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Universal Design in Student Projects at the Dublin School of Architecture, Technological University Dublin

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1.0 Introduction

The Dublin School of Architecture offers programmes in Architecture, Architectural Technology, Construction Management, Construction Skills and Timber Technology. It is part of the College of Engineering and the Built Environment and consequently the architectural and architectural technology students receive their education alongside other future practitioners in the building industry. As a result of this the primary motivating factor for the school's education policy is to provide a strong relationship between the philosophy and theory of architectural design, and the practicalities of design and construction. In this context students are encouraged to engage with the principles of universal design as part of their primary design studio projects. In this respect it is similar to the way principles of sustainable design, building technology and cultural context are explored through the vehicle of a design studio project. However where the delivery of the latter learning criteria are all additionally supported by lectures, short projects and more direct teaching and learning, the principles of Universal Design are not explicitly supported in this manner in architectural design studios. Furthermore the education of architecture and architectural technology students, whilst both studio based, tend to have pedagogical impetuses which place different emphasis on parts of the design process. In the technical design studios taken by architectural technology students, Universal Design is predominantly taught as the approach underpinning the statutory requirements in relation to accessibility and equitability of use. This paper will discuss the challenges of incorporating Universal Design into an architectural education curriculum and how these have been approached at the Dublin School of Architecture. Examples of student projects from both the architecture and architectural technology will be described along with responses from students and staff of the learning outcomes of these projects.

2.0 Universal Design in Architectural Education - challenges

In her 2014 paper 'About the nature of design in universal design' Heylighen describes a study undertaken in Flanders which attempted to understand how Universal Design was being taught on the six Flemish architectural programmes and more pertinently why it was not being taught at all on three

programmes. The paper identifies four reasons given by the programmes being studied, of why not to teach Universal Design:

- the difficulty with how Universal Design is framed as either a potentially utopian or prescriptive concept
- the nature of third level education in which Universal Design is one concept amongst many
- the time constraints of the programme
- the lack of explicit reward for projects which demonstrate a strong inclusive agenda.

In discussions with DSA colleagues regarding the inclusion of Universal Design in our school curriculum the points above were also made. The requirement for architectural programmes to meet all the prescribed learning criteria set down by professional bodies along with academic learning outcomes can result in the making of a value judgement on the priority given to certain learning approaches and concepts.

Heylighen describes in detail the charge sometimes levied that Universal Design is 'utopian' – in trying to design for everyone, there will always be someone whose needs have not been met or whose perspective has not been considered. This however, she argues, is moot.

> "If there is no direct and no ultimate test for the solution to a design problem, questions arise as to what extent this utopian character is specific to Universal Design, or rather is inherent to the nature of design in general." (Heylighen, 2014)

In architectural education discourse on Universal Design there is often a conflation between 'accessibility' and 'universal design'. Accessible and adaptable environments are legislated for in the regulations, codes and standards that architects and designers work with on a daily basis. Knecht (2004) argues that if accessibility is a mandate, then universal design is a philosophy. Heylighen (2014) also describes how the American architect Ronald Mace who is thought to have coined the phrase universal design, described it as an *attitude*, "an approach to design that incorporates products as well as building features which to the greatest extent possible can be used by everyone" (Ostroff, 2001) . This is important in design education, for the attitude with which a design problem is approached strongly determines how the problem is understood and thus how it will be resolved.

In architectural education there is often an emphasis is placed on the empirical, on codes, standards and technical guidance rather than the users (people for whom the building, object is designed for). The importance of user-designer interaction, empathy for users and reflection on experiential feedback in developing inclusive design proposals as described by Christopherson (2002) is not incorporated directly in project briefs. Simultaneously this emphasis on universal design as a form of 'design specification' means that it is considered equally alongside other design criteria. Taken in this way Universal Design is a form of what Donald Schon (1983) calls a design domain i.e a set of "elements, features, relations, actions, and of norms used to evaluate problems, consequences and implications". Therefore use is only one of the normative design domains engaged with during a design project and should it be prioritised over others?

The CEUD's own report 'Integrating Universal Design Content in Third Level Curriculum' (2010) includes these approaches in its recommendations for content to be covered in the teaching of Universal Design:

- Terminology and definitions
- Human abilities and behaviour.
- Quantitative data such as anthropometrics and statistics on demographics.
- Methods of user-designer or community-designer engagement or observation.
- Cognitive, sensory and physical human factors in design.
- Functionality and desirability.
- Inclusive communication of information.
- Selected design techniques such as inclusive design process tools.

The CEUD report (2010) also lists amongst its recommendations the suggestion that universal design should be taught as part of a larger, school wide project or initiative in order to avoid being dependent on an individual and vulnerable to loss if the individual leaves the institution. Informal discussions with DSA colleagues support this position, as many of the studio projects which explicitly incorporate Universal Design principles are reliant on the interest and/or enthusiasm of an individual lecturer in the topic.

> "I feel that most people who have disabled sensitivities are predominantly those with direct experience within family or friends, otherwise as educators we have to introduce students to

people with varying disabilities as clients or occupants of projects." *from interview with fellow DSA lecturer 2015*

3.0 Universal Design in student projects at DSA

For many of the reasons identified above, Universal Design has not been incorporated in a specific and explicit manner in the project briefs in architectural design studios at DSA. An exception to this is the fourth year housing design project which will be described in more detail below. Colleagues describe an aspiration towards inclusivity and accessibility in their presentation of project requirements but are honest that other concerns – spatial, aesthetic, technical or environmental will often take precedence. In indirect ways, students are asked to engage with the physical nature of their own bodies in space (for example first years participate in a physical choreography exercise in groups) but the usability, accessibility or inclusivity of their design proposals are not generally weighted highly in assessment criteria.

In contrast, Universal Design in its 'specification' guise is clearly present in project briefs for architectural technology students. Here the requirement for students to demonstrate an understanding of issues of accessibility is clear from first year to fourth year. One possible interpretation of this is that architectural technology students are dealing with a narrower range of 'design domains' and therefore the question of prioritisation of one domain over another is less pertinent.

3.1 Fourth Year Architecture

In fourth year architecture, over the last number of years, the second semester multi-unit housing design project run by DSA colleagues Paul Kelly and Patrick Flynn has required students to engage directly with the 7 principles of Universal Design. This requirement is incorporated in the project brief and is clearly included in the assessment criteria. The consequence of this is a change in 'attitude' on the part of both staff and students. This attitudinal shift has consequences. Given the many ways a design challenge can be resolved, one's world view or attitude is the strongest determining factor in arriving at a solution (cf Heylighen 2014). The fourth year studio project is supported by presentations and lectures on Universal Design principles which further underscore its importance to the brief. The choice of housing as a typology also allows students to engage directly with questions of independent use, usability and accessibility from their own experience. The final component of the project requires

the design and construction of a 1:1 scale model of part of the building. As an exercise in engaging directly with the messy reality of design, this project component also allows students to consider more carefully the implications of their 'on paper' design decisions. The success of this project and the feedback from the students (examples included below) reinforce the fact that Universal Design must be incorporated within a design brief, be supported by additional lectures, allow engagement with real life user experiences (the students own or otherwise) and be a prioritised and assessed 'design domain'.

> "To be honest, I haven't heard about Universal Design within Studio projects before fourth year. It was not explicitly thought about through project briefs. However, it was clearly implicit from first year onwards that an understanding of architecture accessible and inclusive to everyone was something that had to come across and thought about throughout your projects."
>
> "The inclusion of Universal Design was highlighted greatly at the start of the project, for me there was more of an emphasis on it in the beginning. However, it stuck in our minds about it throughout the project. I think that it could have been pushed to a greater extent. It did inform part of the process because it meant that I was looking at the building as something for the community and something that anybody could access. Public space became Public space. When Public space is not accessible to certain margins of society then it is no longer fully public. I believe the Universal design approach became about making designing for society rather than a particular group."
>
> *Alice Clarke, DSA student*

> "In general I have found project briefs handed out in DIT to be all encompassing.They open with an umbrella theme, and are followed by an outline of site, building typology and client. You are provided with a list of targets to be met, and periodic reviews over the course of the semester. Although the term universal design has never been explicitly mentioned, it is always there in the background of the project. Once the poetic aspect of the project is dealt with, factors such as corridor widths, door sizes, stair inclines and room flexibility among others, come into play - grounding the project in some sort of reality."
>
> *Shelly Ann O'Dea, DSA student*

> "This project tackles the issue of universal design in a contemporary multi-storey timber apartment block. The concept evolved around the idea that the living accommodation would become flexible and overtime accommodate the changes of the "Living home environment" adapting to the alteration and requirements people from early family life to elderly living.
>
> In this project there was a great consideration on universal design was adapted from the initial design phase. Compared to other projects it was a lot more important to approach the brief with great consideration of carrying it through to the end of the project. Because it was living accommodation universal design became more of a factor than other design briefs, once I was aware that universal design could be used conceptualised in the design phase it became

interesting to see how the building in its entirety could become universal and not just the appliances and regulated requirement that guided the design.

In terms of how universal design was accommodated into the brief and year I am to the option that it was the correct brief to introduce the topic. I believe students are at the stage where they are a lot more aware of regulation and how buildings are details which can prove more useful when exploring universal design and embracing it as a positive response rather than a requirement."

James Ward, DSA student

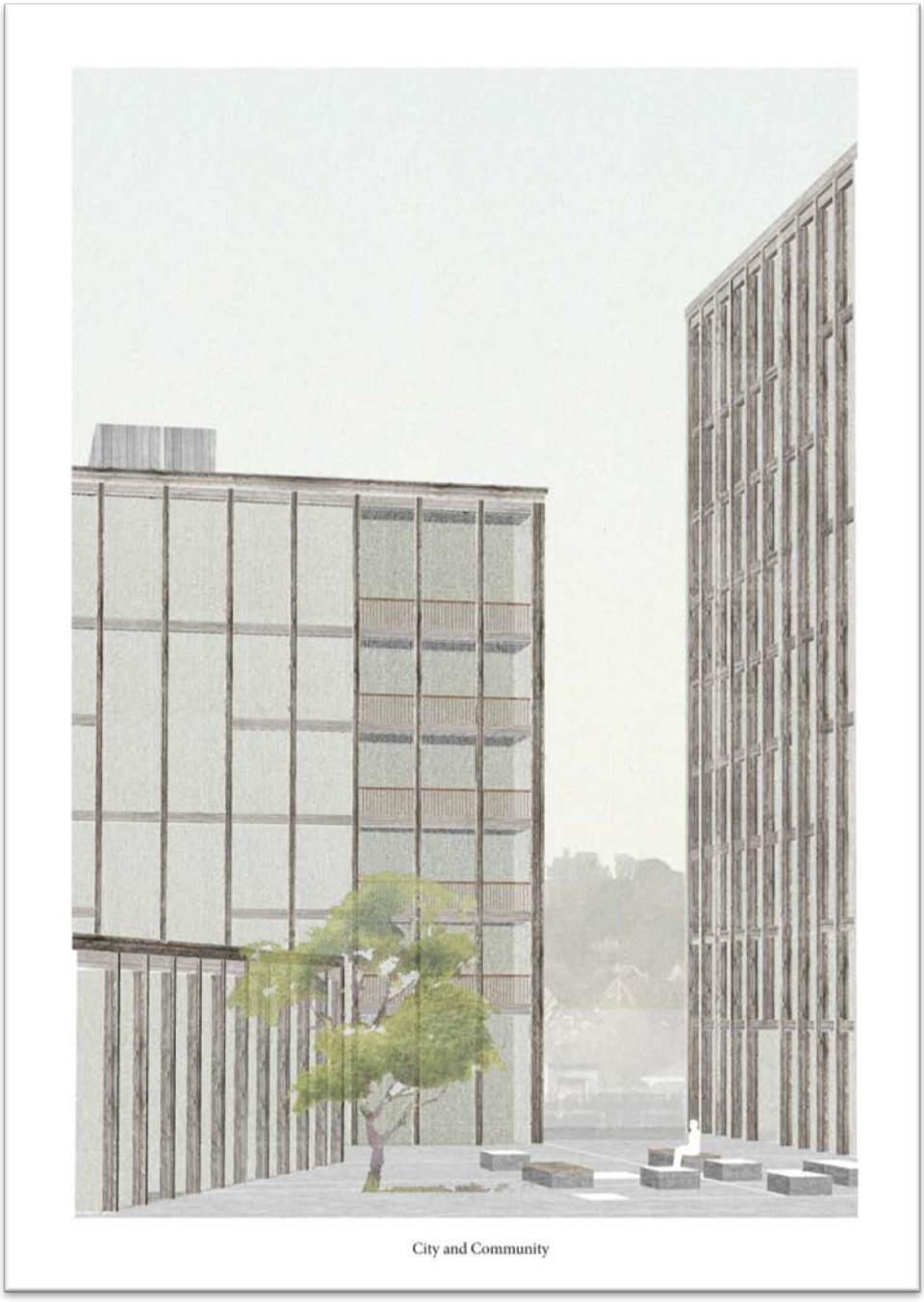

Figure 1: DT101/4 Housing Project, Alice Clarke

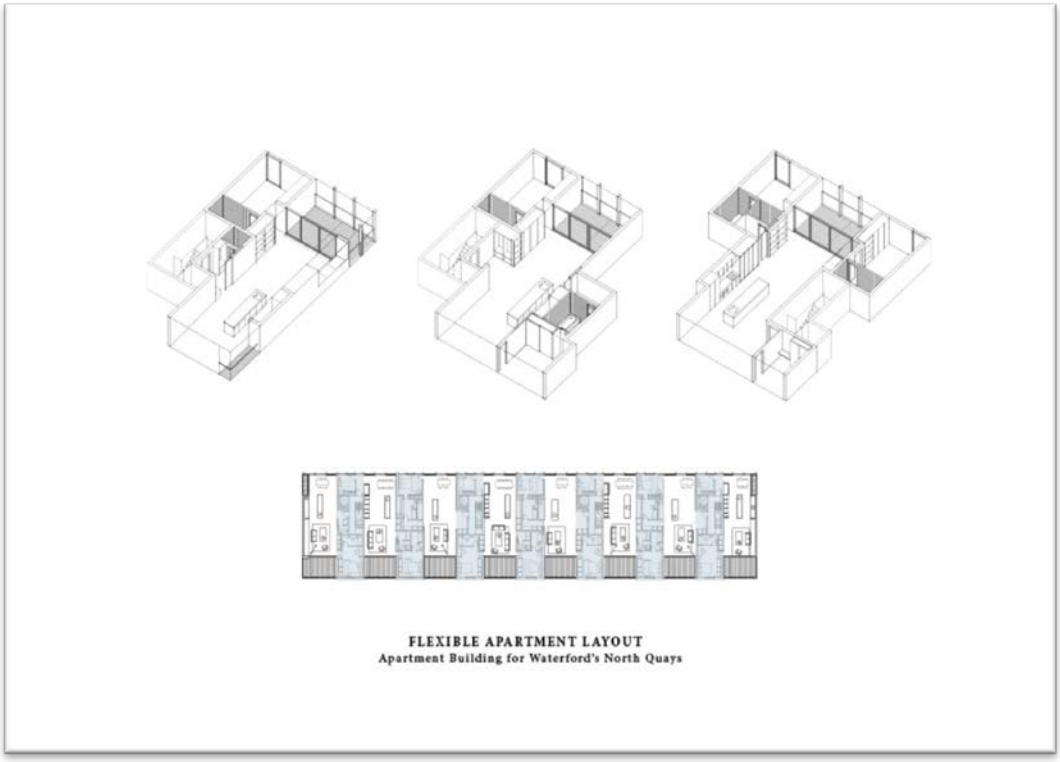

Figure 2: DT101/4 Housing Project Shelly Ann O'Dea

3.2 Fourth Year Architectural Technology

Students in the architectural technology programme at DSA are required to develop a strong understanding of the technical and legislative standards underpinning the architectural design process. Whilst Universal Design as a philosophy is not actively discussed, compliance with these standards is included in most technical studio project briefs from first year upwards and in both second and fourth year students are required to prepare a report for a Disability Access Certificate for their studio projects. In their final year, architectural technology students are required to undertake a detailed research project on a topic of their own choice. One recent thesis project by Davitt Lamon explored the development of a Building Accessibility Rating system based on existing POLIS research into accessibility audit systems:

> "An access audit is the starting point to defining an action plan for interventions seeking to enhance the accessibility level of a building, whether it is in the design process or an already constructed building. It is a means to identify problems and suggest barrier removal approaches and to help check compliance against an accessibility reference, i.e. national standards or building regulations. Access audits are often carried out by means of access checklists. POLIS advances conventional checklists by using a methodology for access audits that allows greater insight into the access level of the building, as well as identifying what needs to be done. "POLIS is a means to systematically identify architectural and functional barriers of

the built environment and to suggest efficient solutions for their removal." (POLIS, 2008) New or existing, the aim remains the same, to have a transparent way to identify accessibility problems and designate interventions for barrier removal and barrier prevention."

Davit Lamon, DT175/4 student

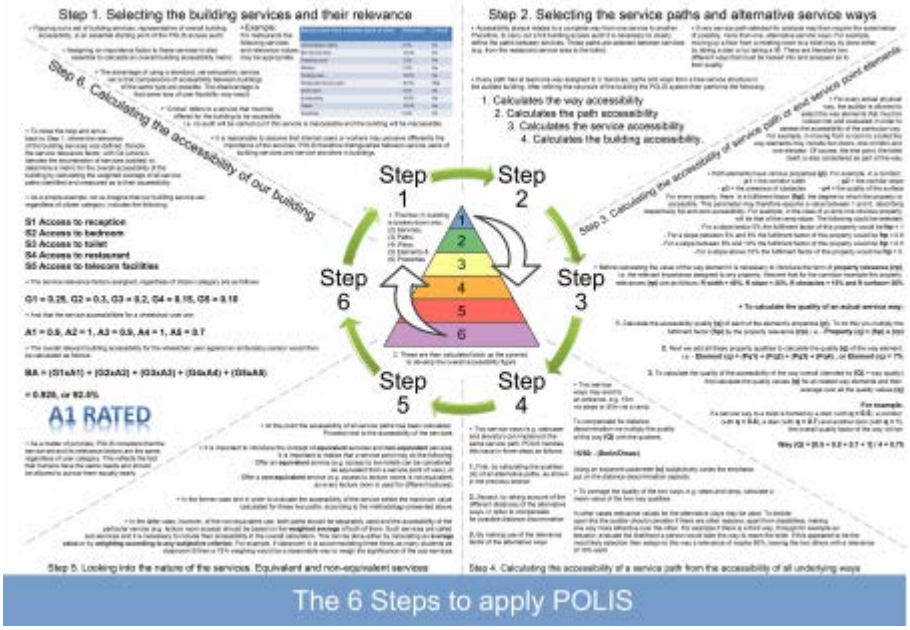

Figure 3 Extract from Davitt Lamon's DT175 thesis project

4.0 Conclusions

This paper presents a short overview of Universal Design principles into project briefs at the Dublin School of Architecture in both architecture and architectural technology programmes. There is a clear aspiration towards inclusivity and accessibility in the development of project briefs but an honest acknowledgement that other concerns – spatial, aesthetic, technical or environmental often take precedence at assessment stage. The findings if this quick study reflect existing research which concludes that Universal Design must be embedded in studio projects, supported by lectures and user experience and be part of the criteria for assessment if students are to fully engage with it. The different approaches to teaching Universal Design in the two programmes at DSA reflect the positioning of Universal Design as both a 'specification' for compliance or just one of the many 'design domains' (cf Schon 1983). Both are appropriate in the context of the required learning outcomes for these two student groups but further detailed research into the strengths and weaknesses of these approaches at DSA is warranted.

CEUD Report (2010) Integrating Universal Design Content in Third Level Curriculum

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