and architecture have continued to work together in the last three years to further embed universal design education into the curricula of undergraduate occupational therapy and architecture programs. There has been a commitment that this should be incorporated into existing curricula rather than as a stand-alone subject to emphasise to students the importance of this aspect of design and its centrality to the design process.

Introductory sessions and simulation workshops continue to be provided into first year architecture studio design and, in 2013, several architecture students who had mobility impairments (two who use a wheelchair) also presented to their peers about their personal experiences and the importance of good design. In the words of one of these students "universal design is like a good waiter; it's invisible, works well and is a good experience". In the second year design studio, students are introduced to a higher level of thinking about universal design and take on the role of critiquing each other's designs with a particular user group in mind. In addition, occupational therapy students are also part of the critiquing process, providing feedback as architecture students develop their designs.

The School of Architecture now actively seeks to engage tutors with a commitment to universal design, while architecture staff and students teach architectural drawing and communication to third year occupational therapy students. At the same time there has also been a corresponding increase in the number of research students from both disciplines who choose universal design as the focus for their thesis, including a recent study on the attitudes of architecture students to disability and universal design. The authors continue to seek opportunities to embed universal design education within the context of inter-professional education, to ensure that Deakin University graduates are able and prepared to work in this expanding and important area of global practice.

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