# AdvanceHE

## Teaching in the spotlight: Learning from global communities

### STEM Programme, 5 July

### Parallel Session 1: 11:20 – 12:20

| ST1: How to engage STEM students to develop reflective practice: Lessons from research practice |
| ST1: Interfere or interface? |
| ST1: First year transition on a transnational education Biomedical Sciences programme in China |
| ST1: Behind the scenes: Who inspires the ed-tech content? |
| ST1: Teaching problem solving within a global community |
| ST1: An exemplar of incorporating world-leading research into teaching |
| ST1: Building student confidence and enhancing graduate outcomes through extra-curricular activities |

### Parallel Session 2, 13:20 – 14:20

| ST2.1: The development and evaluation of student-centred video tutorials for undergraduate Sport Science students: An action-based research study |
| ST2.2: Enquiry-based learning as a mechanism for embedding education for sustainable development and global citizenship in curricula |
| ST2.4: Learning to Fly: Tips and tricks from classroom experiments in live international collaboration |
| ST2.5: Public engagement, media experience and the HE sector: Getting involved |
| ST2.6: A competency framework in teaching and learning for STEM educators: Design, challenges and application |
| ST2.7: Can understanding the study expectations and study prior experiences of different domiciled students at postgraduate STEM Masters level help in the recruitment, management and delivery of high quality learning and teaching? |

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| ST3.2a: Creating a reflective pedagogic strategy to enhance Human Health students’ professional practice at De Montfort University |
| ST3.2b: Mentoring MSc students as a practice in STEM |
| ST3.2c: Mindfulness meditation and mindfulness colouring books as interventions for recalling information from lectures: Two randomised experiments |
| ST3.3a: Supporting the transition to university Mathematics in sub-Saharan Africa |
| ST3.3b: Overcoming threshold concepts in STEM education with flipped/active learning pedagogies |
| ST3.3c: STACK: Online assessment for Mathematics |
| ST3.4a: Using summary in Engineering lectures: How, when and why? |
ST3.4b: Perceptions on the flipped classroom approach for a large Engineering module

ST3.4c: Degree Apprenticeships in Construction and Built Environment

ST3.5a: Degrees of Freedom: Transatlantic collaboration in the establishment of a new degree scheme

ST3.5b: Analytical Chemistry in higher education: Teaching an inherently practice-based subject

ST3.5c: What can we learn from teaching Physics in China using English as a medium of instruction?

ST3.6a: Mobile learning games before Anatomy class: Can they make up for lack of pre-session preparation?

ST3.6b: Problem-based learning in STEM: An international perspective

ST3.6c: Introducing mentoring into clinical placements for medical students

ST3.7a: Delivering technical modules to technophobic students

ST3.7b: Can learners’ interactions with code puzzle pieces accurately match their perceptions of the related programming concepts?

ST3.7c: Research-based teaching and learning on a Master of Science degree in Professional Software Development

Poster presentations, 15:40 – 16:10

The use of Periscope, Twitter and Instagram to enhance student learning experience and engagement in Life Sciences

Enhancing the student experience by learning beyond the classroom through an integrated curriculum

Cross-course collaboration between software and hardware modules to improve student learning experience

Problem Based Learning

Pipecleaners and Brain Towers: Model building as a learning tool in neuroscience

Parallel Session 4, 16:10 – 17:20

ST4.1a: Student Transition Project

ST4.1b: Individual perceptions of advantage and disadvantage in accessing, undertaking and progressing in Science, Technology, Engineering and Mathematics (STEM) postgraduate taught study

ST4.1c: A closer look at retention in higher education

ST4.2a: Virtual Machines: Experience of Using Google Cloud Compute engine for teaching undergraduate courses

ST4.2b: Augmented reality: Developing and utilising acceleratAR to communicate the physics of particle accelerators

ST4.2c: Learning Parasitology through virtual clinical case studies: The DMU e-Parasitology project

ST4.3a: YES! The commercialisation game that builds entrepreneurial competences in STEM early career researchers

ST4.3b: Utilising the teaching of international formal technical standards to inspire confidence in networking students

ST4.3c: Playful investigation vs. teaching the scientific method: Tensions and synergies

ST4.4a: From the ground up: The application of joint practice development: ‘The Teacher’s Takeaway’

ST4.4b: ‘From seed to fruition’: Promoting discipline engagement on a global scale

ST4.4c: Supporting students’ engagement and achievements through online micro-lectures with embedded quizzes

ST4.5a: Developing effective and sustainable student-led collaborative learning communities within and across higher education institutions

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Plenary 21
ST1: How to engage STEM students to develop reflective practice: Lessons from research practice
Professor Alison Sinclair, University of Sussex

Ignite presentation

The challenge was to develop self-reflective practice amongst undergraduate science students undertaking independent research. We drew on experience of post-graduate research supervision where immediate verbal peer-to-peer feedback provoked student reflection and discussion. For undergraduate students, we structured a series of meetings where students met to deliver short oral presentations of their research to other members of the group and a member of faculty. To provide support for undergraduate students to engage with commenting on and posting questions about other students’ research, we developed a framework of question outlines.

ST1: Interfere or interface?
Ronel Beukman, Portsmouth University

Ignite presentation

Everything is changing; the way we connect to the world, the way we do business, the way we shop- but we still stand in front of a class and teach. The presenter and the ‘audience’. Our ‘audience’, the student, operates 24/7 in this connected world. They are constantly attached to an interface, whether a personal computer, laptop or smartphone. When we teach, we are interfering and invading the space between them and their devices, so should we rather change our pedagogy to a mode of ‘Interfacing’ rather than ‘Interfering’ and how can this be done?

ST1: First year transition on a transnational education Biomedical Sciences programme in China
Dr Michael Daw, University of Edinburgh

Ignite presentation

The University of Edinburgh has embarked on a jointly delivered, English-language Biomedical Sciences programme with Zhejiang University on a purpose-built international campus in China. This campus will host a range of programmes with different partner universities. In planning this programme we made assumptions about the challenges that would be encountered by students on this programme who are mainly Chinese and who speak English as a second language. I will outline the educational model and introduce plans to research the difference in first year transition experiences between these students and those on a similar programme in Edinburgh.

ST1: Behind the scenes: Who inspires the ed-tech content?
Dr Jonathan Watkins, University of Birmingham

Ignite presentation

Too often when talking about education technology we focus on products and features. For 5 minutes I would like to bring to your attention the people behind the scenes of the content we create. From the staff to the users and the people who build the products, many people are involved in enhancing the educational experience of students. In this talk I will take you on a tour of some of the leaders in ed-tech, to find out what they are building and how and why they do it.
ST1: Teaching problem solving within a global community
Xiaojun Yin, Swansea University

Ignite presentation

The aim of this session is to outline the undergraduate and MSc research projects which led us to visit rural Liberia. I will share the experience of how this project has helped students to identify global problems in real context and learn to problem solve within this context. This experience was enhanced by collaborations with Stella Marist Polytechnic, Liberia. In visiting Stella Marist Polytechnic, the students and academics have developed better understanding of Civil Engineering teaching in the global context and how a positive attitude towards learning could overcome obstacles such as lack of resources.

ST1: An exemplar of incorporating world-leading research into teaching
Dr Evangelos Mellios, University of Bristol

Ignite presentation

This presentation will focus on a newly-developed research-based unit entitled ‘Wireless Networking and Sensing in eHealthcare’. This unit is an excellent exemplar of incorporating cutting-edge research in the field of digital healthcare into the postgraduate teaching curriculum, as it has been designed by exploiting skills and background developed within a major research project. This presentation will make recommendations on good practices for the design process and delivery of a research-based unit aiming at enhancing the student learning experience, while creating the engineers who will in future provide innovative solutions to the major global problem of unsustainable healthcare provision.

ST1: Building student confidence and enhancing graduate outcomes through extra-curricular activities
Dr Lindsey Munro, Manchester Metropolitan University

Ignite presentation

One key element in students meeting their academic potential and achieving positive graduate outcomes is their engagement with opportunities both within and outside the curriculum. A lack of confidence and fear of failure can lead students to disengage and miss out on experiences that would enable them to achieve aspirational career goals. Based on the success of our ‘Science & Engineering Extra-curricular Award’ in inspiring students and encouraging them to seek out further challenges, we will discuss the key steps required to set up a successful extra-curricular programme, global influences and the benefits to student engagement and positive graduate outcomes.
Parallel Session 2, 13:20 – 14:20

ST2.1: The development and evaluation of student-centred video tutorials for undergraduate Sport Science students: An action-based research study
Dr Aamer Sandoo, Bangor University

*Interactive breakout session*

This session will provide delegates with information about creating and using innovative video materials to enhance learning across degree programs focusing on STEM subjects. Dr Sandoo will highlight important considerations for providing successful video tutorials based on data collected from student focus groups and surveys. The objective of the session is to empower academic practitioners to implement this (or similar) approaches at their own institution.

ST2.2: Enquiry-based learning as a mechanism for embedding education for sustainable development and global citizenship in curricula
Dr Theresa Nicholson and Valeria Ruiz Vargas, Manchester Metropolitan University

*Workshop*

This workshop will present the rationale, findings and outcomes from a project exploring the integration of blended enquiry-based learning (bEBL) in the context of education for sustainable development (ESD). Courses in contrasting disciplines (Geography, Business, Sustainability) at two universities in England and the USA have provided a test-bed for embedding bEBL techniques. We have reviewed different bEBL approaches, explored the impact of externalities (e.g. cohort size, year of study), and evaluated its effectiveness for enhancing ESD skills and competencies (e.g. systems thinking and problem solving). A practitioner resource pack has been developed, as well as a guide for learners.

ST2.4: Learning to Fly: Tips and tricks from classroom experiments in live international collaboration
Dominic Pates and Dr Ivan Sikora, City, University Of London

*Workshop*

Ever wanted to bring a guest speaker into a class remotely? This is more easily said than done, despite the wide availability of simple web conferencing tools. This workshop reviews a series of sessions for undergraduate Aviation students at City, University of London, that featured guest appearances from an expert aircraft tester based in Auckland. Participants will discover the approach taken, pick up lessons learned, and get to experience the set-up themselves from a learner perspective in a discussion that features the remote appearance of a guest speaker with over 20 years’ experience in teaching online.
ST2.5: Public engagement, media experience and the HE sector: Getting involved
Dr Alex Conner, University of Birmingham and Dr James Brown, Aston University

Workshop
An interactive session, sharing public engagement experiences and the aspirations of the group. Science is the beating heart of our culture and the cornerstone of our society's progression. Expanding the number of people who have access to science and scientific thought will improve and enhance that society and culture. We will discuss TV and radio appearances, blogs, vlogs and social media profiles within an academic landscape as well as live stage-based delivery and the potential impact of all of these on higher education and the research environment. Come along regardless of your experience level and start engaging.

ST2.6: A competency framework in teaching and learning for STEM educators: Design, challenges and application
Orla McConnell, Institute of Technology Tallaght, Cormac MacMahon, Institute of Technology Blanchardstown and Dr Jen Harvey, Dublin Institute of Technology

Workshop
This abductive workshop aims to explore the design parameters of a teaching and learning competency framework for STEM educators. In particular, it will seek to ideate core and discipline-specific teaching and learning competencies that are most valued. The workshop’s objectives are to brainstorm the teaching and learning competencies most relevant to STEM and articulate how these competencies are measured; map core and discipline-specific teaching and learning competencies to professional development activities most valued by STEM educators, and; conceptualise the key components of the framework to enhance its acceptance and traction.

ST2.7: Can understanding the study expectations and study prior experiences of different domiciled students at postgraduate STEM Masters level help in the recruitment, management and delivery of high quality learning and teaching?
Michelle Morgan, Bournemouth University and Dr Ines Direito, University College London

Interactive breakout session
Could understanding the study expectations and prior study experiences of our different domiciled students on entry at postgraduate STEM masters level help us recruitment, manage more effectively and deliver a higher quality learning and teaching experience? This interactive workshop will report the headline findings from the Entry to Study survey undertaken as part of the Postgraduate Experience Project which was an 11 University collaborative research project funded by HEFCE. Delegates will get the chance to discuss the findings and consider what initiatives could be developed to help support them in their work.
Parallel Session 3, 14:30 – 15:40

ST3.2a: Creating a reflective pedagogic strategy to enhance Human Health students’ professional practice at De Montfort University

Dr Antonio Peña-Fernández, De Montfort University, Dr María Ángeles Peña, Universidad de Alcalá and Dr Fernando Bornay-Llinares, Universidad Miguel Hernández de Elche

Oral presentation

Reflection is a critical skill for healthcare workers as their professional practice requires undertaking continuous learning for professional development. The aims and objectives of this exercise were to assess and develop students’ critical thinking and reflective learning skills. A novel pedagogic reflective strategy implemented in large groups of human health students at De Montfort University consisted of the sequential provision of three specialised clinical case studies, which required students to reflect on their knowledge to answer them. Students received comprehensive feedback between each reflective question regarding the ability to extract and synthesise information and to reflect and comment.

ST3.2b: Mentoring MSc students as a practice in STEM

Gefion Thuermer, University of Southampton and Adriana Wilde, University of St Andrews

Oral presentation

Students who recently finished a postgraduate course are in the best position to support other students navigating these courses. A scheme facilitating this has been offered at the University of Southampton since 2010. The mentor scheme allows MSc students to access support from alumni of their courses. In this talk, we will discuss our experience with involving students in the co-creation of a supportive learning environment. We share best practice and recommendations based on evidence collected in the course of the scheme. In particular, we discuss recruitment, the roles and responsibilities involved, and the scaffolding of mentor meetings.

ST3.2c: Mindfulness meditation and mindfulness colouring books as interventions for recalling information from lectures: Two randomised experiments

Dr Michail Mantzios and Dr Helen Egan, Birmingham City University

Oral presentation

Students in higher education experience heightened levels of stress, which amongst other things, influences information retention and recall. In a randomised experiment, we assigned participants to either a mindfulness meditation or an audiobook listening condition and recorded the information recalled from a previously attended lecture, which was controlled for in subsequent analyses for trait resiliency and trait mindfulness. Participants placed in the mindfulness meditation condition recalled significantly more information that participants who were placed in the audiobook listening condition, even when controlling for resiliency and mindfulness. A second experiment replicated the findings through the use of colouring books.
ST3.3a: Supporting the transition to university Mathematics in sub-Saharan Africa
Dr Robert Wilson, Cardiff University
Oral presentation
The aim of this session will be to disseminate the approach and outcomes of a collaboration between Cardiff University and the University of Namibia (UNAM) to support the transition to university mathematics in sub-saharan Africa as part of the Phoenix Project; one of Cardiff University’s flagship engagement projects. This particular strand of the project focuses on an intervention in the form of a Mathematics Summer School which took the form of a series of interactive workshops and activities jointly developed and delivered by faculty members and postgraduate research students from both universities.

ST3.3b: Overcoming threshold concepts in STEM education with flipped/active learning pedagogies
Dr Nimesh Mistry, University of Leeds
Oral presentation
In this session we will present our work to develop an active learning template for use in scientific disciplines that improves student understanding of difficult concepts. The strategy first uses diagnostic tests to identify gaps in student learning then designs appropriate learning activities to specifically address those issues. We will show how this model was used to develop problem-based learning workshops for a first year chemistry course to address threshold concepts that were identified.

ST3.3c: STACK: Online assessment for Mathematics
Dr Tim Lowe, The Open University
Oral presentation
STACK (System for Teaching and Assessment using a Computer algebra Kernel) is online assessment software for mathematics, science, and computer science. STACK generates sophisticated formative and summative assessments and accepts algebraic answers. With over fifteen years of research and development at multiple sites, STACK is widely used in many languages. We will demonstrate what makes STACK distinctive, valuable to students and describe how its development has been facilitated by international collaboration. STACK was a winner of the 2017 HEA Collaborative Award for Teaching Excellence. We will be describing how this award is enabling us to help others adopt the system.

ST3.4a: Using summary in Engineering lectures: How, when and why?
Dr Siân Alsop, Coventry University
Oral presentation
This paper explores the use of summary in engineering lectures in global contexts. Data comes from the Engineering Lecture Corpus (ELC), which contains transcripts of 78 lectures (c.500,000 tokens) delivered in English in institutions in New Zealand, Malaysia and the UK. Techniques from corpus linguistics and data visualisation are used to show when and how lecturers use preview- and review-type summaries. Results indicate macro-level patterns in usage that challenge some established views about the nature of lecture discourse, and also distinctive micro-level language features. These results can be used to inform lecture design and delivery.
ST3.4b: Perceptions on the flipped classroom approach for a large Engineering module

Dr Benjamin Drew, University of the West of England

Oral presentation

A learning and teaching project was undertaken to implement and evaluate the flipped classroom approach in a large (120 students) engineering module. After discussing the implementation, this oral presentation explores the perceptions of the students experiencing the implementation and the staff employing the approach. To assess students’ perceptions, the evaluation was conducted using a pre- and post-module questionnaire on students’ attitudes towards learning, focus groups to gain greater depth of understanding and formal module evaluation. The presentation will highlight the benefits and positive attributes of the delivery method, balanced by consideration of the challenges and effort associated with implementing the approach.

ST3.4c: Degree Apprenticeships in Construction and Built Environment

Aled Williams, University College of Estate Management (UCEM)

Oral presentation

This session’s overall aim is to reflect the path towards the present situation in construction and Built Environment Degree Apprenticeships, setting out the path towards the present situation and describing emerging issues and then sets out a trajectory towards fuller implementation. Key objectives include: impacts and issues up to the present time identified and contextualised to Built Environment Higher Education (HE); emerging situation established through views of key parties to be involved in longer term implementation established including through interviews of respondents representing employers, policy and support, and; key aspects detailed through illustrative case study.

ST3.5a: Degrees of Freedom: Transatlantic collaboration in the establishment of a new degree scheme

Dr Jennifer Stanford, Dr Andrew McKinley and Dr Joel Loveridge, Swansea Univeristy

Oral presentation

Chemistry returned to Swansea University in 2017 with reinvented curricula and a course designed for the 21st century. The curricula are designed with employability at the core, and through integration of the best of traditional and modern teaching practice we deliver courses aligned to professional standards of both the Royal Society of Chemistry (UK) and the American Chemical Society (USA). We present our approach to integration of practical skills, theoretical knowledge and innovative technology to meet the challenge of graduate employability in an increasingly international market.

ST3.5b: Analytical Chemistry in higher education: Teaching an inherently practice-based subject

Dr Philippe Wilson, De Montfort University

Oral presentation

Analytical chemistry has often been a difficult subject to teach in a classroom or lecture-based context. Numerous strategies for overcoming the inherently practical-based difficulties have been suggested, each with differing pedagogical theories. Here, we present a combined approach to tackling the problem of teaching analytical chemistry, with particular emphasis on practice-based cohorts such as pharmacists. Composite visual, interactive, and practical approaches are presented, in which students are able to engage with the teaching materials in numerous contexts. From unit evaluations, instantaneous feedback, and an analysis of marks from virtual learning environment quizzes, the enthusiasm of the students for this approach is found to correlate with their understanding of the topic.
ST3.5c: What can we learn from teaching Physics in China using English as a medium of instruction?

Dr Alison Voice and Joanne Shiel, University of Leeds

Oral presentation

Teaching Physics to Chinese students, in China, using English as the medium of instruction poses challenges to both staff and students, but addressing the issues raised in setting up the Leeds-SWJTU Joint School has developed a richer, more effective way of teaching which benefits all students whether international or native speaking, abroad or in UK. This presentation shows how the universality of Physics itself facilitates teaching international students, and gives many suggestions for ways in which all Physics teachers can support their students and staff, where language and cultural differences exist.

ST3.6a: Mobile learning games before Anatomy class: Can they make up for lack of pre-session preparation?

Dr Kate Wilkinson, Middlesex University

Oral presentation

The session aims to present the results of a study evaluating whether anatomy quiz-games prior to a class increased student engagement, knowledge acquisition and retention. The study used a randomised crossover design using videography and student tagging to measure behavioral engagement alongside the more traditional approach using a modified NSSE. There were three conditions (control, 15 min quiz games, 15 min quiz-games + question generation) compared using a Socrative quiz at the beginning and end to measure knowledge retention and acquisition. A framework for integrating this into a teachers’ toolkit will also be presented.

ST3.6b: Problem-based learning in STEM: An international perspective

Dr Jill Johnson, Aston University

Oral presentation

Problem-based learning is an innovative teaching practice that aims to provide an improved learning environment to facilitate the acquisition and retention of knowledge and skills. The majority of studies have shown that PBL inspires a greater degree of involvement in learning activities, resulting in a higher level of comprehension and ability to think critically. In this session, I will describe how I have incorporated the principles of PBL into my teaching practice at three institutions in Canada, Sweden and the UK. I will finish the session by providing some insight into implementing innovative learning strategies at a new institution.

ST3.6c: Introducing mentoring into clinical placements for medical students

Dr Obinna Mba, University of Southampton

Oral presentation

At the University of Southampton, 4th year medical students are paired with a mentor during their 8 week clinical Obstetrics and Gynaecology placement. The mentorship programme was introduced with the aim of improving non-clinical skills such as prioritisation and communication. This session will explore the mentorship programme offered to medical students at Southampton as well as discuss the results of a qualitative study assessing the students’ views and experiences of having a mentor whilst on clinical placement.
ST3.7a: Delivering technical modules to technophobic students

Emma-Jane Phillips, Northumbria University

Oral presentation

Computing covers a range of disciplines from computer science to Information systems. Programming is key to computing regardless of the ‘hard/soft’ scale yet for those who study the softer end the term can strike fear, this creates a self-perception of ‘can’t do it’ which becomes self-fulfilling. This case study examines historical problems of programming delivered to non-technical students and changes implemented resulting in the pass rate moving from 60% to 95%. The session will look at the background to the changes, the challenges faced in changing the perception of the students and how academics ‘bought in’ to the change.

ST3.7b: Can learners’ interactions with code puzzle pieces accurately match their perceptions of the related programming concepts?

Katrina Jones, Aston University

Oral presentation

This session aims to present and discuss a short paper based on presenter’s research (exploring whether the use of code puzzles could effectively be mapped to a novice programmer’s understanding in order to help identify which concepts they are struggling with), as well as provide a demonstration of the current software prototype that has stemmed from the findings of the paper's study. Gaining audience feedback would be invaluable on both the research idea, and the software prototype itself.

ST3.7c: Research-based teaching and learning on a Master of Science degree in Professional Software Development

Dr Cathryn Peoples, Ulster University

Oral presentation

Research-based assessment allows students to work in an original manner, in a way which accommodates their unique approach. There are parallel benefits to teaching staff in that the need for one-on-one support will potentially be reduced. Specific requirements are placed, however, on the ways which teaching experiences are delivered, and effort is transferred from the delivery of planned material to the development of creative pedagogies. In this presentation, research-based assignments on a Master of Science degree in Professional Software Development are discussed from the perspective of student engagement with them.
The use of Periscope, Twitter and Instagram to enhance student learning experience and engagement in Life Sciences

Dr Hannah Jayne Moir, Kingston University London

Social media technologies in learning and teaching have grown in recent years. The aim of the current work is to reflect on the use of social media to boost confidence and professionalism through the use of mobile devices with Periscope, Twitter and Instagram.

Enhancing the student experience by learning beyond the classroom through an integrated curriculum

George Higgison, Gordana Collier, Oxford Brookes University and Professor Gareth Neighbour, Birmingham City University

This paper will summarise the development of Engineering Pedagogy at Oxford Brookes University through an Integrated Curriculum that brought together all modules in the first year of the programmes and has extended into modules in year 2. The development of a Stirling Engine project for this purpose is now developing into measurable student learning outside the classroom as a result of this projects success.

Cross-course collaboration between software and hardware modules to improve student learning experience

Dr Matthew Tang and Dr Ling Ma, Queen Mary University of London

A cross-course collaboration between a Software Engineering module and a Microprocessors module has been experimented in a large class of 180 students for two years. The aim of this project is to reinforce concepts from both software and hardware modules by working on a collaborated coursework. This collaboration has successfully given students a more general appreciation of the coherence of the curriculum and a better learning experience. The poster introduces the design and implementation of the collaboration and evaluates the results. The objective of the session is to share our experience and discuss the challenges.

Problem Based Learning

Dr Siva Muppala, Kingston University London and Dr Balasubramanyam Chandramohan, University of London

This study is based on Problem Based Learning (PBL). A total of 56 First Year BEng/BSc students were organized into 18 groups, of different sizes. A numerical problem was given and solutions provided by the students working in separate groups in the classroom for 30 minutes were marked. Group work, in this formative assessment, gave the students an opportunity to collaboratively analyze, synthesize and evaluate ideas. The data did not establish a causal relation between group size and performance. Further investigations are needed to examine additional quantitative relations between variables.
Models have long been used in anatomical teaching to help students' awareness of how one structure relates to another. We have introduced a model building activity as part of a re-design of the first year neuroscience curriculum at the University of Bristol, to engage students in learning about the structure of some of the major spinal cord tracts. We found a significantly improved ability of students to answer questions related to the model they had built compared to questions related to other models up to eleven weeks after the modelling activity, demonstrating that building models develops deep learning in students.
ST4.1a: Student Transition Project  
Shelley Usher and Petronella Beaukman, University of Portsmouth  
Oral presentation  
Attendance and engagement is a recurring issue across many Universities. One of the possible reasons for this is the inability to successfully transition from FE to HE. To address this, the School of Computing delivered a project during their 2017 Induction Week aimed at providing students the skillset required to successfully make this transition. The project asked the students to work in pairs to produce a poster about a famous person, computer, or technology in the history of computing. Support sessions on subjects such as how to research, academic writing and tools for working collaboratively were also included. Students had one week to complete the task before presenting it to their Tutor. The posters produced were then used to create a timeline display within the department.

ST4.1b: Individual perceptions of advantage and disadvantage in accessing, undertaking and progressing in Science, Technology, Engineering and Mathematics (STEM) postgraduate taught study  
Michelle Morgan, Bournemouth University and Dr Ines Direito, UCL  
Oral presentation  
Research looking at students’ perceptions of advantage and disadvantage in higher education has focused on two main areas; student learning and perceptions of the academic environment and large scale statistics looking at participation, progression and attainment through the lens of certain demographic groups at undergraduate level. No research has explored whether the individual within a demographic group or with a range of characteristics (e.g. domicile, socio-economic,) consciously or unconsciously perceive those characteristics as advantageous or disadvantageous. This presentation reports the findings from a small-scale research project carried out at three UK universities across STEM disciplines exploring this area.

ST4.1c: A closer look at retention in higher education  
Kam Gill, Coventry University  
Oral presentation  
The university as many others around the UK has have continued to experience challenges in retaining students. Exploring attributes which predict whether or not a student will persist or drop out of university. The impact of this decision not only affects the student, but has societal and global implications, along with financial implications for the institution. The need to better address the retention problem has been underscored recently by the drastic budget cuts taking place across the nation which have impacted access to student support services as reported by the National Education Association (2010).
ST4.2a: Virtual Machines: Experience of Using Google Cloud Compute engine for teaching undergraduate courses
Dr Rich Boakes and Dr Jacek Kopecký, University of Portsmouth
Oral presentation
The University of Portsmouth has been integrating cloud computing into all courses within the School of Computing for the last five years. As instigators of the project, Dr's Boakes and Kopecký will reflect on the approach taken and their experiences. The use of 'Virtual Machines' to deliver digital services has become commonplace in STEM industries. Graduate familiarity with these technologies is becoming as necessary as desktop computer skills were twenty years ago. We expect this session will be of interest to educators who know little or nothing about cloud computing, but who realise that it is becoming increasingly important for their students to have access to and experience of running cloud based systems. Five years ago we began a pilot project to see if we could use 'the cloud' to deliver our dream of 'one server per student' - a virtual computer that students can use, experiment on, play with, and break, without fear of permanent damage. We will reflect on what we did, what we learned, what worked, and what still needs more work.

ST4.2b: Augmented reality: Developing and utilising acceleratAR to communicate the physics of particle accelerators
Dr Chris Edmonds, University of Liverpool
Oral presentation
Augmented reality (AR) made its debut in 1968. Almost 50 years later, the technology has finally matured – relatively low cost headsets and simplified workflows for creating AR enhanced content are breaking down the barriers to including AR in science education. Join us as we present our own experiences of developing and utilising acceleratAR - an app designed to communicate the physics of particle accelerators.

ST4.2c: Learning Parasitology through virtual clinical case studies: The DMU e-Parasitology project
Dr Antonio Peña-Fernández, De Montfort University, Dr María Ángeles Peña, Universidad de Alcalá and Dr Fernando Bornay-Llinares, Universidad Miguel Hernández de Elche
Oral presentation
A novel on-line package for teaching and learning human parasitology named DMU e-Parasitology is being co-developed by EU academics at De Montfort University (DMU). Content currently covered includes virtual clinical case studies with a microscope. 90 fourth year Pharmacy students from University Miguel Hernandez provided comprehensive feedback on the first case study, which contained a short medical history of an HIV positive male university student severely affected by amoeba infection. Students needed to reflect and critically think to reach diagnoses, propose additional diagnostic techniques and treatment. Ninety percent of students reported gaining appropriate knowledge on pathology, prevention and treatment.
ST4.3a: YES! The commercialisation game that builds entrepreneurial competences in STEM early career researchers

Dr Lorna Treanor, Nottingham University Business School

Oral presentation

STEM research breakthroughs address societal challenges when commercialised. YES (Young Entrepreneurs Scheme) is an experiential-learning intervention aiming to address the deficit of STEM ECRs engaging in commercialisation by facilitating their development of entrepreneurial competences (Rasmussen and Wright, 2015). In its twenty-second year, YES evaluations after 10, 15 and 25 years show it positively impacts upon participants’ entrepreneurial competences and activities. This presentation outlines: the YES pedagogy; participant outcomes, and, the need to mainstream provision and encourage faculty support for entrepreneurship interventions.

ST4.3b: Utilising the teaching of international formal technical standards to inspire confidence in networking students

Gill Whitney and Usama Arusi, Middlesex University

Oral presentation

Networking students at Middlesex University traditionally make use of standards as paraphrased facts in core texts. By removing mention of the authors or creation method, the students are enabled to learn the facts but not to engage with the concept of experts (real people) working together. Photos of standardisers were used to emphasize how their varied backgrounds matched those of the students. Henceforth by changing our teaching method we have enabled the students to consider themselves to be future writers of standards as well as future users. This approach was adopted to support the students’ employability by increasing their confidence.

ST4.3c: Playful investigation vs. teaching the scientific method: Tensions and synergies

Dr Andrew Folkard, Lancaster University

Oral presentation

This presentation aims to reflect - and invite others' reflections - on the outcomes of an attempt to introduce a playful approach to a laboratory class. The class concerned physical modelling of landslides, but the reflection is intended to be more broadly relevant to any STEM lab class involving collection and analysis of numerical data and its interpretation in terms of the underlying mechanisms at play in the experiments. The reflection identifies what did and didn't work, and thus the tensions and synergies between trying to encourage an approach of inquisitive, open-minded investigation by the students, whilst at the same time providing instruction and guidance regarding standard elements of scientific practice.

ST4.4a: From the ground up: The application of joint practice development: 'The Teacher’s Takeaway'

Dominic Thompson, Havant and South Downs College

Oral presentation

This session reports the findings of a small-scale practitioner research study funded by the ETF as part of the Outstanding Teaching, Learning and Assessment Project (OTLA). The outcome of this project is the teachers takeaway (www.teacherstakeaway.co.uk) – an online platform showcasing examples of OTLA. The session aims to explore the process through which this was achieved, share the successes and failures and encourage further participation.
ST4.4b: 'From seed to fruition': Promoting discipline engagement on a global scale
Dr Terry Gleave, University of Liverpool and Dr Peter Alston, Laureate Online Education / University of Liverpool

Oral presentation

Massive Open Online Courses (MOOCs) offer flexible learning models that are of great interest to vast global audiences wanting to extend their knowledge. Many HEIs recognise this opportunity, and are exploring the potential for MOOCs to increase awareness / engagement across disciplines. Sharing our experiences and key data sets from the delivery of a targeted, 3 week MOOC aimed specifically at 16-19 year-old A-level students (and equivalent), we highlight the decisions taken in the planning & design stages, the value of a consistent quality assurance process, and the importance of a sustained, online tutor presence throughout the course.

ST4.4c: Supporting students’ engagement and achievements through online micro-lectures with embedded quizzes
Jean-Baptiste Souppez, Southampton Solent University

Oral presentation

The session will present a year-long implementation of micro-lectures captures (around 5 minutes long) with embedded quizzes (stopping the video to engage the students), accessed through the VLE. The main findings will be presented, including benefits on student engagement and results, as well as a structured methodology for colleagues to implement this into their own practice, eventually sparking a reflection on technology enhanced learning in modern higher education.

ST4.5a: Developing effective and sustainable student-led collaborative learning communities within and across higher education institutions
Dr Sheila Amici-Dargan, Cardiff University

Oral presentation

We have been working with students to co-create effective and sustainable student-led collaborative learning (CL) communities, which typically take the form of small group peer-meetings, near-peer-led teaching sessions and/or participation in online forums. The most effective communities included all three approaches. To explore students’ opinions of existing (physical and online) CL communities and to generate ideas for novel approaches, various student-led focus groups were conducted with undergraduate and postgraduate students. Qualitative analysis demonstrated strong preferences for social learning, a desire for students to ‘own’ the communities, and a need for structured activities and academic guidance to provide direction and focus.

ST4.5b: Active and distance learning of Business Intelligence (BI) systems development
Dr Christine Fidler, De Montfort University

Oral presentation

Within the context of teaching and managing a postgraduate module in Business Intelligence (BI) Systems, this session aims to show how active learning can occur effectively within a distance learning as well as on-site context, and highlight key messages identified from the implementation of such active learning experiences. The session should benefit anyone wishing to embrace active learning within their programme module(s) in general, as well as offer an insight into how this may be done in distance learning mode.
ST4.5c: Embracing the opportunity of using MOOCs to deliver teaching in a global context

Dr Elaine Clafferty, Dr Barry Beggs, Glasgow Caledonian University and Dr Arno Smets, Delft University of Technology

Oral presentation

One advantage of Massive Open Online Courses (MOOCs) from providers such as edX, Coursera and FutureLearn is the improved learner access to an international network of experts. MOOCs, however, are not without their challenges and may provide disruptive innovation for Higher Education (Flynn 2013). Low completion and student retention rates combine with the need to authenticate the assessment of work in order to appropriately assign academic credit (Bowen 2013; Khalil & Ebner 2014). This paper details the methodology of embedding a MOOC to adapt the teaching pedagogy used in a standard on campus delivered SCQF level 10 module. The innovative development is detailed and resulted in a Higher Education partnership between Scotland and the Netherlands.

ST4.6a: Impact of an overseas exchange on development of students' cultural competence

Andrew Southgate, Canterbury Christ Church University

Oral presentation

The aim of the session is to present findings from a two stage, mixed methods sequential study to explore whether and how students’ cultural competence developed following an overseas exchange to Japan. The objectives of the session are to identify the activities that had a positive impact on the development of the student’s cultural competence; explore how content of future exchanges can be adapted to support the development of the students cultural competence, and; discuss how the findings could be used to support learning and teaching strategies.

ST4.6b: Leadership learning in global STEM postgraduate communities

Dr Janet De Wilde, Laura Lane and Laura Bulmer, Imperial College London

Oral presentation

Many global economies see STEM postgraduates as core to creating innovation-led development in their countries. This presentation focuses on our work to develop global leadership attributes in our postgraduates by creating learning opportunities in international and interdisciplinary environments. We will explore the ethical and social challenges of developing STEM leaders in the global context. We believe in creating connections with other international postgraduates to enhance understanding of the global context and of the local and social impact of innovation. Our leadership training aims to go beyond traditional training to incorporate social relational processes to develop social and intercultural competence.

ST4.6c: Teaching and learning at a joint UK-China institute

Dr Michael Aspinall, Lancaster University

Oral presentation

This paper provides a first-hand account of the delivery of undergraduate modules to Chinese students in China as part of a newly established higher-education partnership between Lancaster University (Lancaster, UK) and Beijing Jiaotong University (Beijing, China). It looks at the challenges faced (logistical, communication, accreditation, classification, political), the misalignment of our expectations and the students’ expectations, the academic community at the joint campus, and the positive experiences and rewards. It concludes by identifying what we, our students and our institutions learnt, and how our Universities need to address the enviable internationalisation of higher education.
ST4.7ab: Animate those maps! Empowering students to create ‘Story Map’ presentations
Richard Treves, The Open University

Oral presentation

TV weather forecasts often use animated maps to communicate. Twenty years ago, creating the map animations in them required powerful computers and high level programming skills. Since that time there has been a quiet revolution in software, hardware and web connectivity which means that students can now create ‘story maps’ very similar to this format for any GEES topic. The session covers international examples of usage and seeks to advocate creative map making as an assessment. Objectives of this session include exploring the basic tools required focussing on ArcGIS Online; lessons learnt from the author’s personal use of map presentations as student assignments; and the excellent potential for such presentations to enhance students’ employability.

ST4.7b: Education for Sustainable Development: A global perspective on a global issue
Dr Mike Clifford, University of Nottingham and Dr Subarna Sivapalan, Universiti Teknologi PETRONAS

Oral presentation

In this presentation, we explore the sustainable literacy of engineering (and other) undergraduate students in Malaysia and in the UK and take a broader look at how accrediting bodies such as the Engineering Accreditation Council (Malaysia) and the Engineering Council (UK) consider and address sustainability issues. The research highlights gaps in knowledge, understanding and education in both case study sites. Lessons are drawn and recommendations made as to how to integrate and embed education for sustainable development into undergraduate curricula within the broader context of the student learning experience.

ST4.7c: Localization of SDGs: Community builders
DrNajat Es’haqi, University of Bahrain

Oral presentation

This paper is discussing a practice for incorporating the SDGs in higher education by involving college of engineering senior students. The students are formed in groups and asked to choose one of the goals from the 17 sustainable development goals. The students are expected to act as a community builder and to reflect on the current situation in Bahrain and to recommend a future action plan after forming and conducting a SWOT analysis. This paper is an attempt to create a sustainable community by employing sustainable education for developing community builders.
Plenary
17:20 – 17:35

The final session of the Advance HE Teaching & Learning Conference 2018: Teaching in the spotlight: Learning from global communities will be delivered by speaker Dr Ben Brabon, Academic Lead for Social Sciences and Arts and Humanities.

Please join us to discuss the highlights of the conference and the closing thoughts as we approach a new academic year, filled with new challenges and opportunities to inspire teaching excellence.

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