

Keynote Speaker: Kar-Tin Lee



Professor Kar-Tin Lee (PhD)

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Professor Kar-Tin Lee is Head of the School of Mathematics, Science and Technology Education, Faculty of Education, Queensland University of Technology, Australia. Prior to this she worked at The University of Melbourne, Australia and in Hong Kong. She has extensive ICT in education, online learning and leadership experience.

More recently, Professor Lee has gained recognition for a well-established expertise in the STEM in Education field. During 2010 she represented the Vice Chancellor of QUT on the Australian Higher Education Forum STEM Working Party. She convened the 1st International STEM in Education Conference held at QUT in November 2010, and is currently an Executive Committee Member of the 2nd International STEM in Education Conference, Beijing. She represents QUT on the Queensland STEM Network Working Group lead by the Chief Scientist. She has played an active role in advocating the importance of integrating the four areas of STEM within the tertiary and school sectors and has widely applied her thinking to her project work.

Throughout her career, she has presented keynotes at international conferences and has led large projects in collaboration with government bodies and industry partners in various countries. She has also been a consultant and advisor to international online learning companies. Her current research and development work takes her to China where she has been working with over 400 teachers from all provinces to integrate the use of technology across the curriculum, in particular, the STEM disciplines. Her work has been instrumental in providing guidance to policy makers on how teachers need to be professionally developed to work productively across the disciplines of Science, Technology, Engineering and Mathematics (STEM). Her work emphasizes the importance of shifting the balance of learning so that all learners can work together to creatively solve collective world problems.

Keynote Speech for STEM2012:

Preparing Future STEM Teachers: A Holistic Approach

Abstract: Many countries have been developing “new” STEM education programs. The vision implicit in most of these programs is one where rigorous academic concepts are coupled with real-world lessons as all students (and not just those majoring in STEM) apply science, technology, engineering, and mathematics in contexts that make connections between school, community, and work. Many of the “new” STEM programs place much emphasis on design and problem-solving in “intellectually messy” learning situations that weave together within and between the disciplines. However, a review of the literature indicates this vision is far from being realized; more often than not what is happening is the grafting of “technology” and “engineering” layers onto standard science and mathematics curricula. So how do we get discipline experts from different faculties to work together?

If the vision implicit in most “new” STEM reforms is to be realized then a radical re-think of initial teacher education for STEM teachers is needed. Successful change requires more than good ideas; it requires a coherent set of ideas about change. Therefore, a proposed model for change is presented here and subsumed within this model are guiding principles (and strategies for their implementation) for reforming the recruitment, retention and pre-service preparation of future STEM teachers and policies for implementation.