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Universal Design Building Standard for India: A Critical Inquiry

Mr Sushil Kumar Solanki¹, Mr R Khare¹

¹*School Of Planning And Architecture Bhopal, india, Bhopal, India*

Universal Design is a concept of built environment creation, where all people are facilitate to the maximum extent possible without using any type of specialized design. However, accessible design is a design process in which the needs of people with disabilities are specifically considered. Building standards on accessibility contains scoping and technical requirements for accessibility to sites, facilities, building and elements by individual with disability. India is also following its prescriptive types of various building standards for the creation of physical environment for people with disabilities. These building standards are based on western models instead of research based standards to serve Indian needs. These standards lack contextual connect when reflects in its application in the urban and rural environment. This study focuses on critical and comparative study of various international building standards and codes, with existing Indian accessibility standards to understand problems and prospects of concept of Universal Design building standards for India. The result of this study is an analysis of existing state of Indian building standard pertaining to accessibility and future need of performance based Universal Design concept.

Keywords: Accessibility, Building Standard, Built-environment, Universal Design

Community Parks and Playgrounds: Designing for social inclusion - Universal Design, Play value and intergenerational spaces

Dr Helen Lynch¹, **Ms Alice Moore**¹, Dr Claire Edwards¹, Ms Linda Horgan¹

¹University College Cork, Cork, Ireland

Outdoor parks and playgrounds are important social spaces in many communities. From a lifetime community perspective, parks and playgrounds are intergenerational sites, where children, young people, and adults gather and socialise in different ways. However, outdoor parks and playgrounds are often inaccessible and unusable for many members of the community, resulting in social exclusion. While it has been suggested that a universal design approach has the most potential for underpinning the design of parks and playgrounds, there has been limited research on the application of universal design principles to playgrounds in particular. Moreover, little is known about how users such as children with different abilities and disabilities, and their families, experience these social contexts. Thus, the purpose of this research project was:

- a) to conduct research with children of diverse abilities and disabilities and their families to gain insights into the experiences, facilitators and barriers to the use of public parks and playgrounds in one city council area in Ireland;
- b) to conduct research with persons responsible for the provision of public parks and playgrounds to gain insights into the challenges of design and provision of public parks and playgrounds;
- c) to investigate the application of the principles of Universal Design to playgrounds by reviewing international guidelines.
- d) To analyse playground policy and practice in relation to play value.

The study was conducted from October 2017 to May 2018. Findings will be presented that contribute to the development of national guidelines for provision of universally designed, playful public playgrounds.

Statsbygg- universal design in existing buildings

Mrs Aase B. Danbolt¹, Mrs Mette Jakobsen¹

¹Statsbygg, Oslo, Norway

Statsbygg is the Norwegian government's key advisor in construction and property affairs, building commissioner, property manager and property developer.

All of Statsbygg's work and public buildings must be UD by 2025. This includes about 730 buildings. For making existing premises UD in 2025, Statsbygg is developing about 65 existing buildings (150.000 sqm) every year into universally designed buildings. Every new building is universal design.

"Bygg for alle" (database) is used for registering universal design in existing properties. SESAM is a tool for management, operation, maintenance and development for buildings.

Many of Statsbygg's work and public buildings are listed as cultural heritage buildings. In Norway cultural heritage and UD legislation are equitable. We aim for UD in our listed buildings. Statsbygg has a strategy for investigating UD as an added value for the tenants and the heritage itself.

It is necessary to have focus on detail, define the needs to be filled and the features to be taken care of. There is a correlation between upgrade to universal design and user satisfaction in university buildings.

Universal design of public schools: a roadmap for accessibility

Ms Torunn Berg¹

¹*The Norwegian Directorate For Children, Youth And Family Affairs , Oslo, Norway*

Norway has ratified the UNCRPD, in which article 24 in UNCRPD articulates the right of persons with disabilities to equal participation and education in their community. However, several public schools in Norway are currently not accessible for pupils with disabilities. The result is a situation where the children have to attend schools outside their local environment, segregated from the local community.

In 2017 The Norwegian Directorate for Youth, Children and Family Affairs engaged a workshop process, intending to find a strategy on how to make all public schools universally designed by 2030. This demand can be seen as a continuation of a scenario process conducted in 2016, where the result was a description of three different scenarios for the status on universal design in 2030.

Methodology

The methodology used in this strategy-project (roadmap) is new to this sector. However, it is a well-known method in other fields, as it is a good way to plan for the future, to specify which way to go to reach the goal, and tie specific actions to the timeline.

The roadmap-process was realised during the fall 2017, and on two full-day workshops experts and researchers, people from the municipality administrations, user organizations and governmental institutions were gathered to discuss the status, the challenges, and what kind of actions that needs to be conducted. The group composition was thoroughly prepared, we needed someone with expert knowledge on the field, someone with economic- and legal responsibilities, and someone who experienced the challenges on a daily basis. This composition showed to be successful. The different groups opposed to each other in constructive ways, and the discussions resulted in important knowledge sharing and suggestions of feasible actions.

Result

The concrete result of this work is a transferable strategy consisting of feasible actions to make the public schools in Norway accessible for all. The strategy is focused around different actors' responsibilities, and the consecution of suggested actions needed to make the public schools accessible for all. The milestones are concretised and placed in a logical order, with room – and need for development throughout the process. The milestones include measuring universal design in all public schools, cross-sectorial cooperation among public offices, establishment of a competence unit, and not least – upgrading the schools.

Conclusion

This process has taught us valuable lessons, the most essential being the importance of thoroughly preparations before starting a workshop process. When working in the universal design field we often tend to invite participants that have the same theoretical focus and the same opinions on the needed steps forward. This rational can create good ideas and projects, but does not include the public arguments, and the real life challenges. During this working process we saw the importance of asking open questions, and prepare for constructive discussions with diverse perspectives. We found this working method transferable to other fields, and want to present the method as an applicable tool, with our roadmap for universal design of public schools as a case.

Day 1 - Tuesday 30 October: 11.00-12.30 Theme 03: Partnership and Community Engagement

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Investigating and Applying Universal Design: A Partnership Between a University and an Art Museum

Dr Joanne Gallagher Worthley¹, Dr. Linda Larrivee¹, Dr. Susanna Meyer¹

¹*Worcester State University, Worcester, United States*

Community settings allow individuals to connect and interact socially with others, and engage in new learning experiences. One type of community setting, public art museums, provide rich, cultural experiences for individuals that are distinctive and often repeated, due to changing exhibits. Unfortunately, for individuals with disabilities, these settings can have a negative impact if the physical environment or the social interactions with docents impede individuals' abilities to function and benefit from this type of community engagement. The principles of universal design (UD) can transform these negative experiences into positive ones that benefit the individuals and the community settings. One public institution of higher education in the United States, Worcester State University in Worcester, Massachusetts has a unique partnership with a nearby art museum. This partnership allowed two separate projects from two health-related professions to be conducted using the principles of UD. One project from the Occupational Therapy Department examined the physical environment in the context of an undergraduate course, and the other project from the Communication and Sciences Department investigated the delivery of docents' presentations for individuals with communication disorders, such as hearing loss. Although each project examined different aspects of the same museum experience, the recommendations benefit all museum visitors and increase community engagement.

Beyond Accountability: Supervision as a learning tool for educating Youth Workers

Mr Garreth Smith¹

¹*Institute Of Technology Blanchardstown, , Ireland*

Following recent controversies in Ireland (Console, Rehab and Central Remedial Clinic), the governance and management of charities has come into sharp focus. The impact of these cases has resulted in an increase in financial and administration accountability from both the public and the state. In this time of increasing demand for accountability both from the public and the state, nonprofit organisations, especially youth work organisations have been under increased pressure to produce evidence of their work and show value for money. These external influences are not without consequence and could be argued have influenced the focus of supervision. Traditionally, according to Tash (1967), youth work appears to have adopted early on a preference for non – managerial supervision or peer supervision in the context of practice generally. According to Tierney (2011) this maybe to do with the fact that the thinking originated in YMCA, a strongly value led organisation with a commitment to collaboration and empowerment. This leads us to assume that supervision in youth work has a long standing tradition of support, reflection, investment and relationships, yet as Wilson-Ahlstrom (2008) state that ‘In contrast to other professions..youth workers are too frequently recruited quickly and dropped into situations without adequate preparation or supervision’, a reality I would argue that is more prevalent during times of increased social demands and financial cutbacks. This increased demand for services coupled with disproportionate financial cuts to organisations has resulted in what could be argued as a hijacking of supervision by management with a clear focus on what Morrison (2001) identifies as the ‘Accountability’ function. This article aims to provoke discussion in relation to youth work supervision in the context of economic, political and social climate change and the need to reclaim supervision as a learning tool.

Regulatory Intermediaries: the role of interest organizations in translating and adjusting social regulations

Mr G. Anthony Giannoumis¹

¹*Oslo Metropolitan University, , Norway*

This article explores how interest organizations, including non-profit and commercial service providers, act as intermediaries to support the implementation of regulations for web accessibility. Web accessibility policies promote the usability of web content for persons with disabilities. Previous research on relational regulation has focused on the bidirectional relationship between regulators and private enterprises in managing compliance. However, this research has yet to examine the complex relationships that emerge when interest organizations act as intermediaries between private enterprises and regulators. Previous research demonstrates that intermediaries translate and adjust legal obligations in practice. This article demonstrates that interest organizations in the United Kingdom, United States and Norway translated and adjusted legislation and standards to demonstrate the commercial value of compliance. This article extends previous research by suggesting that interest organizations act as intermediaries to support policy implementation and manage compliance by translating and adjusting regulations and standards.

The experiment of Community involvement in a project planning within the historical context of Rome city

Dr Francesca Bozza¹

¹*Sapienza, Università di Roma, Rome, Italy*

The presentation show a Research Project financed by Sapienza Università di Roma_2017, proposed by the Phd Student, based on an agreement with the public administration "Design for sensible experience". The research, deepening objectives, tools and methods of a design sensitives to the "human parameter", is finalized to the acquisition of 'participatory process' to get citizen involved in the Design Process of outdoor archaeological paths, adaptive-ergonomics urban furnishings and sustainable_mobility for all. The range of city users involved are people with special needs or users with disabilities; the objective is re-educate people to remain positively open, with own opinions, managing feelings constructively, play a role in own competences, speaking about own feelings, necessities, perceptions.

Thanks to dedicated platform and help desk at Municipality, citizens can:

- 1.Fill out an assessment questionnaire about the accessibility level of the city.
- 2.Apply to participate at the 'cultural promenades' through the heritage sites, organized within the project. Users are interviewed; comments and experiences are reported.

The presentation will show questionnaire templates, pictures and video about experiences conducted with citizen.

Research Outcomes:

1.Multilayer map:

-Sites investigated are objectively reported on cartographical support: an users friendly Rome walkable map.

-Subjectively perceptions are "decrypted" and connected as "mental topographies" to create a new map layer, creating an 'emotional map'.

2.Website:

Annotated maps show city accessible routes.

3.A roman archaeological paths Design proposal.

The Project realized with citizens involvement, aims to contribute to the definition of Inclusive Design standards to overcome architectural barriers in Heritage Contexts including also "sensitive necessities".

A chapter in our story of collaborative engagement and knowledge building

Ms Margaret O Donoghue¹

¹*Institute Technology Blanchardstown, Dublin, Ireland*

Collaboration, Bailey and Koney (2000, p. 105) suggest, can be defined as a durable relationship that brings previously separate organisations into a new structure with a commitment to a commonly defined mission, structure, or planning effort.

Our story of collaborative engagement began in 2012 with a meeting of key stakeholders in the Fingal community. The meeting's objectives were to capture what was currently happening in the area of early years' literacy in the Fingal County area and to ascertain a vision for the Fingal County Libraries Early Literacy Strategy.

Our role at the Institute of Technology Blanchardstown (ITB) was to identify potential components within the development of the strategy that we could support.

Since 2012 we have taken part in three collaborative projects via a civic engagement approach. In 2016 as part of the Bachelor Arts (Hons) degree programme Early Childhood Care and Education, students were required to design and develop a story book that could support the development of children's personal, social and emotional development.

The project from ITB's perspective aimed to address the needs of our students, in meeting the required learning outcomes within the course module, to create and deliver an interactive fun literacy initiative to promote children's early literacy skills and to meet the needs of the local community.

The project was shortlisted for the Chambers of Ireland Excellence in Local Government Awards 2017. Such a successful outcome was due to the optimism and positive approach of all those concerned in seeing the bigger picture.

Understanding the influence of high school preparation on the success strategies of Canadian university students

Dr Alyson E. King¹, Dr. Susan M. Brigham²

¹UOIT, Oshawa, Canada, ²Mount Saint Vincent University, Halifax, Canada

Drawing on quantitative and qualitative data collected at three Canadian universities, this paper analyses the success strategies of undergraduate university students. We compare the strategies used by different age groups: “young” (aged less than 23 years), “borderline mature” (aged 23-30) and “older mature” (aged 31 and over) (Trueman & Hartley, 1996) and differentiate those responses based on self-identified cultural/ethnic identity, age and gender, as well as by self-reported high school grades and experiences. The data consist of 690 survey responses and 27 individual interviews.

In particular, the survey asked questions about whether and how high schools prepared respondents for university studies. Yes and no responses were split almost evenly. Detailed responses about how they were or were not prepared by their high schools were collected. We compare these responses by age (i.e., direct entry versus mature students) and by their success strategies in order to better understand the impact of high school preparation on the ways in which final year students and recent graduates successfully persisted throughout university.

While previous research has shown the importance of parental education and high school experiences in shaping aspirations for post-secondary education (PSE) and in overcoming barriers to access (such as Christofides et al., 2015) our research explores the perceptions of university students about how their high school experience impacted their university experience and success.

Holistic Perspective to Individual Study Plan: Personal Development Project Plan

Mr Ville Kivimäki¹, Ms. Saara Meriluoto¹

¹*Aalto University, Espoo, Finland*

How could we reinvent Individual Study Plan (ISP) in order to promote students to plan their studies? What kind of ISP model would be such that would really motivate students?

Based on graduate feedback we know that students feel they should have learned more project management. That observation led in integrating project planning and management elements in the Personal Development Project Plan (PDPP).

PDPP was co-designed with students. Aim was to design something that would help students track their achievements and plan their personal development, i.e. match personal development with project planning. PDPP puts all the focus on individual level. Through iterative and incremental process students are supposed to find their own personal targets and design the means and tools to track how they're advancing towards set targets. We see PDPP as a way to manage the expectations one faces as well as a tool for managing one's well-being.

Through PDPP process, students learn how they can take ownership of their studies. This should generate students more time to study and reach 60 ECTS/academic year and to finish their degrees in normative time. These factors are elements in university's funding model, thus making it possible that the use of PDPP could be seen as an investment.

To date, we have early results indicating more credits done by those students that have done PDPP compared to those who have not. Student feedback and teacher observations indicate positive learning experiences and effective learning in extra curricula skills and life planning.

Empowering students to perform an enhanced role in the assessment process: Possibilities and Challenges

Mr Paul Dervan¹

¹*Institute Of Technology Blanchardstown, Blanchardstown, Dublin, Ireland*

Assessment is key to student learning. It is also central to the work of Higher Education Institutes (HEIs) because it and its associated processes validate the attainment of learning outcomes by students. This validation serves to underpin the ‘contracts’ between HEIs and their students and between HEIs and their ‘supervisory’ organisations under in-situ governance arrangements.

Recognising these realities, this paper argues the case for increased participation by students in the assessment process despite power and expertise differentials that will exist in the student–teacher relationship. The potential benefits include fostering a sense of co-ownership amongst students; enhanced student motivation and learning together with improved teaching. Examples of increased participation include allowing students to have an input in to how they are assessed and allowing them to assess their peers and to provide feedback to them.

Building on a review of the literature and original research conducted amongst staff and students at the author’s Institute, this paper examines the extent to which students are currently participating in the assessment process (other than being the recipients of grades determined by their educators). Crucially, it seeks to define levels of ‘participation’ before reporting on the degree to which students (who will undoubtedly have diverse abilities) believe they are empowered to allow them to participate effectively in the assessment process.

The paper also identifies barriers to participation by students together with recommended approaches, initiatives and supports to empower all students to become partners in the assessment process rather than being mere recipients of grades.

Career Services and Student Success in Canadian Postsecondary Institutions

Dr Peter Dietsche¹

¹*University of Toronto, Toronto, Canada*

A significant number of studies have shown the key role “career clarity” plays in the performance and persistence of postsecondary students. An examination of career services in secondary schools has shown considerable variability in the quality of these support services and the provision of less than optimal information to support the career planning of students at this level. The result is high school graduates selecting postsecondary programs of study for which they are ill suited. Many subsequently abandon their studies to search for new pathways into the labour market.

In 2016-17 a major national study examined career services in Canadian postsecondary institutions to understand the landscape of career services delivery. A key focus of this research was to identify “impressive” models of career services delivery including: institutional investment in career development; variation in delivery models; and estimates of career services impact. The goal of this project was to demonstrate how career service providers can enhance the profile of and build institutional commitment to career services in postsecondary institutions. This session will discuss how career services practitioners can collaborate with other campus stakeholders to maximize student success.

Designing inclusive approaches to practice based learning: Implications for Academia

Dr Lavinia Mclean¹, Mr Emmett Tuite

¹*Institute Of Technology Blanchardstown, Dublin 15, Ireland*

Clinical experience is an increasingly important aspect of many courses in Higher Education in Ireland (HEA, 2015). The placement experience offers a significant learning opportunity for students, and facilitates the application of theoretical knowledge to real work practice scenarios. Placement experiences are however often reported to represent the most stressful elements of learning for students, particularly in the initial periods due to a perceived lack of competence and knowledge (McLean & Tuite, 2017). This paper will describe undergraduate student's views regarding factors that influenced their clinical learning experiences. Previous research with students in healthcare settings has emphasized factors related to the importance of relationships with placement supervisors, organizational characteristics and individual student issues in relation to effective placement learning (Dale, Lennard & Gunnar Dale, 2013). Consideration of universal design principles when structuring practice placements may allow for a student experience which maintaining a suitable balance between challenges and supports. Practice placements may present particular challenges for student groups who require additional supports within the college environment. Well developed relationships with stakeholders and industry partners can ensure a suitable level of support is available for students who require it when based outside the campus environment. Translating universal design principles from the college environment to related industry settings may simplify this transition process. The present research focuses on the experiences of undergraduate Humanities students in relation to practice placement. The presentation will outline a variety of approaches to supporting practice learning which can accommodate a range of complex student needs. Knowledge regarding the perceived factors that influence learning is essential in any student centered learning environment and will assist educators to develop appropriate teaching strategies for the clinical learning environment.

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Building Owners Approach to Universal Design. A Slow Change!

Dr Sidse Grangaard¹

¹*SBi / The Danish Building Research Institute, Aalborg University, Copenhagen, Denmark*

When new buildings do not comply with the accessibility requirements of the Danish Building Regulations, the main reason is often attributed to a lack of knowledge and prioritization. It is the experience of architectural firms that clients decide their own focus on accessibility during the design process, and also whether the level of accessibility should be higher than that stipulated in the Danish Building Regulations. Post-occupancy evaluations point out that when the client is particularly conscious of, or ambitious about, accessibility/Universal Design (UD), the result is a building with an extensive level of accessibility. Thus, the client is a key figure for the project and the level of ambition. Based on interviews with 15 Danish clients, this paper presents a characterisation of their conception of Universal Design. It is significant that, as a concept, UD has not gained currency among the clients that let their ambition level be defined by the Danish Building Regulations. In order to capture differences between clients, a description of the client's conception of users and designs is based on an analytical framework about the concepts of particular, universal, market and equality. The analysis shows that three conceptions about accessibility/UD can be characterized among the clients: 1) accessibility by design, 2) broad accessibility 3) added value. Above all, the findings show that a development is going on towards UD, although slowly.

Keywords. Accessibility, client, Danish Building Regulations, knowledge, Universal Design

Spatial (e)quality from a user perspective

Mr René Sørensen Overby¹

¹*Danish Building Research Institute, Aalborg University, Copenhagen, Copenhagen, Denmark*

Universal design (UD) has gained global significance and is in the process of interpretation and institutionalisation in the Nordic Region. Hence a broader understanding of the theoretical basis and practical architectural applicability of UD is in process of advancement.

This paper builds a framework for understanding two present notions of UD and accessibility in Denmark. Implications are that understandings and motivations of UD and accessibility from Architect's and User's perspective are asymmetrical. In collaborative relationships, UD is respectively seen from an architectural design perspective and a human rights perspective. This has an influence on dialog and cooperation of the two parties. Reflecting the possibility to furthering a comprehensive understanding of spatial implication of UD, this paper aims to contribute with a clarification and a discussion of the two perspectives.

With the architectural field, Disabled People's Organisations Denmark (DPOD) is one of the core actors in user participatory processes related to UD and accessibility, and the organisations play an important role in a Danish discourse.

Through observations and interviews with DPOD's user representation and practicing Architects, the paper sheds light on the central notions of UD and accessibility - a Spatial Quality Perception and a Spatial Equality Perception.

Along with qualitative research conducted at the Danish Building Research Institute the on-going PhD research project "Generating Inclusive Built Environments through User Driven Dialogue in the Architectural Design Process" frames current thinking and discusses the process of advancing the dialogue, in direction of furthering both Spatial Quality and Spatial Equality.

Universal design making a difference to distressed assets in Sri Lanka

Dr Penny Galbraith¹

¹*Centre for Universal Design Australia, , Australia*

Prescriptive and retrospective accessibility regulations, a rich architectural and cultural history, recent civil war and a distressed asset base make for considerable challenges. This paper describes how universal design principles formed the foundation of technical training delivered to Sri Lankan professionals, to assist them comply with accessibility regulations, and their obligations under the United Nations Convention on Rights of Persons with Disabilities. The paper is based on work funded by the Australian Government's Department of Foreign Affairs and Trade and delivered by a delegation from the Australian Human Rights Commission. The training was based on 25 years' practitioner experience of applying universal design in the built environment.

The commitment to removing barriers to the built environment for people with disabilities is evidenced by a set of robust regulations that are prescriptive and retrospective. Further, drafting and translation errors contribute to difficulty achieving these objectives and thus there is a poor level of understanding and compliance with accessibility regulations. This presented a seemingly intractable combination of difficulties.

However, it was decided that providing the delegates with a robust understanding of universal design principles would allow them to navigate these difficulties by thinking about the problems differently, even if they could not achieve strict compliance.

There were particular concerns about transport and the public realm. Lessons from Australia were shared including whole-of-journey transport planning and prioritisation methods such as principle pedestrian networks. Community and industry engagement was a central theme to taking more strategic and universal design approaches to solving complex problems.

A Review of Universal Design in Professional Architectural Education: Recommendations and Guidelines

Dr Eoghan Conor O Shea¹, Ms Megan Basnak², Professor Edward Steinfeld², Professor Merritt Bucholz¹
¹SAUL, University of Limerick, Limerick, Ireland, ²IDeA Center, State University of New York at Buffalo, Buffalo, USA

There is a growing understanding of the widespread societal benefits of a universal design approach when applied to the construction of the built environment. This can only be achieved when architectural professionals have a comprehensive understanding of, and the design tools to implement, a universal design approach.

This paper investigates universal design and related design approaches in the context of recent architectural education. It traces changing attitudes in the culture of architectural education, and the evolving perception of universal design as an important aspect of architectural practice. The material under discussion in this paper includes the role of changing demographic factors; updated legislation; and policy drivers that affect legislation, with a particular focus on an Irish context. Further, the paper addresses the growing potential of continuous professional development (CPD) in addressing the role of human centred design approaches in existing professional practice. The paper makes reference to specific examples of courses and modules on offer to architectural professionals in a number of countries in Europe and the USA. It also discusses specific recommendations and guidelines which followed a process of engagement with Irish and international architectural professionals, architectural educators and client bodies through online survey, workshops, interviews and CPD prototypes.

The paper emerges from a research study commissioned by the Centre for Excellence in Universal Design at the National Disability Authority, working in partnership with the Royal Institute of the Architects of Ireland (RIAI).

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Universal Design in Architectural Education – community liaison on 'live projects'.

Mr Kevin Busby¹, Dr Jim Harrison¹

¹*Cork Centre For Architectural Education, Cork, Ireland*

The infusion of Universal Design principles into existing courses in architecture should become evident in any project work undertaken.

'Live project' is a term used to describe projects that engage the academic world with real-world groups/organizations. CCAE sees such projects as valuable exercises in a student's education, particularly, the practical experience of interaction with 'user-experts.'

In 2016 Cork County Council approached CCAE with a proposal to promote age-friendly housing as part of their age-friendly initiative. CCAE developed this into a 'live project' for Year 2 architecture students, continuing the integration of UD into the curriculum. This helps students to identify the negative disabling aspects of ageing and show UD principles can be seen as commonplace.

For their part, the County Council were able to expand their own thinking, availing of the less constrained ideas that students brought to their schemes.

An approach to achieving the adoption of UD is to consider the Vitruvian definition of architecture as having 'commodity, firmness and delight'. From this, the aesthetic integration of features to benefit users of limited ability can be achieved without stigmatising anyone as being old or disabled.

Now in its second year the project is being run in West Cork. The chosen site in Bantry town centre, has interesting challenges for the students to incorporate UD principles. This paper will present imaginative but viable projects as examples of student' responses to the challenges of designing housing solutions and will report on their ability to integrate age-friendly features at different scales.

Representation, access and participation for disabled people in local government in Norway

Mrs Elisabeth Kokkin Koppe¹

¹*Hamar Kommune, Hamar, Norway*

In an ideal world, everyone is guaranteed equal access and participation – and everyone is considered as citizens. In the real world, obstacles of various kinds limit participation – and people with disabilities seem to be considered as clients. There is a need for a deeper change in the common perception of what it means to have universal human rights and how that ought to be applied.

Keywords. CRPD, local government, representation, advisory council, universal design, human rights

Bringing human diversity into design processes through empathic modelling

Prof Lena Lorentzen¹, Associate Professor Per-Olof Hedvall²

¹Mid Sweden University, Sundsvall, Sweden, ²Lund University, Lund, Sweden

Most products are developed while adapting to requirements from industrial production and logistics. To break that trend and design for peoples' needs, we suggest focusing on those who put the strongest demands on the final solution. They cannot compensate for bad design solutions and are thereby, like sniffing dogs, guiding designers to meet peoples' needs. We always use a combination of empathic modelling and involvement of people with reduced functions to find new solutions to the problems a product is supposed to solve. We have used this method in the teaching of Universal design at different universities for more than ten years. The students find the exercises to be a very entertaining eye-opener leading to the development of empathy for human diversity all while the level of innovation in their design work increase. To constantly make the design students understand barriers that can occur due to bad design solutions we utilize a toolbox simulating different levels of functional ability. It also includes a handbook that describes workshops, evaluation methods and design processes that can be performed using the tools. The goal is to guide efficient, innovative and inclusive design processes. By simulating diversity among people, the designer can interpret the needs of different users and use that as a starting point and for evaluating design solutions during the creative process.

Exploring how Higher Education Institutions (HEIs) can support the development of Enterprising Behaviours in Disadvantaged Communities.

Ms Emma O'Brien¹, Prof. Thomas Cooney¹

¹*Dublin Institute Of Technology, Dublin, Ireland*

Promoting an entrepreneurial culture through the development and support of enterprising behaviour has become an important mission on the education and enterprise policy agenda of many governments and supranational organisations. Higher Education Institutions (HEIs) have responded to this call by developing entrepreneurial education pedagogies that now place a greater focus on engendering entrepreneurial competencies within individuals rather than merely on the creation of new ventures. Such competences are relevant for all aspects of an individual's life and may assist them in navigating the ever changing, chaotic, global world in which they live. However, some commentators have argued that this development is elitist as HEIs have primarily focused their support on better educated individuals and high-technology based enterprises. Indeed, it has also been suggested that HEIs are less proactive in the development of enterprising behaviour more broadly in society, particularly amongst groups that are under-represented in entrepreneurship.

This research explores how and why HEIs could move outside the formal education setting and support the development of entrepreneurial competencies more broadly in society, particularly amongst disadvantaged communities. This research has a theoretical basis in entrepreneurship, but adopts a broader view of entrepreneurship as a 'way of thinking, behaving and acting that can be taught and applied to any aspect of an individual's life, not just in the new venture creation process' (Neck et al, 2017). The research investigates current practise and theory in entrepreneurial education, community engagement and community development and explores factors that could influence the development of enterprising behaviour in disadvantaged communities.

A Co-Design Partnership to develop Universally Designed ICT Applications for people with Intellectual Disability.

Mr. Damian Bourke¹, Mrs. Sarah Gavra Boland², Dr. John Gilligan¹, Mr. Eoin Mooney²

¹*DIT, Kevin Street,, Ireland.*, ²*Saint John of God Community Services clg. Liffey Services, Tallaght,, Ireland.*

Co-design has its roots in the Participatory Design techniques developed in Scandinavia. Co-design reflects a fundamental change in the traditional designer-client relationship. A key tenet of co-design is that users, as 'experts' of their own experience, become central to the design process. This reflects a key tenet of Universal Design that the user is central to all design and development processes.

This paper describes a Co-Design partnership between undergraduate ICT students and Community Partners who support individuals with Intellectual Disabilities. The aim is to work in partnership on projects to develop assistive technology applications which meet the requirements of the Community Partners. The core development philosophy will be delivering Universally Designed Apps that are based on the users unique experiences and preferences.

In addition the Projects must meet the prescribed learning outcomes and assessment requirements for undergraduate assessment in computing courses.

The Community Partners initiate the process by outlining preliminary requirements for the Projects using online accessible videos. In partnership with the students they engage and participate in design, development and testing workshops throughout the life-cycle of the project.

In this paper we describe some of the necessary preparations and agreements required before these co-design partnerships can work for the mutual benefit of all concerned. The experiences and outcomes of completed projects are reflected upon and the potential benefits of promoting Universal Design through co-design partnerships between the ICT developers of the future and the Community Partners are considered. Examples of projects undertaken include Accessible Login and Shopping Assistant.

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From the ground up: Establishing a centre for universal design in Australia

Dr Jane Bringolf¹

¹*Centre For Universal Design Australia, Sydney, Australia*

The universal design movement arrived in Australia well before the turn of the century. As is the case elsewhere, the term “universal design” is misunderstood and confused with special and separate designs for people with disability rather than inclusion for everyone. Compliance to disability access standards has created further confusion and as a consequence many myths about universal design have emerged. Such myths have held back the implementation and understanding of universal design and inclusive practice. A handful of individuals, working as lone voices, have done their best to incorporate the concepts in their everyday work and promote the concepts more widely. However, Australian governments at all levels have shown no interest in promoting universal design principles, save for a casual mention of the term in policy documents. This is in spite of changes to disability and ageing policies promoting more autonomy and independence for individuals. When political leadership is absent, leadership often defaults to the community, or to be precise, to a handful of people with a passion for the cause. In 2013 a chance meeting of two unrelated individuals set the wheels in motion to establish a centre for universal design in Australia. This paper charts the development and progress of the organisation through volunteer effort, harnessing community support, maintaining international connections, using social media, and establishing a resource-rich website and newsletter.

Implementing Universal Design and the ICF in Higher Education: Towards a Model that Achieves Quality Higher Education for All

Prof Giulia Bencini², Prof Ilaria Garofolo³, Prof Alberto Arengi¹

¹University of Brescia, Brescia, Italy, ²Ca' Foscari University of Venice, Venice, Italy, ³University of Trieste, Trieste, Italy

The landmark UN 2030 Agenda for Sustainable Development Goals for the first time explicitly makes reference to the inclusion of persons with disabilities in the planning of our built environment and services (Goal 11) and in our quality educational systems (Goal 4). Accessibility, and inclusion of people in vulnerable situations, including people with disabilities provides a strong benchmark for sustainability.

Planning and implementing accessible and inclusive environments and services for higher education requires a number of conceptual and operational shifts. In this paper, we propose a Universal Design approach that combines expertise from traditionally different fields to design spaces and learning environments that take human diversity as the starting point and measure inclusion as an interaction between persons and their physical and social environments (WHO, ICF). In the current WHO conceptualization, the ICF shifts the emphasis from disease and disability to the broader concept of functioning. This includes both a description of all body structures and functions and specific impairments to the impact that impairments may have on a person's ability to perform activities in different domains of life. This is moderated by contextual and personal factors, from individual circumstances and attitudes to larger societal factors.

We identify those ICF domains that are specifically relevant to Universal Design in higher education, environments typical of higher education and the interaction between these domains. We illustrate our approach with examples across the arts, sciences and engineering curriculum.

The Development of a Theoretical Framework to Inform Policy in Higher Education

Ms Marie Brennan¹

¹*Institute of Technology Blanchardstown, Dublin 15, Ireland*

Three institutes ITT, ITB and DIT explored the benefits of collaborating and seeking designation as a technological university for Dublin following the publication of the Hunt Report in 2011. A high-level steering group was formed that would guide the alliance partners towards the goal of Technological University for Dublin. Support teams and working groups were set up to draw on the expertise of staff from across the 3 institutes. One workshop was set up to discuss the development of a teaching, learning and assessment strategy for a technological university. Further research carried out into the creation of a teaching, learning and assessment strategy shifted to policy formation and implementation that precede this type of strategy and discovered issues in relation to policy gaps and evaluation methods. This paper reflects on research carried out and how the focus shifted to policy formation. This work provided the motivation for an exploratory study to examine how higher education policy is formed and implemented. The main aim of this work is to develop a theoretical framework that would inform policy formation and optimize impact on higher education practice. This paper will outline the methods used to capture the experiences of staff across these three institutes in policy development, implementation and evaluation and outline preliminary findings. It will use grounded theory qualitative methods to discover core areas of concern that staff have in these areas and to develop a theoretical framework that can be used to inform policy formation particularly for a new technological university.

University for All: embedding equality of access, participation and success in higher education

Dr Anna M. Kelly¹, Dr Lisa Padden

¹*University College Dublin, Dublin, Ireland*

This paper describes a practice-based research project to mainstream and embed equality of access, participation and success. The project entitled University for All, charts how a research-intensive Irish University is using an institution-wide approach to systematically embed the principle of equity of access and thus move access from the institution's margins to a mainstream concern.

Over the past decade, higher education has endeavoured to respond to a more diverse student population, and to open opportunities to under-represented groups, including students with disabilities, adults, those from communities experiencing low progression, part-time/flexible learners, further education award holders, members of the Traveller community, and refugees/asylum seekers. The vision for access in higher education is that the student population will reflect the diversity of Ireland's population.

This presentation grounds University for ALL in national policy, and relevant academic literature, and outlines the iterative implementation process. Three phases are explored: Phase 1 addressed underpinning strategy and structures needed to build a sustainable foundation, while Phase 2 harnessed the commitment and enthusiasm of University staff, and the current Phase, builds on these developments by focusing on the creation of 'ripple effect' to extend mainstreaming and inclusive practice throughout the campus. This paper describes the series of interventions, approaches and resource development, applied across key institutional dimensions. The leavers used to effect individual and institutional transformation are outlined. The lessons learnt thus far are drawn. We will also look at the role of data and impact measurement in this initiative which includes both quantitative and qualitative measures.

Place, Class and the Re-Mapping of Higher Education in Ireland

Dr Richard Hayes¹

¹*Waterford Institute Of Technology, Waterford, Ireland*

This paper takes as its starting point the rhetoric associated with higher education in Ireland with a particular focus on the rhetoric of place and territory evident in policy documents. The “re-mapping” of higher education in Ireland—that is, the programme of educational reform set out in the national strategy—has been expressed in a language associated with place and territory with particular consequences that will be teased out here. Specifically, the paper will consider the reform programme from the point of view of social class and offer an analysis of the relationship between reform, class and territory. The paper will touch on new technologies and their deployment across teaching, and the consequences for the educational commons and the creation of meaningful organisational places.

Day 1 - Tuesday 30 October: 15.30-17.00 Theme 01: Education – putting Universal Design for Learning at the heart of education – embedding Universal Design content across the curriculum

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Using MOOCs to promote Digital Accessibility and Universal Design- the MOOCAP experience

Dr John Gilligan¹, Professor Weiqin Chen², Dr Jenny Darzentas³

¹Dublin Institute Of Technology, Dublin, Ireland, ²Oslo Metropolitan University, Oslo, Norway, ³University of the Aegean, Syros, Greece

The recently completed Massive Open Online Course for Accessibility Partnership project (MOOCAP), funded by the ERASMUS+ Key Action 2 (KA2) grant program of the European Union, had the twin aims of establishing a strategic partnership around the promotion of Universal Design and Accessibility for ICT professionals and of developing a suite of Open Educational resources(OERS) in this domain. MOOCAP's 8 university partners from Germany, Norway, Greece, Ireland, the UK and Austria have a significant history in developing and providing courses in the domains of Universal Design and Accessibility, as well as leading research and advocacy roles within Europe.

The MOOCA Partnership consisted of two phases: the development of an introductory MOOC on Digital Accessibility and the delivery of a set of online courses with more in-depth and focused learning topics. During the lifetime of the project over 10,000 students from across the world signed up for these courses. Since the project finished there has been continued engagement with courses and materials.

This paper reflects on the challenges of creating and delivering MOOCs, especially in topics around Digital Accessibility and Universal Design. It considers the outcomes, impacts and legacies of the project, in particular the resources that are the OERS .

Based on our experiences of integrating these materials into our courses and on feedback and project evaluations, this paper will speculate on the use of MOOCs to promote Universal Design for ICT and other professionals, and examine the possible trials and opportunities of such activities

Integrating universal design and digital accessibility into computer science and engineering curricula

Ms Anna Nishchyk¹, Prof. Weiqin Chen¹

¹*Oslo Metropolitan University, Oslo, Norway*

The lack of accessibility in many ICT systems and products is caused by the lack of accessibility competence among designers, developers and project managers. The implementation of the new European Web Accessibility Directive requires that public websites, documents and apps need to comply with European standard of accessibility. Although certification in digital accessibility is gaining attention in the past years, there are still an insufficient number of accessibility specialists that can meet the increasing demand from the job market. Higher education institutions play an important role in raising awareness and competence and preparing digital accessibility specialists.

Although many universities are teaching accessibility as part of the Biomedical, Special Education and Disability Studies programs, few provide accessibility education in technical specializations such as Computer Science and Engineering.

Our goal is to investigate state-of-the art in integrating universal design and digital accessibility into the curricula of Computer Sciences related programs in Europe. By combining literature review and automated web crawling/scraping, we have found that there is a limited but increasing effort in this integration. We have collected information about existing courses/programs in European universities, which already integrated the accessibility principles and concepts into their curricula. Through this project we hope to collect best practices and give input to policy makers, faculty members, and course designers in universities on how to best integrate universal design and digital accessibility principles into computer science and engineering curricula.

The training on universal design for all from the European Higher Education Area in Spain

Professor Social Worker Yolanda de la Fuente Robles¹, Mr Alfonso Blesa¹, Carmen Martín

¹*University Of Jaen, Jaen, Spain*

The European Higher Education Area was a landmark in undergraduate and postgraduate training throughout the European Union. Despite the changes it led regarding the contents of all study programmes, there were two issues that remained unsolved. Firstly, gender mainstreaming, and secondly, training in universal accessibility and design for all.

Our aim is to analyse the second issue that remained unsolved and share the solution that Spanish university education has drawn up supported by the tertiary sector, as it is the case of the ONCE Foundation for the blind, in order to design a respond to train and qualify future professionals by learning such forgotten competences. These competences make physical, social and virtual environments friendly, usable and empathetic. Therefore, any physical, social or virtual product must be based on universal design from a training approach.

As teachers, our mission is to change the way in which each product is perceived, so that any design is based on universal design standards. In this article, we will explain the pioneering role of the University of Jaen regarding universal design training in Spain. It is essential to be supported by local and global organisations from the beginning, to create specific environments for discussion and design a study plan for all individuals. The main mission is to train but also to raise awareness regarding diversity, as well as training plurality ambassadors from a multidisciplinary approach.

The Master's Degree previously mentioned is a pioneering education programme in Spain and it offers training opportunities to all Latin America. It has already been going on for six years and it is updated on an annual basis in order to reflect a changing social reality and provide any professional with online access to the set of subjects composing the programme. Until now, it has been carried out in two different plans: Master's Degree in Universal Design and Design for All, and Master's Degree in Accessibility for Smart City; The Global City. It has already trained more than 250 professionals and one of its main features is the diverse background of students and teachers, in which plurality and diversity converge in their interest for universal design.

Three Decades of Universal Design - Defining Moments

Ms Margaret Kinsella¹

¹*Institute Of Technology, Blanchardstown, Dublin, Ireland*

This paper/workshop contributes to the growing research on incorporating Universal Design in academic programmes. Here we present a Practitioner's Perspective on Universal Design as delivered in the Institute of Technology, Blanchardstown (ITB) in the first year of a creative digital media degree and subsequently in Digital Marketing undergraduate degree course. In parallel the broader perspectives of Universal Design at Institutional level are also reflected on.

This first year experience is a transition time for many students and has many complexities; while being an exciting and fulfilling time, for some the transition can also be challenging and overwhelming. Through Universal Design, we aim to enable students to 'Get connected' and 'Stay connected'.

'The Power of Moments' and why certain experiences have extraordinary impact is reflected in our curriculum design and how underpinning Universal Design for Learning guidelines in curriculum design encourage meaningful engagements and assessments. In essence Universal Design enables transformation.

We consider the broader perspectives of Universal Design at Institutional level. Resources, practises and attitudes, Michael Fullan suggests, are the three critical elements required for change to occur. These broader Institutional reflections will suggest next steps on our Universal Design journey.

Day 1 - Tuesday 30 October: 15.30-17.00 Theme 03: Partnership and Community Engagement

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Design and The Mind: Engaging and collaborative workshops for the neurodiverse

Ms Natasha Trotman¹, Dr Chris McGinelly¹

¹The Royal College of Art, Helen Hamlyn Centre For Design , London, United Kingdom, ²The Wellcome Collection, London, United Kingdom

Helen Hamlyn Centre for Design and Wellcome Collection. Design and The mind: Engaging and Collaborating with neurodiverse audiences.

This paper explains how an inclusive design approach which places visitors, their needs, requirements and lived experiences at the core of the Hub can have a positive impact on Wellcome Hub community ranging from the space, to residents, visitors and the wider organisation through a cascade effect.

This approach helps to further the progress of integrating the neurodiversity paradigm and barriers approach being introduced through Design and The Mind at the Hub. In doing so this helps to encourage social cohesion, co-design and new neurodiverse spaces for wider and new Wellcome Collection audiences.

The Wellcome Collection Hub and Extended Hub tools are described and explained, including methods of engagement with neurodiverse publics within and beyond the walls of the Wellcome Collection Hub, building an active Wellcome Hub neurodiverse community.

Details of activities, including Hub focused co-creation and interpersonal 'recipes' are also described. The descriptions are also complemented with imagery from various 'Open Hub' days and outreach, demonstrating the processes and new interactions that have emerged from Design and The Mind.

Through creating new conversations with neurodiverse publics, stories of identity, social familial networks and collaborations have emerged in the Hub, resulting in the elevation of neurodivergent and mentally different voices of the Wellcome Collection publics within this unique shared space.

Design and The Minds co-creative, Barriers Approach to delivering an innovative social 'round table' hub and project is parallel to the Hubs work but is a distinct body of research.

Engaging Lifetime Communities in Universal Design of Fall Detection Technologies for the Smart Home

Dr Kieran Delaney¹, Ms Jane O'Flynn¹, Ms Michelle O'Keeffe¹, Ms Sarah Hayes¹, Mr Patrick Mulvihill², Professor Dirk Pesch¹

¹*Nimbus Centre, Cork Institute of Technology,, Cork, Ireland,* ²*Independent Living Ireland,, Athenry, Ireland*

While some smart technologies, such as the smart phone have become ubiquitous, the uptake on smart home technologies has been very low outside niche markets, despite its obvious potential to all and in particular, to elderly and disabled people. Smart technologies related to the risks of falls is particularly relevant to elderly and disabled people. 'Falls in Older people can have life changing consequences, and older people are most likely to suffer serious injuries, disability, psychological consequences and death following a fall. The risk of falling increases with age - one in three older people fall every year and two-thirds of them fall again within six months. As our population ages the number of falls and injuries in this age group will increase. We need effectively designed fall detection technologies to be deployed in smart homes and we need communities to utilize them to mitigate these future challenges.

This paper presents a study that investigates how fall detection technologies in the smart home support people in Ireland to live actively and independently. We investigate what technologies are being used currently in Ireland and what works well and not so well with these technological solutions. We evaluate the experience gathered of these fall detection technologies in the home and community. We study how Universal Design principles have been applied to provide smart home technologies and in particular fall detection technologies to assist elderly and disabled people and their communities in living more independently, built around the concept of a social hub.

Seeds of change: Growing contemporary horticulture education

Ms Rachel Freeman, Ciarnad Ryan

In this presentation authors reflect on their experience of developing and piloting an innovative undergraduate module, which fosters a culture of student citizenship, integrates contemporary horticultural education, whilst strengthening relationships between higher education and wider society through active civic engagement encompassing ethics, environmental sustainability, social justice and active citizenship. There is a growing evidence base supporting the use of horticulture and outdoor environments for health and well being, and in communities as a social tool (Sempik et al. 2010; Marcus and Sachs 2013; Unruh and Hutchinson 2011, Passy, Morris and Reed 2010; Simo 2011). The promotion of social justice, resulting creation of inclusive communities with active citizens, is a construct of meaningful individual contribution and the art of politics and partnership (Simo 2011). Dewey (1967) advocated that Universities must be a school for democracy and citizenship, which embraces the broader objectives of the National Strategy for Higher Education to 2030, requiring embedding of engagement with the wider community in higher education institutions (DES 2011).

Seeds of change were sown through programmatic review 2015 in Institute of Technology Blanchardstown; during collaborative module development with industry and community partners, graduate profiles were revised and module competencies were adjusted offering students real world experience and valuable hands on skills practice team building, communication, planning

Using Design Thinking to Develop New Methods of Inclusive Exhibition Making

Ms Katrine Hesseldahl¹, Dr Chris McGinley¹, Mrs. Georgia Monk²

¹The Helen Hamlyn Centre For Design, Royal College of Art, London, United Kingdom, ²Wellcome Collection, ,

Encouraged by the UK Disability Discrimination Act, museums and exhibition spaces have increasingly been developing initiatives that prioritise accessibility and inclusion for people with disabilities. Individuals of diverse ages and abilities are now considered as an integral part of a museum's audience. There have been significant advances in exhibition design towards incorporating design strategies and information technology into exhibition space, to better facilitate access to the museum's physical and intellectual resources (e.g. digital guides, multi-sensory tools etc.).

However, responses have varied in consistency, efficacy and legacy. There is still a limited understanding of the scope and variance in terms of disabilities, and as to how exhibition design can holistically implement the disabled user into the design process. This year-long design research project, in partnership with the Wellcome Collection and the Helen Hamlyn Centre for Design based in the Royal College of Art, aims to develop a working set of tools that can be used by museums for improving accessibility in an ongoing way. This paper will focus on the new approaches in which disabled people can be included into the design process, using co-design methods to produce principled guidelines that include all relevant stakeholders. A central goal of the research is to explore how access can be framed not only as an essential foundation of exhibition design, but also an opportunity to creatively engage and inform design, making creators of exhibitions understand design for disability as an opportunity for innovation as opposed to being a secondary and/or negative obligatory requirement.

Universal Design of ICT: Triggering the Triggers!

Miriam Eileen Begnum¹

¹*NTNU Norwegian University of Science and Technology, Faculty of Architecture and Design, Department of Design, Gjøvik/Trondheim, Norway*

Some ICT projects manage to create award winning, inclusive solutions, while others fail. Previous research has gathered data from 34 informants across 23 ICT-projects that have achieved universal design. Their reasons for success are complex, but 15 critical success criteria can be identified. This article asks: How can we utilize these insights to promote universal design efforts in the ICT-industry? The article proposes a way to model the empirical data for societal utilization; supporting future efforts to promote universal design. First, we analyze the relationships between personal, processual, organizational and societal factors, and how the different critical success criteria work together to positively influence the projects in our sample. Next, we apply Hertzberg and Fogg's theories and discuss how the critical success criteria can be classified as motivators, hygiene factors or triggers. Based on this deeper understanding, we model the data and propose 3 trigger factors for universal design of ICTs. Preliminary findings were presented at a Norwegian universal design of ICT expert meeting (UNIKT) and tentatively validated. In a following workshop session, relevant future interventions were suggested. Using our model to hypothesize the triggering impact of proposed interventions, we find three strategies have the highest potential: 1) in-field training interventions for professionals, 2) awareness interventions for procurers of ICT-solutions, and 3) legal interventions further strengthening regulations. The contribution of the article is theoretical: a) providing richer insights into empirical data, modeling their relationships, and b) predicting the impact of future interventions on the ICT-industry based on our modeled findings.

Increased acceptance of Accessibility data – a question of availability?

Kathrin Bögelsack¹, Sven Michaelis²

¹Norwegian Mapping Authority, Molde, Norway, ²Norwegian Mapping Authority, Molde, Norway

The Norwegian mapping authority is carrying out a project on mapping accessibility following a national standard. In the beginning, the mapping was organized and carried out by the Norwegian Mapping Authority. That resulted in the creation of a good basic dataset for many Norwegian districts and bigger district-centers and enabled us to develop a national standard. However, it also led to that the districts often did not feel responsibility or ownership for the dataset and therefore did not use it in the scope that was intended nor communicated it to their citizens. As a result, the mapping responsibility was given to the districts in 2015. As an incentive, they could apply for funding that enabled them to buy the necessary equipment, take part in courses on accessibility, methodology and cover expenses for human resources. A further milestone is the development of different possibilities to access and use the data and teach the responsible persons within the administration in their use. The goal is to offer as many access ways as possible while taking existing work routines and software use within the districts into consideration. As this is an ongoing project, some access possibilities are already published and working while others are still under development and testing. We want to introduce some of the measures we have taken to increase the acceptance of the dataset by the district administrations and show some results of these efforts. Additionally, we want to introduce some ideas for future development for communicating the accessibility dataset not only to administrations, but also the general public.

DIVERSITY OF "PEDESTRIANS ON WHEELS", NEW CHALLENGES FOR THE CITIES OF THE 21ST CENTURY

Mr Delfín Jimenez¹, Mr Jesús Hernández-Galán², Mrs Yolanda de la Fuente³

¹Phd Architecture, Madrid, Spain, ²Phd in Enguineering. Dir of Accessibility at the ONCE Foundation, Madrid, Spain, ³Phd in Law. University professor, Jaén, Spain

Traditionally pedestrian was identified as a singular entity with standard needs. Reality shows us that pedestrian diversity is a reality that is becoming increasingly complex. How does urban design face the changing reality of pedestrian typologies? In the same way that In 20st century the car set aside the horse carriages and the pedestrians, in the 21st century the pedestrian returns to take center stage in front of the motor vehicle, but with new formalizations that imply new considerations in the design of the street, many of they are still unsolved.

Citizens strolling on scooters, skates, skateboard, scooters, segway, unicycles, are added to the already traditional baby strollers, wheelchairs, suitcases with wheels ... "pedestrians on wheels" that pose new challenges of coexistence and design. Own functional requirements to walk and maneuver, to see and be seen ... functional requirements of coexistence with other pedestrians that make a different use of the street (people looking at shop windows, pedestrians with umbrellas, reading the smartphone...) or changes of use of the same space when the conditions they are different: snow, a lot of sun, fog, by night ... They are considerations of Universal Accessibility, of Design for all the people that we cannot leave out while our society progresses. This paper identifies some of these new needs and indicates possible strategies for consideration to integrate them into the Universal Design of the urban public space.

National achievement for universal design in planning by municipalities and regional authorities

Mr Einar Lund¹, Trine Nohr¹,

¹*Norwegian Ministry of Local Government and Modernisation, Oslo, Norway*

Throughout several programmes, national authorities in Norway have worked for activating the local and regional authority levels. The planning system is a primal arena for implementing guidelines and practice according to the Norwegian Planning and Building Act. Universal design in planning has been one of the premises in the Act and a main consideration in all planning activities. New laws and regulations are more clearly defined, both in the planning and building area and connected to discrimination issues.

The municipalities and regional authorities are in general resources for achieving national goals. The Ministry of Local Government and Modernisation reaches partially the municipalities through the regional level: the county governors and the county authorities. Their management and effort are crucial to the development and implementation of universal design.

The national policy was organised in programmes that effected actions with focus on how to reach, inspire and include municipalities and regional authorities in their local intervention for universal design. So far, the results are visible as a part of a long-term national strategy promoting a society accessible to everyone and prevent discrimination.

The paper will exemplify and discuss working methods and results in achieving universal design through such programmes and local initiatives. In short, it emphasizes laws and guidelines, but also funds for establishing of local activities.

Planning Accessibility Strategies and Connectivity for Malaysian Urban Built Environment

Mrs Nur Amirah Abd Samad^{1,2} Assoc. Prof. Dr. Ismail Said¹, Prof Dr. Asiah Abdul Rahim³

¹*Universiti Teknologi Malaysia, Skudai, Malaysia, ²Universiti Kebangsaan Malaysia, UKM, Malaysia, ³International Islamic University Malaysia, Gombak, Malaysia*

Access to our buildings relies to the accessibility of its external environment. Developments and planning in urban areas has many several requirements and restrictions. Planning accessibility for Malaysian built environment is achievable by designing in compliance to the requirements enforced by authorities. Accessible design is commonly associated with providing facilities for Persons with Disabilities (PwDs), the issue that is often brought up is the inaccessibility of the external environment and lacking of seamless connectivity between buildings and the outdoor. The intention is to program Access Strategies and planning process on how accessibility can be achieved. Universal Design will be the basis for the design and planning concept to accommodate all users to enjoy our external environments. It is notable that developed countries advances more in terms of implementing and enforcing accessibility measures via legislative and regulatory documents, government strategies and initiatives within its planning approach than the developing nations. The methodology will be looking into the establishment of strategies and measures of International and Local Planning Policy, Local and Action Plans of selected Local Authorities in selected countries and analyze whether accessibility has been successfully implemented within their jurisdiction. The results will be an outcome of developing a planning framework of access strategies that is derived from expert interviews and documents accordingly to the targeted urban areas. Therefore, an interpretation of adopting accessibility planning strategies of other developed countries, to be adapted locally according to Malaysian legislation.

Shared spaces – what exactly are these and how can we ensure they're designed to be safe and accessible

Ms Martine Abel-williamson¹

¹*World Blind Union, Auckland, New Zealand*

This presentation will commence by the explanation of relevant definitions including:

- Definition of a shared space,
- Who is the World Blind Union (WBU) and how does their mandate link in with the topic of shared spaces,

The matter of why are blind and low vision persons the most effected population groups by shared space design will be explained.

The aims of shared spaces will be discussed, followed by identifying the principles around planning and implementation of shared spaces.

Relevant design specifications will then be listed and discussed, and vital aspects such as diverse stakeholder engagement and monitoring of installed shared spaces will be highlighted.

This will be followed by show-casing of a visual demonstration to the audience to enable participants to view examples of actual well design shared spaces.

All of the above details and technical specifications are contained in the WBU's policy and position statement on shared spaces and the web link to that document will be provided.

Lastly, future collaboration and engagement opportunities will be raised to ensure ongoing accessible and safe design of shared spaces.

Day 2 - Wednesday 31 October: 09.30-10.30 Theme 7 - Tourism – Universal Design as a business improvement tool to expand audience reach

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Tools to upgrade facilities for all: how to improve business dealing with tourism

Mrs Barbara Chiarelli¹, Ms Ilaria Garofolo¹, Ms Valentina Novak

¹*University Of Trieste, Trieste, Italia*

Providing quality services to whom wishes to travel requires constant efforts to ensure that tourist destinations, products and services are accessible to all people, regardless of their health condition, physical limitations, gender, origin, age.

This entails a collaborative process among all the interested parties: administrators, tourist agencies, tour operators and end users, who expressing their points of view can objectively contribute to reach shared and effective solutions.

A single visit destination can involve many factors, including access to information: the project A Region for All, promoted by Promoturismo FVG in collaboration with the Regional Council of Disabled Persons and the University of Trieste, focused on this issue.

PromoTurismo FVG is a destination management organization that pursues its objectives by planning and organizing the offer through specific tourism products. Its mission is to develop the regional tourism system collaborating with all the active subjects, to give consistency to the promotion and to increase the resources by concentrating the efforts.

Since 2016, a mapping process was started to investigate the usability of the relevant services to tourists / visitors with special needs along the itinerary of eight tourist centers of the Friuli Venezia Giulia region. To date, more than 200 facilities have been detected.

The paper will deal with the development of the research conducted by TRIAL - Trieste Inclusion & Accessibility Lab at University of Trieste for the management of the mapping process, with a focus on the indicators adopted and the return of data to PromoTurismoFVG.

Universal design in the Educational System: Training of professionals as a key to the success of a tourism without exclusion

Dr María Dolores Muñoz De Dios¹, Dr Yolanda María De la Fuente Robles¹

¹*Universidad De Jaén, Jaén, Spain*

The World Tourism Organization aims for an Accessible Tourism which promotes the development of the touristic industry from the social innovation and being essential to bring closer the education institutions to significant changes driven by the changed necessities of the society.

Assuming the tourism as a key motor for the socio-economic progress and understanding that the universal accessibility and the design for all make life more comfortable - it makes essential to have the assurances to live in full rights and take part in the same conditions in the economic, social and cultural life.

One of the mentioned assurances is the education of professionals. This comes as a challenge, a necessity and an opportunity for the tourism to meet the needs of the people who do it, taking into account the diversity of the population through the enhancement of the convenience for people with disabilities to products and services, and the creation of a standard criteria for the approved accessibility in the European Act of Accessibility.

Concisely, the aim is to build Inclusive Tourism which allows building convergence of vested interests for the benefit of society. Thus, it is needed to create study plans in accessibility for the professionals of the tourism sector, which is the key to success for tourism without exclusions. This makes possible tourism for all who meets the arrangement of official University Teaching, where the study plans take into account that every professional activity must have transversal competencies in Universal Accessibility and Design for all

Re-examining the creativity of universal design initiatives in public spaces in Japan

Mr Yoshito Dobashi¹, Dr. Nobuaki Ohmori¹

¹*Utsunomiya University, Utsunomiya City, Japan*

Since after the enactment of a series of accessible laws, accessibility in public spaces in Japan has improved, according to official data on accessible toilets, elevators, Braille blocks for public transportation and other such facilities. Many creative initiatives have also been introduced in addition to these conventional facilities.

In Fukuoka, the conflict between wheelchair users and visually disabled people regarding Braille blocks was addressed in 2005 by the local transportation bureau, by cutting away just enough small sections of the Braille blocks so that wheelchair users could cross them with ease when boarding the train. In Sendai, the Transport Bureau introduced wide entrance/exit gates in 2015, to enable all passengers, including wheelchair users and those with baby buggies, to pass through the gates more easily. In Sapporo, the city introduced a “special seat system” to the subway instead of the more common “priority seats,” because priority seats are regrettably not always made available to elderly and disabled passengers. Since its implementation in 1975, the system has seen a large rate of compliance.

It is worth introducing such systems to other areas as well. What is common to them is that they required only a simple modification of existing systems, and also that they were implemented by the bold decisions of transportation operators who lent an ear to users’ voices as possible solutions. There is still ample room to improve accessibility in public spaces by examining the actual usage and status of accessibility measures in Japan.

Day 2 - Wednesday 31 October: 09.30-10.30 Theme 9 - Housing and homes – planning, designing and building homes that work for all ages, sizes and abilities

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Universal Design in Housing: Getting to Yes

Dr Margaret Ward¹, **Dr Jane Bringolf**¹

¹*Australian Network for Universal Housing Design, Sydney, Australia*

In Australia, the last frontier for universal design is mainstream housing. Developers in the private house-building sector have consistently, and successfully, argued for the status quo to remain. Developers' claims of cost and lack of demand have swayed governments that are in favour of "letting the market decide". Disability-specific housing and one-off projects have included many features that are considered universal design. So the technical details are not an issue. The house-building sector in Australia consists of many parts, all held together by regulations and professional codes and norms of practice. Calls for accessible housing were heard by the Australian Government in 2010 and a set of voluntary guidelines were developed jointly by industry and disability advocacy groups. These became the "Livable Housing Design Guidelines". It was understood that industry needed time to reorganise to bring about the changes needed. Consequently it was agreed to progressively introduce accessible features over ten years so that by 2020 all new homes should be built to a basic level of accessibility. However, it was obvious in 2017 that this goal was unachievable with voluntary guidelines. Mandating these guidelines has been shunned at every turn, but the need to mandate could no longer be ignored. Through community advocacy efforts, the body that regulates the Australian construction code has been brought to the negotiating table to discuss mandating basic access features in all new homes. This paper reports on the processes and progress of these negotiations and the outcomes to date.

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Transforming the Higher Education experience of students with disabilities through innovative system design and accessible data visualisation.

Ms Julie Tonge¹, Dr Bairbre Fleming

¹*University College Dublin, , Ireland*

This paper will outline the systematic approach taken in University College Dublin to ensuring that students with a disability are adequately supported and have full and equal access to their chosen college course. UCD were early adopters of the mainstreaming model recognising that specialist services could not adequately support the increasing numbers of students declaring a disability and that a whole college approach was required. Giving responsibility to specific roles throughout the college and sharing information in a systematic way ensures that consideration is given to all students with disabilities and not just those who have a visible disability or have the confidence to make themselves known to faculty and other staff. Knowledge of the diversity in the classroom has encouraged faculty to consider Universal Design in the construction and delivery of their courses and pockets of good practice have led to widespread recognition that this approach is not only beneficial to students with disabilities, but the entire student population which is becoming increasingly diverse. The systems we will describe include an integrated student record and Needs Assessment, the use of class lists to share information to target groups and a sophisticated exam reporting system, all of which have led to a streamlined service with minimal administrative requirements.

We will also describe the business intelligence tools used to provide a visual representation of Widening Participation data for individual programme areas which ensures that College Principles are cognisant of their progress relative to national targets and where resources should be focused.

Local democratic rule and citizens voice as premise in the planning of accessible and universal society

Ms Trine Nohr¹

¹*Norwegian Ministry Of Local Government And Modernisation, , Norway*

The planning system in Norway is regarded as a participatory democracy supplementing the representative democracy and strengthening the local democracy. The planning system has an ambition of being in frontline when promoting universal society in the local planning. Universal design is understood as a safeguarding mechanism ensuring that everyone no matter demographic background, shall have access to safe and inclusive communities.

The planning principle of "Universal design" which is highlighted by the preamble of the Planning and Building Act (PBA), envisions a planning that is inclusive in both process and design of a change or solution. The both elements are closely interrelated in the planning. The prime tool for enacting this principle in the process is found in the inclusive participation provisions under the PBA Chap. 5.

The paper will discuss and exemplify in which manner the baseline knowledge and the quantitative data in the planning can be added by another knowledge layer by the public participation and adequate qualitative planning methods representing the groups that area depended on comprehensive and reflected universal solutions. Basically it presents a system and group approach in an inclusive planning method that is currently being explored and verified by Norwegian municipality pilots and its citizens.

Visualizing the transformation of a Teaching and Learning Centre using Activity Data

Mr Michael Guy¹, Ms Bridgette Atkins¹

¹*University Of Ontario Institute Of Technology, Oshawa, Canada*

The Teaching and Learning Centre (TLC) at the University of Ontario Institute of Technology (UOIT) offers pedagogical development, training, and multimedia services to faculty. In addition, the TLC often contributes to cross-departmental and institutional projects.

In 2013, an online time-sheet application was chosen to facilitate ministry reporting. Over time this was found to be time consuming and had little relevance for the members of the TLC. Alternative options were discussed and with the support of management, an in-house application was developed and began life in June 2017. The application consists of data entry in the form of Google Sheets and a self-serve dashboard developed with R Shiny server. The self-serve dashboard uses real-time data to produce visualizations and reports. Each member's data is transparent among the team.

This presentation explores how empowering team members led to the transparency of data with the overarching goal to improve services to faculty as part of efforts to transform the TLC, and aligns with ISO 9000 quality management principles. Challenges in defining taxonomies of activities and services will be discussed and a demonstration of the dashboard using anonymized data will be provided.

Adopting more diverse models of organisation in higher education- the implications for institutional strategy.

Dr Tom Doyle¹

¹*Cuyahoga Consulting, , Ireland*

A universal approach to strategy formulation in higher education implies one that is fit for the many and complex contingencies faced by that institution. Reviews of current form of strategising indicate that the present approach to strategic management falls short of meeting that criterion. Following the principles of universal design, the paper suggests that this deficiency might be addressed by adopting a much more fluid perception of the university as an organisation and devising a form of strategic management that takes greater account of the paradoxical nature of the institution and the environment in which it operates. It argues that deficiencies in the present form may be attributable to a limited systemic theorisation university as an organisation and suggests adopting a more pluralistic approach, one that involves paying greater attention to the local processes that actually bring change about. The result is a much more diffuse and continuous conceptualisation of strategy that fuses intentional and emergent forms and helps to reframe the many conflicting strategic issues which are faced by higher education institutions . The implications for organisational development in universities and further work to be done are briefly reviewed.

Exploring Maker Cultures and Pedagogies to Bridge the Gaps for Students with Special Needs

Dr. Janette Connor

es¹, Ms. Lauren Fridman¹, **Mrs. Jennifer Robb**¹

¹*University Of Ontario Institute Of Technology, Oshawa, Canada*

Through this ethnographic study, the researchers investigate the efficacy of using “makerspace” pedagogies with students who are identified as having special needs through the eyes of their educators. These pedagogies include the twenty-first century competencies as outlined by the Ontario Ministry of education. The research questions address how these teachers view changes in his/her special education students’ behaviour and learning based on their participation in maker-related activities, including, but not limited to coding, programmable robots, and circuits, in the classroom. The researchers provided professional development and on-site pedagogical support for elementary school (Grade 1-8) teachers, support staff (Special Education Resource Teachers, Teacher Librarians, etc.), and administrators from twenty school boards across Ontario, Canada. During each visit, participants engaged in a number of maker activities, both new and familiar, and discussed how these might be incorporated into their teaching practice. Subsequent visits investigated how maker pedagogies were currently being employed at the participating schools, and offered support for further implementation. Qualitative data was collected in the form of digital video and audio recordings, photographs, observational notes, and individual and group interviews. While the study informing this paper is still ongoing, preliminary data suggests that the use of maker pedagogies may facilitate a number of improved outcomes for students with exceptionalities, including confidence and perseverance, engagement and motivation, self-regulation, collaborative skills, and increased academic achievement.

The use of social robots for supporting language training of children

Dr Kristin S. Fuglerud¹, Dr. Ivar Solheim¹

¹*Norsk Regnesentral (norwegian Computing Center), Oslo, Norway*

A number of studies have found that robots can contribute to engagement and motivation in educational settings. We wanted to explore the possibilities and challenges of using a social robot as an assistive tool for learning and training of basic concepts and words. Robots are considered promising tools in language training because it can contribute to systematic interaction and repetition.

A prototype was developed using an Aldebaran NAO robot combined with pictures that could be presented on a tablet, PC or on the wall using a projector. The prototype were piloted in two pre projects with different groups of children learning Norwegian. One project targeted second language learners in a kindergarten and the other targeted young primary school pupils with autism spectrum disorder. Both of these groups need more systematic training than they usually get during the normal kindergarten and school schedule. We wanted to study whether and how the use of a social robot could contribute to more systematic training, increased intensity, more repetitions and ultimately more effective language learning.

In this paper we present experiences from developing, implementing and using the prototype in the two different settings. The prototype is described, as well as the pedagogical settings of the two pilots. We present results from observations of the children and interviews with teachers and supporting personnel. We discuss differences between the two cases and methodological limitations. Finally we discuss possibilities and challenges of using robots in language learning and training of children.

Embracing the Universal Design for Learning framework in Digital Game Based Learning: A set of game design principles

Mr Larkin Cunningham¹, Dr Orla Murphy²

¹*Cork Institute Of Technology, , Ireland,* ²*University College Cork, , Ireland*

The Universal Design for Learning (UDL) framework emphasizes multiplicity of representation, expression and engagement to cater for the widest possible set of learning styles and abilities. Digital Game Based Learning (DGBL) can slot into a universally designed approach to education as one of several alternative ways of learning that will suit some learning styles, such as those who prefer to learn in an active way. However, DGBL can itself encapsulate the principles of UDL if the game designer embraces UDL as a fundamental set of game design principles. This paper discusses, with examples, the ways in which a game designer can universally design a DGBL solution with respect to game mechanics, representation and personalization, with a particular emphasis on the use of gameplay data for formative and summative evaluation during the design, build and retrospective phases, as well as for adaptive learning and formative feedback during the delivery phase.

Feedback from Digital Systems Used in Higher Education: An Inquiry into Triggered Emotions

Mrs Diana Saplacan¹, Mr Jo Herstad¹, Zada Pajalic²

¹Department of Informatics, University Of Oslo, Oslo, Norway, ²Department of Nursing and Health Promotion, Oslo Metropolitan University, Oslo, Norway

We illustrate in this paper some of the emotions experienced by interaction design students when interacting with digital systems in learning situations, where there is a lack of feedback, or the interaction with digital systems is faulty. The emotions are classified here as feelings of: neglect, frustration, uncertainty, need for confirmation, and discomfort. We proposed thereafter two solutions. The first solution focuses on the design of digital feedback from a system which should arouse positive emotions. We discuss this in relation to universal design principle 5, tolerance for error. The second solution is to provide feedback mechanisms for user feedback (user input). This may be considered when the first one is not possible.

Keywords: emotions, user feedback, feedback mechanisms, universal design, interaction design students

Teaching Squares: Crossing New Borders

Ms Bridgette Atkins¹, Ms Anna Natoli², Dr. Bill Hunter¹, Annette Baxter³

¹University Of Ontario Institute Of Technology, Oshawa, Canada, ²Durham College, Oshawa, Canada, ³Ontario Power Generation, , Canada

Teaching Squares is a teaching development initiative that brings instructors together in small groups to observe one-another's classes and reflect on their experiences in a non-judgmental, supportive environment (Wesley cited in Havve, 2014). Durham College, the University of Ontario Institute of Technology (UOIT), and a key industry partner, Ontario Power Generation (OPG) – have partnered on a Teaching Squares initiative, enabling mainly face-to-face discussions amongst instructors at all three institutions. Despite positive feedback and minimal time demands, it remains challenging to engage instructors across various disciplines, fields and delivery formats.

In the Fall 2017 semester, a professor teaching in a fully online program enrolled in Teaching Squares, participating completely online. Although the significance of peer observation to support teaching in an online environment is well documented (Bennett & Santy, 2009; Swinglehurst, et al., 2008), there were logistical challenges, including arranging recordings of face-to-face classes for the online professor to observe, and involving the professor in face-to-face discussions amongst program participants. Despite the challenges, this experience inspired discussion about how this program may be piloted in a fully online format. This presentation will continue this discussion, extending it to the possibilities of expanding enrollment to international partners to promote the exchange of ideas across institutional and geographical borders and to provide more diversity of perspectives on Teaching and Learning in a digital context.

Day 2 - Wednesday 31 October: 11.00-12.30 Theme 13: Design of Student Experience & Supports

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Introducing Universal Design in architectural education

Mrs Ira Verma¹

¹*Aalto University, Department of Architecture, Espoo, Finland*

Architects have an important role in designing and creating buildings and outdoor environments for all user groups. The knowledge on accessibility in the architectural education has been focusing on the legislation on accessible buildings as well as building act related to accessible housing design. The aspect of the user and the Universal Design thinking have been lacking in the education.

Since 2015, in the Department of Architecture, Aalto University, a course on User Driven Space Design has been introduced. Each year approximately 15 master level students have been participating in the course. The course introduces knowledge on user-oriented space design through collaborative pedagogical methods. It includes lectures by experts by experience or representatives from various associations.

The assignment consists of analyses of an existing building, observation on site and recognizing various user groups. Moreover, the students have been asked to report how well does the building design enhances equal use of the premises and what are the challenges. Students are asked to work in pairs or in small groups of three persons.

As result, students participating in the course have become more sensitive about Universal Design, accessibility and user experience. They have learned by doing: analyzing, observing and experimenting themselves. The work in a small groups challenge students to be more sensitive of the other person. Further, the feedback of student has been very positive. They self-reported the knowledge on Universal Design very useful in the architectural practice and expressed a need to get more education on the topic.

Designing the transition to higher education for students from under-represented groups

Mr Trevor Vaughn¹, Ms Marta Brandes¹, Ms Gemma Lynch¹, Ms Olivia McNeill², Ms Alyssa Brigham³

¹Maynooth University, Maynooth, Ireland, ²Brown University, Providence, USA, ³Texas A&M University, College Station, USA

Universities are seeking, more and more to open access routes and identify ways of encouraging under-represented groups to consider higher education as an option. This cohort of students often have distinct challenges associated with disability, maturity and socio-economic disadvantage. Maynooth University, through the Maynooth Access Programme (MAP) and 'LaunchPad' induction programme, has proven successful in supporting these groups, helping them transition into and through higher education. Unfortunately, the challenges associated with under-represented groups can lead to increased, often articulated difficulties, resulting in greater reliance on services and higher dropout rates than an average student.

We discuss here a pilot study exploring the use of the design process to act as an agent of transition for MAP students entering 3rd level education. Learning was achieved through a multi-session, action-based programme, where MAP students and staff, together with the University's department of design Innovation, worked together to co-understand and co-design the transition. The pilot was a success both in terms of student engagement and future programme improvement. For MAP staff, the research data collected provided actionable insights into the unarticulated needs and experience of students, reframed their understanding of the problems and provided new tools and collateral for further use.

The positive results from this initiative indicate that greater student retention and student experience could be achieved by using design thinking and co-design approaches to engagement. This offers a potentially promising model for promoting access for students to other higher education institutions, both in Ireland and farther afield

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Mission Creep as Goal Displacement, Evolution, and Metamorphosis: Transformations in the Early Development of UOIT

Dr. Brian Campbell¹, Mr. Joshua DiPasquale¹, Dr. Bill Hunter¹

¹*University Of Ontario Institute Of Technology, Oshawa, Canada*

Mission creep is a general phenomenon in the development and evolution of higher education institutions. Many of our major research universities began life as teaching institutions, and many of our colleges and institutes have been evolving toward a university format, and many universities are developing more vocational streams away from their liberal arts and science traditions. In the midst of all of these goal and practice transformations some fixed mandate advocates have used mission creep as a pejorative term. In this paper we will theorize mission creep as an aspect of institutional evolution and metamorphosis and situate the phenomenon within a broader literature on goal displacement. We will apply these concepts to the case of the Durham University Centre phase of the early development of the University of Ontario Institute of Technology.

CHERPPing about Higher Education: Establishing a Virtual Research Network

Dr William Hunter¹, Mr Jesse Parsons¹, Mr Brain Campbell¹

¹*University of Ontario Institute of Technology, Oshawa, Canada*

As part of the collaboration between UOIT, DC, and TU4D, faculty began the process of establishing a higher education research centre. They were eager to insure that the new institution would have a unique place in the higher education research community. Fortunately, in 2014, Rumbley and colleagues at Boston College published the third edition of their inventory of higher education programs and research centres (available at <https://tinyurl.com/y7j3y8nq>). Using this comprehensive international survey as the base, a team at UOIT began to explore the characteristics of existing research centres, focusing particularly on Canadian and European centres.

Among the questions pursued in this work were: what differentiates university centres from government or academic association centres, what links exist between research centres and academic programs, what sort of social media presence do research centres have, and are there centres that operate solely or primarily in cyberspace?

Answering those questions involved extensive review of research centre websites and related publications. In this presentation, we will provide a summary of the findings of this research, discuss the implications of those findings and invite participants to explore with us the possible directions for the new centre now established at UOIT, in partnership with Durham College, and TU4D, under the title Centre for Higher Education Research, Policy, and Planning (CHERPP).

Day 2 - Wednesday 31 October: 13.30-15.00 Theme 14: Curriculum development and Transformation: Skills, Learning Outcomes and Universal Design

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Internationalisation in Higher Education: Global North and Global South Collaboration in Higher Education to Embed Development Education in the Curriculum

Dr Liam McGlynn¹

¹*Institute Of Technology Blanchardstown, Blanchardstown, Ireland*

This paper will examine the potential for higher education collaboration between Higher Education Institutions (HEIs) in the global north (HEIT Ireland and Canada) and HEIs in the global south, (Africa: Sierra Leone and Congo) for the purpose of embedding development education in curriculum design.

‘With regard to sustainable development goals in education Ireland has a long involvement in supporting and promoting education in developing countries...recently it is a cornerstone of Ireland’s Overseas Development Assistance Programme, Irish Aid’s policy for international development One World One Future.’

(Irish Educated Globally Connected: International Education Strategy 2016-2020, p. 24)

The Programme for Strategic Co-operation between Irish Aid and Higher Education and Research Institutes 2007-2011 (Irish Aid, 2007) set an overall aim for higher education cooperation between Ireland and Africa, ‘to increase the capacity of southern institutions to make an effective contribution to poverty reduction’ (p. 2).

Allied to this outreach work, there is the inreach to higher education institutions in Ireland and Canada to learn about the impact of global development issues on the global south. The Irish Aid Development Education Strategy 2017-2023 (Irish Aid, 2017) calls for ‘higher education institutions ..to increase the number and spread of third level students engaging in quality development education’ (p. 31).

The paper argues that in order for third level students in Canada and Ireland to become effective global citizens, they need to be educated about global development issues, human rights, trade justice, migration, sustainability, climate change, conflict and militarisation, food sovereignty, health and labour.

Universal Design Engineering

Dr Dave Edyburn¹, Mr. Keith Edyburn

¹*University of Central Florida, , United States*

A sizable body of literature describes the potential of universal design for learning (UDL) (Gordon, Gravel, & Schifter, 2009; Hall, Meyer, & Rose, 2012; Meyer, Rose, & Gordon, 2013; Rose & Meyer, 2002; Rose, Meyer, & Hitchcock, 2005). Yet, despite the intuitive appeal of UDL, in practice it has proven problematic to design, implement, evaluate, and scale (Edyburn & Edyburn, 2015).

While many teachers, administrators, professors, content developers, and publishers espouse a personal commitment to the principles of UDL, there is little evidence that they can design interventions that enhance accessibility or meaningful engagement in learning. Critics have observed that since the CAST definition of UDL involves multiple concurrent interventions (multiple means of representation, expression, and engagement), it is not possible to (a) isolate the active ingredients of this intervention cocktail to determine which components impact individual student learning, or (b) determine what dose is needed to produce successful learning outcomes (Edyburn, 2010; Rao, Ok, & Bryant, 2014).

The purpose of this session is to introduce a model of universal design engineering model known as Design for More Types. Participants will be introduced to a taxonomy of specific design interventions that can be implemented to enhance the accessibility and usability of educational materials. Nine case studies will be presented to assist developers, researchers, and practitioners in operationalizing universal design concepts into active ingredients that can be carefully defined, measured, and evaluated.

NAL's Work on Universal Design. Architect and architecture - shaping attitudes toward universal design

Mrs Dagny Marie Bakke¹

¹*The National Association Of Norwegian Architects , , Norway*

NAL has been shaping attitudes toward universal design for over 10 years. During the same period, laws and regulations have been amended to include stricter accessibility requirements.

The National Association of Norwegian Architects (NAL) is the professional membership organisation for architects in Norway. NAL's strategy (2008) for universal design will contribute to increased awareness and knowledge of universal design.

Since 2008, NAL has worked systematically on spreading knowledge about universal design. Through courses, projects, surveys and development of sample databases, we have contributed to increased awareness of universal design among architects.

The Universal Design Competence Plan was launched by the Directorate for Building Quality on 27 August 2012. NAL was represented in the steering group. The competence plan is a tool that describes the skills that designers must have in order to achieve good universally designed buildings and outdoor areas.

During the period from 2008 to 2017, NAL arranged 14 universal design courses. Some examples of themes are public buildings, school buildings, housing, residential care, outdoor areas and wayfinding. From 2015 NAL has mostly integrated the universal design theme into courses with other main themes, e.g. shared space, daylight in school buildings and walkability.

In 2014, NAL conducted a quantitative survey to members of NAL (architects), NLA (landscape architects) and RIF/NITO/Tekna (engineers) that investigated knowledge and attitudes. Our plan is to conduct a follow-up survey to look at the development of attitudes over time. In 2017 we conducted a qualitative survey with interviews where the focus was perceptions and attitudes.

Curriculum Development Discourse and Practice

Dr Fiona O'Riordan¹

¹*Dublin City University, Dublin, Ireland*

Curricula in higher education is under increasing pressure to contribute to economic and societal enhancement. Educators are the primary source of curricula development and thus most centrally placed to help deliver on these significant requirements for higher education. Given their central role, the aim of this research was to elucidate the voice of educators with regard to their experience of curriculum development practice and discourse, in the context of higher education. The study was conducted across four higher education institutions in Ireland. Discourse analysis was used as a methodology within a post-structural theoretical framework which facilitated layered analysis and questioning of curriculum development practice and discourse.

Mentoring: A reciprocal relationship designed to benefit all parties

Dr Lavinia McLean¹, Ms Aine McGroary

¹*Institute Of Technology Blanchardstown, Dublin 15, Ireland*

This research is exploring an institute wide approach to supporting first year students through a peer mentoring initiative. A significant body of research has highlighted the benefits of peer mentoring programme for mentees, but limited research has to date explored the impact of such initiatives on the mentors. This paper will present the findings from an evaluation of the initiative from a mentor's perspective. Focus groups were conducted with mentors to explore their perception of the benefits of involvement in the programme, and their motivation to engage in the process. The data is being analysed at present and themes will be identified from the data. It is expected that themes will be related to previous research conducted with mentees which has identified personal, social and academic factors as significant.

The findings will be discussed in relation to implications for the design of similar initiatives and for development of the current programme. A brief comparison of research conducted with the mentors will also be discussed to allow for an understanding of the reciprocity of the mentoring relationship. The paper will also explore the experience of mentoring from different perspectives, as the students are enrolled in a variety of different courses. It is expected that the data from this study will be beneficial for the development of peer mentoring programmes across a number of programmes and disciplines within academia.

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Minority language maintenance in bilingual speakers: from primary school to higher education

Dr Bozena Dubiel¹

¹*Institute of Technology Blanchardstown, Dublin 15, Ireland*

In this paper we discuss the maintenance of minority languages in bilingual speakers at various stages of schooling, from primary school to higher education. Our aim is to present the dynamic nature of minority (first) language development in a bilingual environment, and we examine relative shifts in language strength in bilingual speakers across different age spans.

The observations are discussed with the view of their implications for various aspects of life in multicultural societies, from the impact of multilingualism on the economy, to culture and speakers' identity.

We present results of our study on relative shifts in minority language maintenance in bilingual primary school pupils (Dubiel and Gulfoyle, 2017), and outcomes of a similar study on bilingual university students (O'Grady et al. 2009).

Both projects introduced an innovative method to evaluate relative language strength in bilinguals: the Child HALA and HALA tools.

The results show that the children's relative language strength shifts from the initially stronger minority language to the more dominant majority language after four years of schooling in the majority language. The outcomes of the second study show that despite the continuous use of the minority language in the home context and self-assessment as balanced bilinguals, the university students are more dominant and fluent in the majority language.

The above studies and our discussion have implications for the emerging field of minority language pedagogy, an area that has been gaining significance and popularity in higher education institutions in the USA and Canada.

References:

- Dubiel, B. and Guilfoyle, E. (2017) Language strength in bilingual children: The Child HALA test. *Heritage Language Journal*, 14(1), p. 1-29
- O'Grady, W., Schaffer, A. J., Perla, J., Lee, O. S. & Wieting, J. (2009). A psycholinguistic tool for the assessment of language loss: The HALA Project. *Language Documentation & Conservation*, 3(1), 100–112

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Ireland's Higher Education teachers have a National Professional Development Framework, now what?

Dr Roisin Donnelly¹, Dr Terry Maguire¹

¹National Forum for the Enhancement of Teaching and Learning, Dublin, Ireland

Momentum has been building for professional development (PD) for all staff who teach in Irish higher education - they now have the national Professional Development Framework (PDF) to support them in planning and engaging with authentic, inclusive, scholarly, learner-centred and collaborative PD across their career. In mid-2016, the PD Framework was published by the National Forum for the Enhancement of Teaching and Learning. In 2017, the PDF was piloted with 215 individuals from 22 professional identity groups from across the sector, working with the framework to reflect on their professional practice and set goals for their future professional development.

This initial implementation phase has now been fully evaluated and a robust evidence-base of 'what works, and why' in relation to staff engagement with the PDF is in place. Disseminating findings and continuing to engage with the sector through relevant platforms such as HEIT is key to advancing this work. Early 2018 witnessed the HEA publishing the HE System Performance Framework 2018-2020 with two recommendations which are key to the momentum of the PDF:

- Implementation of the Continuous Professional Development Framework
- Number of staff with "Digital Badges" for completed CPD by academic year

Given these significant developments over a relatively short period, we are now asking the sector, what needs to happen next for the PDF to continue to drive progress for individual's careers and support them in dealing with change and transformation in their professional practice?

The nexus of trading and education: developing and implementing a bespoke programme with and for industry

Ms Joanie Cousins¹, Ms Assumpta Harvey¹, Dr Pat O'Connor¹, Ms Claire MacNamee¹

¹*ITB, Blanchardstown, Ireland*

This paper describes the background and development processes of a education programme to meet the needs of an industry partner, from the perspective of a Higher Education Institute. We will explore the roll out and implementation of this programme including the flexible learning environment and innovative assessment processes created to meet the needs of a geographically dispersed learner cohort.

The interaction between the HEI and the industry partner is described as the rationale for the programme is identified. The paper tracks the initial phase of investigation, the adaption and transformation of an existing programme to meet existing and emerging needs driven by structural change. At this nexus of training and education the needs of the learners are articulated and linked to the needs of the industry partner.

The planning and development of this programme is discussed, highlighting the challenges of adopting innovative and unfamiliar systems. The journey taken to develop and implement a flexible learning environment for a geographically dispersed student cohort is described, identifying the challenges and enablers of this process.

The paper will describe how involving industry through the development, accreditation and delivery of a programme provides better results for the students with practice based and reflective learning.

Canada EU Trade Agreement CETA: For Corporations or Citizens. Higher Education as a Universal Space for Critical Discussion and Debate

Dr Liam Mcglynn¹

¹*Institute Of Technology Blanchardstown, Blanchardstown, Ireland*

The Comprehensive Economic Trade Agreement (CETA) between Canada and the European Union (European Commission, 2017) is one of a new generation of international trade agreements. CETA was signed in 2016 and came into provisional force on 21st September 2017. Once it is ratified by each EU member state in their respective parliaments it will enter into force fully.

Whilst the fair exchange of goods and services is a laudible human activity, it goes without saying that some trade arrangements have been deeply flawed in history e.g. the slave trade, third world debt crisis. In recent political debate, political parties of both the ideological right and ideological left have railed against globalisation and international trade for divergent reasons; the right wish to uphold protectionism, espoused by the current US administration and the left seek curbs on corporate power, protection of workers' right, trade and tax justice as well as citizen rights and the need for democratic checks and balances governing global trade.

As a unique international education partnership between Canada and Ireland HEIT is well placed to provide an intellectual space to facilitate informed discussion, awareness raising and debate about CETA and global trade generally. As public institutions, HEIs provide an intellectual space to serve the public and citizenry in our respective countries to inform and educate about the context of CETA and the role of CETA in social and economic development. The paper will draw together the intellectual views on CETA from political, economic, statutory, NGO and civil society perspectives with a view to designing an intellectual space for monitoring of the CETA arrangements.

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How agile teams regard and practice universal design during software development

Mr Aleksander Bai¹, Mrs Heidi Mork², Mrs Viktoria Stray³

¹Norwegian Computing Center, , Norway, ²Kantega AS, , Norway, ³University of Oslo, , Norway

Abstract. It is essential to focus on universal design in agile software development to ensure that the software developed is usable by as many people as possible. This work studies how members of agile teams regard universal design, how the team is organized to focus on universal design, and how the team practices universal design. We have questioned 89 members of agile software projects including developers, tester, designers and project leaders. We present a detailed breakdown of the results based on roles, domains, experience and other factors that explain the differences and similarities among teams. Our findings show that there is a significant difference between what members think, what management think and what members actually do to ensure universal design.

Keywords. Universal Design, Software Development

Day 3 – Thursday 01 November: 11.00-12.30 Theme 01: Education – putting Universal Design for Learning at the heart of education – embedding Universal Design content across the curriculum

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The impact of a universally designed, inclusive third level education programme for adults with intellectual disabilities in a Dublin college.

Ms Deirdre Bonar¹

¹*Institute of Technology Blanchardstown, Dublin, Ireland*

The right to an inclusive education is explicitly stated in Article 24 of the United Nations Convention on the Rights of Persons with Disabilities (United Nations 2016). While much progress has been made in Ireland over the last 25 years in providing opportunities for inclusive education for children with intellectual disabilities at preschool, primary and secondary level, the same cannot be said for opportunities at third level where models of inclusive learning remain relatively uncommon.

The Institute of Technology Blanchardstown (ITB) together with the Daughters of Charity disability support services have collaborated since 2009 to provide an inclusive third level education programme. Students with intellectual disabilities who are registered on a QQI level 3 programme, attend and participate in practical tutorial classes in a range of modules along with students who are registered on Level 7 and 8 programmes in Social Care, Horticulture and Sports Management. Lecturers aim to provide a universal design for learning approach in the classroom, providing a learning environment which is accessible to a wide variety of learners.

This research aims to explore the impact of the inclusive nature of the programme on the ITB students without intellectual disabilities. As lecturers we see relationships develop, we notice students supporting each other and we observe both groups learning from each other. The research aims to explore these observations. Taking a narrative approach, Social Care, Horticulture and Sports Management students at ITB are asked to explain how studying and working in groups along with people with intellectual disabilities has impacted on their college experience.

Has BEPE – the Built Environment Professional Education Project – been effective at changing inclusive design education in the UK?

Ms Julie Fleck^{1,2,3,4,5}

¹ *Freelance Strategic Access and Inclusive Design Adviser, London, United Kingdom,* ² *BEPE Project Lead - Construction Industry Council, London, United Kingdom,* ³ *MRTPI - Member of the Royal Town Planning Institute, London, United Kingdom,* ⁴ *British Standards Institution (Committee Member B/559), London, United Kingdom,* ⁵ *Design Council - Built Environment Expert (BEE), London, United Kingdom*

The Government's Paralympic Legacy Project - the Built Environment Professional Education Project - nudged the key built environment professional institutions into a journey that is starting to change how inclusive design is taught to built environment students.

Many institutions, including the Royal Institute of British Architects, the Royal Town Planning Institute, the Royal Institute of Chartered Surveyors, the Landscape Institute and the Chartered Institute of Building are now embedding inclusive design into their professional standards, into their accreditation criteria and into their CPD programmes.

There are some excellent examples of higher education institutions developing new inclusive design courses and programmes and there are some great examples of new buildings that have delivered very high standards of accessibility and inclusion. Are these examples still few and far between or is inclusion now business as usual in the UK?

This paper looks at the impact the BEPE Project is having and asks is this enough to change our attitude towards delivering more accessible and inclusive buildings, places and spaces, or will disabled people continue to face the same challenges in accessing homes, jobs and services in the future.

Five combined strategies to achieve a complete, effective and innovative training in Accessibility and Universal Design. Success stories in Spain

Mrs Yolanda de la Fuente¹, Mr Delfin Jimenez², Mr Jesús Hernández-Galán³

¹Phd in Law. University professor, Jaén, Spain, ²Phd Architecture , Madrid, Spain, ³Phd in Engineering. Dir. of Accessibility at the ONCE Foundation, Madrid, Spain

Today achieving quality education in a field such as Accessibility and Universal Design is a difficult challenge. A lack of development within the curricula of higher education, we must add certain burdens of traditional education that no longer effective in our society of the XXI century. Therefore, five innovative strategies are presented that, combined with each other, greatly facilitate the success of this task:

1. Flexibility: Online scheme in a Digital world
2. Internationalization: Mix of teacher and students in a Global world
3. Transversality: incorporating different of people with different training in a complex world
4. Diversity: Sharing experiences from different trainings in a plural world
5. Connecting with reality: visits to companies and entities, and face to face workshops, in a practical world

To this end, four success stories made in Spain are taken as reference: The online master's degree in "Accessibility for Smart City; the global city ", the MOOC on " Accessible Design, Design for All People ", the last three editions of the annual event " MAW Madrid Accessibility Week "and the" Multidisciplinary Workshops on Accessibility and Universal Design at the UDEM of Monterrey - Mexico " all of them organized by the University of Jaén together with the ONCE Foundation.

The results from the combination of these strategies have provided successful results that push the organization to preparing new initiatives for the near future that will implement further these pedagogical tools in the educational project.

Towards a more inclusive university - supporting teachers through Universal Design for Learning

Dr Bitte Rydeman¹, Dr Håkan Efring¹, Dr Per-Olof Hedvall¹

¹*Certec, Department of Design Sciences, Lund University, Lund, Sweden*

The diversity among Swedish university students is steadily increasing. The students have different backgrounds, experiences, interests, learning styles and abilities. Also, there are more students with disabilities at Swedish universities, especially invisible disabilities.

Teachers need to adapt their teaching and curricula, and can no longer wait to do this until they spot a student with diverse learning preferences. Universal Design for Learning (UDL) is an approach to make a university more inclusive, by increasing the flexibility of how students can take in information, express their knowledge and be motivated in learning.

Seven key persons at a Swedish university took part in focus group interviews about their views and experiences of diversity and inclusion. They represented key administrative and pedagogical functions, as well as a student organisation and learning support for students with disabilities. Qualitative content analysis of the interviews resulted in 10 themes: a) Attitudes and treatment, b) Accessibility and participation, c) Knowledge and competence, d) Support and resources, e) System and processes, f) Organisation, g) Teachers and education, h) Students and student organisations, i) Future work.

Conclusions: While the university has good support for students, more support for teachers is needed. Thus, the next step will be the development of a course module for teachers, to be included in a regular pedagogical development course for teachers at the university. Furthermore, there is a need for more knowledge about inclusive student activities, taking place outside of lecture rooms.

Applying a Universal Design approach to Empower Children with Multiple Impairments in Assistive Technology Assessment

Ms Trish MacKeogh

¹*The Centre for Behaviour Analysis, Queen's University, Belfast , United Kingdom*

Rapid developments in technology, coinciding with the shift in educational ideology towards the inclusion of children with multiple disabilities, has led the emergence of Universal Design, to provide user-friendly, proactive, transparent, and efficient environments and to the importance of Assistive Technology applications in mainstream schools. For children with disabilities, technologies provide opportunities for greater and more flexible access to activities than traditional interfaces if applied and matched successfully. Relatively high abandonment rates of assistive technology have been documented, often due to lack of user involvement in the assessment process. The field of UD and specifically Universal Design for Learning is showing that collaborative approaches enable users to be active participants and improve their engagement in educational activities and social inclusion. Exploring the needs of children with multiple disabilities, often means that traditional data collection techniques do not provide the framework necessary to investigate how technology and AT can support their needs. Most assessment tools use verbal or text based techniques to interview and assess the needs of children with disabilities which often position the child as a passive object of assessment and fail to understand their multiplicity of abilities and needs. This outlines the research findings on assistive technology for children with multiple disabilities and the adaptation of the Matching Person with Technology (Irish version) outcome measurement tool through a Universal Design framework.

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Housing design for the ageing: Struggle toward supporting age-in-place instead of special housing for seniors

Dr Satoshi Kose¹

¹*International Association for Universal Design, , Japan*

With the global trend of population ageing, efforts are in progress in many countries to cope with the problems associated with it. As one grows older, his/her capabilities gradually deteriorate. What need to be done to mitigate mismatch of dwelling design, and to enable age-in-place? A comparative study of design guidelines in Japan, UK and USA is conducted to find out challenges and opportunities we are faced with. In Japan, design guidelines for the ageing society were proposed in the early 1990s, and they have been used ever since in several contexts. Although they were not mandatory, policy-linked incentives have worked to some extent. In the UK, Lifetime Homes concept has been formulated, and it seems to have gained momentum with its adoption in the Approved Document M. In the USA, Fair Housing Amendment Act in 1988 introduced requirements on wheelchair accessibility on rental sector, and Visitability concept, less stringent than liveability is being adopted in some localities. Although wheelchair accessibility is not the same as design for ageing, but most of the issues share in common.

What are the problems we still faced with, revealed from the survey? First is the time lag between acquisition of the dwelling versus one's senior years, which often amount to 40 years. Second, many of dwellings are already built with lower standards than desirable, not as new construction. Third, home modification quite often lacks financial support through government policy. This presentation will give some proposals toward improvement of situation.

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Housing Design for All - Aging population in urban context

Mrs Ira Verma¹

¹*Aalto University, Sotera Institute, Espoo, Finland*

Inclusion is important factor for life satisfaction and wellbeing at any age. The housing design and neighborhood planning can enhance social activity and mobility of persons who live in their own homes at old age or with disabilities. Accessibility of local services and walking friendly environment can promote independent coping. This paper is introducing a doctoral thesis with user driven qualitative methods focusing on the local environment from the viewpoint of elderly residents. The target was to gain further knowledge on housing design in order to promote age-friendly local environment applying Universal Design principles.

The case study method was implemented in three scales, the neighborhood, immediate surroundings of apartment buildings and shared spaces of the sheltered housing. The case studies were carried out in Finland, Helsinki sub-urban area, during the period of 2010 to 2015. Workshops and observational walking tours as well as interviews and questionnaires were used to assess the environment and access to services. Self-reported experiences of residents enable to understand better the challenges in the built environment.

Integral planning of housing, access to services and transportation network is necessary when designing living environments that support independence and self-contained life at old age. Equal access to green areas and low threshold spaces in common use in the neighborhood enhance cross-generational social activities. The challenge is to develop intersectional collaboration within the municipal actors e.g. planning services, transport planning, cultural and leisure activities, etc. Moreover, collaboration with other relevant local stakeholders promote age-friendly environment.

Home coming? A story of reassurance, opportunity and hope for universally designed housing in Australia

Dr Penny Galbraith¹

¹*Centre for Universal Design Australia, , Australia*

This paper shows the complexity of housing and how it is the linch-pin for achieving economic, social and human rights imperatives. In Australia there are no minimum housing standards; the effect is now critical. In October 2017, a regulatory impact assessment was instructed, to consider Livable Housing Australia's Silver and Gold standards, for inclusion in the National Construction Code. A substantial research project, provided a knowledge and evidence base of the policy perspective; an expanded statistical context; and detailed analyses of Silver, Gold and Platinum design levels.

The policy perspective included greater economic focus. The effect on productivity, directly attributable to housing, is significant. 34 specific policy 'problems' were identified that could be solved or mitigated if acceptable standards of housing were introduced. It is reassuring that universal design has permeated all levels of government policy.

The statistical context explored demographics, households, dwelling types; tenure; occupants; disability and carers. Detailed analyses challenged many common assumptions and re-framed accessible housing into a mainstream problem. 73% of all dwellings are separate houses and the average home has 3.1 bedrooms. There are tremendous opportunities for universally design-led mainstream solutions.

The compliance gap analyses show which design features might cost more; has potential to be designed out; or be cost neutral. Many design features are cost neutral and arguably should be included within mandated standards. As there is a minimal gap between universal design standards and current housing, there is hope that all Australians will, one day, live in a universally designed home.

That's Universal Design? Unique Differences in UD and Aging-in-Place Design and Marketing; A Practitioner's Experience-Based Perspective

William Owens¹

¹*Better Living Design Institute, Asheville, United States*

Universal Design and Aging-in Place have grown significantly in market share, in both new construction and remodeling, particularly because Boomers are entering their retirement years. While this growing demographic has long been seen as an opportunity for industry growth, many serving this sector have seen mixed results. In this session, you will discover the three distinct segments of the aging-in-place market, discuss the significant UD opportunities that exist with homeowners/renters of all ages and how to properly execute messaging for each, as well as compare and contrast UD and aging in place approaches.

Objectives:

- ☐ Better understand the potential of the UD and AIP markets.
- ☐ Learn what constitutes the three AIP market segments and how this integrates into successful UD messaging.
- ☐ Develop an understanding of the size and scale of the Universal Design marketplace.
- ☐ Recognize the key differences in communication strategies for the AIP and Universal Design “consumers”.
- ☐ Explore the “blending” concept between approaches.

At the conclusion of the session, the participant should be able to:

- ☐ Establish UD as a want, not as a need and learn how to make UD aspirational.
- ☐ Develop clear messaging on mainstream market approach to appeal to broader audience, transcending generations.
- ☐ Demonstrate the correct approach for engaging conversations and the right "speak" that will not hijack your ability to gain trust and confidence.
- ☐ Identify the areas of the home that are best suited for UD inclusions and how to engage discussions specific to those areas.

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The development and utilisation of a Website “tilgjengelighet.no” to improve public and decision makers knowledge of accessibility within physical design of an area or building

Mrs Linda Nilsen Ask¹

¹*Rogaland County Council, Stavanger, Norway*

The website www.tilgjengelighet.no offers information to the public about accessibility to, and within, various locations in the county of Rogaland. The information is presented in both Norwegian and English.

A wide range of buildings and outdoor areas are surveyed, using a methodology which is based upon national standards. Relevant user groups, such as organizations for people with disabilities, have participated in development of the methodology. The surveys are completed by occupational therapists and staff with formal education in outdoor recreation.

The physical characteristics of a registered location are given a score within five disability categories. This determines whether a location will be approved within each category. Information about each area is posted on the website, where users can see which areas are suitable for their individual needs. It also gives planners an overview over which areas within their region that require improvement.

The county administration issue reports on deviations from the Universal Design standards. These reports are then used as a basis for improvements, and assist in making each location more accessible.

The reports provide the basis for developing measures to upgrade buildings, facilities and outdoor areas, and are useful tools for decision makers, and for statistics.

An application programming interface (API) enables the website’s data to be integrated with data from other sources. This makes it possible for the information to be used in other applications where it can be combined with other information, such as public transport services, interactive maps or any other data designed for smartphones or computers.

When valid information becomes inaccessible - Searching difficulties for users with dyslexia in an online encyclopedia

Birgit Kvikne¹, Dr Gerd Berget¹

¹*Faculty of Social Sciences, Department of Archivistics, Library and Information Sciences, Oslo Metropolitan University, Oslo, Norway*

The ability to search for valid information has become increasingly important. Access to information is key for a democratic, inclusive society. However, poorly designed search user interfaces exclude certain users. For instance, search systems with no search aids and high demands for correct spelling do not accommodate the needs of users with spelling difficulties. Dyslexia is a cognitive impairment causing reading and writing difficulties, and is prevalent in 5-10% of any population. Previous research suggests that people with dyslexia struggle with searching. This paper presents results from a qualitative pre-study, where four adults with dyslexia were interviewed about search difficulties in an encyclopedia with a low tolerance for misspellings and no search aids. The participants preferred the encyclopedia, which they considered a more credible information source. Nevertheless, they regarded the encyclopedia as inaccessible, and were highly dependent on Google. Although the participants found relevant information on Google, they reported the searching as tiresome, since all the information needed to be evaluated, requiring a significant amount of reading. In contrast, searching directly in an established encyclopedia provided access to neutral, evaluated information. Further, Google was frequently used as a dictionary to create queries that were copied into the encyclopedia's search system. Results from this study show that search user interfaces design is vital for users with dyslexia, and that failing in developing usable search systems is a serious democratic issue. This paper suggests measures to make more accessible search systems, which may be relevant for both researchers and practitioners.

Some design proposals to support independent life of the Mild Cognitive Impairments who live alone.

Dr Jiro Sagara^{1,2}, Dr Rumi Tanemura³, Dr Toru Nagao³, Dr Kazue Noda³, Mr. Kiyohiro Omori²

¹Kobe Design University, Kobe, Japan, ²Hyogo Assistive Technology Research institute, Kobe, Japan, ³Kobe University, Kobe, Japan

In Japan, the elderly persons will exceed 30% of population and the dementia will be more than 7 million in 2025. This means the one of five elderly persons will be dementia. Most of them will live in own houses with his/her spouse or aged children, or alone. The dementia is progressive disease, so patients lose their abilities gradually in approximately ten years.

Only two types of countermeasure actions for the dementia; one is care and the other is prevention such as brain training or cognition plus exercise. Even though they will do many things by themselves independently in the early stage of dementia or MCI; mild cognitive impairment, they are forced to quit daily activities such as cooking or outing by his/her relatives for reason of safety. This inhibition affects as the disuse syndrome, then he/she will lose abilities faster.

As the main symptoms of the dementia is memory loss, the authors focused on prompting behavior by using IoT technology. The sensors in the house are watching the environment and send data to control center in the house. The control center tells the situation by the synthesized voice such as "the stove is burning", or "the door of freezing chamber is open", then store the data with time stamp. The resident with memory loss may think about the meaning then make decision and finally do or not do something. The results are stored in the server, so the relatives can monitor the situation of the resident.

Studying older people with visual impairments using mainstream smartphones with the aid of the Ezismart keypad and apps.

Dr Kristin S. Fuglerud¹, Mr. Richard Chan³, Ms. Hilde Tuhus Sørli²

¹*Norsk Regnesentral (norwegian Computing Center), Oslo, Norway*, ²*Norwegian association for the blind and partially sighted (NABP), Oslo, Norway*, ³*EziCare Tech, Fjerdingby, Norway*

This paper reports on a study of older people with visual impairments learning to use a mainstream smartphone with touchscreen. The aim of the study was to evaluate whether the EziSmart solution could facilitate the use of a standard off-the-shelf smartphone, and thus stimulate more social contact and digital participation for this group. The EziSmart solution consists of Ezi-Pad and Ezi-Smart Apps. The Ezi-Pad is a flip-casing with a receptacle for the smartphone. When the casing is flipped open it reveals an integrated keyboard with large ergonomic physical keys. The smartphone and the Ezi-Pad keyboard communicate via Bluetooth. The Ezi-Smart Apps is a set of Android applications including a startpage (launcher), an app organizer and several other features.

Six visually impaired adults, aged 63 to 80 years received a five-day course in using a smartphone together with the EziSmart solution. The participants were observed during the course. They were then followed up during a two month period. The participants and their relatives were interviewed about their smartphone use, experiences and expectations before the training started, and after the follow-up period ended.

We discuss challenges that older people with visual impairment face when trying to learn and use a smartphone. We then report on the usability and accessibility of the Ezi-Pad solution, describe the course and the experiences of the participants, and reflects upon how both the EziSmart solution and smartphone training could be improved with regard to this user group.

Method for semi-automated evaluation of user experience using brain activity

Mr Aleksander Bai¹, Kristin Fuglerud¹

¹*Norwegian Computing Center, , Norway*

Abstract. There is a large interest in user experience today, both from a usability and accessibility point of view. However, in order to verify what the users actually like and don't like, user testing must be conducted. Traditionally, user experience is measured retrospective with surveys and interviews, but this is not the most optimal approach since it does not measure user experience in the moment and it is prone for human error because of our inaccurate memory recollection. Here we propose a method that does semi-automated evaluation of user experience by utilizing electrophysiological equipment that monitors electrical activity of the brain. We describe an approach that together with brain activity monitoring will collect and quantify user experience in a non-intrusive manner. We demonstrate the method by showing how a low cost device can record brain activity during a user test, and auto-detect where the user has difficulties understand or navigating a solution. All this is done in an unsupervised manner, but an observer must still verify the feedback with the actual user to remove false positives. Our method is not limited to digital solutions and can also be used for evaluating user experience of physical installations.

Keywords. Usability, User experience, Universal design, Semi-automated, EEG

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Taking General Education to the Next Level with an International Summer School Experience

Jordanne Christie¹, **Dr Cormac Doran**², Claire MacNamee^{2,3}, Robert Savelle¹

¹Durham College, , ²Institute of Technology Blanchardstown, , ³LINC, ,

This paper will present a case study on a joint education opportunity between Durham College, the Institute of Technology Blanchardstown (ITB) and the Learning and Innovation Centre (LINC) at ITB to develop a collaborative General Education course with an international Summer School experience. The paper will provide an overview of internationalization and general education, it will situate the project within the literature, and will provide a preliminary report of the development of the project and challenges to the institutions. This paper will also provide background for a workshop that is being delivered at UDHEIT 2018 entitled 'Facilitating International Collaboration' where participants will be asked to share their own experiences with collaborative international initiatives and will discuss challenges and solutions for working together across diverse institutions and within different educational systems.

Universal design as a technical norm and juridical term – a factor of development or recession?

Mr Olav Rand Bringa¹

¹*Ministry Of Children And Equality, Oslo, Norway*

Universal design was introduced as an ideological and technical concept in Norway in 1996 and was introduced in the first law in 2003.

Since then universal design has replaced accessibility for people with disabilities in national policies, laws, regulations, standards, projects and everyday language. Accessibility is now used to characterize solutions made more exclusively for people with disabilities or when high quality is not required.

Few countries has made this extensive use of the concept of universal design and the concept has faced a number of challenges from lawmakers, architects, economists, user organizations, entrepreneurs and debaters.

This presentation will summarize more than 20 years of extensive use of the concept of universal design and try to answer the questions. Is universal design an academic invention with little extra positive impact compared to accessibility for people with disability, or does the concept defend its supposed role as a step towards a society with equal opportunities for all?

Achieving Success of "Accessible India Campaign" through Universal Design Education in India”

Dr Sandeep Sankat¹, Dr Anne Britt Torkidsby²

¹*School Of Planning And Architecture, Bhopal, India, Bhopal , India,* ²*The Norwegian Research Laboratory for Universal Design, NTNU, Gjøvik, Norway*

The Prime Minister, Shri Narendra Modi of India, launched “Sugamya Bharat Abhiyan” (Accessible India Campaign), on 3rd, December 2015. It is a nationwide flagship campaign for achieving universal accessibility for “Persons with Disabilities” and to create an enabling and barrier free environment, with a focus on three verticals: Built Environment; Public Transportation and Information and Communication Technologies (MSJE, 2016).

The Accessible India Campaign comprises of the following key components:- (i) Create Mass Awareness;(ii) Capacity Building;(iii) Interventions (Technology solutions, Legal framework, Resource generation);(iv) Leverage corporate sector efforts including CSR resources;(v) Leadership endorsements. (MSJE, 2016). In the key components stated above two major components are; 1. Mass Awareness and 2. Capacity Building. To achieve both these components, the need is to develop a knowledge base through which people associated with built environment development can be brought at one platform and awareness towards universal accessibility can be created among the people at large.

Thus this study under the Erasmus + Global mobility program is an attempt to identify the possibilities through evidence based research to make the “Accessible India Campaign” a success through Universal Design Education and to establish and validate the need of Universal Design in making the “Sugamya Bharat Abhiyaan” a success.

Bibliography

MSJE. (2016, March Saturday). Accessible India Campaign. Retrieved from Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Government of India: http://disabilityaffairs.gov.in/content/accessible_india.php

Making Digital Learning Materials Accessible in Higher Education – Attitudes among faculty members

Prof Weiqin Chen¹, Associate Professor Norun C. Sanderson¹, Assistant Professor Siri Kessel¹

¹*Oslo Metropolitan University, Oslo, Norway*

The accessibility of learning materials is essential to ensure education is accessible. With the increasing popularity of digital technologies, more and more digital learning materials are available in education. However, making digital learning material accessible can be a challenging task. In higher education institutions, faculty members play an important role in ensuring the accessibility of digital learning materials. This paper aims to provide a better understanding of the attitudes among faculty members towards this task.

In the study presented in this paper we carried out 35 semi-structured interviews with faculty members in computer science and engineering subjects in four universities in Norway and Poland. The data materials were analysed using thematic analysis method. We identified three main themes: attitudes towards student diversity and inclusion, attitudes towards laws and regulations related to accessibility, and attitudes towards implementation of accessible learning materials.

The faculty members have general positive attitudes towards accommodating diverse students in their teaching and making digital learning materials accessible if necessary. Most of them are aware of the laws and regulations related to accessibility. However, many are found lacking in experience with student diversity and in adequate terminology when discussing diverse students. They have also expressed scepticism to practical application and what we identified as “conditional willingness” due to lack of experience, know-how, and infrastructure in their universities.

We argue that higher education institutions should have policy on digital accessibility and allocate time and resources for faculty members to learn about inclusion and how to make learning materials accessible.

Better access to academic literature – towards a new Norwegian model for universally designed teaching materials

Mrs Kjersti Persdatter Nenseter¹, Mr. Roald Hellum Madland¹, Dr. Knut M. Nygaard¹

¹*The Norwegian Library Of Talking Books And Braille (nlb), Oslo, Norway*

How can we achieve universal design in higher education? In this paper we will look at how the Norwegian Library of Talking Books and Braille (NLB) work to ensure that print disabled students have accessible text and teaching aids, and we will present and discuss our strategies to improve the accessibility ecosystem within Norwegian higher education in the near future.

There are some challenges: Internationally, accessible formats and acknowledged guidelines for accessibility do exist, but how can we make the relevant agencies commit to using them? In Norway, there is legislation to ensure universally designed products and services, and educational institutions receive earmarked funds to provide accessibility for students with special needs. However, this requires a system to enforce the legislation - and how can we ensure that the funds are used in the right way?

NLB has received a mandate from the Norwegian government to explore how the interplay between publishing houses, educational institutions, NGOs and facilitators can be organized better, with the aim of making higher education accessible for all. We believe it requires systematic, coordinated efforts from many agents. In what way can NLB facilitate change? How can NLB influence the publishing industry towards the born accessible book? How can NLB use its specialist competence to empower relevant personnel at colleges and universities? How can we help build a new and better system for all students?

Hopefully, the examples in the presentation can be a source of inspiration to a diverse range of relevant and dedicated agencies.

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The Relationship Between Housing Accessibility and Healthy Aging: The Case of Turkish Elderly Women

Assoc.Prof.Dr. Yasemin Afacan¹

¹*Department of Interior Architecture & Environmental Design, Faculty of Art, Design and Architecture, Bilkent University, Ankara, Turkey*

This study proposed Importance-Performance Analysis (IPA) as a tool to elicitate the requirements of elderly to age well, improve the accessibility of home environments and embed universal design for housing at the heart of interior design process. It aims to address the universal design issues in a case housing environment and provide guidance and design recommendations to designers and architects, who generally have difficulty to obtain information on universally designed housing environments. First, healthy aging concept is introduced. Then, the role of housing accessibility in healthy aging is explored. Later, the methodology is presented. In the findings, the importance and satisfaction ratings of 100 Turkish elderly women, which are selected from an exemplary housing environment of the most dense and busiest urban area in Ankara, are analysed. According to results, IPA could be an effective tool to decide how to meet accessibility requirements and maximize home satisfaction. Thus, this study contributes to the design literature by being a first study to explore the applicability of IPA technique in design discipline while eliciting elderly women expectations, accessibility problems and universal design requirements for healthy aging.

Keywords: accessibility; universal design; Importance-Performance Analysis (IPA); home environments; elderly.

Universal design at a local level – Successful practices and embedment in Irish local government jurisdictions

Mr Jack Keyes¹, **Mr Hugh O'Connor**², Dr Seán Ó'Riordáin³, Ms. Catherine McGuigan⁴

¹Consultant Age Friendly Ireland, Lakeview Lodge, Cavan, Ireland., ²OCS Consultants, Dublin, Ireland, ³Public Policy Advisors Network, Ireland, ⁴Age Friendly Ireland, Meath, Ireland

Age Friendly Ireland has made unprecedented progress over the last 5 years in advancing awareness, implementation and policy embedment of practices and actions to make Ireland a great place to grow old in. Central to this has been the concept of universal design. Using a combination of top down and bottom up leadership based on multi-agency and multi-sectoral approaches, the local age friendly alliances are now active in all cities and counties in Ireland They have advanced practical actions across the 8 WHO Pillars including Housing and the Public Realm. In advancing the development of age friendly practices, local authorities and their partners are creating an environment that is designed for ALL people at no or minimal additional cost through deliberate decision making at design stage.

A central element has been supporting the delivery of training to key practitioners. The outcomes include increased awareness of universal design techniques. The programme is led by the Chief Executive of each local authority thus offering a unique opportunity for embedment of key principles in important policy documents that shape the future of our localities. Examples include County/ City Development Plans, Corporate Strategies and the new Local Economic and Community Development Plans. The potential to influence regional and national policy exists.

A Universal Design perspective on care homes for people with and without dementia

Ms Nanet Mathiasen¹, Ms Inge Mette Kirkeby¹, Ms Lone Sigbrand¹

¹*Danish Building Research Institute, Aalborg University, Copenhagen, Denmark*

Within the coming years considerable resources will be spent on designing assisted living facilities for elderly people with dementia.

Traditionally care homes are designed for elderly with physical impairment. However, people with dementia have others and supplementary needs. An important challenge is therefore to identify differences and similarities in what makes supportive, pleasant environments for both groups.

As the group of people with Alzheimer's disease is numerous, this paper focuses on characteristics related to Alzheimer's - typically difficulties related to orientation, coping with larger groups of residential units and a lack of ability to handle welfare technology. In these respects, care homes for people with dementia differ from other settings.

However, people with dementia are known to be positively sensitive to a wide range of architectural qualities such as sensory experiences, atmosphere and access to green outdoor areas. The paper argues that since these qualities have importance for a wider group of elderly, the design of care homes in this respect can be considered as an example of universal design in general.

Pointing out some similarities and differences in demands for elderly with and without dementia the paper raises the question in how far it might be possible to apply some architectural qualities to care homes in general. If possible, it may lift the quality of the physical environment and at the same time make fewer alterations necessary when care homes are changed to house other inhabitants.

The analysis is based on existing literature combined with own studies.

Towards a decision support system for improved accessibility in multi-family housing: Co-design of an application for environmental barrier inventory

Dr Oskar Jonsson¹, Dr Björn Slaug¹, Mr Knut Mårtensson², Mr Adrian Hansson², Dr Steven M. Schmidt¹, Professor Susanne Iwarsson¹

¹Department of Health Sciences, Faculty of Medicine, Lund University, Lund, Sweden, ²miThings, Lund, Sweden,

³Karlshamnshälsö, Karlshamn, Sweden, ⁴Division of Construction Management, Faculty of Engineering, Lund University, Lund, Sweden

The demand for accessible housing is increasing. More people are expected to live longer and to live more years with reduced functional capacity in mainstream multi-family housing. To address this, detailed knowledge of accessibility problems in the existing housing stock and systems that could contribute to efficient collaboration between residents, housing industry and authorities concerned is needed.

The overarching aim of this project is to design and evaluate a new decision support system (DSS) to inventory and support decision-making for improved accessibility in multi-family housing. The system will allow for reliable and valid inventory of environmental barriers, storage of comparable data and identification of accessibility problems, as a basis for strategic planning and effective accessibility improvement strategies. The project includes a full-scale study in cooperation with a housing company owned by the municipality and a software development company.

We will present the initial phase where an application for surf tablets, designed based on the Housing Enabler (an internationally acknowledged instrument for analysis of accessibility problems), constitutes the core of the DSS. This phase involves co-design to fit the contexts of intended use, meet users' needs and expectations, and develop a better understanding of the new DSS and its potential benefits.

In a following phase, staff at the housing company will be engaged in data collection on environmental barriers in multi-family housing. In later phases, the data collected will be used to explore innovative solutions to specific accessibility problems and optimize decisions regarding investments to improve housing accessibility in multi-family housing.

Using Virtual Reality to emulate perceptual experience of colorblindness in Physical Environments

Mr Krzysztof Szczurowski¹, Dr. Matt Smith¹

¹*Institute Of Technology Blanchardstown, Dublin, Ireland*

One of the major goals of universal design is to create experiences that are inclusive to all users, including those affected by colorblindness. Colorblindness might have a significant impact on a user perception of the environment. There is a range of tools already available, that can be used to automate the process of readability testing for digital interfaces in respect to colorblindness, some of them allow the designer to view an image or even entire color scheme altered to recreate the perceptual experience of a colorblind user. We hypothesize that with a use of Virtual Reality Head Mounted Displays, similar methodology might be leveraged to allow a designer to experience physical environments (i.e.: classroom, library or a cafeteria) as a colorblind patron. Such tool might increase the designers empathy towards colorblind users but also allow them to identify visual components, such as info-graphics or advertisement, in a physical environment that are poorly visible to colorblind users. Such tools could be developed taking advantage of modern Head Mounted Displays six degrees of freedom tracking, a 360 video recording device and some color processing filters applied during post-processing, or possibly even applied at run-time, allowing a designer to easily switch between different types of colorblindness.

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Categorization and comparison of accessibility testing methods for software development

Mr Aleksander Bai¹, PhD Kristin Fuglerud¹, Rannveig A. Skjerve², Dr Till Halbach¹

¹Norwegian Computing Center, , Norway, ²OsloMet, Oslo, Norway

Abstract. There are many methods for testing accessibility and universal design, ranging from checklists and guidelines to automated testing and finally to human testing with participants from different user groups. It is, however, not straight forward to determine how a testing method relates to impairments and barriers. In this work we have expanded the W3C cognitive barriers from one category to four categories in order to provide a better overview of cognitive barriers and testing methods. We also present an overview of multiple existing accessibility testing methods and what kind of barriers they cover. Finally, we present a recommendation on how to select a collection of accessibility testing methods in order to cover the broadest range of disabilities. Our focus is tools that can empower and ease work processes of software development teams, including both developers and testers.

Keywords. Accessibility, barriers, universal design, testing, methods, software development

Should colour vision deficiency be a recognized special education need (SEN)?

Ms Anne Kristin Kvite¹

¹*Norwegian University Of Science And Technology, , Norway*

Color vision deficiency (CVD) is a condition that affects about 1 in 12 of the male population, and 1 in 200 of the females. Statistically speaking, at least one pupil in every classroom has a reduced color vision. A person with a CVD are able to see colors, but the problem is to see the color difference between colors that are believed to be distinguishable for people with normal color vision.

As color is often an aid or code in task or problem solving, a person with a CVD will often misinterpret the task or codes and not be able to solve the task as intended. This will often lead to a situation of failure for the student or in the worst cases a suspicion of a classification within the spectrum of learning difficulties like dyslexia.

In our research, we have studied to what degree CVD is considered as a special education need in the different European countries and compared to the rest of the world. Also, we present a case study of how we can present how a classroom situation can look like for a CVD student.

A Mobile Application for Supporting Dementia Relatives: A Case Study

Dr Till Halbach¹

¹*Norwegian Computing Center, , Norway*

Relatives of patients suffering from dementia face many new situations in their everyday life. In Norway, municipalities typically offer evening classes / courses to meet the needs of relatives. The goal of such classes is to inform and give advice. In the DILP Project, a mobile application was developed with a digital version of the course. The app offers a number of advantages over an ordinary evening class: First, its content is available on demand (as soon as it is installed). Second, it offers a great wealth of accessible media types such as text, formatted/rich text, including hyperlinks, as well as subtitles, images, videos, and audio, both in stand-alone and compound form. It can also be used as an indexed look-up resource and is as such capable of giving a virtually complete coverage of the area. Both content browsing and searches are supported. Moreover, content can be tagged for a given geographical region, for varying complexity (for instance basic, exhaustive, easily readable), and for specific relations, such as spouse, sibling, child, friend, etc. An additional advantage of this approach is that the app is suitable to train professional care givers as well. The app was tested in the field by dementia relatives and class coordinators with many encouraging results regarding usefulness, usability, structure, and others. The evaluation however also showed that particular functionality like searches and find-ability of information was difficult to achieve. The full paper will contain all lessons learned by this case study.

Universal balance?

Dr Charlotte Magnusson¹, Dr Héctor Caltenco¹, Dr Kirsten Rasmus-Gröhn¹, Dr Bitte Rydeman¹

¹*Lund University, Lund, Sweden*

In the ActivAbles project we are developing interactive training tools for stroke survivors. As our initial user studies pointed to balance being a key ability, one of the developed tools is an interactive balance mat. While balance equipment is common, interactive balancing equipment for persons with poor balance is less common. Equipment exists for persons with good balance (eg. Wii), but most games and exercises are less suited for many stroke survivors. The development process has been done in close collaboration with stroke survivors. We have used both creative workshops and individual testing in the development, and have currently a prototype that is being tested in the home. This prototype is based on a foam mat which incorporates pressure sensing, and which allows you to see the pressure distribution as you exercise, but also allows you to play music or play different games. The feedback is designed to be inclusive - designs are multimodal (visual and auditory), and the setup is flexible and can easily be adapted. Initial test results show that the overall design works well. Problems identified are connected to the fact that we use main stream tablets for feedback, which adds complexity for the user both with interaction and charging. We are currently working on solving these problems, and expect to end up with a balance mat well suited for a wide range of users - not only stroke survivors.

Examining the use of Web-based Tools in Fully Online Learning Community Environments

Mrs Shannon Webb¹, **Dr. Roland vanOostveen¹**, Dr. Wendy Barber¹, Dr. Elizabeth Childs²

¹University Of Ontario Institute Of Technology , Oshawa, Canada, ²Royal Roads University, Victoria, Canada

In order to participate in the co-creation of the digital space inherent in Fully Online Learning Community (FOLC) environments (vanOostveen, DiGiuseppe, Barber, Blayone & Childs, 2016), learners must be familiar with the types of web-based tools that are available, and how they can be used to support collaborative learning. Bower (2015) states that educators have a narrow conception of web-based technologies and consequently there are many web-based applications which have not yet been found or utilized. It is suspected that this is also the case for many learners. This paper examines the awareness of web-based tools as well as their use in learning contexts by instructors and students working in FOLC environments. Specifically, the investigation looks to determine if learners and faculty are aware of web-based tools that can help learners to understand concepts, models and theories and how the tools allow for the development of learner autonomy and resilience within fully online learning environments. Participants in fully online courses at a medium-sized Canadian university were asked to respond to a survey as well as a series of repertory grid focus group sessions, held in an audio-video conferencing virtual room. Preliminary results suggest that while awareness of some tools is more prevalent than previously suspected, the use of these types of tools is constrained by a number of factors including a lack of knowledge of how to incorporate the tools into online environments, and a lack of interest in using these tools. The paper will include a full analysis of all collected data.

A status of Universal Design in Danish Architectural Policies

Dr Sidse Grangaard¹

¹*SBi / The Danish Building Research Institute, Aalborg University, Copenhagen, Denmark*

In 2009, Denmark ratified the Convention on the Rights of Persons with Disabilities and thereby acknowledged that Denmark, through policies, plans and programmes, is to work for equal opportunities for persons with disabilities and promote Universal Design in the development of standards, guidelines and e.g. architectural policies. An architectural policy is an acknowledged tool for enhancing the quality of buildings and their surroundings. An important quality of architecture is the ability to include everybody, regardless of gender, sexuality, ethnicity, culture or disability. In 1994, 2004 and again in 2014, Denmark published a national architectural policy. Inclusion as an architectural quality was included, but the focus and terminology changed with every new policy. Based on a desk study about architectural policies, this paper presents how Universal Design is included in Danish municipal architectural policies. On a local level, 34 of 98 Danish municipalities have formulated an architectural policy. None of the architectural policies applies Universal Design, but a few operate with the concept of accessibility, primarily focusing on accessibility for all. This paper discusses how the absence of Universal Design in the architectural policies can be interpreted and how Universal Design can be introduced into future policies.

Keywords. Accessibility, architectural policy, legislation, policy design, Universal Design

Children`s play and their right of inclusive environment

Ms Hólmdís Freyja Methúsalemsdóttir², Phd Christina Schulze¹

¹Zurich University of Applied Sciences, Winterthur, Switzerland, ²University of Akureyri, School of Health Sciences, Akureyri, Iceland

The current innovative COST action PLAY FOR CHILDREN WITH DISABILITIES (TD-1309) is a network of researchers and experts on the study of play.

The Ludi COST Action is spreading awareness on the importance of giving children with disabilities the opportunity to play and most significantly put play at the centre of multidisciplinary research and intervention. As part of the Ludi action, a working group has studied aspects of context that may affect the quality, usability and accessibility of children`s play, including natural and artificial environment. Furthermore, specify enablers that are suitable for the creation of accessible and inclusive play contexts.

A major emphasis has been placed on providing equal play opportunities for all children to support their participation. Barriers to participation are represented in part by physical space restrictions. Play environments such as the home environment are described on the principles of universal design, maximal accessibility, and sustainability to support access and participation for all children and families.

Barriers to play are an outcome of the relationship between the environment and the person, so the work acknowledges the everyday impact of children`s impairment as an influencing factor. These influences operate in conjunction with the environmental barriers that they encounter. Therefore, they are reported here under the heading of activity performance and play preferences in acknowledgement that all play activity is a combination of the interaction between the individual and the environment.

This presentation illustrates and discuss complex interactions between accessibility, universal design, and sustainability in children`s play environment.

Lighting design as a Universal Design strategy to support functional visual environments

Ms Nanet Mathiasen¹, Ms Anne Kathrine Frandsen¹

¹Danish Building Research Institute, Aalborg University, Copenhagen, Denmark, ²Department of Architecture, Design and Media Technology, Aalborg University, Copenhagen, Denmark

The visual environment that surrounds us all makes us able to understand and interpret the world we live in. One of the most important players in that field is light. In general, it is useful for all of us to have aesthetic, appropriate and well-functioning lighting conditions. Research has shown that when it comes to visually impaired and hearing-impaired people it is of crucial importance in order to make their daily lives work and being self-reliant.

Lighting standards and guidelines often focus on the quantitative aspects like light levels and the uniformity of the light. They certainly are important aspects however, they are not sufficient for users with specific needs. This point to the need for a broader approach to lighting design where the quantitative aspects meet the qualitative in order to fulfil a successful Universal Design of the visual environment.

Consequently, in a Danish context, the user organisation of visually impaired people has developed a guideline that focus on the visual environment. This approach is based on experience and research made by P. R. Boyce and D. H. Hubel. Nevertheless, when the general rules and regulations does not include the visual environment in their guidelines, to what extent does lighting design strategies then support it. That is investigated through a comparative study where the theory of three lighting design strategies by respectively W. Lam, R. Kelly and H. Descottes is studied to see how they meet specific elements of the user organisations guidelines to a supportive visual environment.

EMPHATHY ENABLED BY CRITICAL DESIGN – A NEW TOOL IN THE UNIVERSAL DESIGN TOOLBOX

Dr Anne Britt Torkildsby¹

¹*The Norwegian Research Laboratory for Universal Design; the Norwegian University of Science and Technology, Gjøvik, Norge*

The next generation of designers, architects, engineers, etc. have a rough road ahead. Due to their strong role in shaping our future, they must face issues relating to inclusion, equality, and diversity, ensuring that the 'Elder Boom' generation have safe, useful, and independent housing, workplaces are planned and constructed in such a way that they are usable by the broader population, and social justice and equality are in focus when designing public buildings and spaces so as to eliminate prejudice and discrimination.

This implies that the built environment as we know it must be improved. Thus, those responsible for addressing upcoming challenges, i.e. future universal design thinkers, must be adequately equipped with various methodological tools and valuable experience of interdisciplinary work. Both of these aspects are essential to preparing them for real-life problems and projects, regardless of complexity.

What happens if architecture, interior architecture, engineering, and product design students spend a week together investigating the built environment from a critical design point of view? Can this upside-down way of thinking provide them with alternative starting points for the problem-solving process, and help them to identify and understand people's needs differently?

This paper describes a critical design method and presents the results of and lessons learned from conducting a one-week workshop based on this method. The outcomes of the workshop (critical design examples) were created to illuminate the built environment and so provide the students with first-hand experience of what can happen if the "dark side" of design thinking is ignored.

Keywords: Critical Design, Universal Design, design methods, educational practices, workshops, empathy, wellbeing.

Day 3 – Thursday 01 November: 15.30-17.00 Theme 14: Curriculum development and Transformation: Skills, Learning Outcomes and Universal Design

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We Only have First-Class Honors Graduates

Dr Anthony Keane¹, Dr Geraldine Gray¹, Dr Cormac Doran¹

¹*IT Blanchardstown, Dublin, Ireland*

This paper looks at how using flexible learning has the potential to revolutionise how academic programmes can be designed and assessed.

Academic programmes are currently designed by first identifying the Learning Outcomes of the programme and then creating the modules that will teach and assess the students in achieving the Learning Outcomes. The assessment results in a graded scale (A to F) where the student can be deemed to have achieved a particular learning outcome even when their mark is less than 100% and even as low as 35% (D, pass by compensation).

The reason for having a graded assessment and allowing students to “pass their studies” without achieving 100% in each module, is embedded in the custom and practice of having a 4-year degree where students are funnelled through a delivery structure, such as 6 modules per semester. There is no time to wait for all students to achieve the 100% mark in each module so an arbitrary cut-off is implemented (40% in most cases) to allow the students to progress to the next stage of the programme.

Ideally, for students to achieve the Learning Outcomes of a programme, they should be getting 100% on each assessment that is used to measure that Learning Outcome. The time limitations on current full-time structured degrees can be overcome with a programme that is completed at the student’s own pace, as in the case of online degrees where the lectures and labs, etc are pre-recorded and available to the student at any time. The student completes the module only when they have achieved 100% mark in the assessment and as such, has achieved the learning outcome and then can move safely to the next module.

The lecturer’s traditional role would change from being a source of knowledge to being a course manager and facilitator. The outcome of such a programme is that only students that have achieved 100% on every assessment will graduate so all graduates will have first-class honors degree at the end of their studies.

Simulating Disability in Universal Design Teaching : A Critique. Abandoning Try-it-yourself in Teaching Universal Design in Architecture

Dr Camilla Ryhl¹

¹*The Danish Building Research Institute, AAU, Copenhagen, Denmark*

Blindfolding people and giving them a white cane to use or placing them in a manual wheel chair for 20-60 minutes is a much used and classic exercise in the field of teaching architects and other professionals the basics of user needs related to disability. This method, called try-it-yourself, is the most prevalent method where Universal design is taught in The Nordic Region.

While the exercise is often praised for securing an efficient 'eye-opening' outcome, the ethical aspects, the absence of the users or the possibilities of alternative methods for teaching user needs appears to be non-existing.

The article is based on literature studies and 1:1 experiences from our Master program in Universal Design, where the try-it-yourself exercise is studied and discussed. The article argues that the exercise, as opposed to its original intend, appears to increase disability stigma and ethical dilemmas. Hence, it needs to be challenged as the prevalent exercise used for teaching UD and accessibility. The article will also discuss alternative methods for teaching user needs.

Furthermore, the article will discuss the tacit cultural acceptance of the exercise, as well as the ethical dilemmas in the non-existing debate of what is actually being tried-yourself in the exercise. The article also presents possible reasons for the significant absence of an open critical debate about the pros and cons of the exercise, as it is being used non-critically in the Nordic region. This part includes a discussion of the role of Universal design education in Nordic architectural education.

Applying learning: Student experience of research skills module

Ms Sorca Mc Donnell¹

¹*Institute Of Technology Tallaght, , Ireland*

Social Care students undertake a research methods module with a focus on quantitative methods. A core aim of the module is for students to develop their research skills by applying them to a project. This paper will explore the student experience of engaging in this process and the impact on their learning and skill development. The impact on the students' engagement in the exploration of ethical issues and critical thinking is also explored.

Bloom (1956) emphasises the key ways that learning happens, with higher levels focusing on Application, Analysis and Synthesis. This research explores the extent to which completing a continuous assessment project, applying research, may impact on student skill development and learning.

The research methodology used is a quantitative approach involving an online survey of students who have engaged in the module.

Ethical considerations were carefully applied including informed consent, confidentiality and anonymity. The findings highlight the participant's view of the impact of the research project on their knowledge and skill development.

Implementation of “Design for All” training in Spanish universities: transforming higher education to create an inclusive future society

Dr Jesus Hernandez-Galan¹, Ms Maribel Campo²

¹ONCE Foundation, , Spain, ²University of Salamanca, Salamanca, Spain

The Project Implementation of Design for All training in Spanish universities, developed by the Royal Board on Disability, ONCE Foundation and the Conference of Rectors of Spanish universities, aims to introduce the concepts Universal Accessibility and Design for All in the training curricula of University Degrees.

The goal of the Project is for university students to acquire skills in relation to disability: to promote the learning of the competences that university students must acquire for the exercise of each profession in their relationship with people with disabilities - their rights, limitations and associated support needs... - in order to respond with universal and specific solutions. The Project aims to train future professionals, transforming higher education to create an inclusive future society.

A result of the Project are several publications with alternatives to adapt the curricula of different University Degrees, including concepts of Design for All. These university studies are: Architecture; Design; Computer Engineering; Telecommunications; Road, Canals and Port Engineering; Industrial Engineering; Business Administration; Law; Medicine; Pedagogy; Psychology; Social Work; Political Science; Nursing; Pharmacy; Journalism; Sociology; Occupational Therapy; Tourism and Education.

We also have developed training sessions and workshops for university faculty and evaluators from university quality and accreditation agencies.

ONCE Foundation leads an Erasmus+ Project that comes out of this one.

Our purpose in UDHEIT 2018 is to share this experience to empower universal design in higher education in order to transform our world. Training in “Design for All” means transforming higher education to create an inclusive society.

International Multi-Location Universal Design Studies

Ms Veronika Egger²

¹*design for all, Vienna, Austria,* ²*Institut für Universal Design, Munich, Germany*

From daily experience – and frustrations – in design projects and consultancy work the idea for a new type of study course was born. A course designed to teach skills for analyzing complex processes and systems in a universal design context. A course that imparts methods and tools from various disciplines that facilitate solutions, that help implement and guide systemic processes.

Continuous professional education with a difference: we do not intend to address one specific profession or teach one set of solutions, but Universal Design as a transdisciplinary science.

Based at the Sigmund Freud University (SFU) with headquarters in Vienna, Austria, each module will take place at a different location of the SFU in Europe or with partner institutions around the world. The local cultural and social context provides the overall theme for each module – with immediate relevance to cooperating NGOs and non-profit organisations in that country.

The presentation will talk about our content development, the process of scientific evaluation and validation, and our vision for the future to embed universal design thinking across all disciplines.

Stroke and Universal Design

Dr Charlotte Magnusson¹, Dr Margarita Anastassova², Dr Sabrina Paneels², Dr Kirsten Rasmus-Gröhn¹, Dr Bitte Rydeman¹, Dr Gary Randall⁵, Dr Leire Ortiz Fernandez³, Dr Stephane Bouilland⁴, Julien Pager⁴
¹Lund University, , Sweden, ²CEA, , France, ³Osakidetza, , Spain, ⁴Hopale, , France, ⁵The Stroke Association, , UK

Universal design is usually stated to be “for all ages and abilities”. Given that stroke is a major source of disability, it is important that UD recommendations take stroke-specific problems into account. Within the framework of EU project STARR, we have investigated user requirements of stroke survivors. In this project we have used a mix of interviews, focus groups, design workshops and technology tests to come up with a set of design recommendations, which we present as a first step towards universal design recommendations which are inclusive for stroke survivors. Our general recommendations are: make it fun, don’t make people fail, empower and encourage. The technology needs to be highly adaptable to different sets of abilities. Safety, but also aesthetics and simplicity is important, but it is pointed out that designs should not be “childish” – this can be felt to be degrading. It is important to be able to see and follow your progress and win small victories often. Consider social applications and activities –being able to connect to others in the same situation can enable discussions and provide peer support. More stroke consequence specific recommendations are to design to allow one-sided use (hemiplegia), avoid sensory and activity overload (fatigue), complement speech with images (aphasia), limit demand on memory, support learning and avoid errors (memory problems), and include multiple modalities in your design (reduced visual or hearing).

Examining Digital Competence and Use for the determination of technology readiness at the University of Trinidad and Tobago

Imran Fancy¹, Dr. Roland van Oostveen¹, Todd Blayone¹

¹*University of Ontario Institute of Technology, Oshawa, Canada*

Colleges in Ontario have been utilizing digital technology to make higher education more accessible in remote areas of Northern Ontario. By offering courses and programs that are fully or at least partially online, colleges are able to offer post-secondary learning opportunities to students that otherwise would not have had them. To ensure that the technologies used to deliver the courses are well-suited to the student populations and faculty who teach in northern Ontario community colleges, research is needed to assess their readiness to use digital technologies to engage in online learning. This project aims to address that need by surveying both students, faculty, and staff in several northern colleges using the Digital Competency Profiler (DCP), a fully online survey. The DCP is designed to assess participant readiness by inquiring about how confidently and how frequently they use digital technologies. The DCP, based on the General Technology Competencies and Use Framework (Desjardins, Lacasse & Belair, 2001), assesses how respondents use digital technology with respect to their technical, social, informational and computational competencies. Considering that the various affordances referenced in the DCP are also used for online learning access, the data gathered offers insight into both the experience with digital technologies that students and faculty from Northern Ontario have and their online learning readiness. Data analysis will provide valuable insights into the digital competencies and usage displayed by members of the northern college communities.

Legibility in print text for people with impaired vision

Ms Anne Kristin Kvitle¹, Dr Jonny Nersveen¹, Eivind Arnstein Johansen¹

¹*Norwegian University Of Science And Technology, Gjøvik, Norway*

Research on the level of legibility and readability of text are mainly based on subjects with normal eyesight. In Norway, about 180.000 of the populations is diagnosed with a visual impairment. In our study, over 800 visually impaired subjects participated in an experiment, which is the largest study of legibility and readability ever conducted for this this group of observers. The observers were recruited through the Norwegian association for blind and visually impaired (Norges Blindforbund) and the number of subjects reveals that the experiment included 4.6 % of the population with visual impairments.

In the experiment, the characteristics to be studied included different typefaces, font sizes, weighting and contrast. The results provide what print characteristics and at what level they enable readability for the visually impaired subjects. This paper gives an overview of the experimental method and the main results.

Assessing General Technology Competency and Use: Correlates of Confidence and Experience with a Range of Communications Devices

Dr William Hunter¹, Mr Roland VanOostveen¹, Mr William Goodman¹, Ms Wendy Barber¹, Joshua DiPasquale¹

¹*Education Informatics Lab (EILab), University of Ontario Institute of Technology, Oshawa, Canada*

The adoption of new technologies is influencing all aspects of higher education from admissions to finance to teaching and learning, especially online learning. In that context, researchers at the Education Informatics Lab of the University of Ontario have been focusing attention on a model of online learning called the Fully Online Learning Community approach (vanOostveen, DiGiuseppe, Barber, Blayone & Childs, 2016). Students, as well as instructors, need to consider their own readiness to adapt to change. As Anderson, Varnhagen & Campbell (2017) noted:

Those [uses of technology] associated with research (library access, internet and newsgroup browsing) and those primarily associated with professional communication (email, word processing and email lists) report much higher use than those associated primarily with teaching (p. 77).

Blayone et al. (2017) pointed out that many measures of faculty attitudes toward technology are “unidimensional and inconsistent, showing little awareness of current, multidimensional digital-competency frameworks.” Readiness, therefore, is complex.

In this paper, we examine the performance of a sample of faculty at a leading Canadian university on an assessment tool, the General Technology Competency and Use (GCTU), now called the Digital Competency Profiler, which provides a more nuanced assessment of “readiness” by defining several aspects of readiness: technical, social, informational and computational (Desjardins, LaCasse & Belair, 2001).

Preliminary analysis suggests that the instrument measures these dimensions with good reliability and that the computational dimension stands out as relatively unrelated to the other three, but a more detailed analysis will be provided in the full paper and at the conference.

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Towards a Universal Design evaluation for assessing the performance of the built environment

Ms Erica Isa Mosca¹, Mr Stefano Capolongo¹

¹*Politecnico Di Milano, Milan, Italy*

Universal Design is a recent and innovative strategy aimed at designing spaces that are as accessible and inclusive as possible. It considers the broadest range of users, and goes beyond the prescriptive approach of accessibility legislation. Theoretical research on this strategy is currently increasing, but the reliability of its principles remains limited in design practice and it struggles to guarantee performance-based knowledge to designers. Therefore, a practical evaluation method based on reliable performance criteria is required. The purpose of the research is to investigate which means, methods, and principles of Universal Design and Design for All are currently used to evaluate the accessibility and inclusion of the built environment. The paper describes a literature review aimed to select methodologies and reflect on instruments that are inherent to the thematic.

The research's outcome is therefore the definition of both open issues and gaps in this field, which is based on the comparison of the studies analysed. In addition, the potential outlooks on the issue of Universal Design and Design for All evaluation are discussed.

The current results provide a basis for further research on the development of evaluation and support tools for designers that are able to improve the accessibility and inclusion of the built environment, and the reliability of Universal Design performance criteria in design practice.

Maneuvering Area, Corridors and Lobbies for Wheeled Mobility Aid users

Mr Alborz Ahosseini¹

¹*Ellwand Co., Copenhagen, Denmark*

World is evolving rapidly, and new accessibility equipment and devices are introduced which makes life easier for people with disabilities. However, rapid developments in the evolution of accessibility equipment are not always in sync with existing accessibility standards in built environments. It is important to focus on the rapid development of accessibility equipment and the way it will affect the built environment. By having a future orientated view on the development of accessibility equipment, some of the existing accessibility norms and provisions may require to change significantly. One of the important assistive mobility devices is the Wheeled Mobility Device (WMD), which is considered most effective way of improving the impact of mobility limitations for many people with mobility impairments. The design of wheeled mobility devices is rapidly evolving, and therefore the relevant accessibility standards for built environments need to be reconsidered respectively to cover future developments. The users need less human power to operate the new devices but sometimes it requires more space in the built environment.

The main goal of this study is to investigate the accessibility standards for built environments with special focus on Maneuvering Area, Corridors and Lobbies with respect to the evolution in mobility aid devices. Based on the calculations of this research, new dimensions are suggested for the Mentioned areas and compared with the current benchmark literature and building regulation.

Dimensions are calculated based on different scenarios for different types of new mobility aids (devices) considering the devices' dimensions and accessibility of device users.

Designing and Building the Visual Pathway as Public Art: Some Pros and Cons of Design-Build Pedagogy for Higher Education

Prof Galen Cranz

¹Dept of Architecture, University of California, Berkeley, United States

Designing and Building the Visual Pathway as a Public Sculpture

This paper on design practice has two main themes—universal design and transformation in higher education, with focus on the design-build movement in architectural education. “The Visionary” is the first ever walk-through eyeball. It includes the entire human visual pathway, including the optic nerves, chiasm, and the visual cortex where seeing actually occurs. The eye is particularly important because visual processing takes up the largest portion of the brain. Yet, many people cannot understand the eyeball’s 3-dimensional structure with words or drawings alone. Moreover, most anatomical drawings of the eyes do not include the entire visual pathway. People will understand more readily how to experience their own eyes by moving through this model. This report contributes to the theme of universal design, since both children and adults move through it in order to experience visual anatomy kinesthetically, but primarily this report on practice addresses the theme of transformation in higher education, in particular design-build pedagogy in architectural education. The installation was designed, fabricated, and installed by architecture undergraduates in the context of a design-build studio course with Professors Cranz and Duffy in the Department of Architecture at the School of Optometry on the UC Berkeley campus in 2018. Student evaluations and self evaluations provide the basis for pedagogical lessons for such design-build projects in the future. The basis for later assessments of the universal design attributes is outlined at the end.

Keywords: design-build, pedagogy, experiential anatomy, vision

Universal Design At What Cost?

A Case Study on Elevators in Norwegian School Competitions

Leif Daniel Houck¹

¹*Norwegian University Of Life Sciences, Ås, Norway*

In a larger perspective, this paper investigates architects' and contractors' attitude towards universal design in the competition phase of larger school building projects. Three Design Build school competitions with negotiations are examined in what degree the competitors are willing to invest in elevators. The competition teams, consisting of both architects, engineers and contractors, deliver a tender consisting of both a design and a bid.

The Norwegian Building Legislation requires an elevator in all public buildings with two or more stories, and the elevator should be easy to find and positioned close to the main entrance. However, a school building often has more main entrances, as the different age groups each have their own entrances. This seems to put the competitors in a dilemma of interpretation: Is it sufficient with one elevator at the official main entrance, or is it necessary with more elevators in connection to the entrances for the different age groups? The consequence of the latter would be considerably higher building costs and bid.

The results show that despite requirements in the Building Legislation, the Anti-Discrimination and Accessibility Act, requirements in the competition-briefs, and universal design as an assessment criterion, the competitors prioritize lower bids in favour of universal designed vertical logistic solutions for the pupils. The results indicate that universal design is still not truly a part of the mind-set in the building industry. The client and competition jury have to be extremely conscious and clear in their demands for a universal designed school building.

References:

- Anti-Discrimination and Accessibility Act 2013,
http://www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=97447&p_count=6&p_classification=08
- Houck, L. (2016). How Juries Assess Universal Design in Norwegian Architectural School Competitions. *Universal Design 2016: Learning from the past, Designing for the Future*. H. Petrie et al (Eds.) IOS Press. Doi:10.3233/978-1-61499-684-2-229
- Kreiner, K. (2009). Empirical Observations and Strategic Implications for Architectural Firms. *Nordic Journal of Architectural Research*, 21(2/3), 15.
- Kreiner, K. The Inaccessibility of Building Accessibility : Giving Visual and Material Form to Innovation. In: *Architectural Competitions as Institution and Process*. ed. /Jonas E. Andersson; Gerd Bloxham Zettersten ; Magnus Rönn. Stockholm : Kungl. Tekniska högskolan I Stockholm 2016, p. 35-61 (TRITA-ARK-Forskningspublikationer, No. 2016:2)
- Lid, I. M. (2012). Developing the theoretical content in Universal Design. *Scandinavian Journal of Disability Research*, 15(3), 203-215. doi:10.1080/15017419.2012.724445
- Standard Norge. (2009). NS 11001-1:2009 Universell utforming av byggverk, Del 1: Arbeids- og publikumsbygninger. Tillegg B (normativt). Norge: Norsk Standard

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Civil War: A Board Game as Pedagogy and Critique

Hugh McCabe¹

¹*Institute of Technology Blanchardstown, Dublin, Ireland*

This paper describes the use of a board game, Civil War, as a learning experience in the context of a course on Critical Theory. Civil War was created by the Educational Games Company of Lebanon and is set during the 1975-1990 Lebanese civil war. The game functions both as a pedagogical instrument, in that players learn about the situation in Lebanon while playing the game, but also as a form of critique, in that its makers are clearly using it as a means of articulating their lived experiences and challenging the dominant narratives around the conflict. We suggest that the game is a rare example of one that is counter ideological in nature, as rather than perpetuating stereotyped views of Middle East conflicts that are constructed and imposed from outside, it instead directly presents the experience of those who are inside. A case study of using the game in the context of a class on postcolonialism is presented and responses by students are analysed. We argue that the active experience of playing a board game is an effective way of engaging students with a topic, and in this case in particular, an effective way of connecting them with the lived experiences of others.

The Semantic Student: Combining Wikis and Linked Data Approaches to Enhance Enquiry-Based Group Learning in Engineering Education

Mr Paul Stacey¹

¹*Institute Of Technology Blanchardstown, Blanchardstown, Ireland*

Meaning-making within a learning context requires the learner to identify relationships between concepts within the domain of enquiry. Social constructivism and cooperative learning approaches to teaching & learning require the level of shared meaning-making achieved by an individual within a group of learners to be assessed. Knowledge formalisms, such as Ontologies, are powerful indicators of meaning-making. However, knowledge modeling is typically difficult to perform due to its complexity. In recent times non-expert tools are beginning to emerge.

This paper argues that training engineering students in basic knowledge modeling techniques using linked data principles and semantic Web tools - within an enquiry-based group learning environment - enables them to enhance their domain knowledge, and their meta-cognitive skills. Knowledge modeling skills are in keeping with the principles of Universal Design for instruction. Learners are empowered with the regulation of cognition as they become more aware of their own development.

This semantic student approach is being trialed with 3rd year Computer Engineering Students taking a module on Computer Architecture. These students have been selected as they have prior knowledge of Web technologies as well as object modelling methodologies.

One module learning outcome has been selected. An enquiry-based group learning activity has been developed to help meet the selected learning outcome. Students are required to use semantic feature analysis and linked data principles to create a visual model of their knowledge structure. Student knowledge structures are captured within a Semantic Wiki using a Directed Acyclic Graph (DAG) concept graph.

GELO: The Global Educational Learning Observatory

Dr Maurice Digiuseppe¹, Dr. Roland vanOostveen¹, Mr. Todd Blayone¹, Dr. Wendy Barber¹, Dr Elizabeth Childs²
¹Uoit, Oshawa, Canada, ²Royal Roads University, Victoria, Canada

The Global Education Learning Observatory (GELO), currently in development in the Educational Informatics Laboratory (EILab) of the University of Ontario Institute of Technology (UOIT) in Oshawa, Ontario, Canada, is an international online platform enabling individuals and groups in formal and informal educational settings to measure digital competencies and readiness for online learning. Furthermore, the GELO provides digital tools that may be used to collect, manage, and analyze large amounts of empirical data to further our collective understanding of education and educational processes. Importantly, the GELO will allow students, researchers, educators, and others from around the world to connect with each other, build learning communities, and increase digital skills capacity and competence.

Investigating Transactional Distance in Fully Online Learning Community (FOLC) Environments

Dr Roland van Oostveen¹, Dr. Elizabeth Childs², Dr. Wendy Barber¹, Dr. Maurice DiGiuseppe¹, Julianne Gerbrandt¹

¹University of Ontario Institute of Technology, Oshawa, Canada, ²Royal Roads University, Victoria, Canada

It was noted that students in Fully Online Learning Community (FOLC)-based programs felt close to each other despite never having been physically co-located (vanOostveen, Childs, Clarkson, & Flynn, 2015). It is postulated that this reported closeness is a result of (a) decreased transactional distance (Moore, 1993) (b) the use of video and audio (webcams and mic/headsets); and (c) the types of interactions that are afforded in the online spaces, particularly in the synchronous environments used in FOLC-based programs, which can lead to a democratization or greater social immediacy/intimacy (Rogers & Lea 2005). One of the attributes that is particularly noticeable in FOLC environments, which utilize audio-video conferencing software, is the marked decrease of behaviours such as raising of voice volume and using aggressive body positions. This report focuses on some attributes of social presence, namely the emotional content of our interactions, as communicated through facial expressions, body language, as well as words used within the context of the fully online courses described in this proposal, addressing the "dialog" component of transactional distance concept.

The investigation reported used simulated, small group (3-4 participant) tutoring sessions hosted in Adobe Connect, with a researcher assuming one of a series of roles expressing qualities such as extreme compliance, aggressiveness, non-participation, using collaboration-building questioning practices. All interactions were captured on video and subsequently analyzed using Noldus Observer XT for reactions, particularly those that indicate changes in the amount of collaboration and transactional distance. Preliminary results of the analysis will be described in the paper.

Augmented Reality - The missing link in eLearning

Ms Nina Lyons¹, Dr. Matt Smith¹

¹*Institute of Technology Blanchardstown (ITB), Blanchardstown, Dublin, Ireland*

Twenty years ago attending college was a full-time activity, where full-time students attended daily lectures and labs, put in studio hours and took part in workshops on campus. Today, there are many different kinds of student. Educational institutes cater for part-time students, weekend workshops and even 100% distance and online-only learners. Delivery systems for online learning take many forms. Some learners benefit from synchronous learning where students can take part in live lectures, others from demonstration videos and forum-based communications. However, some learners find that studying learning materials at home can be an isolating experience. This sense of isolation combined, with poorly designed content can result in poor student experiences.

The challenge is to change learners' perception that classroom teaching is a richer experience than online – by providing richer off-campus experiences. Many believe that being in the room as a lecturer speaks is a richer form of delivery than engaging with materials alone and off campus.

Augmented Reality (AR) is a combination of technologies that offers an enriching experience that could close the gap between asynchronous and synchronous learning. There are a number of headsets currently being produced that far outstrip previous technologies, opening up opportunities of application that were not previously there.

We review current AR capabilities and headsets, including eye-tracking and location-based features, and explore how AR can enrich learning-related activities. We argue that AR can provide a rich learning experience that may be different to, but can be as successful as, on-campus, synchronous learning.

Marrying digital and analog with Generation Z: Confronting the moral panic of digital learning in late modern society

Shahid Alvi¹

¹*Faculty of Social Science and Humanities University of Ontario Institute of Technology, Ontario, Canada*

In some quarters, the implementation of digital technologies continues to be touted as the solution to educational challenges faced by contemporary post-secondary instructors and their students. In this paper, I examine the veracity of the claims made by the purveyors of “edu-tech,” particularly in relation to what we know about learning and in light of the characterization of traditional pedagogical strategies as vestigial. The arguments advanced in that context include the ideas that “digital natives” no longer can be taught effectively by “digital immigrants,” that instructors must “meet students where they live,” and that changes to pedagogy go hand in glove with an understanding of the putative characteristics of today’s young learners. I argue that such claims are at best inconsistent with the evidence, that major structural issues have been ignored thereby framing debates far too narrowly, and that the political and economic consequences of neo-liberalism must be taken seriously if education is to be of any value, going forward. The paper offers a third, “medium” way which highlights what we know about literacy, what technology can and cannot reasonably offer, and how “analog ways” can contribute to the intellectual and social development of post-secondary students. Finally, I advance the idea that serious evaluation and implementation of such an approach might help to eclipse the “moral panic” characterizing today’s educational discourse.

HUBLinked - strengthening software innovation capacity

Dr Deirdre Lillis¹, Mr Ciaran Kelly

¹*Dublin Institute of Technology, Dublin 8, Ireland*

Hublinked is a 3 year programme funded by the EU under the Erasmus+ Knowledge Alliance scheme with the objective of strengthening software innovation capacity in Europe. This is achieved by improving the interaction and linkages between the computer science faculties of the University/Higher Education Institute(HEI) and businesses – small and large. The programme also seeks to broaden and enhance the computer science curriculum to impart competences in innovation, industry, interdisciplinarity and international experience – CSI4. A key plank of the CSI4 approach is the development of an entirely novel teaching methodology – Global Labs – which sees students at all the Bologna levels working virtually with their peers globally on real world based projects.

HubLinked has six deliverables

- (i) Practical guidelines for effective U-I linkages
- (ii) the CSI4 curriculum framework for industry-oriented, internationalised, innovation-focused and interdisciplinary computer science degrees
- (iii) four Global Labs modules whereby students turn real-world problems from any sector into ‘experience-appropriate’ prototypes
- (iv) A portal of study and placement opportunities for students in major international software hubs
- (v) An online professional development for academic and industry staff
- (vi) The HubLinked Association with a partner from each EU country.

Objective 2 - To develop the CSI4 curriculum framework to equip CS graduates with global software innovation skills and to increase the attractiveness of careers in ICT to females.

Informed by the U-I linkages research, and building on our track records and experience in CS education, HubLinked will develop the CSI4 curriculum framework for industry-oriented, internationalised, innovation-focused and interdisciplinary CS degrees at Bachelors, Masters, LLL and Doctorate levels.

HubLinked will focus on identifying a pathway of ‘high impact curriculum components’ which are feasible to implement in partner curricula. The HubLinked Pathway will have an agreed minimum number ECTS credits for CSI4 components (e.g. CSI4 components forms at least 30 ECTS of a 240 ECTS Bachelors programme, 20 ECTS of an 180 ECTS Bachelors, 10 credits of a 90 ECTS Masters programme etc.).

Objective 3 - To design, deliver and evaluate four Global Labs, at Bachelors, Masters, LLL and Doctorate level Global Labs are one example of an effective U-I Linkage which have shown significant potential in involving industry, particularly non-Software SMEs, in the curriculum. Global Labs will provide a low-cost low-commitment mechanism for SMEs in the non-software sector to prototype software ideas. Informed by the U-I Linkages research, building on the experiences of previous projects such as DIT’s GlobalWorkIT, OAMK’s Demola and TSP’s Destine projects, four Global Lab modules will be designed, delivered and evaluated at Bachelors, Masters, LLL and Doctorate level. These accredited modules form part of the CSI4 curriculum.

Teams of international students work together across timezones, supervised by industry mentors, to turn real-world problems from any sector into ‘experience-appropriate’ prototypes. On completion of the

prototype, its value to the company can then be assessed. If further research is required, research groups within the HE can investigate it. If there is potential for commercialisation, technology transfer offices can be engaged. A co-created quality assurance process for managing global labs with industry partners will also be developed.

Global Labs build the innovation skills of students, provide an accessible 'internationalisation at home' experience on a much wider scale than current Erasmus+ mobility participation.

Teaching for Critical Thinking: A Study of Teaching Strategies Employed by Instructors in Ontario Colleges through General Education Courses

Mr Barry Thompson¹

¹*Durham College, Oshawa, Canada*

It has been sixteen years since the New College Charter (Ministry of Advanced Education and Skills Development, 2002) introduced general education courses into Ontario College programs with the purpose of strengthening student's communication skills, problem solving ability, critical thinking and to provide some breadth of knowledge beyond their program's vocational field of study (Ministry of Advanced Education and Skills Development, 2009). There are no past or current evaluation tools used to determine whether these skills are, indeed, strengthened through general education courses (Colleges Ontario, 2018). Despite the lack of measurement, we can examine the educational conditions under which general education courses are taught and determine whether those are the same conditions in which adult education authors believe that these skills are strengthened or developed.

Specifically, this study examines the teaching strategies used by general education instructors at an Ontario College to determine whether the strategies coincide with those that adult education literature would suggest to develop student's critical thinking skills. This examination of general education courses could possibly provide positive results that will bolster student, faculty and administrative acceptance of these sometimes controversial courses as well as identifying best practices for faculty professional development.

Good Intentions in Universal Design: a Global Challenge for Higher Education

Dr Jim Harrison¹, Mr Kevin Busby², Ms Tessa O'Shaughnessy³

¹*Cork Centre For Architectural Education, Cork, Ireland*, ²*Cork Centre for Architectural Education, Cork, Ireland*,

³*University College Cork, Cork, Ireland*

It is not often that a high-level edict requires higher education centres to promote universal design through their programmes; however the recent United Nations Beijing Declaration and Action Plan (2017) expressly states that, “academic institutions should provide training programmes on universal design for policymakers, building inspectors and contractors, as well as integrating universal design and accessibility (into) curricula related to architecture, urban planning, transport, civil engineering and other relevant academic branches”.

This is particularly timely in the Asia-Pacific region, where economies continue to show massive expansion of their built environments. This imperative to future-proof any development therefore is vital, especially considering the growing percentile of older people with their needs for safe and accessible living. Achieving these ends clearly implies a need both to educate professionals and to enact appropriate codes and standards, which in turn require the training of personnel to carry them out.

Anticipating this need, Goal 3 of the United Nations Incheon Strategy (2012) optimistically calls for, “civil society involvement in conducting accessibility audits, creating guidelines and advocacy work to promote universal design” and “to enhance mechanisms for tracking its progress”.

While such good intentions are admirable, they will require radical steps to be achieved. The paper describes examples, including those from the writers’ own experiences, outlining a range of practical methods which academics and teachers involved in inculcating universal design principles in both European and Asian centres, through their teaching, training and technology transfer, can positively support continued cooperation towards a more inclusive World for everyone.

Making “Makers” in a Preservice Teacher Education Program

Dr Janette Hughes¹, Laura Morrison¹, Laura Dobos¹

¹*University Of Ontario Institute Of Technology, Oshawa, Canada*

In this qualitative, ethnographic, case study research, we investigated the development of eleven pre-service teachers’ understanding of Maker pedagogies and the associated tools (ie. 3D printing, coding, circuits, programmable robots and more), during an intensive 20-hour internship meant to provide real-life professional development— a new requirement of our Faculty of Education’s revamped two-year Bachelor of Education program in Ontario, Canada. Our study also investigated the development in the understanding of “making” as it relates to professional development from the perspective of the graduate student who helped create and facilitate the PD for the pre-service teachers in the internship program. More specifically, we looked at how this leadership role and experience impacted her own understanding of maker pedagogies (a sort of meta-PD). From a triangulation of the graduate student’s general observations and field notes, the pre-service teachers’ reported experiences (through pre-surveys and post interviews) and our own observations of what transpired during the internship and in the data as a whole, we report on suggestions regarding best practices and considerations for the facilitation of Maker-focused PD.

Exploring post-secondary students' mental health in order to enhance the student experience

Dr Jennifer Laffier¹, Olivia Petrie¹

¹*Uoit, Oshawa, Canada*

The University of Ontario Institute of Technology (UOIT) strategic plan identifies a number of priorities relating to the student experience, including calls for the development of programs that address mental health awareness, intervention and other student wellness initiatives. Post-secondary student mental health is a topic that has recently come to the forefront of discussions at many universities and colleges across Canada. In the past decade post-secondary students seeking assistance for serious mental health problems has intensified exponentially (Eiser, 2011). In order to proactively identify the health concerns of students, UOIT participated in the National College Health Assessment (NCHA) survey (2013), which was completed by 34,039 students at 32 Canadian postsecondary campuses, including some 548 students from UOIT. The results indicated that many students are struggling with mental health problems and this directly impacts their level of engagement and academic success. In this presentation we review the results of this study along with a review of how mental health interferes with student engagement and success and intervention methods to support students within post-secondary institutions. Examples of evidence based practices and current mental health initiatives at UOIT will be provided. This presentation aligns with the conference sub-theme of Designing Student Experience Supports.

Day 4 – Friday 02 November: 13.30-15.00 Theme 15: Cultural and Personal Identities

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Does ITB include me?

Inclusion and exclusion on campus.

Ms Fionnuala Darby¹

¹*ITB, Blanchardstown, Ireland*

This paper attempts to identify and differentiate spaces and places on campus that include and exclude from the perspective of the students. Belonging is a current notable discourse within higher education policy in Ireland on retention and progression (HEA, 2016; National Forum for the Enhancement of Teaching and Learning in Higher Education, 2015). Students tend to select a college where they are likely to feel comfortable and where there are people like themselves (Bourdieu, 1990). Bourdieu's theory of habitus describes the individual's way of seeing, interpreting and acting in the world, in accordance with their social position. When a student belongs in a higher education institution, it is like a 'fish in water.' What I also intend to research is the 'fish out of water,' identifying those students where there may be a potential mismatch between individual habitus and institutional habitus based on exclusion and denial through social spaces at ITB.

To explore this concept I will use photovoice methodology to reveal inclusion and exclusion on campus. Photovoice methodology is used to document and reflect reality at a deeper level than is the case with words alone. By means of a graded assessment students are required to take two photographs. The photos are expected to bring new insights and perspectives of the ITB campus which identify spaces that make students feel included and that they belong and also spaces that exclude and deny belonging from an ethnicity-nationality perspective. The process begins with the students' lived experiences of inclusion and exclusion at ITB with the aim of making ITB a more inclusive campus in which to learn and flourish.

Delivering Pop Music History Curriculum in an Era of Shifting Cultural Values

Mr Greg Jarvis¹

¹*Durham College, Toronto, Canada*

Were The Beatles four lads who shook the world, inspiring social conscience and influencing much of the music that came after them? Or were they (and Elvis) cultural appropriators who exploited African-American music for profits and fame? Should the study of 'classic albums' of the 1950s and 1960s be retroactively diversified to include more works by female and Indigenous artists of those eras, replacing cis white male artists who significantly impacted culture? Al Jolson was the biggest American entertainer of the 1930s yet has disappeared from the popular conscience due to his association with 'black face'. Is it culturally insensitive to include him in curriculum and to explain 'black face' from a 1930s viewpoint? N.W.A.'s 'Straight Outta Compton' is one of the most influential Hip Hop albums of all time. Yet how does one discuss its racially charged, misogynistic lyrics (or even the group's very name) without using language deemed to be offensive?

As our society shifts from a central cultural narrative espoused by the media into one of many parallel cultural narratives existing in social media silos, those tasked with teaching cultural history are faced with new challenges. This paper will expand upon my 2006 masters thesis on the 'Effective Development of Musical Understanding In Non-Musician Adult Learners' in order to address the matter of delivering pop music history curriculum in an era of shifting cultural values.

Interculturalism in higher education in Ireland; an analysis from a strategy, policy and practice perspective

Dr Brid Ni Chonaill¹

¹*Institute Of Technology Blanchardstown, Dublin, Ireland*

Education is instrumental in preparing students to participate in increasingly diverse Irish, European and global societies, with higher education having a part to play in the process. Issues around migration and cultural diversity have gained less attention in the higher education sector in Ireland than at primary and post primary level with a few notable exceptions. Higher education is regarded as having a “critical role” to play in terms of “enriching Ireland’s cultural life, nurturing our understanding of our own national identity and that of other cultures and belief systems” (Cassells, 2015, p. iv). Influenced by developments at European Union level, the approach adopted to cultural diversity in Ireland is one of interculturalism.

This paper aims in the first instance to analyse the application of interculturalism in the Irish higher education sector from a strategy and policy perspective. It briefly traces the promotion of interculturalism as a policy response to cultural diversity at a European level, before highlighting a number of the concept’s salient characteristics. The second part of the paper analyses the implementation of interculturalism in the Irish context. While critically reflecting on the higher education setting as a site where interculturalism can be put into practice, the focus is placed specifically on the question of language and the need to take it into consideration.

Cassells, P. (2015). Foreword. In *The Role, Value and Scale of Higher education in Ireland*. Discussion Paper for Stakeholder Consultation. Retrieved 21 January 2018 from <https://www.education.ie/en/The-Education-System/Higher-Education/Higher-Education-Role-Value-and-Scale-of-Higher-Education-in-Ireland-Discussion-Paper-1-.pdf>

Cultural artefacts and virtual possibilities enhance space for self-expression

Mrs Birgitta Cappelen¹, Dr Anders-Petter Andersson²

¹*Oslo School of Architecture and Design, Oslo, Norway,* ²*Norwegian University Of Science And Technology, Gjøvik, Norway*

In this paper we discuss how new combinations of technology, art and culture enable children with special needs new ways to express themselves.

UN-convention (UDHR) states “All human beings have the right to participate in cultural life, enjoy art...”, later including children (OHCHR) and persons with disabilities (CRPD).

To meet these UN-demands, several countries have created cultural programs to offer children art and culture activities, in school. In the Norwegian program they emphasize that art and culture can provide experiences that may be decisive in order to develop the individual's personal identity, life quality and alternative worldviews. Since 2015 one county offers a unique “Accessible Program” for children with special needs.

From many years of research we know the health promoting value of artistic and musical activities.

New technology opens up completely new ways to make art and culture accessible for all. It also offers new forms of artistic-expressions. Both have great potential for people with special needs. In this paper, we show how we used music and cultural artefacts with musical capabilities (RFID, AI), giving diverse users new musical, artistic, sensorial and creative experiences.

As a travelling interactive art installation, being part of the Norwegian “Accessible Program”, we made participatory observations in six schools. We experienced how the children expressed themselves, created, co-created, showed self-efficacy and made different cultural experiences, depending on disability and relations. With this paper we emphasize that art and culture, in combination with technology, offers valuable new health-promoting potentialities, important for the UD-community.

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Greensboro College: A Model of UDL in the curriculum

Prof Georgieann Bogdan¹

¹*Greensboro College, Greensboro, United States*

Developed at the North Carolina State University College of Design in the 1980s, UDL is based on research in cognitive neuroscience, guiding the development of flexible learning environments that can accommodate individual learning differences. UDL asks educators to create curriculum that provides: multiple means of representation, multiple means of expression and multiple means of engagement, while motivating them to learn and succeed

(<http://www.udlguidelines.cast.org>).

Greensboro College is unique in higher education in embracing UDL. Greensboro College uses UDL as a framework for successful academic and student development at a small, private, church-related liberal arts college. Greensboro College, has initiated the transformation to an institution that values & facilitates UDL across its curriculum. As a pillar of our Mission Statement we as a college believe “Universal Design for Learning at its core is a comprehensive educational framework that removes barriers to student learning and academic success. The principles of UDL recognize that variance in learning ability and style among individuals is the norm and not the exception. Therefore, curriculum should be adaptable to individual learning differences rather than the other way around.” (Mission Statement Greensboro College 2018) Greensboro College has taken its first steps to provide a learning environment for all students & can be used as a model for launching a UDL initiative at a small, liberal arts, private college (National Center on Universal Design for Learning, at CAST 2018, <http://www.udlcenter.org/aboutudl>).

References:

[udlguidelines.cast.org](http://www.udlguidelines.cast.org)

Mission Statement Greensboro College 2018

National Center on Universal Design for Learning, at CAST 2018

<http://www.udlcenter.org/aboutudl>

Co-constructing Universal Design in Citizen Science Workshops

Dr Per-Olof Hedvall¹, Dr Bitte Rydeman¹, Ms Sarah Granholm², Ms Malin Andersson¹

¹*Certec, Department Of Design Sciences, Lund University, Lund, Sweden*, ²*HSO Skåne, Malmö, Sweden*

This paper reports on a series of workshops that took place at two Swedish museums during 2017. The workshops were inspired by a citizen science approach, where the participants are not only on the receiving end but also active in producing new knowledge. The importance of turning to peoples' lived perspectives are often brought forward as crucial to understanding how inclusion and exclusion are played out in real life.

The study aimed to introduce and discuss Universal Design (UD) of museum exhibitions, by engaging visitors and staff in bringing forward content for joint discussions. As there is an ongoing shift from traditional work on accessibility towards UD taking place in Sweden right now, the study was also part of raising the awareness of UD within the disability movement and at the museums. Museum visitors representing different disability organizations worked together with museum staff in photo exercises, supervised by two researchers. In total, 31 participants took part in six three-hour workshops.

The workshop format encompassed three steps. First, one of the researchers introduced UD, after which the participants were divided into mixed groups with both visitors and staff. Their task was to take photos of museum features that were in line with, or in conflict with, UD. At the end of the workshop, all groups gathered to discuss what they had found. In this paper, we will tell about the examples the participants brought forward and the ensuing joint discussions, as well as discuss the further implications for UD.

Strategies for Developing Students' Empathy and Awareness for the Needs of People with Disabilities: contributions to Design education

Prof Fausto Medola¹, Prof. Frode Sandnes³, Ana Lya Ferrari¹, MsC Ana Cláudia Rodrigues²

¹Sao Paulo State University (UNESP), Bauru, Brazil, ²SORRI BAURU Rehabilitation Center, Bauru, Brazil, ³Oslo Metropolitan University (OsloMet), Oslo, Norway

The design of products for people with disabilities requires the understanding of a wide range of factors related to users' health, functional abilities, needs, expectations and preferences. Such multifactorial perspective is often perceived as beyond the reach by the students of both graphic and product design, as it comprises knowledge from different areas such as health, rehabilitation, computer sciences and biomedical engineering that are not usually part of the design curriculum. Here, we report on the strategies for developing in design students the empathy and awareness for the needs and expectations of people with disabilities. By means of a combination of theoretical and practical approaches, a course on Inclusive Design was developed as part of the regular curriculum of the Bachelor Programme in Design at Sao Paulo State University (UNESP, Bauru campus, Brazil), with the collaborative participation of members of SORRI BAURU Rehabilitation Center. The final projects developed by the students were based on the demands presented by SORRI BAURU's rehabilitation team, and results reveal that the theoretical-practical approach based on interdisciplinarity was shown to provide the design students a learning experience that, ultimately, support the proper decision-making in the design process. This paper describes the pedagogical approach, theoretical contents and practical activities developed during the Inclusive Design course, as well as discuss the challenges, benefits, results and contributions of this experience from the perspective of the design education.

Research-based Educational Support of Undergraduate Students with Autism Spectrum Disorders

Ms Kirsten Ribu¹

¹*OsloMet - Oslo Metropolitan University, 0130 Oslo, Norway*

The numbers of college and university students with autism spectrum disorders (ASD) are steadily rising, but research on their academic performance reports mixed results. The diversity of the population makes it necessary to target each student individually. This paper describes an ongoing study and experience with pedagogical intervention for ten undergraduate IT students at Oslo Metropolitan University (OsloMet) over several years. The intervention design is based on knowledge of research in the field and evidence-based practices, as well as professional skills. Data about student challenges and needs are collected from informal, open-ended interviews with students, in addition to conversations and observation. The goal is to ensure that the students achieve academical success. Plans are currently being made to develop a formal program that will target all students with autism spectrum disorders at OsloMet.

Key words: Autism spectrum disorder, undergraduate students, research-based intervention, evidence-based practices

Empathy in design - process, tools and strategies in learning and teaching architecture

Julia Jamrozik¹, Sarah Gunawan¹

¹*University At Buffalo, , United States*

Architects seldom design for themselves, yet in the course of studying architecture one is rarely presented with the opportunity to design for a real client. The abstract nature of this education-model leads to a focus that is typically more formal or more technical and de-emphasizes the role of the user. By introducing the notion of empathy into the design process, this paper argues that the figure of the occupant can and should be, vital in the teaching and study of architecture. More specifically, that students can benefit by researching, exploring and ultimately designing for, individuals with specific needs, abilities and desires. Approaching Universal Design through the lens of age, and the opportunities and challenges of designing for the young and the old, we argue, offers the possibility of looking at sensorial perception, mobility and communication as ways of spatial understanding. Based on a design seminars and studios taught in the Department of Architecture at the University at Buffalo, we will present specific approaches and exercises, which introduced empathy into the design process challenging students to embody perspectives and physical conditions different from their own.

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The development of a methodology for contextual user research in healthcare design projects.

Mr Donal Healion¹, Mr Enda O'Dowd¹, Mr Sam Russell¹

¹National College of Art & Design, Dublin,, Ireland

The impact of human factors in the usage of medical devices and delivery of healthcare is increasingly being recognised as a significant contributor to patient experience and safety. This paper presents a methodology for undertaking contextual user research during healthcare design projects by which all relevant human factors of a procedure can be recorded, documented and analysed. An innovative method of graphically representing the results of this analysis is proposed which visualises the interactions and interdependencies between all stakeholders and artefacts involved in a procedure and the environment in which it takes place.

The result is the development of a set of tools that can assist designers, researchers, architects and healthcare professionals during the research phase of a healthcare design project to uncover user needs, identify potential risks, provide documentation for regulatory adherence and inform the development of a comprehensive and inclusive design brief.

The paper presents the context and development of this systematic process, which draws on empirical and theoretical methodologies and the experience of running real-world educational design projects with healthcare clinicians and medical device companies.

The main findings will show how the application of the methodology and tools created have the ability to positively impact on patient experience and safety through improvements in device development and care delivery. By facilitating the extraction of key environmental, user and human factors insights to inform the design process, the proposed method enables the creation of more inclusive and accessible universal design solutions.

Virtual Reality (VR) technology: Empowering Managers to Reduce and Eliminate Accessibility Barriers for People with Autism Spectrum Disorders

Ms Miriam O' Sullivan¹, Mr. Gearoid Kearney¹

¹*Myaccesshub, Killarney, Ireland*

Barriers to accessibility are present for 13% of the Irish population. Many initiatives have been developed and implemented for people with physical disabilities; however, people with intellectual disabilities (ID) remain invisible. The invisible population account for 9.7% of our population with disabilities. Thus, it is imperative that we commence to implement UD approaches that increase accessibility and empower the invisible to become visible.

One such invisible group that holds substantial potential to bring immense value to companies is that of people with Autism Spectrum Disorders (ASD). ASD currently impacts 1 in 68 people worldwide with this figure growing annually at a rate of 10-17%. 80% of people with ASD are either unemployed or underemployed; this can be attributed to barriers to accessibility.

There are two types of barriers to accessibility experienced by those with ASD; environmental and awareness & understanding. These barriers have the potential to be overcome through the use of Virtual Reality (VR) technology. VR technology is being used to empower managers to reduce these barriers, increase accessibility and develop inclusive environments and cultures. This VR technology empowers managers to recognise and reduce the barriers facing those with ASD. It empowers managers to identify the environmental barriers facing people with ASD within a work environment and it also provides them with the skills necessary to commence making adaptations to the environment to reduce or eliminate these barriers. The use of this technology and paradigm shift brings many benefits for the individual and the company.

A mixed method approach has been used for the purposes of data collection. The tools that were utilised were interviews with HR managers and people with ASD; and surveys were circulated to HR managers, senior managers and people with ASD. The results of these were positive and clearly verified that there is a need to empower managers to increase accessibility within their organisations.

A mapping and analysis of the validation arrangements for migrants, refugees and the low-qualified

Prof Irene Sheridan¹, Deirdre Goggin¹

¹*Cork Institute of Technology, Cork, Ireland*

A number of European Union priorities focus on sustained and shared approaches to making skills visible as well as supporting mobility of workforces within Europe including the integration of migrants and refugees. Supportive, transnational processes for the recognition and validation of learning provide an opportunity to maximise human capital and to benefit labour markets and societies generally leading to improved economic performance.

Currently validation arrangements within Europe are variable and fragmented with few common approaches from the perspective of the employers, further and higher education providers, and policy makers. As the research and evaluation partners in the VISKA (Visible Skills of Adults) project, funded under the European Commission Policy Experimentation initiative, the authors have undertaken an investigation of the validation landscape within the project partner countries.

This initial mapping process provides a baseline set of data on the existing processes, procedural information and resources related to the validation of learning of migrants, refugees and those with low qualifications within partner jurisdictions prior to implementation of various interventions planned by the project team. This vital contextual information provides a context for the action-based interventions and a framework for the evaluation of the outcomes.

Europe will benefit from a sustained approach to the sharing of practices on validation directed towards third-country nationals. This paper explores legislative and practical frameworks reported by the country partners as well as lived experiences of the key stakeholders and beneficiary focus groups in four countries in Europe and is an important stepping stone towards impactful policy development.

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Tomorrows Disability Officer - a cornerstone on the UD campus

Ms Mary Quirke^{1,2}, Dr Patricia McCarthy², Mr Declan Treanor², Dr Conor Mc Guckin²

¹Association of Higher Education Access & Disability (AHEAD), Dublin, Ireland, ²Trinity College, Dublin, Ireland

This paper will examine the Disability Officer role on campus, today. It will outline how engagement with both those that require specialist disability supports due to the nature/ impact of their disability or where advocating for change results in a campus with engaged staff in the Universal Design agenda. In other words, todays Disability Officer is a professional, occupied with not just the learners but all others involved with learners with a disability. Disability Officers in Ireland have started this exploratory journey on their role in the future of Higher Education.

Students with disabilities have also had a voice in these recent developments. As higher education become more attainable, curriculum develops and technology improves; making decisions about what will work requires knowledge and expertise.

This presentation/ paper will summarise the history of the disability officer and how the ethos is evolving. Recent developments in Ireland have seen the development of the first role document for a Disability Officer. It was developed in an inclusive manner and is intended to be a conversation starter. Innovatively this presentation /paper will have input on recent developments and discourses from all sides - the Disability Officer and an academic (a former student with a disability and a researcher of blind student experiences). The discussion will seek to explore the professional role of the Disability Officer and also raise other considerations as universal design transforms not just the world of the student but also the world of the disability officer.