Keynote 1

STEM Pedagogy – The Application of Good Practice

Prof John Williams

Abstract

The STEM space is very complex – the term has different meaning in different contexts, the STEM subjects do not have equivalence, projects may be after school or in the curriculum, assessment is problematic, the goals of STEM are multiple, and so on. This complexity makes it difficult to generalize about the nature of STEM and of STEM teaching.

However, there is a body of research about good teaching practice, which results in effective learning, and can be applied to the range of STEM activities. This presentation will select some principles of teaching and learning, derived from research, and elaborate on the implications of their application to STEM teaching.

About the Speaker

P John Williams is a Professor of Education and the Director of Graduate Research in the School of Education at Curtin University in Perth, Western Australia, where he teaches and supervises research students in STEM and technology education. Apart from Australia, he has worked and studied in a number of African and Indian Ocean countries and in New Zealand and the United States. His current research interests include STEM, mentoring beginning teachers, PCK and electronic assessment of performance. He regularly presents at international and national conferences, consults on Technology Education in a number of countries, and is a longstanding member of eight professional associations. He is the editor of the Australasian Journal of Technology Education, advisory editor of the International Journal of Technology and Design Education, series editor of the Springer Contemporary Issues in Technology Education and is on the editorial board of five other professional journals. He has authored or contributed to over 240 publications, and is elected to the International Technology and Engineering Education Association's Academy of Fellows for prominence in the profession.