**The 10th eSTEeM Annual Conference:**

**STEM Scholarship for a Changing World – Disruption, Innovation and Impact**

**30 June – 1 July 2021**

**PROGRAMME**

**Day 1: Wednesday 30 June 2021**

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| **Time** | **Session** | | | **Online Room** |
| **14.15-14.30** | **Registration and Coffee**  Grab a cuppa and have a chat with colleagues before the conference gets underway | | | **Medlar and Juniper** |
| **14.30-14.45** | **Welcome and Introduction** | | | **Hub Lecture Theatre** |
|  | Trevor Collins and Mark Jones, eSTEeM Directors | | |  |
| **14.45-15.45** | **Day One Opening Panel Discussion** | | | **Hub Lecture Theatre** |
|  | Mark Jones, Diane Butler, Victoria Nicholas and Carlton Wood  How has COVID affected Assessment, Tuition and Student Support?  The global pandemic has had wide-ranging impact on universities across the world. While The Open University, with our distance learning approach, may have been well-placed to respond to some of the challenges posed by COVID, it is still the case that many aspects of our teaching and student support had to change. In this panel discussion, we will be joined by three of our Associate Deans – Diane Butler (Academic Excellence), Victoria Nicholas (Four Nations and Tuition Delivery) and Carlton Wood (Student Experience) – to reflect on the changes in practice due to the pandemic and the opportunity this provides to question our processes. The panel will discuss how the experiences of the last 18 months are shaping our longer term thinking about assessment, tuition and student support, and the implications this has for Scholarship and Innovation in STEM Higher Education. | | |  |
| **15.45-16.00** | **Break and Posters** | | | **Medlar and Juniper** |
| **16.00-17.00** | **Parallel Session A: Short Oral Presentations – Supporting Students** | | | **Room A** |
| **Chair: Andrew Potter** | Anne-Marie Gallen, Mark Jones and Anne Campbell | “…it’s just added to the happiness of the whole experience, just to be able to link up with other people …”: Do student perceptions and expectations of tuition in groups overlap with those of their tutors? | Five years ago, we asked STEM ALs to talk about their perceptions around tuition in groups. But do students’ expectations of tuition coincide with those of their tutors? Using interview and survey data we look at overlaps and tensions between the ways in which both ALs and students perceive tutorials. |  |
| Chris Thomson, Andy Hollyhead and Alexis Lansbury | Perceptions and Plans of the Practice Tutor role in computing apprenticeships | We report on an investigation into the provision of practice tuition in computing apprenticeships and make recommendations on how practice tutor support can be improved and standardised. We made use of a survey and interviews of apprentices in England and Wales as part of the research. |  |
| Abi Kirk | Encouraging verbal communication in online small-group Maths problem-solving sessions; taking inspiration from individual sessions | An investigation into the factors affecting speech in Mathematics Individual Support Sessions, based on a small-scale survey of tutors and descriptive logs compiled by tutors. The findings will feed into a design for online small-group problem-solving sessions, with the aim of encouraging speech in these sessions. |  |
| **16.00-17.00** | **Parallel Session B: Short Oral Presentations – Supporting Students** | | | **Room B** |
| **Chair: Ann Walshe** | Cath Brown and Catherine Halliwell | Extensions – how are students using them, and what is their impact? | The project considers “How are students using extensions, and what is the impact on their success”. A quantitative approach was used to assess whether extension use related to study intensity, and what its impact on module performance, whilst focus groups probed AL and student views, perceptions and experiences of extensions. |  |
| Victoria Murphy, Jo Buxton and Natalie Tegama | Student support during lockdown | During the COVID-19 lockdown, OU students experienced increased emotional and academic stress. This presentation will explore who students turned to for support during these hard times, including what role the OU played. Results showed that ALs were key players for many. Consistent communication was identified as an area for improvement. |  |
| Katja Rietdorf, Jane Loughlin, Diane Butler, Kate Fox and Lorraine Waters | Two Years of the Early Start Opportunity in S294 – what have they achieved? | An Early Start opportunity designed to help students prepare for S294 Cell Biology has been well-received by students. Here we present data gathered over two years, on student engagement with, and perceptions of, the S294 Early Start, as well as analysis of the impact of engagement on student performance. |  |
| **16.00-17.00** | **Parallel Session C: Workshop/Demonstration – Online/Onscreen STEM Practice** | | | **Room C** |
|  | David Conway, Janet Hughes and Christine Gardner | Are live virtual visits an effective way of engaging distance learners? | The benefits to students of insight visits and field trips are well documented, including the ability to relate theory to practice. Technology now makes it possible to deliver live interactive virtual visits. This workshop will present findings and demonstrate technology used to support an interactive virtual visit to Bletchley Park Museum |  |
| **17.00-17.30** | **Wine Down**  Colleagues are invited to bring along their drink of choice and reflect on day one. | | | **Medlar and Juniper** |
| **17.30** | **Close of Day One** | | |  |

**Day 2: Thursday 1 July 2021**

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| **Time** | **Session** | | | **Online Room** |
| **9.15-9.30** | **Registration and Coffee**  Grab a cuppa and have a chat with colleagues before day two of the conference commences | | | **Medlar and Juniper** |
| **9.30-10.30** | **Parallel Session D: Short Orals Presentations – Supporting Students & Equality, Diversity and Inclusion** | | | **Room A** |
| **Chair: Trevor Collins** | Lorraine Waters and Sarah Daniell | Students’ perceptions of online tutorials and forums in S294 and/or SK299 | Attendance at online tutorials and use of forums by students continues to be low, this may be more so for students with mental health issues. We have used a JISC questionnaire to assess students’ perceptions of online tutorials and forums. Initial results suggest anxiety is a barrier to engagement. |  |
| Laura Dean | Learning and Development Needs of Autistic Adults Studying STEM Subjects via Distance Learning | Autistic students have distinct learning needs and significantly worse employment outcomes than both their disabled and non-disabled peers (AGCAS, 2017). Using semi structured interviews this research explored their learning experiences. Emerging themes included: appreciation for being heard; changes in subject studied; abstract communication issues and understanding of support. |  |
| Muriel Sippel and Nicole Lotz | Understanding the mental health attainment gap in Design modules | For Design modules, we are aware of low pass rates for students with mental health disabilities. We report on an eSTEeM project that questions how the student's health impacts on their study. We would like to discuss how the responses could inform the Design curriculum and support ALs to aid the progression of these students. |  |
| **9.30-10.30** | **Parallel Session E: Short Oral Presentations – Supporting Students & Equality, Diversity and Inclusion** | | | **Room B** |
| **Chair: Nigel Gibson** | Hayley Ryder and Toby O'Neil | Through a glass darkly: challenges of making tutorials accessible | For an online tutorial to be considered accessible, it requires some form of closed captioning together with figure descriptions. We use cognitive load theory and self-efficacy as frameworks to examine the issues raised when producing these. Attendees are recommended to have pencil and paper to hand. |  |
| Helen Jefferis, Frances Chetwynd and Chris Gardner | Cluster tutorials - what do the students think? | When and why do students attend tutorials? What do they hope to gain from them, does reality match their expectations and what do they enjoy (or hate) when they do attend? |  |
| Andrew Potter, Delyth Tomos and Chris Hughes | Welsh-medium tuition in Level 1 Mathematics/Addysgu Mathemateg Lefel 1 trwy gyfrwng y Gymraeg | An exploration of student engagement with bilingual Welsh/English tuition on the Level 1 module MU123 Discovering Mathematics. |  |
| **9.30-10.30** | **Parallel Session F: Workshop/Demonstration – Online/Onscreen STEM Practice** | | | **Room C** |
|  | Janet Hughes, Ann Walshe, Brendan Murphy and Bobby Law | Remote pair programming | This workshop will begin with a demonstration of remote pair programming “live” using Microsoft Teams. This will be followed by a discussion to consider benefits and challenges of pair programming for distance learning students. |  |
| **10.30-10.40** | **Break and Posters** | | | **Medlar and Juniper** |
| **10.40-11.40** | **Parallel Session G: Short Oral Presentations – Supporting Students & Technologies for STEM Learning** | | | **Room A** |
| **Chair: Sarah Davies** | Richard Walker, Sarah Mattingly and Chris Gardner | Remote sighted helper support for visually impaired students: exploring good practice | TM111 uses a visual programming language, for which visually impaired (VI) students require a sighted helper. With the Covid-19 lockdown this help had to become remote. Our project studied how a helper worked with a small group of VI students and documented what strategies and technologies best enabled remote support. |  |
| Chris Thomson, Marina Carter and Dave McIntyre | Supporting Apprentice Learners by Evaluating their Study Needs | At the Open University we are still learning about the best way to support our apprentice learners in their module study. We present the findings of a survey, interviews and pilot study and propose recommendations on how to support learners in their study of digital apprenticeships. |  |
| Helen Lockett, Kay Bromley, Kevin Gowans, Claire Richardson and  James Smith | A classification scheme for OpenSTEM Labs experiments | This paper presents interim work from our eSTEeM project to investigate the breadth of activities, skills and educational outcomes developed in OpenSTEM Labs experiments. It presents a classification scheme for remote and online laboratories, building on previous literature, to classify laboratories in terms of activity type and educational outcomes. |  |
| **10.40-11.40** | **Parallel Session H: Short Oral Presentations - Equality, Diversity and Inclusion, Learning Design and Delivery & Technologies for STEM Learning** | | | **Room B** |
| **Chair: Mark Jones** | Vaclav Bayer, Martin Hlosta, Miriam Fernandez | Learning Analytics and Fairness: Do Existing Algorithms Serve Everyone Equally? | Universities UK reports a 13% degree-awarding gap for Black, Asian and Minority Ethnic students with similar effect for gender or disability protected attributes. We present a study on whether existing OUAnalyse prediction models to identify students at risk of failing do work equally effectively for the majority vs minority groups. |  |
| Lesley Boyd | Update on the search for collaborative improvements: using learning networks and learning analytics to drive module improvements in STEM at The Open University | A story of integrating theory and practice and driving collaborative module improvements: Using Learning Technology in Making Action-based Transformative Enhancements. |  |
| Ade Adeliyi, Michel Wermelinger, Karen Kear and Jon Rosewell | Improving the Learning of Programming at a Distance Through Collaborative Coding | Pair programming is one of the key aspects of eXtreme Programming (XP), which encourages informal and immediate communication over joint coding work. This presentation explores the requirements for pair programming through a systematic literature review, details of user study undertaken, and future research work. |  |
| **10.40-11.40** | **Parallel Session I: Workshop/demonstration – Supporting Students** | | | **Room C** |
|  | Georgy Holden and Rachel Hilliam | Supporting students through their study journey: the use of qualification wide subject websites | This workshop presents the findings of two eSTEeM projects focused on qualification level study sites and opens up discussion on the student journey throughout their studies and the ways in which this might be better supported. |  |
| **11.40-11.50** | **Break and Posters** | | | **Medlar and Juniper** |
| **11.50-12.50** | **Celebrating the Impact of Scholarship** | | | **Hub Lecture Theatre** |
|  | Shailey Minocha and Trevor Collins  The Scholarship of Teaching and Learning (SoTL) challenges us to critically engage with educational research, systematically investigate our teaching and learning practices, and share our findings for others to review and build upon. In this closing workshop, we will encourage you to consider how scholarship has impacted your teaching and learning and reflect on the processes you instigated to enrich your practice. We will introduce an impact evaluation framework that we developed for SoTL and share a selection of inspiring impact stories to demonstrate how eSTEeM scholarship projects have enhanced the student experience, improved retention and progression, influenced discipline-based teaching, and facilitated the professional development of project team members. Reflecting on these examples, we will identify some of the environmental and cultural factors that can be barriers and enablers for impact. Through celebrating the ways that scholarship has informed teaching and learning in STEM, we hope this workshop will help identify potential pathways to impact for your scholarship. | | |  |
| **12.50-13.00** | **eSTEeM Scholarship Projects of the Year and Best Interactive Poster Presentation Prizes followed by Closing Remarks** | | | **Hub Lecture Theatre** |
| **13.00** | **Close** | | |  |