



Computers and Learning Research Group

CALRG 2017 Conference
14-16 June 2017

Conference Proceedings

The Open University
Milton Keynes, UK

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Conference Schedule

10.00-10.10	Welcome from Eileen Scanlon	
10.10-11.10	Keynote 1 – Siân Bayne, University of Edinburgh: <i>The death of a network: Yik Yak and the value of anonymous social media in universities</i>	
11.10-12.10	Session theme: Mobile learning (Full papers)	
	Alice Peasgood and Mark Gaved	Migrants Learning Languages Using Smartphones: tensions between wanting to belong and wanting to learn
	Christothea Herodotou	Do children learn from playing Angry Birds? A comparative study of 4 and 5 years old
	Alice Peasgood	Where is the learning occurring in mobile learning? Applying systems thinking to a messy situation
12.10-12.45	Lightning talks	
	Helen Crump	The self as an open educational resource (OER)
	Johanna Hall	Creativity, Flow and Learning in Online Games
	Lesley Boyd	Can technology-enabled learning networks help to achieve practical organisational improvement outcomes?
	Anne Pike and Anne Adams	Tricky Topics from training teachers to evaluating innovations
	Andrew Brasher, Wayne Holmes and Denise Whitelock	Creating an online dimension for university rankings
	Duygu Bektik, Simon Cross, Wayne Holmes, Lyubka Aleksieva and Denise Whitelock	A European pilot study of a modular assessment system designed to authenticate the authorship of online learners
12.45-13.30	Lunch and posters	
13.30-14.10	Session theme: Learning analytics (part 1) (Full papers)	
	Christothea Herodotou, Alison Gilmour, Avinash Borooowa, Bart Rienties, Zdenek Zdrahal and Martin Hlosta	Predictive modelling for addressing students' attrition in higher education: The case of OU Analyse
	Zdenek Zdrahal, Martin Hlosta and Jakub Kuzilek	Improving retention of first year engineering students
14.10-14.50	Session theme: Accessibility (Full papers)	
	Tiberio Feliz and Ana Belén Andreu	The production of subjectivity through adaptations of assessment at UNED
	Francisco Iniesto, Patrick McAndrew, Shailey Minocha and Tim Coughlan	What do MOOC providers think about accessibility?
14.50-15.10	Coffee and posters	
15.10-16.30	Session theme: Best of the rest (Full papers)	
	Nuria Hernandez-Nanclares and Bart Rienties	Using Web 2.0 technologies to foster collaborative learning in higher education
	Pete Cannell and Ronald Macintyre	Exploring barriers to participation in open, online learning
	Stephen Bax	Analysing language learners' lexical development through new online tools: towards empirically derived Learner Lexical Profiles in English and other languages
	Tom Gorman, Daniel Villar-Onrubia, Koula Charitonos, Mikko Kanninen and Tiina Syrjä	Learning to Act in the Telepresence Classroom: the case of King Lear Online

09.30-10.00	Welcome from Eileen Scanlon and presentation: <i>How open should openTEL be? How interdisciplinary?</i>	
10.00-11.00	Keynote 2 – Jennifer Preece, University of Maryland <i>Biodiversity Citizen Science: New Research Challenges for Human Computer Interaction (HCI)</i>	
11.00-11.15	Coffee	
11.15-12.15	Session theme: STEM/Science (Full papers)	
	Maria Aristeidou, Eileen Scanlon and Mike Sharples	Science learning experiences in citizen inquiry communities
	Jon Rosewell	Remote practical-focused tutorials
	Trevor Collins, Chetz Colwell, Victoria Pearson and Nicholas Braithwaite	Embedding and sustaining inclusive STEM practices
12.15-12.45	Lightning talks	
	Vasudha Chaudhari	Learning in Uncertainty - How finance professionals learn?
	Pinsuda Srisontisuk	Parental perspective on young children’s use of touch-screen technology
	Jake Hilliard, Karen Kear, Helen Donelan and Caroline Heaney	Students’ experiences and perceptions of anxiety in online collaborative learning (OCL)
	Anne Adams and Gill Clough	Evidence Cafes for developing research and practice
	Janesh Sanzgiri	A Comparison of Indian Learner Experiences on a Local and Global MOOC Platform
	Wayne Holmes, Quan Nguyen, Denise Whitelock, Bart Rienties, Ning Ma and Jingjing Zhang	Data-informed learning design for future schools
12.45-13.30	Lunch and posters	
13.30-14.30	Keynote 3 – Ben Shneiderman, University of Maryland <i>The New ABCs of Research: Achieving Breakthrough Collaborations</i>	
14.30-15.10	Session theme: Technology design and children (Full papers)	
	George Alain	Designing technology to increase engagement in education of displaced war-affected children
	Anne Adams and Jennefer Hart	Games-based learning as an effective middle-ground in police training
15.10-15.30	Coffee and posters	
15.30-16.30	Session theme: Learning analytics (Part 2) (Full papers)	
	Garron Hillaire, Jenna Mittelmeier, Bart Rienties, Mark Fenton-O’Creevey, Zdenek Zdrahal and Dirk Tempelaar	Mixed emotion detection in chat messages - it feels so good and so bad
	Firdevs Melis Cin, Ashley Gunter, Dianne Long, Clare Madge, Jenna Mittelmeier, Paul Prinsloo, Parvati Raghuram, Katharine Reedy, Bart Rienties and Jekaterina Rogaten	Understanding distance learners’ academic and social adjustments: Evidence of best practice from a South African context
	Quan Nguyen and Bart Rienties	Are you driving blindfolded? A longitudinal mediation analysis of learning design, student behavior, and retention



**FutureLearn Academic Network meeting
hosted by the Computers and Learning Research Group (CALRG)**

Hosts: [The Open University](http://www.open.ac.uk)
Date: Friday 16 June 2017
Time: 09:00 – 16:00
Venue: Meeting Room 1, Jennie Lee Building, The Open University
Maps: <http://www.open.ac.uk/about/main/faculties-centres/milton-keynes-campus>

The event will be live web streamed for those who cannot attend in person

Event hashtag: #FLANOU

09:00	Registration and Refreshments	
09:30	Professor Eileen Scanlon, The Open University	Welcome and opening remarks
Teaching and Researching in MOOCs		
09:40	Tina Papathoma, The Open University	Who are the MOOC educators and what are their tasks? A multiple case study
	Fereshte Goshtasbpour, University of Leeds	What do educators' contributions to MOOC discussion areas look like?
	Shi Min Chua, The Open University	Investigating dialogic learning and teaching in MOOCs: an applied linguistics approach
	Dr. Alison Fox, Dr. Jim Askham and Rachel Tunstall, The Open University and University of Leicester	High responsibility: The ethics of researching a MOOC about research ethics (Lightning presentation)
10:50	Refreshments	
11:00	Analysing MOOCs (1)	
	Ahmed Al-Imarah, University of Bath (Skype)	Quality assurance and innovation: case studies of massive open online courses in UK Higher Education
	Dr. Steve Cayzer and Simon Coton, University of Bath	Social network analysis of learning: application of significance tests to massive open online courses (MOOCs)
	Philip Tubman, Dr. Phillip Benachour and Dr. Murat Öztok, Lancaster University	Visualising social learning for discoverability (Lightning presentation)

11:45	MOOC accessibility	
	Francisco Iniesto, Professor Patrick McAndrew, Professor Shailey Minocha and Dr. Tim Coughlan, The Open University	What are the expectations of disabled learners when participating in a MOOC?
	Garron Hillaire, Francisco Iniesto and Professor Bart Rienties, The Open University	The roadmap to emotionally accessible MOOCs
12:15	Lunch	
13:00	Analysing MOOCs (2)	
	Hillary E. Merzdorf, Nathan M. Hicks and Professor Kerrie A. Douglas, Purdue University (Skype)	Psychometric analyses of the expectancy-value-cost scale in advanced nanotechnology MOOCs
	Tim O'Riordan, University of Southampton	Automated evaluation of comments in a MOOC discussion forum
	Janesh Sanzgiri, The Open University	A comparison of Indian learner experiences on a local and global MOOC platform
14:00	Refreshments	
14:30	Next Steps	
	Professor Eileen Scanlon, The Open University	Recent trends in MOOC research: from three US conferences
	Mirjam Hauck, The Open University	How to design for transition: beyond MOOCs
	James Little, University of Sheffield	Beyond MOOCs: a catalyst for change
15:30	Professor Rupert Wegerif, University of Cambridge	Discussant
16:00	Closing remarks; Finish	Dr. Rebecca Ferguson

Please note that all times are British Summer Time (BST)

Keynotes

Weds 14th June 2017
10.10-11.10hrs



Professor Siân Bayne, University of Edinburgh

The death of a network: Yik Yak and the value of anonymous social media in universities

This talk will present the early findings of a project which conducted research into the anonymous social media platform Yik Yak over 2016/17. Yik Yak was a location-based social media app, launched in 2013, which very quickly became ubiquitously adopted by students on university and college campuses in the US and the UK. It allowed users located within the same geographical area to create and respond to short, anonymous posts, and quickly emerged as an often-controversial space in which candid and dynamic issues were raised and discussed by young users, alongside much-publicised incidents of hate and victimisation.

Over the period of the research, Yik Yak shifted from being a vibrant community platform for undergraduates at Edinburgh, to a rapid decline in use and final closure in May 2017. This talk will discuss what we can learn about the value of anonymous social media through the death of this platform and the student community and network which inhabited it. It will suggest that universities need to ask serious questions about their duty of care toward students in social media, the sociotechnical 'imaginaries' which we use to understand platforms, and the need to support ongoing research on student social media use.

Biography

[Siân Bayne](#) is Professor of Digital Education at the University of Edinburgh, based in the Moray House School of Education. She also directs the Centre for Research in Digital Education and teach on the MSc in Digital Education.

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Thurs 15th June 2017
10.00-11.00hrs



Professor Jennifer Preece, University of Maryland

Biodiversity Citizen Science: New Research Challenges for Human Computer Interaction (HCI)

In this age of the anthropocene, humans have profound influence on the planet, changing the atmosphere we breathe and reshaping the earth's surface, thereby triggering species extinction at an alarming rate.

HCI's influence on every aspect of technology means that we have a responsibility to heal our planet by raising awareness and triggering action. Citizen science is a form of crowdsourcing that involves citizens in collecting and or analyzing data. This talk focuses on biodiversity citizen science and it challenges HCI researchers, practitioners, teachers, and students to lead the way in shaping a sustainable future. It includes inspirational prototypes that show how design excellence can change technology, raise awareness, and engage citizens to contribute by becoming "citizen scientists". These challenges are advancing the leading edge of HCI theory and practice and contributing to save the species with which we share our planet.

Biography

[Jennifer Preece](#) is a Fellow of the ACM SIGCHI Academy and a Professor at the College of Information Studies – Maryland's Information School, where she was Dean (2005-2015). She is co-author of the most widely-used textbook in HCI, *Interaction Design: Beyond Human Computer Interaction* (4th Edition, John Wiley & Sons, 2015). Her pioneering book *Online Communities: Designing Usability, Supporting Sociability* (2000), helped to clarify determinants of success in empathic online communities, especially in healthcare discussion groups. She is author, coauthor, or editor of seven other books including one of the first texts in HCI, *Human-Computer Interaction* (1994), as well as numerous journal and conference papers. Preece's current research focuses on biodiversity citizen science, and informal environmental education; she is particularly interested in factors that contribute to participation, especially long-term participation in these communities.

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Thurs 15th June 2017
13.30-14.30hrs



Ben Shneiderman, University of Maryland

The New ABCs of Research: Achieving Breakthrough Collaborations

Solving the immense problems of the 21st century will require ambitious research teams that are skilled at producing practical solutions and foundational theories simultaneously – that is the ABC Principle: Applied & Basic Combined. Then these research teams can deliver high-impact outcomes by applying the SED Principle: Blend Science, Engineering and Design Thinking, which encourages use of the methods from all three disciplines. These guiding principles (ABC & SED) are meant to replace Vannevar Bush’s flawed linear model from 1945 that has misled researchers for 70+ years. These new guiding principles will enable students, researchers, academic leaders, and government policy makers to accelerate discovery and innovation.

Biography

[Ben Shneiderman](#) is a Distinguished University Professor in the Department of Computer Science, Founding Director (1983-2000) of the [Human-Computer Interaction Laboratory](#) and a Member of the UM Institute for Advanced Computer Studies (UMIACS) at the University of Maryland. He is a Fellow of the AAAS, ACM, IEEE, and NAI, and a Member of the National Academy of Engineering, in recognition of his pioneering contributions to human-computer interaction and information visualization. His contributions include the direct manipulation concept, clickable highlighted web-links, touchscreen keyboards, dynamic query sliders for Spotfire, development of treemaps, novel network visualizations for NodeXL, and temporal event sequence analysis for electronic health records.

Ben is the co-author with Catherine Plaisant of [Designing the User Interface: Strategies for Effective Human-Computer Interaction \(6th ed., 2016\)](#). With Stu Card and Jock Mackinlay, he co-authored *Readings in Information Visualization: Using Vision to Think* (1999). His book *Leonardo’s Laptop* (MIT Press) won the IEEE book award for Distinguished Literary Contribution. He co-authored [Analyzing Social Media Networks with NodeXL](#) (Morgan Kaufmann) with Derek Hansen and Marc Smith. Shneiderman’s latest book is *The New ABCs of Research: Achieving Breakthrough Collaborations* (Oxford, April 2016).

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Posters

Poster sessions will be held during lunchtimes and coffee breaks on 14/15th June. Posters being displayed at the conference include:

- **Andrew Brasher, Wayne Holmes and Denise Whitelock** – Creating an Online Dimension for University Rankings
- **Jake Hilliard, Karen Kear, Helen Donelan and Caroline Heaney** – Students' experiences and perceptions of anxiety in online collaborative learning (OCL)
- **Tiberio Feliz and Ana Belén Andreu** – The services to support students with disabilities at UNED
- **Anne Adams and Gill Clough** – Evidence Cafes for developing research and practice
- **Lesley Boyd** – Can technology-enabled learning networks help to achieve practical organisational improvement outcomes?
- **Rob Janes, Elaine Moore, Elizabeth FitzGerald and Jo Iacovides** – Identifying and addressing Tricky Topics in OU modules
- **Pinsuda Srisontisuk** – Parental perspective on young children's use of touch-screen technology

All abstracts – in alphabetical order of title

A Comparison of Indian Learner Experiences on a Local and Global MOOC Platform

Janesh Sanzgiri
The Open University, UK

As research on MOOCs continues to mature, findings are indicating MOOCs as deepening rather than widening access to education. Further, research on MOOCs is largely concentrated in the West, with over 90% of MOOC research emerging from North America, Europe and Oceania (Veletsianos and Shepherdson 2016). This indicates a need for further research on MOOC learners and their perspectives from non-Western contexts.

This presentation will share results from a study on Indian learners' demographics and experiences on two MOOC platforms - FutureLearn (UK) and NPTEL (India), using results from a survey of 2500 learners, with follow-up interviews with 30 learners. The study found significant differences in demographic profiles and motivations of learners between the two platforms, while interviews revealed unique methods in which MOOCs were used, as well as the technical and contextual challenges that learners faced, and how they overcame these challenges to make the most of the resources of the MOOC.

Finally, this presentation will provide a holistic look at how MOOCs are being used in the Indian context by varied groups of learners, followed by a discussion of the potential role MOOCs can play in improving higher education in India.

Related URL: <http://nptel.ac.in/>

A European pilot study of a modular assessment system designed to authenticate the authorship of online learners

Duygu Bektik, Simon Cross, Wayne Holmes, Lyubka Aleksieva and Denise Whitelock
The Open University, UK and Sofia University, Bulgaria

In this presentation, we will discuss a pilot study (carried out at seven universities across Europe including the Open University and involving more than 300 students) which investigated a prototype online assessment authentication system currently in development by the EU-funded TeSLA project (<http://tesla-project.eu>, EU H2020 Grant Agreement: 688520). TeSLA (Adaptive trust-based e-assessment system for learning) aims to allow the vast numbers of learners enrolled in online learning programmes to participate in secure online assessment. It uses a range of software technologies to help authenticate learner authorship: voice/face recognition, keystroke pattern detection, anti-plagiarism and writing style (forensic) analysis.

Related URL: <http://tesla-project.eu/>

Analysing language learners' lexical development through new online tools: towards empirically derived Learner Lexical Profiles in English and other languages

Stephen Bax
The Open University, UK

This paper reports on a number of recent research projects in the School of Language and Applied Linguistics (LAL) at the Open University, with a focus on the use of a bespoke online lexicography tool developed to research in detail the lexical development of English second language learners. An example of recent work is the analysis, for a major international exam board, of 6000 student essays at different levels of English, which resulted in the identification of key differences in terms of lexical sophistication and other metrics, between learners at different levels of proficiency, with important implications for the test concerned.

The talk will introduce and describe the online analysis tool, demonstrating its use and features, as well as setting out and explaining the theoretical underpinning of the metrics by which it analyses texts. It will then offer some sample results and findings from a range of recent projects, which included contributions from colleagues Dr. Shrestha and Dr. Owen in the School of LAL, and also ongoing doctoral research also at the Open University by Dana Therova examining academic writing. It will then briefly consider the potential impact of these research projects beyond academia.

The talk will conclude by describing a major consortium bid in preparation, initiated by the School of Language and Applied Linguistics at Open University, which will build on this work with English lexis by addressing lexical development also in French, Spanish, German and Welsh as second languages.

Are you driving blindfolded? A longitudinal mediation analysis of learning design, student behavior, and retention

Quan Nguyen and Bart Rienties
The Open University, UK

In the past five years, the field of learning analytics has seen a growing body of literature in developing predictive models from students' log files data. While the accuracy of these models are constantly improved with advanced statistical techniques, the ability to derive interventions from the findings has been rather limited due to the lack of pedagogical contexts. Thus, there is an increasing interest to align Learning Analytics with Learning Design, as the former facilitates the transfer of tacit educational practice to an explicit rendition, while the latter provides educators with pedagogical context for interpreting and translating LA findings to direct interventions. Previous empirical evidence has confirmed a strong association between the way teachers design the course, pass rates, and student behaviors. However, little attention has been paid to the chain effect: learning design-student behavior-retention. Therefore, this paper investigates how student behaviours on Virtual Learning Environment mediate how learning design affect dropouts rate in 55 modules and their 45K students.

Automated Evaluation of Comments in a MOOC Discussion Forum

Tim O'Riordan

University of Southampton, UK

The potential to gain actionable outcomes from the analysis of learner activity in Massive Open Online Courses (MOOCs) is attracting interest among educators looking to use data to improve teaching and learning in this environment. However, learning analytics derived from quantitative web interaction metrics is questioned, as they do not necessarily reflect learners' critical thinking – an essential component of collaborative learning. Research indicates that pedagogical content analysis methods have value in measuring critical discourse in small scale, formal, online learning environments, but little research has been carried out on high volume, informal, MOOC forums. The challenge in this setting is to develop valid and reliable indicators that operate successfully at scale. Learning Analytics research suggests that machine learning techniques can be effective in automatically identifying pedagogical activity, and have the potential to provide practical insights of use to educators.

In this presentation, I report on initial findings from a case study where a machine learning approach to the pedagogical analysis of comments was developed and applied to MOOC discussion forums. This approach was derived from manually rating 1500 MOOC comments using established pedagogical content analysis methods, and the associations established between these ratings and linguistic and word count analysis. A machine learning algorithm was developed from this data, applied to unrated comments in a 'live' MOOC, and the automatically generated ratings were shared with educators working on the MOOC. The educators were then interviewed on the utility of this approach. Results indicate that while questioning the importance of monitoring critical thinking in the context of their MOOC, in practice educators explicitly sought out learner comments that exhibited features associated with high level engagement. Although some educators were critical of individual rating decisions, in general they found them to be reasonably accurate, and considered the feedback to have potential in assisting the management of high volumes of comment data.

Beyond MOOCS – A Catalyst for Change

James Little
University of Sheffield, UK

MOOCs have been hyped, written about and produced extensively since 2012, which was ‘the year of the MOOC’ (Pappano 2012). Yet in 2017 they have not yet gone away. Whilst ‘online’ and ‘digital’ learning are the new buzzwords what has changed, been enabled and developed through producing MOOCs? An extensive 3-year Masters research journey to understand the rationale, implementation and impacts of MOOCs upon Higher Education Institutions now presents key findings.

The international MOOC survey www.moocsurvey.org features responses from 28 countries and 96 unique institutions that is coupled with 10 in-depth interviews with leading academic and business individuals. Collaboration and building upon existing research from the EU HOME Survey (Jansen, 2016) and USA Grade Level report (Allen & Seaman 2015) make this holistic and detailed research. Over 78% of the responses are from UK higher education institutions using the FutureLearn platform. The research data is open to all. Excellent collaboration and further analysis opportunities exist.

MOOCS have acted as catalysts of change – accelerating innovation occurring across institutions and campuses whilst also providing a focus for changing policy and practical approaches to blended, digital and distance learning - enabling these approaches to become the norm.

Find out how impacts from MOOCs changed expectations about online learning spaces, of on-campus teaching provision through blended learning, staff development and consistent approaches to pedagogical-driven use of technology in education.

References

- Allen, E., & Seaman, J. (2015). Grade level: Tracking online education in the United States. Babson Survey Research Group Report. Retrieved from: <http://www.onlinelearningsurvey.com/reports/gradelevel.pdf>
- Jansen, D. & Goes, M., 2016. Comparing Institutional MOOC strategies : Status report based on a mapping survey conducted in October - December 2015, Available at: https://eadtu.eu/images/publicaties/Comparing_Institutional_MOOC_strategies.pdf
- Pappano, L., 2012. Massive Open Online Courses Are Multiplying at a Rapid Pace - The New York Times. MY Times. Available at: <http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html>

Related URL: http://data.surveygizmo.eu/r/90003614_57ac69f55063a9.58063758

Can technology-enabled learning networks help to achieve practical organisational improvement outcomes?

Lesley Boyd
The Open University, UK

This project uses VLE websites as learning networks for two OU modules, to connect together participants in a complex problem scenario and collaboratively learn how to make an improvement. This second pilot is part of an operational eSTeEM project that aims to identify and address student conceptual misunderstandings using a Teaching Tricky Topics process. OU ALs in scattered locations hold vital insights into these misunderstandings, which are not always systematically gathered.

The project aims to contribute towards a model for identifying and addressing tricky topics in all modules across the University in the future, improving retention and the student experience.

Creating an Online Dimension for University Rankings

Andrew Brasher, Wayne Holmes and Denise Whitelock
The Open University, UK

Comparing universities and courses is of interest to a variety of stakeholders including potential students, policy makers, news and media organisations, and universities themselves. There are a range of existing university ranking schemes that provide comparisons but typically these are designed with face-to-face teaching and learning in mind. We will describe work we have undertaken to date to establish a ranking system that includes indicators of the quality of online teaching and learning. The work reported was completed in the first 8 months of the EU Erasmus+ funded CODUR project with partners from Universitat Oberta De Catalunya and Consiglio Nazionale Delle Ricerche.

Related URL: <http://edulab.uoc.edu/en/projects/led-projects/codur/>

Creativity, Flow and Learning in Online Games

Johanna Hall
The Open University, UK

Flow (Csikszentmihalyi, 1975) has been recognized as a beneficial outcome of playing games and a possible facilitator for learning. Flow experienced in a social context may have a greater effect on learning and creativity than Flow experienced alone. While creativity has been investigated in other domains such as music, there is a dearth of literature examining how creativity is instantiated in online games, how it relates to flow and how it may benefit learning. Through expounding the relationships between creativity, flow and learning from an evaluation of relevant literature, this presentation aims to identify areas for further research.

Data-informed Learning Design for Future Schools

Wayne Holmes, Quan Nguyen, Denise Whitelock, Bart Rienties, Ning Ma and Jingjing Zhang
The Open University, UK and Beijing Normal University, China

In this presentation, we will introduce the project Data-informed Learning Design for Future Schools, which LTI Academic is undertaking with the Advanced Innovation Center for Future Education, Beijing Normal University. The project draws on our expertise in Learning Analytics and Learning Design: we are investigating the applicability of Learning Design descriptors to the PR China context and using clustering and social network analysis techniques to investigate the efficacy of patterns of Learning Design activities in online courses. The aim of this work is to inform the pedagogy and learning design of future online courses in the UK, China and beyond.

Related URL: <http://aic-fe.bnu.edu.cn/en/research/crooc/>

Designing Technology to Increase Engagement in Education of Displaced War-affected Children

George Alain
The Open University, UK

Conflicts often involve mass immigration of refugees and cause multiple cases of displacement where children are more than 50% of the Displaced population. Education of war-affected children is a key component of restoring their resilience. However, displaced people often live in basic refugee camps with little services and support. This makes education of displaced children a challenge that is gaining an increasing attention. Several organizations are organizing projects and conferences on designing technology solutions for such context. However, many projects focused too much on the hardware with little focus on the educational content. I have conducted multiple interviews with NGO members working with Syrian refugee children to enquire on the challenges they are facing and their previous use of technology. I found that many reported challenges are related to student engagement and to the absence of engaging digital educational material. It is suggested that to understand student engagement, we need to understand the opposite of engagement. The handbook of research on student engagement explains student engagement by listing factors of both engagement and disaffection. These factors are grouped by the 3 main types of student engagement (behaviour, emotion, and cognitive). In my work, I am investigating the factors of engagement and disaffection but in the context of displaced war-affected children. Then I am linking these factors with the possible educational technologies and learning approaches to form a process of approaching designing technology for displaced children. Additionally, I discover that we know a lot about factors of disaffection with displaced children, especially from the literature on psycho-social aspects of trauma, violence and severe lifestyle. But on the other hand, we know very little on what engages displaced children. Therefore, I am adding to my process a set of co-design workshop activities that aim to design technologies for education of displaced children with incorporating children and educators as co-designers. Children are very good at telling what interest them, whereas educators provide input on the pedagogic and the cognitive aspects of education. The process I end up with will be evaluated in my field study with displaced children in Syrian refugee camps.

Do children learn from playing Angry Birds? A comparative study of 4 and 5 years old

Christothea Herodotou
The Open University, UK

Mobile applications and devices are widely used among young children. However, it is only the last few years that researchers have drawn their attention to understanding how mobile technologies affect children's learning and development. The few available studies are mainly focused on examining effects on literacy development with mixed findings. Science learning is one of the domains that is relatively under-explored. This study examined the use of the mobile game application Angry Birds by two groups of children 4 and 5 years old. Data were collected from a range of resources: a) A pre/post learning task designed to examine children's knowledge about projectile motion before and after playing the game. b) A questionnaire with demographics and game preferences. c) Screen-recordings of children's gameplay during the intervention. d) Interviews: Semi-structured individual and group interviews. Evidence from this comparative study revealed significant differences between the two groups of children in terms of game skills and their understanding of projectile motion. Communication instances and interviews revealed that children developed an understanding of cause and effect relationships during gaming, nonetheless this understanding is poorly verbalized and explained. A discrepancy was also observed between game performance and explicit judgement about causal relationships. Implications for educational policy and research will be discussed.

Related URL: <https://www.angrybirds.com/>

Embedding and sustaining inclusive STEM practices

Trevor Collins, Chetz Colwell, Victoria Pearson and Nicholas Braithwaite
The Open University, UK

National student data has shown a range of attainment gaps for specific groups across Higher Education, specifically for: students from low socio-economic groups, students from black and minority ethnic groups, and students with disabilities (HEFCE, 2015). Consequently, the Higher Education Funding Council for England are funding 17 projects under the Catalyst programme to help address these inequalities. Building on prior experience, The Open University is leading a project with colleagues from the University of Leeds and Plymouth University, to evaluate and promote inclusive educational practices within the STEM disciplines.

Integrating accessibility within teaching and learning requires universities to embed and sustain module design and delivery practices that consider the diverse needs of all students. As more of our teaching and learning is being mediated through technologies, this brings opportunities as well as potential pitfalls, when it comes to inclusive education. Digital access to learning resources introduces opportunities for the use of assistive technologies and alternate formats that enhance the accessibility of learning resources for students with disabilities, but care needs to be taken to ensure the pace of innovation and interaction matches that of accessibility and inclusion.

Across the STEM disciplines there are particular challenges associated with fieldwork, labwork and notations. However, with changes to the Disabled Students Allowance Scheme, universities are increasingly responsible to ensure that the education they provide is accessible and inclusive. Within this presentation we'll consider the role of the OpenTEL Research Area in inclusive education at the OU; we'll describe some of the processes and approaches used in OU modules, and we'll discuss how case studies and recommendations on inclusive practices might be produced and shared across the STEM disciplines.

HEFCE (2015). Causes of differences in student outcomes. Higher Education Funding Council for England (HEFCE) Independent Research Report. Available from: <http://bit.ly/hefce-2015-diffout> (last accessed 6th April 2017).

Evidence Cafes for developing research and practice

Anne Adams and Gill Clough
The Open University, UK

Evidence Cafés are a knowledge exchange activity using both face-to-face and online media to increase the impact of research on both practitioners and researcher. Over 200 front-line and strategic police officers have engaged with 10 UK police authorities in face to face events from Lancashire to Dorset. online internationally debates have been woven both before and after the discussions providing The majority of these events have focused on technology enhanced learning. Two key elements in an evidence café will be presented; the dialogic two-way café style and the multiple levels of evidence used.

Related URL: <http://centre-for-policing.open.ac.uk/knowledge-exchange/evidence-cafes>

Exploring barriers to participation in open, online learning

Pete Cannell and Ronald Macintyre
The Open University, UK

Opening Educational Practices in Scotland Project (OEPS) is a three-year cross sector project supported by the Scottish Funding Council and hosted by the Open University in Scotland. The aim of the project is to understand why open education has had a limited impact on widening participation and to work with partners to develop effective practice designed to overcome barriers to participation.

During the course of the project the OEPS team has worked with more than 60 organisations, including universities, colleges, third-sector organisations, unions and employers. Using methods from participatory design, and insights from the discourse and practice of widening participation, the team has extended its understanding of Open Educational Practice. In particular, joint working with unions and third-sector partners, with shared values of social justice and collective activity, have enabled us to develop a deeper understanding of barriers to participation.

In this paper we will share some of our findings and present a small number of case study examples of how we have incorporated them into a number of free open courses, co-created with partners and hosted on OpenLearn Create. In the course of this we will comment briefly on the value that co-design of open courses designed for widening participation has for the partner and the university.

Related URL: <https://oepscotland.org/>

Games-Based Learning as an effective middle-ground in Police Training

Anne Adams and Jennefer Hart

The Open University, UK

Current police training has tended to focus on time-consuming and costly face-to-face and role-playing activities. Over the last 10 years a range of technologies have been used to make these more cost-effective and realistic, from the increased realism with full virtual reality immersion (Hydra) to cost-effective check-box training (NCALT). However, when looking at the learning these technologies support it clear that these approaches only provide some of the solutions to police training needs. In response to this, a recent games-based learning project has currently been conducted with over 300 police officers at all levels across 16 UK Police forces whom have been involved in either the development, formative and summative evaluation. The game supports the training of new recruit police officers in collecting 'first accounts' from child witnesses. A range of data collection from interviews, focus groups, user experience questionnaires and a full randomised controlled trial have and are being completed. Analysis methods include; an interwoven top-down to a bottom-up qualitative analysis approach, user experience analysis and A,B,C,D analysis. The spread of results have been identified covering issues of emotional complexity and rapport training, tacit and procedural skills along with the depth of conceptual understanding. This paper builds on these detailed findings to provide a discussion and critical reflection on the role of games-based learning as a middle ground for training. In particular the findings focus on the role of different technology enhanced learning approaches and activities for translating knowledge and understanding into practice-based behaviours. The particular issue of games approaches providing relevance, realism and learner autonomy is discussed in more detail. Finally ethical considerations around the safety critical nature and efficacy of different technologies for embedding understanding are also reviewed.

High responsibility: The ethics of researching a MOOC about research ethics

Alison Fox, Jim Askham and Rachel Tunstall
The Open University and University of Leicester

The FutureLearn MOOC People Studying People: Research Ethics in Society was designed to 'explore the value of ethical thinking for research, using an ethical appraisal framework'. This exploration extended beyond course participation to course team learning and included plans to collect data from the MOOC, with prior ethical approval from FutureLearn and the University of Leicester. We report course participant reactions after run one (February to April 2017). Although we tested awareness of FutureLearn terms and conditions, were participants aware of consent given? How did they feel about turning from course to research participants and our approach to consent?

Related URL: <https://www.futurelearn.com/courses/ethical-research>

How open should openTEL be? How interdisciplinary?

Eileen Scanlon
The Open University, UK

The openTEL priority research area, which is known most to CALRG members as the source of the openTEL PhD studentships, and host of events such as bidding and writing workshops, and lightning talk presentations is entering its second year of operation. In this presentation I will give an update on other activities being developed within the group and reflect on particular themes which are coalescing due to shared interests of this cross Faculty activity, such as citizen science, learning design and inclusion. I will also reflect on a number of shared ways of working and seek ideas for developing these further. In that regard I expect examples of interdisciplinarity (Scanlon and Taylor, 2016) and openness (Mc Andrew et al., 2017) in research work in TEL will be discussed.

References

Scanlon, Eileen and Taylor, Josie (2016). Is technology enhanced learning an interdisciplinary activity? In: Proceedings of the 10th International Conference on Networked Learning 2016 (Cranmer, S.; Dohn, N. B.; de Laat, M.; Ryberg, T. and Sime, J. A. eds.), pp. 129–133.

McAndrew, Patrick; Pitt, Rebecca; de los Arcos, Beatriz; Farrow, Robert and Weller, Martin (2017). What Can OER Do for Me? Evaluating the Claims for OER. In: Jhangiani, R. S. and Biswas-Diener, R. eds. Open: The Philosophy and Practices that are Revolutionizing Education and Science. London, UK: Ubiquity Press, pp. 67–78

Related URL: <http://oro.open.ac.uk/46300/>

How to design for transition: Beyond MOOCs

Mirjam Hauck
The Open University, UK

Initially the hopes for MOOCs to function as a gateway for attracting learners onto fee-paying university programs were high. Data now available from MOOC providers on both sides of the Atlantic seems to run contrary to what universities might have expected or wished for though.

(<http://www.bbcactive.com/BBCActiveIdeasandResources/MOOCsAccessibleeducation.aspx>).

This reality was one of the many challenges we found ourselves confronted with when tasked with the design of a MOOC and a short course in EAP for learners worldwide at CEFR level B2 and ILETS 5-5.5 to be hosted on FL. Others were questions such as

- How can you design a 6-week MOOC (24 hours study time overall) so that it leaves the participants motivated to learn more and leads them smoothly into a 4 times 6 week fee paying course?
- What to cover and how – themes, language, function and skills - so that sufficient momentum is created for retention and progression despite the fact that MOOCs “suffer” from high drop-out rates?

In our attempt to meet these challenges we built in a cyclical approach to designing the learning journey for the participants involving the classic “input- transformation- output” process. In this process input is provided through a range of stimuli (audio, video, text), transformation represents interaction with the input – involving language and skills development – and output is the final product such as a summary, a report or an oral presentation as required for academic study in English. While the MOOC can only cater for shortened versions of these cycles, the course provides the space and time for more in depth engagement with the cycle.

Our main aim was to

- a. model and foreground the approach in the MOOC so that the learners become familiar with it and develop understanding of its relevance
- b. consolidate and build on it in the short course culminating in showing learners a variety of ways in which they can use the assimilated approach for independent study and lifelong learning.

Related URL: <http://www.bbcactive.com/BBCActiveIdeasandResources/MOOCsAccessibleeducation.aspx>

Identifying and addressing Tricky Topics in OU modules

Rob Janes, Elaine Moore, Elizabeth FitzGerald and Jo Iacovides
The Open University, UK

Tricky Topics are topics that students struggle to understand. This eSTeEM-funded project seeks to identify and address these conceptual misunderstandings across three OU modules through the use of a newly-developed Teaching Tricky Topic process.

By doing so, we aim to improve student retention and satisfaction; develop students' deeper understanding of difficult concepts; improve students' marks on those modules and improve KPIs and SEaM data. We also intend to investigate the practicalities of embedding Tricky Topic process within current OU module presentation and production model.

This CALRG conference poster will give an update on the progress made so far on this.

Improving retention of first year engineering students

Zdenek Zdrahal, Martin Hlostá and Jakub Kuzilek
The Open University, UK

Many students in the engineering disciplines do not complete their higher education degree and drop out, especially in their first year at the university. We analyse how students earn the ECTS credits required for their successful completion of the first study year. We use data from the Faculty of Mechanical Engineering of the Czech Technical University, which offers the traditional classroom-based education. Given the university progression rules, we identify three groups of students: those who pass, those who earn just enough credits for staying in the program, and those who fail. We present a simple algorithm that identifies students at risk of failing. The purpose of this project is to demonstrate that predictions followed by tutors' interventions do increase students' chances to progress in their study and improve the retention rate for the university. Data of four consecutive years of first year were used. In the academic year 2013/14, data of 994 first-year students were used to develop the predictive model. No interventions were provided and 33.2% students failed. The model was verified using 2014/15 data of 917 students - again without any intervention. The drop-out rate was 41.1%. In 2015/16 the model was for the first time applied to the cohort of 769 students. Predictions followed by three interventions by tutors were made at the end of the semester. The drop-out rate decreased to 16.9%. The same process was reapplied in the 2016/17 academic year, moreover a simple study planner/recommender has been developed to guide students. Three interventions were provided early in the semester and an additional one before the end of the exam period. The drop-out rate was 16.71%. The financial impact for the university will be presented and the comparison with the potential benefits for the Open University will be discussed.

Investigating Dialogic Learning and Teaching in MOOCs: An Applied Linguistics Approach

Shi Min Chua
The Open University, UK

Dialogic learning and teaching has been promoted in recent years as an effective instruction method in both classrooms and online discussion (Mercer, 2013; Coffin, 2013). However, most research on MOOC discussions (Wise et al., 2016; Kellogg et al., 2014) has used content analysis or topic modelling to analyze discussion postings, and focused mainly on learners' network. This research has provided a categorical view on individual discussion postings, despite the fact that dialogues (or discussions) transverse multiple postings.

To investigate the dialogic nature within a conversation, assuming that a conversation is initiated by a post and comprises all the replies received, learners' comments in each step of a FutureLearn course were classified into five types based on conversational structures. This classification revealed whether an initiator or a replying learner repeatedly come back to a conversation or whether a conversation consisted of replies all contributed by unique learners.

This preliminary analysis led to research questions on how learners' and educators' language may invite more replies or shut off continuing dialogues, how learners rebut and engage in repeated turn-takings within a single conversation, and how learners address their target reply amid a long list of replies (polylogues). Addressing these questions will provide concrete and more nuanced suggestions for both learners and educators on how best to write their comments in discussion. To achieve this goal, an applied linguistic approach that incorporates systemic functional linguistic, conversation analysis and corpus analysis will be utilized to reveal useful linguistic devices and lexical bundles in asynchronous discussion. Elements of argumentation genre and sociocultural theory may also be used to zone in on dialogic learning. Similar approach may also be applied to learning objects and discussion prompts to understand the best practice of learning designs. This research will have implication in dialogic learning literature, which has been mainly on classroom learning so far.

Learning in Uncertainty - How finance professionals learn?

Vasudha Chaudhari
The Open University, UK

Earlier research shows that formal training is not sufficient to help professionals find solutions to unknown problems (Eraut, 2004). The ability to navigate through uncertain times and self-regulate their work practices to ensure professional development is a key competency for finance industry practitioners. This study focuses on understanding the types of uncertainties faced by finance professionals and how uncertainty triggers learning and professional development.

References:

Eraut, M. (2004). Informal learning in the workplace. *Development and Learning in Organisations*, 26(2), 26–28. <http://doi.org/10.1080/158037042000225245>

Learning to Act in the Telepresence Classroom: the case of King Lear Online

Tom Gorman, Daniel Villar-Onrubia, Koula Charitonos, Mikko Kanninen and Tiina Syrjä
Coventry University, The Open University, UK and Tampere University, Finland

Telepresence is commonly referred to as a sense of 'being there' in a virtual environment (International Society for Presence Research, 2000) and may be defined as "live video that allows for human-sized interactions, while offering clear sound and visual fidelity to individuals in remote rooms" (Miller et al., 2015). The project Immersive Telepresence in Theatre explores the potential of telepresence for teaching and learning in the field of performing arts, with a particular focus on learning to act. The project seeks to facilitate international virtual mobility collaboration between theatre students at the University of Tampere (Finland) and Coventry University (UK).

The paper reports an evaluation of King Lear Online study, which took place over a week in February 2017. The study was designed for two groups of undergraduate students (N=29), geographically separated, to meet synchronously via webcam links and perform acts based on the text of 'King Lear' by Shakespeare. The study largely draws on ethnographic approaches to investigate how real and virtual environments intersect to support teaching and learning for educators/learners/performers and analyse any opportunities and challenges that may emerge in this setting. It also sought to examine the pedagogic practices that the telepresence technology enables for synchronous teaching and learning across two different sites and time zones, and finally to look at individual's experience as being mediated by technology.

The paper will focus on two whole group warm-up sessions, one led by a theatre practitioner at the University of Tampere and another one by vocal practitioner at Coventry University. Qualitative data will be presented: video data from the sessions in the telepresence classroom, interviews with the educators, along with reflective interview data from the students and fieldnotes from the researchers.

Essentially the paper contributes to the growing field of online teaching and learning and makes a substantial contribution to the field of virtual mobility for international collaboration on subject-specific learning activities.

References

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Related URL:

<http://er.educause.edu/articles/2016/4/~link.aspx?id=41416649807E4DE79F86C3BB4AE69FC1&z=z>

Migrants Learning Languages Using Smartphones: tensions between wanting to belong and wanting to learn

Alice Peasgood and Mark Gaved
APHE Consulting and The Open University, UK

This paper presents work recently published in the Journal of Media in Education (JIME), but not previously presented at a conference.

There is great interest in the potential of smartphones to enable language learning during daily activities. However, this overlooks the paradox faced by migrant learners that while they have the educational goal of seeking to improve their language skills, they also have the cultural goal of fitting into the host society. Inappropriate use of smartphones as learning aids makes learners stand out as outsiders.

Here, we investigate the use of smartphones by migrants for Mobile Assisted Language Learning (MALL) in their daily lives. We report on their participation in the trial of a system that coupled a custom smart-phone app with location-based hardware triggers. This presented learning activities based on scenarios from everyday life that were prompted when approaching relevant locations around a UK town. Analysis of pre- and post- interviews indicates that social and cultural influences affect the location, timing and type of learning undertaken using the system.

Participants preferred to learn in ways that were unobtrusive, and deferred engagement with content if social context inhibited use of the phone. For example, playing audio in public was seen as inappropriate. Although the app was designed with location-specific content, many participants chose to study elsewhere and at other times, in addition to accessing content from the phone at the time and place that the activity was triggered.

We conclude that social context and wanting to belong are important influences for migrant learners, and emphasise the potential of MALL systems in encouraging engagement with physical and digital spaces and reflections about citizenship.

Related URL: <http://www-jime.open.ac.uk/article/10.5334/jime.436>

Mixed emotion detection in chat messages - it feels so good and so bad

Garron Hillaire, Jenna Mittelmeier, Bart Rienties, Mark Fenton-O'Creevey,
Zdenek Zdrahal and Dirk Tempelaar
The Open University, UK

In this presentation a proposed measure for mixed emotions in text will be described. A brief outline of why mixed emotions are important to measure in the context of learning will precede the measure validation results. The data for this study will be from a pilot study with N=982 freshman students in the Netherlands in a statistics course. The study examines their activity working in a computer supported collaborative working environment during a 72-minute course lab where they were using a chat feature in order to create a group response to a case study. The standard for identification of mixed emotional expression used in this analysis are messages identified as mixed emotion expression by students when examining their own group work conversations in a post activity. The lab ran during the span of a school week with participants attending one lab session during the week. The post activity was completed by the following Sunday after the week of labs. A brief interpretation of what messages from group chat were categorized as mixed emotion will be provided to help gain insights into what people are identifying as mixed emotional expression. While the focus of the proposed measure is on detecting mixed emotional expression in written communication the categories of positive, negative, neutral, and mixed will be benchmarked against a state-of-the-art sentiment analysis technology. While valence is not precisely emotion detection a second benchmark will be a machine learning classifier of mixed emotion expression. When establishing the proposed measure, a machine learning bag-of-words approach towards classifying mixed emotion expression was created using the examples of mixed emotion messages provided by the students. By comparing the new measure to both a state of the art sentiment analysis method as well as a machine learning classifier, the results show how the proposed measure fits between valence measurement and bag-of-words classification of written expression for the purpose of mixed emotion detection.

Parental perspective on young children's use of touch-screen technology

Pinsuda Srisontisuk
The Open University, UK

Many young children are growing up in a digitally-saturated environment and parents continue to be the main gatekeeper in deciding when and why their child is introduced to a tablet, computer or smartphone. My current research is looking at parental perspectives about new technologies and how they perceive these devices as enhancing or hindering their child's learning experience. A questionnaire was distributed to parents with children below the ages of five to better understand their perspectives about young children's interactions with touch-screen technology.

Predictive modelling for addressing students' attrition in higher education: The case of OU Analyse

Christothea Herodotou, Alison Gilmour, Avinash Boroowa, Bart Rienties,
Zdenek Zdrahal and Martin Hlosta
The Open University, UK

Learner retention is a critical issue in distance education. A number of strategic initiatives are taking place at the Open University (OU) UK, both internal and external, focusing activity on the development of approaches to enhance student outcomes. This presentation will detail one institutional intervention, the OU Analyse (OUA), which draws on predictive modelling and student probabilities, to identify and predict students at risk of failing their studies. OUA (<https://analyse.kmi.open.ac.uk>) uses machine learning methods to improve student retention. It provides weekly early warning indicators of students who may be at risk of not submitting their next assignment. It is intended to be used by tutors and student support services to enhance student retention across the OU. It was originally piloted with 10 courses. A follow-up evaluation has been planned with 25 courses across all faculties to conclude on its impact on student performance. Findings from the piloting of OUA with 10 modules will be presented. Data were collected from students' completion, pass and withdrawal rates and semi-structured interviews with tutors who used OUA. This presentation aims to provide illuminating insights about the use of predictive modelling in Higher Education (HE) and spark discussions about how institutions can design and implement effective interventions for minimising early exit from HE and enhancing the learning experience.

Related URL: <https://analyse.kmi.open.ac.uk>

Psychometric Analyses of the Expectancy-Value-Cost Scale in Advanced Nanotechnology MOOCs

Hillary E. Merzdorf, Nathan M. Hicks and Kerrie A. Douglas
Purdue University, USA

Learner motivation is a primary driver of behavior in MOOCs or any other educational settings. In our previously studied MOOCs, nearly all learners have exhibited strong intrinsic motivation, as they generally were specifically interested in learning the course content itself, independent of external benefits. While demographics are frequently collected to better understand learners, an alternative measure of motivation is necessary to adequately discern between individual learners. One potentially promising measure of motivation for MOOC learners is the Expectancy-Value-Cost (EVC) Scale, which is intended to measure learners' beliefs about their abilities to be successful in a course, the value of that course, and the costs of achieving success in that course. Previous applications of the EVC instrument have been conducted with children and adolescents in face-to-face learning contexts, but these constructs may be particularly relevant for MOOC learners with more pressing needs and constraints. We examined the psychometric properties of the EVC scale in the older, more diverse population of our advanced technological MOOCs ($n = 407$). Specifically, we studied learners in two MOOCs offered through the edX platform: Principles of Electronic Biosensors and Nanophotonic Modeling. This research applied several psychometric analyses, including exploratory and confirmatory factor analyses, invariance analysis, and item response theory, using learner responses to EVC items on the pre-course surveys. Exploratory and confirmatory factor analysis results indicate that the factor structure found in previously studied populations for the EVC instrument is maintained for our MOOC learners. At the same time, measurement invariance analyses suggest that the interpretation of each factor may vary slightly across different subpopulations. Further, the item response theory analyses suggest that some items provide stronger information about the EVC scale for MOOC learners than other items. Our results are expected to guide modifications to this scale in order to improve weak or inconsistent item functioning for use in future MOOCs.

Quality Assurance and Innovation: Case Studies of Massive Open Online Courses in UK Higher Education

Ahmed Al-Imarah
University of Bath, UK

Literature from the wider field of management research is ambiguous with respect to the relationship between quality assurance and innovation, with some arguing that quality assurance supports innovation while others claiming it is a hindrance. The study aims to determine how quality assurance can be adopted to develop technological innovation in higher education, specifically the development MOOCs at institutions in the UK. The relationship between organizational culture and quality assurance has also studied by examining how academic culture feeds into quality assurance. That is the complexity of higher education culture may influence the implementation of quality assurance, either positively or negatively.

The study contributes to an understanding of whether MOOCs have a role in supporting higher education through the integration of their programmes. The qualitative approach is used to collect data, represented by interviews and documentation analysis. The sample of the study is chosen according to specific criteria that used to select the five cases, which are the platforms of MOOCs, age and size of universities, and the responsibility of higher education for universities

The primary finding indicates that although learners' feedback is mostly positive, quality assurance of MOOCs is very limited. The limitation of quality assurance is indicated in several areas, such as the objectives of courses, the gap between curriculum and content of MOOCs and mainstream curriculum, the gap of pedagogy, the mechanism of learning and teaching, learning outcomes, the approval process of MOOCs. Moreover, the organizational culture constitutes a key obstacle in deepening the gap between quality assurance and MOOCs. As a result, quality assurance can hinder innovation (represented by MOOCs).

Recent trends in MOOC research: from three US conferences

Eileen Scanlon
The Open University, UK

I recently attended three US conferences: CSCW, Learning at Scale and NSF Cyberlearning, and visited Stanford and University of Colorado (Boulder). I would use a brief presentation to review some relevant papers, and identify some interesting directions being followed in research on MOOCs.

Joyner, D. (2017) Scaling Feedback, Proceedings of Learning at Scale, April Boston

Kizilec, R. et al.(2017) Towards equal opportunities in MOOCs:Affirmation reduces gender and social-class achievement gaps in China

Remote practical-focused tutorials

Jon Rosewell
The Open University, UK

As befits its title, Technologies in practice (TM129) takes a practical focus to learning, with up to 50% of study time having a practical aspect. The tutorial program should support this and in the past some tutors have found innovative ways of bringing practical demonstrations or exercises into their face-to-face sessions, for example demonstrating a robot vacuum cleaner or setting up an ad-hoc network of students' laptops.

Producing online tutorials with an equivalent practical focus is a challenge. The creation of the OpenSTEM lab provides an opportunity to meet this challenge. Part of the HEFCE and OU funding for the OpenSTEM lab has provided five large 'Baxter' robots which will be accessible remotely as well as two which will be used at residential school. The lab also provides racked equipment bays for smaller remote access experiments, such as those being developed for the electronics curriculum. For a large population module such as TM129, this infrastructure provides an opportunity to roll-out practical-focused synchronous tutorial events to all students, provided the activities are well designed and scripted so that they can be delivered by a number of tutors.

In this presentation I will review the possible use-cases for remote practical activities, discuss some of the technological and pedagogical challenges, and review progress towards delivering engaging practical activities at a distance.

Science Learning Experiences in Citizen Inquiry Communities

Maria Aristeidou, Eileen Scanlon and Mike Sharples
The Open University, UK

This study has investigated how to support science learning experiences within citizen science participation communities. The organisation of citizen science projects shows that scientific goals in citizen science projects precede the learning goals and thus, learning happens as a side-effect of the training toward the completion of the project targets.

Citizen inquiry communities originated from the idea of having citizens act as scientists. To address the opportunity to provide more explicit educational benefits, citizen inquiry communities combine citizen science with inquiry-led learning. Citizens participating in these communities are supported to create and facilitate personally meaningful investigations in collaboration with scientists. Moreover, the online environment is developed to enable collaborative inquiry learning.

Two citizen inquiry communities have been developed: 'Inquiring Rock Hunters' and 'Weather-it'. Members of these communities were allowed and supported to create and facilitate investigations (on rocks and weather, respectively) in collaboration with experts and based on their experience of everyday-life science. The following science learning aspects were investigated: type of learning taking place within the community, inquiry behaviour and patterns, scientific vocabulary and self-reported knowledge.

The analysis of the investigations focused on different levels of learning (e.g. content knowledge, methods, skills). Content analysis looked at evidence of inquiry and vocabulary progress. Furthermore, thematic analysis was used for the survey responses around self-reported knowledge.

Reflection on the key findings led to design recommendations that aim to facilitate the understanding of inquiry activities as part of a complete scientific process; balance the enjoyable parts of the projects with gains in scientific literacy; improve transferrable skills; and involve experts in conveying quality science topic culture and learning.

Related URL: <http://aristeidoum.com/phd/inquiring-rock-hunters>

Social Network Analysis of Learning: Application of Significance Tests to Massive Open Online Courses (MOOCs)

Steve Cayzer and Simon Coton
University of Bath, UK

Modern research into Massive Open Online Courses (MOOCs) using network analysis techniques is widening as the field grows. However, results are usually not validated using statistical significance tests, or test assumptions are incorrectly applied. Here the use and application of different statistical significance tests is explored, including parametric, non-parametric and permutation tests on two University of Bath hosted MOOC courses to ascertain how network cohesion; a measure of user connectedness, changes over the duration of a MOOC run. Analysis demonstrates that transitivity; a measure of connectedness between three or more participants, increases over the duration of a MOOC run, which has design implications that could reduce participant dropout rates in future MOOC courses. The results for reciprocity; a measure of connectedness between two users, on the other hand, were inconclusive. Findings from the application of significance tests established that Spearman's rank-order correlation coefficient is the most appropriate significance test for the given dataset. As well as this, the selection of significance levels and incorrect application of assumptions in significance tests are seen to produce misleading results. This study operates as a guide for future MOOC researchers who choose to navigate the complex environment of statistical significance tests as a way to understand and validate results, as well as highlighting the potential to reduce course dropout rates, by encouraging transitive relationships between users early on in the course. Future work could look at connectivity based on course topic or using other forms of triadic relations.

Students' experiences and perceptions of anxiety in online collaborative learning (OCL)

Jake Hilliard, Karen Kear, Helen Donelan and Caroline Heaney
The Open University, UK

The increasing use of online collaborative learning (OCL) in higher education institutions has led to much research being undertaken aimed at understanding student opinions of this form of teaching and learning. Although many benefits of this approach have been highlighted, a number of challenges have also been found. One concern that has been raised is that some students experience increased levels of anxiety when taking part in online group work environments (Yoshida et al, 2016; Cowan & Jack, 2013; Allan & Lawless, 2003). This study aims to gain an in-depth understanding of students' experiences and perceptions of anxiety in OCL.

Study time distribution among learning activities: VLE usage and Technology determinants

Nuria Hernandez-Nanclares and Cecilia Díaz-Méndez
Universidad de Oviedo, Spain

This poster answers tentatively the question of how Spanish public University undergraduates share their out-of-class study time among learning activities when they are involved in a "World Economy" first-year "Flipped-Classroom"-style Business and Economics Degree course. This type of learning demands from student a combination of technological and multimedia activities with other more traditional-style studying, most of all of them supported by Virtual Learning Environments (VLE).

The research combines the time usage information provided by the Spanish Time Use Survey (spain, 2010), with the record students do of how much time they devote to four different learning activities: watching videos, VLE use, traditional study, and prior preparation for in-class activities. So, we can know when undergraduates study, related with the rest of their working day, and how technology affects their distribution of study time. Therefore, we are better equipped to design a more efficient combination of traditional learning activities with VLE uses considering students' internet usage and extrauniversity working dynamics.

Related URL: http://www.ine.es/en/prensa/eet_prensa_en.htm

The production of subjectivity through adaptations of assessment at UNED

Ana Belén Andreu and Tiberio Feliz

UNED, Spain

Universities are in constant transformation adapting to new global trends. In the scenario of disabilities, the university has still the challenge of giving value to permanent changes since the implementation of the European Higher Education (EEES). In this sense, due to its methodological characteristics, the UNED has always attended the highest number of university students with disabilities and consequently has created the University Disability Assistance Centre (UNIDIS) to support these students.

A strong point to assure the inclusion of students with disabilities is the assessment process. The evaluation of learning must be adapted by diverse ways to guarantee the equity and performance. Sometimes this process generates some dissonances with the normative precepts established to achieve "usual" purposes. In this sense, the main objective of our research is to analyse the elements (beliefs, values, practices, attitudes ...) that determine the subjectivity of students with disabilities through adaptations in their assessment at UNED.

We present some main lines that place us in the process to evaluate needs to support adaptations for students with disabilities at UNED and the advances in our research.

Related URL: <http://portal.uned.es>

The roadmap to emotionally accessible MOOCs

Garron Hillaire, Francisco Iniesto and Bart Rienties
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The evolution of open education on the internet is enabling thousands of people around the world to follow different educational initiatives. A basic characteristic of MOOCs, independently of its type, is the high degree of interactivity that facilitates and reinforces the bidirectional communication between the learners and the mediators. Therefore, the teachers and moderators inside the MOOCs act like community managers. As the learning is learner-centered, it requires a greater commitment from the learner into self-learning, deep research aptitude and analysis, reflexive capacity along with a high component of personal autonomy. An effective open e-learning environment should consider each learner's abilities, learning goals, where learning takes place, and which specific devices the learner uses; when it comes to using screen reader technologies students already make personalized choices in terms of which synthetic voice they use to hear to course material. The main driving force behind this investigation is to determine if the emotional expression of a synthetic voice influences the performance of learners. This presentation will outline the results of measuring the emotional expression in three MOOCs when samples of the course text are read through text-to-speech. The text was inspected by raters for emotional content. There is likely reason to begin examining what implication are when the emotion prediction of the text-to-speech disagrees with the human raters as well as pursuing more intentional emotional expression based on emotional detection in text. There are implications as the accessibility technologies could potentially be undermining the intent of course designer's deliberate decisions to use emotional expression in text. The effects on learning are as yet unknown, but there is a potential for dynamic personalization with synthetic voices to provide an accessible alternative that could potentially be superior to the single voice of an instructor.

The self as an open educational resource (OER)

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The concept of self_OER has only recently been proposed (Bali and Koseoglu, 2016; Koseoglu and Bali, 2016). Conceptualising openness as a 'worldview', or as a 'way of being', it involves widening understanding of open educational resources (OER) from one of physical content to include individuals in the learning community. The processes and products of open scholarship (texts) are proposed as resources themselves.

Further to this, Koseoglu and Bali (2016) ask "how might the processes and products of open scholarship align/intersect with the goals of open education?"

Related URL: <https://oer16.oerconf.org/sessions/the-self-as-an-open-educational-resource-1091>

The services to support students with disabilities at UNED

Tiberio Feliz and Ana Belén Andreu

UNED, Spain

The Universidad Nacional de Educación a Distancia (UNED) is the National Distance University in Spain. It is also the preferred university for students with disabilities in Spain, with more than 8,000 students. This demand caused the need of support and means since the 90's, and different services were carrying the inclusion of people with disabilities.

In the earlier time, the staff was administrative and was oriented to formal reception and admission. Later the service was oriented to a stronger guidance. A specific service was created with technical staff with psycho-pedagogical competences: UNIDIS. In the beginning, this team was focusing only students and has enlarged the scope to the whole university community with disabilities.

The unit has developed an interesting experience based mainly on adaptation of processes in several fields as physical accessibilities, learning, participation, and assessment. The increasing digitalization of means and virtualization of communication has changed the focuses to attend and the demand of helps and tools.

At the same time, the strategy has involved a social inclusion approach adding projects and actions to disseminate the knowledge about disabilities, promoting new values related to inclusion of diversity, facilitating relationships of university with companies and society, and increasing the employability with practical stages and periods for people with disabilities.

We analyse the evolution of the services, the organization, and the philosophy of the centre for the latest twenty years.

Related URL: <http://portal.uned.es>

Tricky Topics from training teachers to evaluating innovations

Anne Pike and Anne Adams

The Open University, UK

Tricky Topics is a practice-based application of the threshold concept theories identified by Meyer and Land (2003). This lightning talk provides a quick update on the Tricky Topic approach's current applications; from its use in designing and evaluating teaching interventions and innovative technologies to its use in learning design. In particular the three-staged process to identify, capture and assess difficult knowledge is detailed, with links to the website and a Badged Open Course co-authored with Oxford University.

Related URL: <http://trickytopic.juxtalearn.net>

Understanding distance learners' academic and social adjustments: Evidence of best practice from a South African context

Firdevs Melis Cin, Ashley Gunter, Dianne Long, Clare Madge, Jenna Mittelmeier, Paul Prinsloo, Parvati Raghuram, Katharine Reedy, Bart Rienties and Jekaterina Rogaten
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The proportion of students studying in international distance education programmes has risen dramatically in the last decade, particularly in developing countries (UNESCO, 2012). One such example is South Africa, which has become a regional hub for international students with over one-third studying distantly. Previous research demonstrates that distance students show low degree attainment (Prinsloo et al, 2015) and learning design affects their retention and satisfaction (Rienties and Toeteneel, 2016). However, relatively little is known about international distance learners' educational transitions, including academic and social integrations. Although there is a wide body of literature on international student adjustment and integration, this research often makes the assumption that students are physically located at the host institution, and there is a scarcity of research on distance education experiences.

The International Distance Education with African Students (IDEAS) project aims to address these gaps in knowledge through a research collaboration between the Open University and the University of South Africa. The project explores international distance student experiences across Africa, including their educational transitions through higher education and the role of learning design in academic and social inclusion. At the CALRG 2017 conference, we will present the initial findings from a cross-cultural comparison of learning analytics data from domestic and international distance students at UNISA. We will also describe the academic and social adjustment patterns of 500 international distance students across Africa.

Related URL: <http://ideaspartnership.org>

Using Web 2.0 technologies to foster collaborative learning in higher education

Nuria Hernandez-Nanclares and Bart Rienties
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Previous research has indicated that technology can support teams to share knowledge, expertise, and to build effective shared mental models. At the same time, several studies have indicated that technology might influence team dynamics negatively, as there might be miscommunications due to time delays or technological affordances. However, to what extent does the use of open technology changes teams' perceptions of their own performance? This is the central aim of this study, whereby we aim to unpack students' perceptions about their team learning as measured by Team Learning Beliefs (TLB) by the use of Moxtra. This is a WEB 2.0 tool able to integrate real-time conversation capabilities with file sharing and editing facilities, improving other popular discussion board, including students' favourite WhatsApp, as supportive technology for collaborative learning. The study compared the perceptions about their team performance and effectiveness of two courses, whereby 36 students worked in 11 teams with Moxtra, while in the comparison cohort 57 students worked in teams without Moxtra. The results indicated limited effects of using technology in the students' team performance perceptions, as there were not significant differences between both group's median answers to the different variables. Our findings could suggest that students' inexperience in collaborative learning prevent teams to grasp all potentials technology could offer.

Related URL: <http://moxtra.com>

Visualising Social Learning for Discoverability

Philip Tubman, Phillip Benachour and Murat Oztok
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FutureLearn's platform is grounded in Laurillard's conversational framework: "...conversation at the level of actions where discussion is directed towards interpreting the learning materials". What actions are we asking the learner to do? What does the platform 'afford'? Activity based learning, like reciprocal teaching or jigsaw groups work in smaller classes, but needs rethinking at scale. Active learning concentrates on what the student does. I propose that extensions to the FutureLearn platform are required to initiate deep active learning, and have prototyped 2 visualisations: a word cloud, and 'semantic speed dating'. Pedagogical activities around social tagging and summarisation should be considered.

What are the expectations of disabled learners when participating in a MOOC?

Francisco Iniesto, Patrick McAndrew, Shailey Minocha and Tim Coughlan
The Open University, UK

Open education can provide opportunities at scale for lifelong learning amongst currently underserved populations, such as those with disabilities. In comparison to other online learning opportunities MOOCs have potentially beneficial characteristics such as: open access within a structured learning framework, low cost of learning, flexibility to allow individual planning in terms of the learner's time and preferred pace and place, opportunities for social learning, as well as scope to gain knowledge.

Despite this potential suitability as an approach to support disabled learners, there is limited research to understand accessibility and MOOCs, and on the expectations of disabled MOOC learners. This presentation outlines a preliminary study to analyse existing pre- and post-study survey data from MOOCs offered by the Open University on the FutureLearn platform, to understand the expectations of disabled learners participating in MOOCs. The quantitative study reported in this presentation is a part of a wider research programme to investigate the current accessibility of MOOCs, the processes through which this accessibility is achieved, and the potential use of data to improve MOOC accessibility. This study aims to understand the current expectations of disabled learners when taking part in MOOCs.

Limitations to this analysis are that it was undertaken with a small number of MOOC presentations, and that a simple disability marker may not reflect diversity within the population. It should not be assumed that these results generalise to the whole of the disabled learner population, or that this population is homogenous in nature. Nevertheless, some preliminary findings and future work can be drawn for further investigation.

What do educators' contributions to MOOC discussion areas look like?

Fereshte Goshtasbpour
University of Leeds, UK

Massive Open Online Courses (MOOCs) are being recognised as potentially the most accessible form of education due to their massiveness (no enrolment limits) and openness (free to join with no entry requirements). Nevertheless, their scale and openness have made teaching and interacting with learners complex. Interacting with large number of demographically diverse learners with different educational background, languages and motivation are not easy tasks. This is a noticeably absent area from the MOOC emergent research [1] which this doctoral study attempts to address.

To achieve this, the type, level and timing of the teaching team's interactions with learners in the discussion areas of three FutureLearn MOOCs were examined. The content of 885 exchanges between lead educators, educators and mentors (teaching team), and learners were analysed through the lens of the Community of Inquiry framework. The teaching team's level of contributions in terms of the number of their exchanges with learners at three points of each course (beginning, middle and end) was also looked at. These exchanges were then studied in connection with the timing of the teaching team's engagement with them. After this stage, a sample of 14 lead educators, educators and mentors were interviewed to gain more insight into the teaching team's approaches to engaging with discussions, the rationale behind their engagement and their intended outcomes while exploring the factors that influenced their contributions.

In this presentation, I will report the findings from the first stage of my study and will describe the teaching team's engagement with discussions in terms of their social, pedagogical and cognitive contributions while covering the level and timing of each contribution type.

What do MOOC providers think about accessibility?

Francisco Iniesto, Patrick McAndrew, Shailey Minocha and Tim Coughlan
The Open University, UK

MOOCs have become an accepted way to make learning opportunities available at large scale and low cost to the learner. However, only if these are made accessible will they be able to offer flexibility of learning and benefits to all, irrespective of disability. Experience in providing accessible online learning at distance universities suggests that this can be best achieved through understanding different roles and the options in planning for adjustments to be made. To effectively apply similar approaches to MOOCs, it is necessary to understand the various viewpoints and roles of stakeholders and how these impact on accessibility. This includes educators who create materials and facilitate learning, and technologists who develop and maintain platforms. We report the results from a study involving semi-structured interviews to investigate the perceptions and accessibility-related processes of technical specialists, course teams, accessibility specialists, educational content specialists and MOOC researchers focused on three main topics:

- Data availability and knowledge about disabled learners.
- Accessibility and daily work, in dealing with course providers and the platform.
- MOOCs and adaptation, how to show the information to the learner.

An inductive approach for coding the interviews has been followed using transcripts of the interviews; the results show that there is a lack of data collection on disability in eLearning, either by building profiles or during registration processes, they show awareness that MOOCs can be valuable for disabled learners, and indicate that legislation acts as a driver for accessibility. However, our investigations suggest limited progress to date in either producing universally accessible MOOCs, or tailoring MOOCs to meet the needs of individual disabled learners.

Where is the learning occurring in mobile learning? Applying systems thinking to a messy situation

Alice Peasgood

APHE Consulting and The Open University, UK

The use of mobile digital devices for learning has been the subject of considerable research. It appears, however, that the investigative lens offered by systems thinking approaches is not widely represented in the literature of mobile learning. In systems thinking, a 'messy situation' is one that has complexity and ambiguity. This paper reports upon a theoretical study of the learner-device-environment system and subsystems within it. The environment includes physical, digital and social factors. The core research question is 'where is the learning occurring?' Systems maps are used to explore various concepts of the mobile device: as a tool, as a medium (or mediating technology) or as an extension of the learner's capabilities. The concept of the device as a tool implies that the learner is in control and uses the device's capabilities to access learning content or to learn in communication with others via the device. Drawing upon the work of Gordon Pask, the question arises as to how the mediating technology may impact upon the learning, and may itself change during the learning process (for example, a digital device employs algorithms which change as the learner uses the device). Building upon Marshall McLuhan's idea of technology as augmenting human capabilities, the mobile device could be seen as externalising memory, for example. By considering how to define the learning system in each case, this paper examines the interrelationships between the learner, the device and the environment. This analysis provides some insights, and raises further questions, that are relevant to other areas of research in mobile learning.

Who are the mooc educators and what are their tasks? A multiple case study

Tina Papathoma
The Open University, UK

People working in HE institutions and organisations related to education are learning new forms of teaching and learning practice to transform the ways they work. This study explores who the people involved in massive open online courses (moocs) are and how they describe their tasks in those courses. Data were gathered through a multiple case study involving interviews with 28 people involved in moocs. Analysis shows that educators come from different backgrounds (i.e. academics, learning designers, PhD students) with different types of expertise such as teaching, subject matter expertise and learning design expertise. Educators reported that they often collaborated in the mooc process (i.e. design, run, facilitate). However, their roles were not fixed and they often moved from one role to another. This entailed taking different responsibilities for which they may not have the expertise to work on. Some of the most common jobs educators were involved in were setting the course objectives, creation of course materials, pedagogical decisions on how the course will go live, decisions on purchasing copyright material, video presenting, and video editing. Educators reported that they often learned these tasks in practice as training was either limited or absent. In order to manage the challenges they faced in the mooc process they collaborated with each other (sociocultural knowledge) and they self-regulated by seeking advice from experts as well as observing how other moocs have run. The role expectations for educators in moocs may be very demanding. They may need to acquire a range of skills that were not required in their past experience, and they may need to collaborate with others and share each other's expertise. Institutions, senior management and platforms may assist in that.