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Recent Advances in Computer Supported Education

- **Proceedings of the 3rd International Conference on Computer Supported Education (COSUE '15)**

  Michigan State University, East Lansing, MI, USA, September 20-22, 2015

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Plenary Lecture 1

STEM Education: Integrating Acquired & Revealed Knowledge to Improve Learning Outcome

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Abstract: Science, Technology, Engineering and Mathematics (STEM) education play a crucial role in economic development. STEM fields promising wide career opportunities, career flexibility and lucrative salaries. Many efforts of various parties including education policy leader and educators to make improvements to strengthen STEM education. For most of us, the contemporary Science, Technology, Engineering and Mathematics (STEM) education is based on purely objective knowledge which also known as acquired knowledge. However, this one sided source of knowledge, neglecting subjective knowledge, produces people with 'Excellence without a soul' as mentioned by Harry Lewis (2006). Steven Muller, former President of John Hopkins University, USA stated that (Ulin 1980) 'The failure to rally around a set of values means that universities are turning out potentially highly skilled barbarians'. Buncker Roy (1992) had remarked that 'Having literates do more harm than good'. Based on these observations, there are a need and idea to integrate objective and subjective knowledge, so that the learning outcome of STEM education will produce people with wholly rounded skills, potential and abilities, competencies, together with emotional and spiritual quotients. In Islam, subjective knowledge refers to the 'revealed knowledge' which is a knowledge based on believing in revelation from God as described in al-Qur'an. This paper describes an attempt to integrate STEM education with revealed knowledge which has been deployed by Muslim scholars in the mediaeval era.

Brief Biography of the Speaker: Azami Zaharim is a Professor at the Faculty of Engineering & Built Environment, Universiti Kebangsaan Malaysia, and previously served as Head of Centre for Engineering Education Research, Faculty of Engineering & Built Environment, UKM starting 2009 until 2014. He obtained his BSc with Honours in Statistics and Computing from North London University, UK in 1988. In 1996, he completed his PhD at University of Newcastle Upon Tyne, UK in the area of Statistics.

His research interest is on renewable energy, engineering education and engineering mathematics. He is currently an Associate Principal Research Fellow in Solar Energy Research Institute, a center of excellence for the research and development in solar energy technology. He also a Principle Research Fellow for Institute Islam Hadhari, UKM. Due to the activities in engineering education, he was selected as an editor in the Journal of Engineering Education by Universiti Teknologi Malaysia in the year 2005 and organizing a special session on OBE at the International Conference on Engineering Education in Greece July 2007, 2008, 2009 and elected as an editor for the WSEAS Transaction Journal of Engineering Education.

Meanwhile at the national level, he was invited by INTAN to conduct a workshop on research methodology for government scholarship holders at the post-graduate level. In addition, the Food Quality Division of the Health Ministry also invited him to lecture on the topic of optimization using surface methodology. He has until now published over 250 research papers in journals and conferences, conducted more than 20 public opinion consultancies and delivered more than 15 keynotes/invited speeches at national and international meetings on engineering education and renewable energy.

Plenary Lecture 2

Challenges for Higher Educational Private Providers in IT and Engineering Discipline

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Abstract: Due to rapid development of new technology, increased global competition, organizational restructuring, and shift towards skill requirements in job or service industries, Australian higher educational private providers facing challenges in the IT and Engineering disciplines to sustain in the market. Academic requirements are changing rapidly making course design, plan and implementation a real challenging task, which include mainly mapping course graduate attributes in-terms of Australian Quality Framework (AQF) standards, Tertiary Education Quality Standard Agency (TEQSA) requirements and professional body requirements (Australian Computer Society - ACS, Engineers Australia - EA etc). It is quite difficult to satisfy all requirements in one document. Assurance of Learning (AOL) document has been designed and developed to map IT and Engineering courses to above standards attributes. Mapping is quite time consuming and resource intensive. We have been trying to develop online system for a AOL document. This presentation will explain an online AOL system and future work. Most importantly the design of the system covers various external accreditation requirements.

Brief Biography of the Speaker: Associate Professor Savitri Bevinakoppa completed her Bachelor of Engineering (Electronics and Communication) in 1989 and Doctor of Philosophy (PhD) at Victoria University, Melbourne in 1996, writing her thesis on “Still Image Compression on Parallel Computer Architectures”. Savitri has more than 26 years of teaching and research experience in Engineering and Information Technology (IT) disciplines, and has also worked in industry as a manager for more than 10 years. She has demonstrated continuing scholarly and professional involvement in both learning & teaching and research, publishing a number of books and research papers nationally and internationally. She has obtained several industry grants and supervised many research students and research associates. She has chaired a number of conferences in multi-disciplinary areas and edited their proceedings. Currently she is working as a Professional Development and Scholarship Coordinator at Melbourne Institute of Technology, Melbourne, Australia.

Plenary Lecture 3

Foreign Language Open Online Course (FLOOC): What? Why and How?

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Abstract: One of the new teaching elements in higher education is increasingly focused on a format that meets three basic requirements: openness, massiveness and ubiquitous. These principles are emerging particularly in courses called Massive Open Online Courses (MOOCs). Since 2011, a few studies have been conducted to explore the growth in open online courses such as Distributed Online Collaborative Courseware Courses (DOCC), Big Open Online Courses (BOOC), Synchronous Massive Online Courses (SMOC) and Small Private Online Courses (SPOC). However, to the best of authors' knowledge, no report has been found so far using open online course to cater the needs of foreign language learners in terms of pedagogy, technicality and orthography. Foreign language learners with a transparent orthography, such as Italian, Spanish, Turkish, Greek and German, face fewer difficulties than readers in languages with non-transparent orthography such as English. Foreign language learners with a non-transparent orthography often depend on the lexical method, whereas this is unnecessary for readers in languages with transparent orthography. On the other hand, in languages with both types of orthography, such as Arabic and Hebrew, readers would behave depending on the type of orthography encountered. Since there is a gap in literature on this matter, this presentation would like to propose a Foreign Language Open Online Course (FLOOC) that will be useful to develop and support the foreign languages blended learning especially in non-native learners' context. In light of these prospects, the presentation will describe the appropriate design principles for FLOOC design and development. This would substantially benefit foreign language learners and could help them obtain literacy skills and attain their potential.

Brief Biography of the Speaker: Nurkhamimi Zainuddin holds PhD in Computer Assisted Language Learning from International Islamic University Malaysia (IIUM). He is currently the Coordinator at Global Open Access Learning Centre in Universiti Sains Islam Malaysia (USIM) and staff at the Faculty of Major Languages. His research focus is on Teaching Arabic as a Second Language, Computer Aided Instructions and Instructional Technology. He also teaches Arabic at tertiary level and has also conducted trainings and workshops related to Instructional Design for educators. His papers have appeared in several chapters in book and conference proceedings locally and internationally. To date, Nurkhamimi is also actively involved in numerous research in the area of Open Editing, Arabic E-book Development, Online Discussion Assessment and Screen Capture. He has another on-going research concerning MOOC, OER, OCW and ODL. Instead, he's coined his own term FLOOC (Foreign Language Open Online Course.