



Panel: ‘Universal Design for Learning’: a panel with Dr Sean Bracken, Prof. Alan Kwan and Prof. Nicola Martin

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The Engineering Academics Network Annual Congress 2024’s penultimate panel session was ‘Universal Design for Learning’, and featured Dr. Sean Bracken (University of Worcester), Prof. Alan Kwan (Cardiff University) and Prof. Nicola Martin (LSBU) as speakers. The panel was chaired by Prof. John Mitchell, who is the EPC president and a Professor of Communications Systems Engineering at UCL.

Universal Design for Learning can be defined as an educational framework that supports the delivery of learning in flexible environments that accommodate individual learning differences.

Dr Sean Bracken’s presented discussion point explored how learning spaces can be engineered to be accessible to all and facilitate beneficial outcomes. He highlighted architectural barriers in classroom design, and emphasised the importance of anticipating the end users, such as those who are neurodiverse or students who may experience language barriers.

Prof. Nicola Martin presented her pilot study on student resources and accessibility pathways, which had already been implemented across a number of universities. The study involves two questionnaires (pre-study and post-enrolment). Questions range from knowledge on Harvard referencing to financing, and from their answers, students can access related university resources. She highlighted that students often do not know how to access various professional services, and furthermore, staff are not aware of resources.

Further to this, Prof. Nicola Martin also presented ‘REAL (Reliable, Empathetic, Anticipatory and Logical) services’, which is a support mechanism she created to assist students on the autistic spectrum, as per universal design for learning.

Prof. Alan Kwan rounded off the panel presentations by discussing how traditional teaching methods are becoming less and less effective, and furthermore, he highlighted the importance of learning in flexible working spaces, rather than regular lecture theatres. With more students than ever before working to support their studies, teaching should be more flexible. The Coronavirus pandemic enforced a changed lecturing method, and hence it proved that it is possible to entirely shift our way of learning.

Some alternative ways of learning presented by Prof. Kwan included hands-on/interactive/investigative learning, multi-vector approaches to teaching, assessment for learning methodology, and even gamification or an AI virtual tutor system. These



methods are aimed to be more accessible and adaptive, but also allow university lecturers to measure student progress throughout a semester.

The question-and-answer segment started with a discussion between Prof. Alan Kwan and Prof. John Mitchell on the rollout of the assessment for learning for Cardiff University first year engineering students. The methodology was passed onto the course assessment model by policy makers due to its similarity in competence assessment within the medical setting. Students should have good knowledge of the entire course content to prepare for assessments, rather than focused knowledge based on expected exam questions.

Prof. John Mitchell then ended the panel by enquiring what one thing they would each implement or advise on when considering universal design for learning in university modules. Dr. Bracken emphasised the importance of anticipating student needs and engaging with learners. Prof. Martin spoke of the importance of adapting learning to those who are neurodiverse, and stopping any barriers they may face. Finally, Prof. Kwan concluded the panel by sharing the importance of presenting the university process and what to expect to year 1 students, and also spoke of how effective a good learning analytics package can be.