Community-based studios for enhancing students' awareness of universal design principles

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Abstract A series of community-based design studios were delivered at the University of Melbourne for postgraduate architectural students from 2017 to 2019 to arouse their awareness of universal design principles and the specific consideration of design for ageing.

A design studio is a place of experimentation and exploration. Students are encouraged to propose solutions to respond to our community needs. Bringing real-world issues into design studios enables students to equip themselves with the capabilities to formulate corresponding design strategies for built environment, especially to cater for the specific needs of people with disability and older adults.

Through the engagement with various stakeholders, including practising architects, urban designers, not-for-profit organisations and local councils, students were required to assess the site context and carry out site analysis, prepare precedent case studies, participate in inclusive design workshops and prepare schematic design, leading to their detailed design and final presentations.

In this paper, the course structure of these community-based studios is firstly introduced, followed by an analysis illustrating how students' awareness of universal design principles can be enhanced. Potential areas of improvement are discussed and further guidance for replicating similar studios at other institutions are given.

Keywords: Community-based Design Studios, Universal Design and Higher Education, Problem-based Learning, Active Learning, Participatory Learning

Introduction

A series of community-based design studios were delivered at the University of Melbourne for postgraduate architectural students from 2017 to 2019 to arouse their awareness of universal design principles and the specific design consideration for older adults. Each studio had different design brief and site location as listed in the table below:

Year	Name of Design Studio
2017 Semester 1	Design for Ageing: The Assisi Centre in Rosanna
2017 Semester 2	Design for Ageing: Retirement Apartment Development in Clayton South
2018 Semester 1	Design for Ageing: Towards an Age-friendly Community in the City of Moreland
2018 Semester 2	Deliberation in Guangzhou: Design for Ageing for the Local Community
2019 Semester 1	Design for Ageing in Sweden

Table 1

This studio series has a common theme of 'design for ageing', but the ultimate aim is to require students to create inclusive built environment which can be accessible and useable to the greatest extent by all people regardless of their age, ability or disability. The first three studios were Melbourne-based, whereas the last two studios involved travelling components as the site locations were Guangzhou in China and Gothenburg in Sweden respectively.

A design studio can be regarded as a creative laboratory for experimentation and exploration. The number of students in each studio is capped at a maximum of 16 students, which is an appropriate size to enable students to work in groups to engage with one another and to receive feedback after individual presentation during the class. During a 14-week semester, students were firstly required to carry out site visits and analysis for better understanding of the existing context before they prepared precedent case studies, developed their masterplans, schematic design and, finally, individual detailed design for final presentation.

Common Characteristics

This series of design studios shares some common characteristics. First of all, the studios were problem driven and project oriented. Each studio had its own design agenda, ranging from the design of a residential aged care facility, a retirement apartment, an aged-friendly neighbourhood to a community hospital. Under an inquiry-based model, students are expected to take the initiative to identify key design issues, which trigger their motivations to be actively involved during the whole learning process. Bringing real-world issues into studios enables students to equip themselves with the capabilities to formulate corresponding design strategies for built environment, especially to cater for the specific needs of people with disability and older adults. Students are encouraged to propose alternative solutions to address the society's needs.

Group work is an effective student-centered learning approach. Students were required to work in groups in the first half of the semester before working individually for their final design work. For a design studio with a mix of both local and international students, collaboration among students with diverse backgrounds is preferred, which enables students to share from various perspectives and to learn from one another. Students are expected to negotiate and reach consensus among their group members. Through peer collaboration, students can examine their underpinning beliefs and clarify their own understanding. They are also required to share the workload among themselves and to contribute own effort as a key player for tacking the identified issues collectively. The diversity in each group becomes a valuable resource for students to engage with the subject knowledge.

Engagement with industry is another salient feature of design studios. Various external stakeholders were involved, ranging from the not-for-profit aged care service provider, the Assisi Centre in Rosanna, to the developer, Cedar Woods, for retirement apartment design in Clayton South and the Moreland City Council for developing an age-friendly neighbourhood in the City of Moreland. Various industry practitioners and partners were invited to deliver guest talks to students and to serve as guest critics for providing feedback to students during the design development process, including architects, urban designers, interior designers, engineers and local council representatives. Engagement with external stakeholders inspires students to learn by exposing themselves to industry practice and up-to-date knowledge of the field of study.

Travelling components were involved in the last two design studios to provide opportunities for students to engage with overseas counterparts. Students completed site analysis, precedent case studies and schematic design first before travelling to overseas for two weeks and continued to develop their final design after returning to Melbourne. Students travelled to Guangzhou in 2018 Semester 2 and Gothenburg in 2019 Semester 1. Travelling design studios enable students to receive their first-hand experience of cultural differences abroad and develop cross-cultural skills and awareness.

Characteristics of Each Design Studio

In 2017 Semester 1, the design studio was in collaboration with the not-for-profit aged care provider, the Assisi Centre in Rosanna. The design task was to expand the existing residential aged care facility from 150 beds to 210 beds. A study tour was organised at the outset for students to visit the Assisi Centre to expose themselves to the living environment of the existing residential aged care facility and to have discussion with the management team over there. The Residential Aged Care Built Environment Audit Tool published by the Department of Health was used by students during the study tour (Department of Health 2012). The Audit Tool is a comprehensive checklist based on universal design principles to evaluate the age-friendliness of the built environment, including the external areas, entrances and hallways, communal areas, residents' rooms, bathrooms and toilets, to cater for reduced sensory abilities of older adults. After field observation and data collection during the study tour, students shared their findings among themselves to build up a database upon which they further developed their own design. The personal spatial experience of the aged care facility is crucial in the whole design process. Students were required to present their final design work to the Assisi Centre, which provided valuable feedback to students. Selected final presentation drawings were displayed at the 17th Alzheimer's Australia Biennial National Dementia Conference in Melbourne in 2017 and students had the opportunity to present their work to conference participants for further industry engagement.

Figure 1: Study tour at the Assisi Centre (left) and the exhibition at the 17th Alzheimer's Australia Biennial National Dementia Conference in Melbourne (right)

In 2017 Semester 2, the design studio was in collaboration with the developer, Cedar Woods for retirement apartment development in Clayton South. Postgraduate architectural students collaborated with postgraduate property students in this studio. Students from both disciplines visited the site in Clayton South and had face-to-face discussion with the developer to obtain updated information from an industry perspective. Students were divided into groups and there was at least one property student in each group. Interdisciplinary

discussion facilitates students to think outside their own disciplines and learn how to communicate with other professionals.

A study tour to the newly completed Rathdowne Place Retirement Apartment in Carlton was arranged for students to have a better understanding of retirement apartment design. The Evaluation of Older People's Living Environments (EVOLVE) tool developed by the University of Sheffield was used by students during the study tour to assess how well the newly built retirement apartment building can contribute to the physical support and well-being of the older adults living there (Lewis et al. 2010). Such checklist is quite comprehensive to cover various areas, including living units, communal facilities and circulation space, as well as detailed considerations of finishes and fittings, environmental design, services and systems.

For students to gain personal experience of the difficulties faced by people with disability, an inclusive design workshop was organised. Students in groups took turns to use wheelchairs and white canes and to look after one another for providing care and assistance if necessary. Through participatory and experiential learning, students become more attentive to the needs of disabled people and more aware of the crucial role of inclusive built environment by paying attention to design details.

Figure 2: Study tour at Rathdowne Place Retirement Apartment (left) and Inclusive Design Workshop (right)

In 2018 Semester 1, the design studio was in collaboration with Moreland City Council for creating an age-friendly community in the City of Moreland. Students were invited to attend a half-day workshop at the Moreland City Council followed by a site visit led by council officers. Compared with previous two studios, this one was not only confined within architectural design, but the design focus was enlarged to a neighbourhood or community level. The *Global Age-friendly Cities: A Guide* published by the World Health Organisation (WHO) was used as a reference framework, covering the aspects of housing, transportation, outdoor spaces and buildings (WHO 2007). An age-friendly built environment encourages active ageing through the optimisation of opportunities for participation and inclusion in all areas of community life. According to the field observation during site visits, students were required to critically evaluate the current provisions, to identify any shortcomings of the existing community and to propose design solutions to enhance the age-friendliness of the City of Moreland. At the end of the semester, students' final presentation drawings were displayed at the Brunswick Town Hall. Such exhibition was a valuable opportunity for

students to share their ideas with local residents and the overall feedback was very positive, arousing the importance of age-friendly built environment at the community level.

Figure 3: Site visit at the City of Moreland (left) and exhibition at the Brunswick Town Hall (right)

In 2018 Semester 2, the design studio was in collaboration with South China University of Technology (SCUT) in Guangzhou, China. The design task was to convert the existing old university hospital at SCUT to become an age-friendly community hospital. This studio adopted Integrated Design Studio (IDS) approach to overcome fragmentation of design specialisations. Industry partners and engineering consultants were engaged at the outset and invited to deliver guest talks to students from the first studio class. The Hospital Environment Audit Tool (HEAT) published by the Department of Health and Human Services (DHHS) was used as a reference framework to arouse students' awareness of the importance to optimise the hospital environment to best meet the needs of older adults and other vulnerable people during their hospital stay (DHHS 2018). This audit tool offers practical design strategies for hospital wards, communal spaces, external areas, lighting, signage and wayfinding with due consideration of users' mobility, independence and wellbeing.

During the two-week period in Guangzhou, research students from SCUT joined in students' groups for design collaboration and cultural sharing. Study tours to hospitals in Guangzhou were arranged for students to become more familiar with the current conditions, which inspired them to propose design solutions for better built environment for the proposed community hospital that can serve the general public. Students presented their work to academic members of SCUT and received valuable feedback for further developing their final design after returning to Melbourne.

Figure 4: Hospital visit in Guangzhou (left) and collaboration with local students at SCUT (right)

In 2019 Semester 1, the design studio was in collaboration with Chalmers University of Technology in Sweden for designing a residential aged care facility in Gothenburg. Similar to the previous travelling studio to Guangzhou, the two-week travel period was in the middle of the semester, so students could do some preparation work for them to be familiar with the site context and design requirements before their travel in Sweden. During their stay in Gothenburg, students had a close engagement with academic members at Chalmers, who delivered talks to students and acted as guest critics for providing interim feedback to students' design. Study tours to residential aged care facilities in Gothenburg were also arranged for students to experience the meticulous detailing of Scandinavian design.
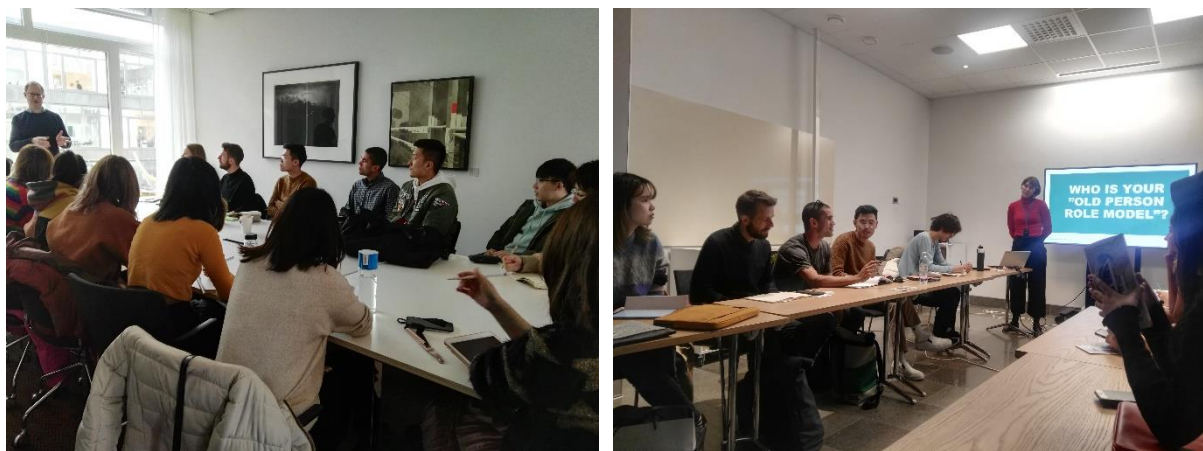

Figure 5: Guest talk at Chalmers (left) and engagement with Gothenburg City Council (right)

Areas of Improvement

There are some areas of improvement for this series of design studios. Considering that all the five design studios were focused on design for ageing, the needs of other age groups can be taken into consideration for studio teaching as well. Apart from using wheelchairs and white canes in the Inclusive Design Workshop, virtual reality (VR) can be considered to stimulate other sensory impairments for students to experience. More interdisciplinary collaboration can be further explored to provide opportunities for architectural students to interact with students in other disciplines, such as those studying urban planning, urban design, landscape design and even product design, with an aim to incorporate universal design principles to create a holistic inclusive built environment.

Conclusions

A design studio is a place for testing ideas and producing alternative outcomes. Based on a research driven pedagogy, studio teaching is no longer aimed to transfer information and techniques to students. Under active and participatory learning approaches, students are encouraged to be proactive to address social issues and to tackle real-world challenges under the supervision of studio leaders who act as facilitators to inspire students to continue to

explore. Problem-based learning, group work collaboration and industry engagement are essential elements of design studios that can be replicated at other institutions. These community-based design studios were well-received with favourable feedback from students. Through site visits and engagement with various stakeholders and industry partners, students obtain first-hand information and experience which are valuable for design inspiration. After taking these studios, students have become more aware of the importance of universal design principles and inclusive built environment, which can significantly contribute to the mobility and wellbeing of older adults and people with disability.

Acknowledgement

References

Department of Health. (2012). *Residential Aged Care Services Built Environment Audit Tool.* https://www2.health.vic.gov.au/about/publications/policiesandguidelines/resi-aged-care-built-env-audit-tool

DHHS. (2018). *Hospital Environment Audit Tool* (HEAT). https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/older-people/environment

Lewis, A., Torrington, J., & Barnes, S. et al. (2010). *EVOLVE: Evaluation of Older People's Living Environments.* https://www.housinglin.org.uk/Topics/type/EVOLVE-Tool-Evaluation-of-Older-Peoples-Living-Environments/

WHO. (2007). *Global Age-friendly Cities: A Guide.* https://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf