**Programme**

**TINEL Conference on Universal Design for Blended and eLearning in Higher Education**

**December 8 - 9 2021**

N.B. Times are for the UK (UTC/GMT)

## Wednesday 8 December – Conference Day 1

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| 09:00 – 09:20 | **Welcome and overview of the conference**<br>(Merja Saarela, Project Leader, TINEL) and Helen Petrie (University of York, TINEL Project Team member) |
| 09:20 – 09:45 | **The University of York Strategy on Inclusive Teaching, Learning and Assessment**<br>Jan Ball-Smith, Head of Apprenticeships and Inclusive Learning, University of York, UK |
| 09:45 – 10:15 | Coffee break |
| 10:15 – 11:00 | **UDL and UDeL: from concepts to practice**<br>Helen Petrie (PDF), University of York<br>Tarja Ladonlahti, University of Jyväskylä, Finland<br>Kaisa Honkonen, Association of Finnish eLearning Centres, Finland |
| 11:00 – 11:45 | Coffee/lunch break |
| 11:45 – 13:15 | **Overview of the TINEL Project**<br>TINEL Training Model (PDF) (Håkan Eftring, Lund University, Sweden)<br>TINEL Learning materials (PDF) (Håkan Eftring, Lund University, Sweden)<br>UDeL Context Cards (PDF) (Håkan Eftring, Lund University, Sweden)<br>5 **minute break**<br>Enhancement-led evaluation (Merja Saarela, HAMK, Finland)<br>The Accessible documents Hub (PDF) (Helen Petrie, University of York, UK)<br>Case studies from the TINEL Camps (Tarja Ladonlahti, University of Jyväskylä, Finland) |
| 13:15 – 14:00 | Lunch/ coffee break |
| 14:00 – 14:45 | **Workshops**<br>**Five workshops will take place in parallel, you may choose which you wish to attend UDeL context cards** (Hakan Eftring, Lund University, Sweden)<br><br>The UDeL Context Cards show situations a proactive teacher can prepare for. They can be used as a tool for teachers to test a course in advance, to see if they have thought of most situations that could occur in a course, especially in relation to student diversity and different learning situations and preferences. The cards describe situations only – not solutions, as the solutions may vary according to |

what is possible and appropriate in a specific learning situation. The teacher is encouraged to discuss possible solutions with his or her colleagues.
At this workshop we will focus on discussing inclusive teaching, by letting some of the Context Cards trigger the workshop participants to suggest new cards. Based on these suggestions, we will discuss participants' personal experiences of the variety of situations teachers often face and how they can be solved.

**Empathic modelling and impairment simulation** (Anne-Britt Torkildsby and Anne-Kristin Kvitle, NTNU, Norway)

Exercises in which students and designers experience in some way what it is like to be a person with a disability or an older person are popular components of education about universal design. They are used to help the understanding of disabled and older people's needs and to create empathy with these individuals. There have been some notable successes with such exercises, for example the use of the Third Age Suit by the Ford car company in designing the Ford Focus car. However, many people with disabilities and older people find these exercises insulting, as they do not convey the experience of living with a disability or ageing in real life. The increase in elearning and the pandemic have created new challenges for how such exercises can take place. This workshop will discuss the pros and cons of these exercises, how to use them respectfully in relation to the lived experiences of disabled and older people and how to incorporate them into elearning situations.

**Enhancement-led self evaluation** (Merja Saarela, HAMK, Finland)

Enhancement-Led Evaluation Tool (ELET) aims to support HEIs to develop activities by providing self-evaluation questions to structure everyday practices and reflect on their effectiveness with peers. A goal-oriented atmosphere of positive change is created by exchanging and disseminating good practices with peers. The ELET consists of two self-assessment questionnaires: 1) the status of the HEI's current UDeL activities and 2) enhancement-led self-evaluation form for structuring UDeL practice cases.
In this workshop you will learn basics how to use and apply the ELET with both questionnaires. We will begin with an introduction and examples. Then we continue in small hands-on work groups. Each group will prepare and present one good practice for the whole workshop participant group.

**What, where, how and why? How can university teachers support neurodiversity in group work?**

(Gunvor Larsson Torstensdotter, Nina Nikku, Victoria Stenbäck and Per Sandén, Linköping University, Sweden)
More neurodivergent persons are becoming students in higher education, but few teachers are prepared and know how to adapt

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| | their teaching in a way that suits all students, for example Universal Design. Teachers express uncertainty about what tools they can use to support and what rights both they and the students have. Many are afraid to do the "wrong" thing. Fellow students are expressing the same thoughts. Students are frequently asked to work collaboratively in groups to solve problems, take exams, work on projects or on scenarios in tutorial problem-based groups.<br>The aim of the workshop is to start a discussion on how to support teachers who work with groups of neurodivergent students. Who is responsible for what, and how can I, as a teachers, support this in an online setting?<br><br>**Creating accessible documents (**Merja Laamanen, University of Jyväskylä, Finland)<br><br>Accessibility of documents is essential in online education. For example, text should be easy to read and images should have text descriptions. At this workshop we will focus on the key elements of accessible Word, PowerPoint, Excel and PDF documents and how to check their accessibility. We will demonstrate accessibility issues and learn how to check accessibility of Office documents, using PowerPoint file as an example. We will also discuss participants' experiences and they are encouraged to share their thoughts and tips. |
| 14:45 – 15:15 | Coffee break |
| 15:15 – 16:00 | **Keynote talk**<br>**Frederic Fovet (Royal Roads University, Canada)**<br>Addressing the needs of diverse learners in online and blended learning with Universal Design for Learning in the post-pandemic Academy: opportunities, new alliances, hurdles, shifting ground, U turns, quick sands, and other surprises of the journey.<br><br>Frederic's bio and abstract for his talk are at the end of the programme |
| 18:00 – 19:00 | **Online dinner and virtual social get together** – bring a typical dish of your country/region to "share" with everyone |

## Thursday 9 December – Conference Day 2

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| 09:00 – 09:45 | **Panel session – the view from students**<br><br>Malin Cronquist, Information and Communication Engineering Technologies, Lund University, Sweden<br>Sanna Paasonen, University of Jyväskylä, Finland<br>Gagan Chhabra, Oslo Met University, Norway<br>Arwa Alnajashi, Computer Science, University of York, UK |

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| 09:45 – 10:00 | Short break |
| 10:00 – 12:45 | **Presentations:** choice of two presentations at each time slot<br><br>Zoom for Stream A<br><br>Zoom for Stream B<br><br>Summaries of all the presentations can be found at the end of the programme to help you choose which to attend (the presentation titles are links to the summaries at the end of the document) |
| 10:00 – 10:30 | Stream A:<br>**Stories of technology use in the university: Disabled Malaysian students' perspective**<br>Sook Yee Helena Song, Flinders University, Australia (Video 00:26 hrs)<br><br>Steam B:<br>**Developing an inclusive tool to choose a statistical test**<br>Anna Riach & Lou Stringer, University of York, UK (Video 00:28 hrs) |
| 10:30 – 11:00 | Stream A:<br>**National Network Collaboration for Improved Digital Accessibility in HEIs' E-learning Environments**<br>Lena Dafgård and Birgitta Hemmingsson, ITHU/Dalarna University; ITHU/Mid Sweden University, Sweden (Video 00:15 hrs)<br><br>Steam B:<br>**The Impact of Universal Design in the Design of Educational Augmented Reality Applications**<br>Attila Bekkvik Szentirmai, Norwegian University of Science and Technology (NTNU), Norway (Video 00:41 hrs) |
| 11:00 – 11:15 | Coffee/lunch break |
| 11:15 – 11:45 | Stream A:<br>**In Service of Care: A discussion on how access intimacy can be used to frame the new era of blended and e-learning in higher education**<br>Burgandi Rakoska, University of Leeds, UK (Video 00:18 hrs)<br><br>Steam B:<br>**Adopting inclusion and accessibility strategies to support students with disabilities in higher education: The case of the Learning Development Network of CUT**<br>Anna Nicolaou, Antigoni Parmaxi, and Panayiotis Zaphiris**,** Cyprus University of Technology (CUT), Cyprus (Video 00:27 hrs) |
| 11:45 – 12:15 | Stream A:<br>**Creating an on-line environment for student collaboration and peer support**<br>Jane Fitzgerald, University of Central Lancashire, UK (Video 00:25 hrs) |

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| 12:15 – 12:45 | Stream A:<br>**Promoting Master students' professional skills in producing accessible art-based services and products**<br>Paula Rantamaa, Milla Karvonen, Terhi Leppä, and Heidi Oilimo HAMK, Finland<br><br>Steam B:<br>**Authentic project-based learning in the virtual classroom**<br>Fernando Loizides, Kathryn Jones, Wendy Ivins and Katarzyna Stawarz, Cardiff University, UK (Video 00:32 hrs) |
| 12:45 – 13:30 | Lunch/coffee break |
| 13:30 – 14:00 | Stream A:<br>**RapidLab: Experience based teaching of rapid prototyping through blended learning**<br>Fernando Loizides, Kathryn Jones and Matthew Turner (Video 00:32 hrs)<br><br>Steam B:<br>**Developing an inclusive learning environment with Microsoft Power Automate and Translation**<br>Andrew E. Grice, University of Central Lancashire, UK (Video 01:08 hrs) |
| 14:00 – 14:30 | Stream A:<br>**IDE@ Project: Digital accessibility and inclusive online teaching and learning contexts**<br>Estella Oncins, Universitat Autònoma de Barcelona, Spain and Armony Altinier, KOENA, France<br><br>Steam B:<br>**Multiple Ways of Expression in the School of Wellbeing at HAMK University**<br>Mikko Romppanen, HAMK, Finland |
| 14:30 – 15:00 | **Wrap up:** Discussion, plans for the future, the TINEL Network<br>The TINEL team |

**Keynote Talk (PDF)**
Dr. Frederic Fovet, School of Education and Technology, Royal Roads University, Canada
**Bio:**
Frédéric Fovet is Associate Professor in the School of Education and Technology at Royal Roads University. He has previously held the position of Assistant Professor within the Faculty of Education of the University of Prince Edward Island. Over the duration of his PhD., he was Director of the Office of Students with Disabilities at McGill University. He has also served as a teacher and principal in the K-12 sector.
He is an inclusion specialist with a specific interest in social, emotional and behavioural difficulties (SEBD), critical pedagogy and universal design for learning (UDL). Frederic also has a strong grounding in Disability Studies. He acts as a consultant, both nationally and internationally, in the

area of UDL and inclusion – in the K-12 and the post-secondary sector. He was the instigator and program chair of the first three pan-Canadian conferences on UDL in 2015, 2017 and 2019.

**Title:** Addressing the needs of diverse learners in online and blended learning with Universal Design for Learning in the post-pandemic Academy: opportunities, new alliances, hurdles, shifting ground, U turns, quick sands, and other surprises of the journey.

**Abstract:**

There has been growing but sporadic interest around Universal Design for Learning across the post-secondary sector in most jurisdictions over the last decade. This, in itself is encouraging and there is no doubt that the notion that inclusion must be achieved through proactive inclusive design rather than through retrofitting and accommodations is finally gaining in popularity and visibility.

UDL work, however, has long entertained an ambivalent and complex relationship with the rest of the scholarship on technology, blended learning and online learning. While the overlap between the UDL literature and these other bodies of practice is prima facie obvious and rich, in the field it has been somewhat difficult strategically to get buy-in for UDL from the practitioners and researchers traditionally involved in technology rich pedagogy.

The COVID pandemic and the pivot to online teaching and learning have shaken this status quo and offered unprecedented opportunities to demonstrate and showcase the relevance of UDL when it comes to systemically addressing learner diversity in online and blended pedagogy.

The pandemic, however, has also further muddied the waters, and disrupted many of the relationships between stakeholders in academia. The disruption has been such that it becomes challenging at times to foresee what lessons have been learnt from the pandemic and what new practices are likely to emerge from the COVID crisis. The presentation will examine what the future of UDL implementation within the growth of online and blended learning might look like in this disrupted and quickly changing landscape. It will invite participants to engage in lucid assessments of the opportunities and challenges the post-pandemic era gives rise to in this area.

**Summaries of the presentations**

**Stories of technology use in the university: Disabled Malaysian students' perspective**
**Sook Yee Helena Song, Flinders University, Australia**

Past research on digital inequalities focusing on access alone has led to limited insights into disabled students' digital experiences in higher education. Despite the existence of legislation, accessibility guidelines, and standards, digital learning resources and services remain largely inaccessible to disabled university students. There is increasing evidence that technology use within higher education, particularly among disabled students, is more than a case of having physical access and use. Studies have shown that students with different trajectories experience technology in higher education very differently. Issues and challenges pertaining to technology access and use among disabled students have been found to be complex and multi-faceted across the spectrum of disability. A broader socio-cultural investigation is needed to enable more critical perspectives of the uptake of digital technology among disabled university students in the Global South.

The focus of my presentation is to share preliminary findings of my doctoral study. Through an intensive look at a case university in Malaysia, I draw upon Bourdieu's social and relational framework to deepen our understanding of the complex relationship between disabled students and their use of digital technologies. Utilizing in-depth interviews, I seek out to 'listen' attentively to the disabled students' voices, including silenced voices. The goal is to capture and locate the multiplicity of the disabled students' personal voices when talking about their use of technology in the university. While my aim during the interviews is to privilege the voices of the disabled participants, this does not mean that their once silenced voice will automatically be brought out in the open. Even when disabled participants are given the space and time to 'speak their mind', their voices are often filtered through systems of power, and social-culturally constructed factors and beliefs. Given this understanding, interpretation of the students' stories is attentive to the body, relationships and social-cultural context, allowing those who struggle to speak within the current patriarchal, androcentric and ableist framework to be heard or at least partially understood. By systematically combing through each narrative from multiple perspectives, it helps to identify and pick up unspoken issues in the disabled students' stories.

In this presentation, I will share 5 individual stories that reveal barriers and enablers that determine and differentiate whether one could meaningfully engage and effectively use technology with positive outcomes to fully participate and be included in the university. These stories also uncover how the political, social, and cultural practices within the university environment, and the disabled students' character, cultural background, family upbringing, and past schooling experiences, shape the disabled students' relationship with digital technologies in the university.

**Developing an inclusive tool to choose a statistical test**
**Anna Riach & Lou Stringer**
**Library, Archives and Learning Services, University of York, UK**

When conducting statistical analyses, there are numerous different variables and data types, a range of synonyms for terminology and many possible statistical tests. This means identifying the appropriate test for a given situation can be a difficult task for students.

**Problem**

Tools to help students choose a statistical test tend to appear in one of the following formats:

- A decision-tree diagram or flowchart, generally in paper-based, PDF or image format, which is very difficult or impossible to navigate with screen readers or other assistive technology.

- A HTML table which doesn't reflow to the size of the screen, so requires considerable scrolling and puts pressure on working memory.
- A quiz-style tool where students progress through each question sequentially, meaning they only see the test that is the result of their input, possibly leading to error.

Tools also generally rely on students being familiar with one particular set of terminology, but there are many synonyms for variable types, data types and the tests themselves.

**Solution**

To address the above issues, we set out to create a new tool which:

- is accessible to screen reader and screen magnification users.
- is responsive to screen size and easily usable on a mobile device.
- presents information about all variables and tests.
- is adaptable by the user to show the terminology they are familiar with.

Our dynamic web-based solution:

- is based on a HTML nested list rather than a table to highlight level structure and allow quick navigation for screenreader users.
- uses CSS (Cascading Style Sheets) to render the HTML list as a pseudo-table for ease of visual use and resize to comfortably fit all screen sizes.
- uses Javascript to allow students to change terminology to that used in their course and show/hide test synonyms.

We iteratively tested the tool on numerous devices and with a student who uses screen magnification and a screen reader to make sure it is intuitive and works for the most common scenarios students encounter.

**Implementation**

The finalised tool was published in August 2021 on our Maths Skills Centre practical guide to maths and statistics. This is an open platform, so the tool and supporting resources are available to all University of York (UoY) students and also the wider community.

We also provided opportunities for students to learn to use the tool and understand the different variable and data types:

- online and face-to-face workshops
- pre-recorded workshop materials available any time
- interactive online tutorial (using Xerte)

Initial feedback from students and staff within the UoY and other institutions has been very positive. Going forward, we will collect further feedback on the tool and supporting resources.

**National Network Collaboration for Improved Digital Accessibility in HEIs' E-learning Environments**
**Lena Dafgård and Birgitta Hemmingsson, ITHU/Dalarna University; ITHU/Mid Sweden University, Sweden**

The Swedish Network for IT in Higher Education (ITHU), established in 2009, is a professional development network that aims to promote and enhance the pedagogical application of IT in teaching and learning. The network is a forum for the exchange of experience and knowledge in the field in terms of practice, research and development. Most of the members work as pedagogical developers, educational technologists, teachers, librarians and staff involved in course design.The network organises monthly online network meetings and webinars about current topics and almost all Swedish higher education institutions are represented in the network. Several subnetworks for special interests as e.g. digital examinations and digital pedagogical tools have been established.

Another example is the ITHU Subnetwork for Accessibility, formed in 2019, when the members in ITHU defined accessibility as an area of great interest during several of the network meetings. One of the reasons for this interest was the EU Web Accessibility Initiative. Sweden, along with other countries, legislated the initiative, and the law created a lot of questions from the HEIs on how to interpret the law, especially regarding LMS platforms.

The discussions of the interpretation of the law within the ITHU Subnetwork for Accessibility resulted in a submission of a request to The Association of Swedish Higher Education Institutions (SUHF) for guidance in the matter. A special group was appointed by SUHF including two representatives from the ITHU Subnetwork for Accessibility. After several months of work, the group presented national recommendations for interpretation of the law in relation to LMS platforms.

A culture of sharing is strongly present to optimize the use of resources in a national context. During the monthly online network meetings, the members of the subnetwork, discuss, share experiences, and collaborate to create increased digital accessibility at the Swedish HEIs. Topics of discussion are e.g. subtitling, visual interpretation, how to create accessible documents, e.g. in Word, PowerPoint, and in PDF format. Guests with special competences are invited to the network meetings to contribute with their different perspectives. For example, guests from Microsoft Sweden demonstrated the newly developed tools for subtitling, translation and accessibility adjustments in M365. Another example is Sunet,[1] talking about the new educational service Speech2Text that provides tools for subtitling in three levels; automated subtitling, corrected automated subtitling and manual subtitling. The service will be available for Swedish HEIs from Q4 2021.

The members also share experience regarding how their HEIs have developed strategies and services for conducting the accessibility work and how to disseminate information to staff and students. Furthermore, several HEIs have developed resources for supporting teachers in their accessibility work. These resources are often published as OER and have been shared within the network and contributed to the coordination of HEIs' work with facilitating accessibility.

In addition, the network is planning to invite other networks and organisations to work together to create a joint resource for teachers, accessible for all Swedish HEIs.

**Adopting inclusion and accessibility strategies to support students with disabilities in higher education: The case of the Learning Development Network of CUT**

**Anna Nicolaou, Antigoni Parmaxi, and Panayiotis Zaphiris**
**Cyprus University of Technology (CUT), Cyprus**

In Spring 2020 worldwide education experienced a disruption due to the unprecedented shift to online learning. Academic institutions had to act swiftly to establish new modes of teaching and learning while striving to maintain quality in education. In this context of uncertainty and confusion, the difficulties in facilitating learning for students with disabilities became more profound. Many of the universities' distance learning solutions were unlikely to benefit learners in vulnerable groups, unless substantially adapted. With this in mind, the Learning Development Network (the Network) of the Cyprus University of Technology (CUT), whose founding coincided with the onset of the Covid-19 pandemic, adopted a series of inclusion and accessibility strategies to support students with disabilities during this period and promote a universal design for learners. The strategies can be delineated in three main pillars: participation, training, and research.

[1] Swedish University Computer Network, part of the Swedish Research Council

With regard to the first pillar, the Network has adopted a participatory approach since its establishment through the inclusion of vulnerable groups in the Coordination Team. These individuals provide consultation with regard to the Network's actions and have an active role in the decision-making processes. They also have the opportunity to share their unique knowledge and experiences through the delivery of lectures organized by the Network. Finally, the Network has included students with disabilities in its evaluation procedures, requesting feedback with regard to the effectiveness of the Network's actions on student life, particularly during the time of blended and online learning due to the pandemic restrictions.

As far as the second pillar is concerned, the main objective of the Network is to enhance the educational experience of the students of the CUT and to promote innovation in teaching and learning. During the Covid-19 pandemic when the University moved to a remote mode of learning, it was deemed necessary to empower academic faculty to support vulnerable groups of students. To that end, the Network organized training seminars and workshops in the areas of inclusion and accessibility in higher education. These workshops focused on the implementation of inclusive education and accessibility practices for the education of students with disabilities, with an emphasis mainly on distance and digital education. In the context of these workshops, practical suggestions for universal design for learning and accessibility were discussed. Another initiative that was adopted was the addition of subtitles to the video-recordings of the seminars and workshops organized to accommodate for vulnerable groups within the university, particularly those with hearing impairment.

With regard to the last pillar, since its establishment, the Network has become involved in research activities in the area pertaining to universal design for learning by joining the EUt+ European program's relevant work package group and contributing actively to its activities, such as the development of an inclusive Extended Reality (XR) platform to support the mobility of students across universities in Europe.

In the future, the Network aspires to enrich its inclusion and accessibility strategies by offering specialized training to the academic staff and by expanding the participation of students with disabilities in its actions.

**The Impact of Universal Design in the Design of Educational Augmented Reality Applications**

**Attila Bekkvik Szentirmai**
**Norwegian University of Science and Technology (NTNU), Norway**

**Background & Purpose**

Augmented Reality (AR) is claimed by many as one of the most suitable platforms for technology-enhanced learning. AR, by definition, is the digital technology extending, enhancing, and combining the user's real-world environment with real-time digital information. A large body of literature praises the positive impact of AR on learning outcomes and student engagement. However, AR has recurring accessibility and usability issues. Interestingly, only a fraction of studies focus on accessibility of AR technologies.

Under current Norwegian legislation, all digital educational materials must be universally designed. The practice of Universal Design (UD) promises to deliver the best possible solution to the broadest audiences, including users with special needs, without the need for adaptation or often stigmatizing special equipment. Our research focuses on the impact of UD in the design of educational AR applications.

**Methods**

To design and develop educational AR prototypes, we applied the seven principles of UD, in addition to an extensive user study concerning their diverse skills, abilities, preferences. A representative sample of publicly available AR applications provided the reference for designing interaction styles,

visualization techniques, and user interfaces. Providing flexibility in use, all prototypes provided handheld and wearable (usually head-mounted) interaction styles.

A study was conducted with 14 participants representing lifelong learning from diverse backgrounds, ages, levels of digital literacy, impairment (visual, cognitive, motor), learning ability, and prior experience with AR. Participants studied biology and architecture history through the apps. Each participant was given a demonstration session to learn the functions of the prototype before their learning sessions. After each session, participants knowledge was assessed. Descriptive statistics were used to investigate, trends, patterns, concerning the participants test scores regarding their self-claimed skills, abilities and experiences. The study ended with a survey asked participants to express their opinion about the universally designed AR applications.

**Results**
All participants could interact with and learn using the prototypes, including an 86-year-old student with severe impairments. The test scores comparations showed no significant difference concerning self-claimed digital literacy, self-claimed learning ability, and previous experience with AR. Mean score comparations showed the group of 35-44 (N=5) performed best, and the only 65+ year old participant performed the worst.
The final survey found that 10 (71.5%) of participants found the applications intuitive, and 12 (85.7%) found AR more engaging than traditional learning materials.

**Implications**
Educational AR applications can benefit from UD as a design practice to enhance accessibility and usability for broader audiences, including users with diverse abilities and special needs. Our results also suggest UD of AR does not require the sacrifice of creative freedom or design trade-offs that negatively impact user immersion and engagement. AR features designed with users in mind can communicate information, stimulate and amplify senses without the need for additional assistive technologies. Our findings also suggest the UD approach can successfully mitigate the shortcomings of lower digital literacy and lack of prior experience with AR. Consequently, UD as a design practice can lead towards more inclusive AR applications.

**Limitations**
One of the most prominent limitations of this study is the low sample size of participants. The results showing UD of AR applications can make AR accessible, however, to identify statistically significant, valid, and reliable trends, more participants needed.

**In Service of Care: A discussion on how access intimacy can be used to frame the new era of blended and e-learning in higher education**
**Burgandi Rakoska, University of Leeds, UK**
My Ph.D. project focuses on the retention rates of disabled university students in the US and UK. Throughout the past year, I have interviewed various disabled individuals who have dropped out of their higher education programme(s). Though my focus was not initially on the coronavirus pandemic, the topic has been discussed by multiple participants, due to the impact that said pandemic has had on higher education. These conversations specifically focused on the positive outcomes and negative repercussions of transitioning from in-classroom learning to e-learning and/or blended formats.

In this presentation, I discuss disabled students' experiences with e-learning and blended learning, drawing from my own interviews as well as other literature published on the topic. This presentation will further highlight the common frustration that these technological pedagogical advancements were not available before the pandemic. Finally, this presentation will discuss Mia Mingus' work on

access intimacy, subsequently suggesting ways in which higher education institutions could frame online/hybrid learning, not as a legal mandate, but as a proactive strategy to include—and retain—students from a variety of intersectional backgrounds.

**Creating an on-line environment for student collaboration and peer support**
**Jane Fitzgerald**
**University of Central Lancashire, UK**
In March 2020 our educational world changed for over. Virtually overnight we had to create learning environments that would still enable our students to learn at a distance whilst still collaborating and being able to develop those peer networks that are so important for success.

We had two different cohorts of students: those students who were having to transition very suddenly, often with little digital knowledge and support and then, later, students who had never been taught in a classroom but had some increased knowledge of digital technology. Both felt that they would be losing out in the digital classroom and our role was as much to give them confidence and show them that their learning could still be as dynamic and interesting at a distance as it was to share our knowledge with them.

How could we do this? How could we give these students the learning experience they needed to develop and succeed? How were the two differing needs of these two cohorts met?

This presentation explores some of the techniques used over the past 18 months to develop peer support networks and enable students to collaborate effectively with eachother both synchronously and asynchronously whilst never having met eachother in "real" life.

**Multiple Ways of Expression in the School of Wellbeing at HAMK University**
**Mikko Romppanen, Häme University of Applied Sciences (HAMK), Finland**
I have been taking part in the TINEL project for the last two years. For me it has been an opportunity to learn new things about UDL and develop my own pedagogics.
One of the fruits of this process has been that I have been actively developing new ways for students taking the Bachelor of Social Services to express their comprehension, knowledge and competence in their studies. I often give multiple possibilities when it comes to accomplishing assignments in our modules. Students can choose from writing a report or an essay, making a video or a podcast.
The status of a textual report as a dominating media can also be questioned in this context. Fortunately, technical developments keep creating more possibilities for alternative ways of accomplishing assignments also in higher education.
Once videos, podcasts and other means of producing information are established and approved ways of expressing oneself, we do not even necessarily need to draw attenetion to someone's need for a special aid or support, but we can simply use multiple ways of doing things when creating and sharing knowledge.
Podcasts have been a popular choice for the students. The students are very often enthusiastic about podcasts and they have also made very good work in producing them. Their podcasts have included interviews, group discussions and even music. The students have felt that they have more freedom when expressing themselves with podcasts in comparison to writing an essay or a report.
It would be good to have a system in which the students could naturally have a wider range of possibilities for accomplishing their assignments, without having to highlight the possible difficulties or challenges in their studies and learning. Usually, nobody likes being identified as disabled or different.
In this paper I will present this initiative and I will also include some student experiences via video. Hopefully it will be a good way of highlighting the benefits of multiple ways of expression and multiple ways of engagement as experienced by our students. As future professionals in social work and education, our students should also be able to help their clients and customers to express

themselves in the best ways possible and also to engage with these individuals in fruitful working relationships.

**Promoting Master students' professional skills in producing accessible art-based services and products**

**Paula Rantamaa, Milla Karvonen, Terhi Leppä, Heidi Oilimo, Häme University of Applied Sciences (HAMK), Finland**

In this presentation we will discuss ways to strengthen Master students' professional skills to produce accessible art-based activities, services and products. In order to enhance cultural wellbeing in general, and in particular as a part of welfare and health care services, it is important that the specialists of the future understand accessibility in the context of cultural wellbeing and have skills to construct and produce accessible services and products.

In this project, the context was HAMK's Master Degree Programme in Promoting Wellbeing through Culture and Art and its last learning module "Art and Culture Activities in Social and Health Care Services in Future". The main idea of the project was to re-design a learning assignment of the module, so that the assignment itself would fulfill the criteria of accessibility. This also taught students to take accessibility more seriously and deeply into account when planning and producing new kinds of art-based services and products.

The project was conducted by applying the principles of co-planning. This meant that there was a group of Master students, including the teacher, who managed the project. As a result, the group produced a learning assignment which was published in two formats: as a video and as a Powerpoint presentation. Examples of these will be included in the presentation.

Because the learning module is still currently underway, it is not possible to report on the final experiences and results of how the project reaches its targets. A positive signal of success could be the fact that there have been no extra questions about the assignment. The students of the group in charge have given feedback about their learning experiences. These include concrete ways to use and make accessible materials while working in eLearning environments such as this module. The students have also mentioned new kinds of deep insights about the accessibility of art-based services and products. From the pedagogical point of view, the project has indicated inspiring possibilities and also challenges of co-planning and co-production with Master students. These will be discussed further in the presentation.

**Authentic project-based learning in the virtual classroom**

**Fernando Loizides, Kathryn Jones, Wendy Ivins and Katarzyna Stawarz,**
**Cardiff University, UK**

With the pandemic hitting the globe and crippling the ability for individuals to gather in large crowds, we saw educational establishments struggle to transition from a physical learning environment to an online virtual equivalent. In some areas however, the migration to online teaching has proved not only to be a viable temporary solution, but also a welcome alternative, surprisingly exposing weaknesses of the face-to-face model as well as the benefits of online methods.

At the National Software Academy in Cardiff University (NSA) we have now adopted a permanent hybrid approach to teaching, taking on board the experiences that were imposed on us by the rapid necessity to facilitate online teaching. The NSA is a newly established part of the Computer Science and Informatics department at Cardiff University. The focus is on authentic project-based learning with real client projects as coursework.

During the final year, the students take three modules that cooperatively train undergraduate students in the skills to create fully functional commercial prototype software solutions:

1. A module on human-computer interaction with user experience (called Adopting Technologies).
2. A module on development of fully functional prototypes (called Commercial Languages and Frameworks).
3. A module on Business Development, Commercialisation, and Innovation (called Managing Change).

These modules are taught within the first semester and create a working prototype, for a real client, of an application (mobile, desktop, web, VR/AR or IoT) and are then followed by a larger team project as part of the second semester which takes the working prototype and expands its workings even further than the Minimum Viable Product (MVP) stage into a fully deployable solution.

The process the students undertake involves a user-centric design approach as well as participatory design. Within the curriculum, methods that usually benefit from the opposite of social distancing were introduced; namely, focus groups, card sorting techniques, observational evaluation, agile UX, architecture and design brainstorming, rapid pair programming and software demonstration.

In this work we present the experiences taken from teaching three cohorts of over 100 students that were previously taught in face-to-face contact sessions but were then taught online or through a blended approach. We present the tools and techniques, as well as findings from interviews and experiences with the students and lecturers, which helped create a truly blended experience which has now been permanently adopted in the curriculum. For our students, this experience adds to the richness of their learning providing them with skills for managing a blended working life in software engineering teams that are now more likely to be follow a distributed work pattern.

Online tools, assisted in easy access of students with disabilities as well as students studying in different countries to participate. Furthermore, students that well self-reported as “shy” to interact within the lesson were now showing more contribution via written text in digital live classrooms or anonymous real time communication channels such as Mentimeter, Padlet etc. Challenges were also reported, not least of which was mental health disbenefits of not being able to “get to know” or form team building experience as easily within an online setting. Interestingly, students, when asked the question, did not opt for complete online teaching but preferred a blended approach as a permanently adopted learning methodology.

**RapidLab: Experience Based Teaching of Rapid Prototyping through Blended Learning**
**Fernando Loizides, Kathryn Jones and Matthew Turner, Cardiff University**

The newly established RapidLab at Cardiff University provides a way for Universities, Industry and Public sector organisations to rapidly and cost effectively design and develop technology-based prototypes in research and development projects. The lab focuses on three stages of the development process namely: Requirements and wireframing, development and user testing. Additionally, educational institutions such as ours often develop prototypes from student projects for industry clients which are, due to the time constraints, often not materialised into fully deployed systems, but that have the potential to be business viable to the clients with some additional work. The RapidLab provides a path to completion for clients.

Part of RapidLab’s offering includes internships, paid and unpaid, to students within a computer science or software engineering discipline. The students are then able to work with professional developers, designers and user experience researchers and practitioners to gain experience. The students are aligned to learning outcomes within their course to be able to gain the applied

knowledge of their lessons. There is no grade associated with this work for the students. Our experience so far is that authentic learning really happens when the student no longer needs to think about scores on summative assessment but instead are solely focused on delivering a promised MVP and gaining valuable formative feedback.
Thus far the students were able to work in a face-to-face scenario with other students, their clients, and the professional mentors to develop the prototypes, which often also include a hardware element. Furthermore, the requirements engineering process and testing calls for focus groups, observational evaluations, and pair programming.
One of the main foci of the lab is “universal design”, also with variants of known as “designing for disabilities”, “inclusive design” or “design for all”. Several of the projects that we undertake combine an accessibility element in the full sense of the word. We have projects ranging from designing, among others, for people with visual, motor, auditory and cognitive disabilities. We also have projects on accessibility due to language or cultural background diversity such as migrants and asylum seekers and refugees. By doing so, we aim to achieve two things with our student involvement. Firstly, to expose all students to real life situations of disability and system design that can accommodate and raise awareness and empathy in their approach to building inclusive systems. Secondly, we encourage our disabled students to tackle solutions that would help themselves and others they can relate to. We also take great care into creating inclusive projects for our students who are disabled and teaming up diverse student / lecturer / developer teams.
With the advent of the COVID-19 pandemic, these educational projects had to receive a drastic evolution to their workings to facilitate social distancing requirements. Being housed in an academic institution, we were unable to continue using discretion to accommodate face to face contact for the students and their mentors.
This work describes the experiences of using a blended learning approach for projects run by the lab throughout the development process, the complexities of launching a new lab with student partners in an academic context and the anticipated future developments such as employing permanent developers to work on projects and coach student members of the lab. We provide examples of the prototypes we have built and the range of projects we are working on from applications to help refugees and asylum seekers to join and become part of our communities, to prototypes that help gather data in the rainforests of Brazil.
We uncover the benefits, disbenefits and experiences that our students, professionals, and lecturers experienced during this period through the need of blended learning, which were overwhelmingly positive. Strategies to support students were put in place to mitigate the lack of a permanent working environment that facilitated continuous access to the collaborators within a physical environment.

**Developing an inclusive learning environment with Microsoft Power Automate and Translation**
**Andrew E. Grice. University of Central Lancashire, UK**
Creating a learning environment that is accessible to all embraces the lived views and experiences of every individual to enhance learning in higher education (Hockings, 2010). As the COVID 19 pandemic continues to impact the cross-border movement of students, therefore, inequalities in education may impact international students. Microsoft Power Automate and Translation were developed into the learning environment using the underlying structures from the process module (Loreman, Forlin and Sharma, 2014), deficit model (Lee, Kim and Wu 2019) and functional communication model (Hirokawa et al 2003). The **aim** was to develop Microsoft Power Automate and Translation in the learning environment to aid with cultural, language and educational differences, academic readiness, and engagement through the educational process to enhance outcomes. Flows in Microsoft Power Automate were developed for scheduling educational information and wellbeing guidance, management of tasks and production of a personalised learning pack. Microsoft translation were embedded into lectures and meetings using Presentation Translator and PowerPoint Live, and accessible documents were created for use with Immersive

Reader. This phase of the research focuses on practical development issues. The results, of this phase, of the development of Microsoft Power Automate and Translation in the learning environment, found institutional, individual, and technical barriers to implementation. Some barriers are overcome with collaboration with technical support and enhancing capabilities.

**IDE@ Project: Digital accessibility and inclusive online teaching and learning contexts**
**Estella Oncins, Universitat Autònoma de Barcelona, Spain and Armony Altinier, KOENA, France**
During the COVID 19 pandemic, teaching and learning practices were moved to online environments. Undoubtedly, adapting to this new reality was difficult at all levels of education (OECD, 2021).

According to article 24 of the United Nation Convention of the Rights of People with Disabilities (CRPD, 2006) the rights of persons with disabilities to education have to be ensured on the basis of equal opportunity and receive the support required, within the general education system, to facilitate their effective education. Yet, were the teaching professionals prepared to adapt and create accessible and inclusive curriculums and course materials, during the development of their online courses? Were the need of all students/learners considered?

Digital accessibility and inclusive learning are the central axes of the IDE@ project, a co-funded project of the European Union Erasmus + Partnerships for Digital Education Readiness. The project aims at developing the necessary skills to train professionals in online educational contexts, to create inclusive and accessible online teaching materials to reach all students from a Universal Design for Learning perspective (CAST, 2008).

The project is divided into four phases.

- The first phase aims to identify the challenges of distance learning in terms of accessibility from a students' perspective.
- The second phase aims to identify the challenges of distance learning in terms of accessibility from the perspective of training professionals.
- In the third phase, unified guides will be generated for the creation of a new professional profile "Expert in the development of inclusive and accessible materials for distance training".
- The fourth phase will certify the competencies of this new professional profile for both the academic and vocational fields. This will ensure the quality and sustainability of the project at European level.

Two different and complementary data collection techniques are planned:

1. Surveys on current synchronic and asynchronic online distance contexts for the detection of main challenges associated to accessible and inclusive teaching practices.

2. Focus groups for the validation and enrichment of data obtained from the online surveys to create a certified modular curriculum.

As a result, IDE@ will provide a certified, flexible and harmonised modular curriculum of the "expert in the development of accessible and inclusive materials for distance training" with a focus on synchronic and asynchronic teaching practices

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