

STEM in Education Conference

Friday, 8 June 2012

2:16 PM

STEM in Education Conference

BACKGROUND

The importance of Science, Technology, Engineering and Mathematics (STEM) in Education has been emphasised in numerous government policies both in Australia and overseas. Schools and universities together with some businesses and industries are promoting and delivering STEM objectives. There are some outstanding examples of how this is being achieved in learning environments. The First International Conference of STEM in Education creates an opportunity for educators and researchers from schools, universities, businesses, industries and other private and public agencies to share and discuss their innovative practices and research initiatives that may advance STEM education.

THEME

Advancing education through STEM.

AIMS AND OBJECTIVES

The conference will create opportunities for:

1. information and knowledge sharing through paper/poster presentations, symposia, workshops, and innovative showcases;
2. modelling effective pedagogical practices while enhancing content knowledge;
3. sharing research initiatives and outcomes;
4. professional development for educators in a range of educational contexts; and
5. networking between participants.

PARTICIPANTS

Teachers, academics, education officers, industry partners, postgraduate and undergraduate students. The conference will be capped at 400 participants.

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Queensland University of Technology - Brisbane Australia

STEM 2010 Program Committee Editors

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Queensland University of Techno

Dr Vinesh Chandra

Queensland University of Techno

Dr Donna King

Queensland University of Techno

Prof Kar-Tin Lee

Queensland University of Techno

STEM 2010 Conference Paper Reviewers

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LaTrobe University

Dr Clare Christensen

Griffith University

Ms Rebecca Cooper

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National Institute of Education

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Queensland University of Techno

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Educational Outreach

Dr Clifford Jackson

James Cook University

Dr Gillian Kidman

Queensland University of Techno

Mr Steve Lang

Kedron State High School

Ms Michelle Mukherjee

Queensland University of Techno

Dr David Nutchey

Queensland University of Techno



26-Nov	B201a	B201b	B202a	B202b	B222	B225	B236	B301	B302	B305	B409	B403	S308
08:00 to 08:45	<p align="center">Registration (F509 Foyer) Trade Displays (C Block)</p>												
08:45 to 09:30	<p align="center">Official Opening Ceremony Hon Geoff Wilson MP, Minister for Education and Training; Prof Peter Coaldrake, QUT Vice-Chancellor; Prof Wendy Patton, QUT Faculty of Education Executive Dean</p>												
09:30 to 10:30	<p align="center">Keynote Address: Science Education (F509) Prof Sir John Holman</p>												
10:30 to 11:00	<p align="center">Morning Tea (C Block) Posters and Trade Displays</p>												
Session Chair	Alberto Bellocchi	Kar-Tin Lee	Lyn English	Pauline M. Ross	Simon Campbell	Bronwyn Ewing	Peter J. Fensham	Aaron Blicblau	Terry Lyons	Susan McDonald	Peter Ellerton		
11:00 to 11:30	Ahmad Zain <i>Prospective Malaysian and English Secondary Science Teachers' Conceptions of Scientists and their Work.</i>	Philemon Chigeza <i>Accommodating Indigenous Students' Cultural Resources in Science Classrooms: An Approach to Enhance Learning Agency</i>	Margaret Lloyd <i>Defining And Mapping Teacher Practice In Technology Classrooms</i>	Shafia Rahman <i>Construction Tasks as a Device to Reveal Learners' Attention and Awareness of Dimensions of Possible Variation in Mathematics</i>	Anne Seifert <i>i-STEM, an Initiative Enhancing and Promoting STEM Education</i>	Lucia Wai Men Yeung <i>A Comparison of Learning and Study Strategies between Science, Engineering and Business Students: Implications for Effective Teacher Pedagogies</i>	Gretchen Geng <i>Investigating the Needs of Implementation of Technology-Assisted Physical Activity into Indigenous Young Children's Health and Physical Education</i>	Ben Aspinall <i>Not Content With Content</i>	Warren Copping <i>Adolescent Students Engaging in Science</i>	Perry Hartfield <i>Reinforcing Student Learning Experiences in Biochemistry through Short-Format Podcasts</i>	David Finch <i>STEM Education and the Engineering Profession – Facts, Fallacies, and a Way Forward</i>	Kathy Stewart <i>Classroom in your Pocket – Workshop</i>	Marie Kavanagh <i>E-Hotseat: Using Chat Room activities to Facilitate the Development of Students' Questioning Skills</i>
11:30 to 12:00	Bill MacIntyre <i>Transition and Engagement in the Sciences: From School to University</i>	Mike Brown <i>Being 'Stem-Like': A Snapshot of the Programs Being Provided in Secondary Schools across Victoria, Australia</i>	Harry Ku <i>Qualitative Methodologies for Engineers in Investigating the Quality of Final Year Engineering Research Project</i>	Theresa Britschgi <i>Transpacific Innovation in STEM Education and Global Health Research</i>	Dennis Schatz <i>How do we make Science as Pervasive as Sports in today's Society?</i>	Vandana Saxena <i>Fostering Pedagogical Proficiency for an all Inclusive Science Class: A Case of the Indian Classroom</i>	Mojeed Kolawole Akinsola <i>Science and Mathematics Teachers' Perception of Continuing Professional Development Programmes in Nigeria</i>	Bernie Fitzsimons <i>PBL as a Pacemaker</i>	Will Rifkin <i>Web 2.0 is Easier than you Think ... and Harder</i>	Drew Ishii <i>Scientific Inquiry: A Course Connecting Science, Student Life, and Community</i>	Anrieta Draganova <i>Blended Learning Community: A Case Study</i>		
12:00 to 12:30	Yan Wu <i>Science Education through Science Fiction –a viewpoint from China</i>	Rose-Marie Thrupp <i>ICT and the Contemporary Learner of Science, Technology and Mathematics</i>	Frackson Mumba <i>Scientists' Perceived Benefits and Difficulties of Inquiry in US Schools</i>	Corey Gieskins <i>Zero.9 F1 in Schools International Team</i>	David Madden <i>Using the Australian Space Design Competition to Teach STEM</i>	P. John Williams <i>The Role Of The "T" In STEM: Technology and the School Curriculum</i>	Shelley Peers <i>Primary Connections – Educational Design</i>	Margaret Lloyd <i>Discussions on Conceptual Knowledge and the Use of Web-Logs</i>	Mark Lockett <i>Integrating LEGO Education into the Classroom to Promote the Fields of Science, Technology, Engineering and Mathematics</i>	Shaun Belward <i>Quantitative Skills In Science: Creating STEM Curricula that Builds the Mathematical and Statistical Skills of Undergraduate Students</i>	Leanne Hixon <i>Manufacturing and Engineering Gateway Schools Project and the Diploma of Engineering for Secondary School Students</i>	Tim Smith <i>Girls into Physics: A Summary of Strategies to Increase Participation Rates</i>	Venugopal Sogathur <i>Game-O-Rama: Let's Make a Computer Game</i>
12:30 to 13:00	Alberto Bellocchi <i>Assessing Students in Senior Science: An Analysis of Questions in Contextualised Chemistry Exams</i>	Kar-Tin Lee <i>Enhancing Teacher Capacity to Integrate Technology through Shared Knowledge Construction</i>	Lyn English <i>Middle School Students' Perceptions of Engineering</i>	Pauline M. Ross <i>Integrated Science: An Inquiry Based Interdisciplinary Science Learning Experience</i>	Simon Campbell <i>Macgregor State High School Honours Program</i>	Bronwyn Ewing <i>Contextualising the Teaching and Learning of Measurement in Torres Strait Islander Schools</i>	Peter J. Fensham <i>The Challenge of Generic Competences to Science Education</i>	Aaron Blicblau <i>Materials as an Introduction to Science and Technology</i>	Terry Lyons <i>Looking Back: Students' Perceptions of the Relative Enjoyment of Primary and Secondary School Science</i>	Susan McDonald <i>Watching, Creating, Achieving: Robotics in the Early Years</i>	Peter Ellerton <i>Scientific Literacy and Citizenship - how to Explicitly Teach the Rational Basis of Science</i>		
13:00 to 14:00	<p align="center">Lunch (C Block)</p>												

26-Nov	B201a	B201b	B202a	B202b	B222	B225	B236	B301	B302	B305	B409	B403	S308
14:00 to 15:00	Keynote Address: Technology (F509) Prof Jeremy Roschelle												
15:00 to 15:15	Afternoon Tea (C Block)												
15:00 to 16:15	Demonstration: First LEGO League (C Block)												
Session Chair	Bernadette McCabe			Kelly Matthews		Vinesh Chandra					Peter Pentland		
15:15 to 15:45	Subhashni Appanna <i>Teaching Science in a Christian School: Alignments, Dilemmas and Contradictions between Beliefs and Classroom Practice</i>	Juli D'Ann Ratheal <i>How Individual Personalities Affect Achievement and Behaviour</i>	David Khaliqi <i>STEM, Stories, and "when will I ever use this?"</i>	David Oswald <i>Gold Coast Digital Marine Challenge</i>	Gwendolyn Lawrie <i>Is it Chemistry? Active Learning in Collaborative Groups in Large 1st Year STEM Classes</i>	Betina Pryzbylak <i>ICTs & Higher Order Thinking Skills in Inquiry Based Learning</i>	Louise Wilcox <i>Robotics and Automated Systems: The Future of Mining</i>	Tony Wright <i>Using Concept Inventories to Enhance Conceptual Learning: Putting Diagnostic Assessment To Work</i>	Les Dawes <i>Extreme Science and Engineering: A Schools Engagement and Enrichment Initiative</i>	Warren Steel <i>Improving Engagement in STEM at High Schools through Enrichment Activities and Camps</i>	Mark Hall <i>Integrating Storytelling and Iconography into a Robotics Learning Program in Junior and Middle School</i>		Amelia Druhan <i>Beneath the Tip of the Iceberg</i>
15:45 to 16:15	Bernadette McCabe <i>School-Scientist Partnerships: What makes them Tick?</i>			Kelly Matthews <i>The Hidden Experience: Mathematics in Science</i>		Vinesh Chandra <i>Building Education-Industry Partnerships that Benefit Learners in Schools</i>					Peter Pentland <i>Using Relevance to Improve Retention Rates in Science and Mathematics at Senior Secondary Level</i>		
16:30 to 17:30	Invited Speaker: John Seely Brown (F509)												
18:00 to 21:00	Conference Dinner (C Block)												



27-Nov	B201a	B201b	B202a	B202b	B222	B225	B236	B301	B302	B305	S104	S207	S308	B403
8:00 to 8:30	SIG: SCIENCE Peter Hudson/ Peter Fensham	SIG: TECHNOLOGY Vinesh Chandra/ Kar-Tin Lee	SIG: ENGINEERING Les Dawes	SIG: MATHS Lyn English/ Richard Lesh/ Cal Irons										
8:45 to 9:45	Keynote Address: Engineering Education (F509) Professor Frank Bullen													
Session Chair	Gillian Kidman	David Nutchey	Megan Hargreaves	Rosemary Irons	Jillian Fox	Robyn Bull	John Hunt	Rose-Marie Thrupp	Kathy Stewart					
9:45 to 10:15	Christine Redman <i>Science Learning with Contemporary Technologies: Utilising a Theoretical Framework to Code the Daily Practices in Classrooms</i>	Linda Willis <i>Engaging Parents in STEM: Co-teaching and Dialoguing in a Queensland High School</i>	Adam Hooper <i>Students as Change Agents: Dengue Fever Education</i>	Julie Nurnberger-Haag <i>Children's Books About Shape: Conflating Two-Dimensional with Three-Dimensional Shapes</i>	Matthew Gray <i>Teaching 'Sustainability': Vehicle or End-Point?</i>	Fatimah Saleh <i>Development of Effective Mathematics Modules for Teaching In Remote Rural Schools: The Case of Sabah in Malaysia</i>	Mark Young <i>Building a Vision for Physics Through the Extended Response Task</i>	Vinesh Chandra <i>Assessing Technology and Engineering Projects using Edward de Bono's six hats and LEGO 4Cs Approach</i>	Jon Oxford <i>So who wants a Challenging and Well Paid Career?</i>	Alwyn Powell <i>Making Model Robots in the Primary Classroom</i>	Hilary Beck <i>The Power of Renewable Energy: High Schools Outreach</i>	Damien Green <i>Interactive Whiteboards: The Challenges of Integrating New Technologies into Existing Pedagogic Practice</i>	Mark Lockett <i>A 'hands on' Workshop using LEGO Education Robotics Kits to Facilitate the Investigation of STEM concepts</i>	Janene Franklin <i>Creative Leadership for 21st Century Learning</i>
10:15 to 10:45	Gillian Kidman <i>Developing an Operational Model for Teaching Science Inquiry Skills in the Australian Curriculum: Science</i>	David Nutchey <i>Objectifying Early-Number: A Visual Nomenclature to Express Mathematical Domain Knowledge</i>	Megan Hargreaves <i>A Matrix for Appropriate Assessment for Work Integrated Learning in STEM disciplines</i>	Tim Smith <i>Thinking Science Australia: Raising Students' Achievement in Only 30 Lessons</i>	Jillian Fox <i>Early Childhood Teachers' Mathematics Content Knowledge</i>	Robyn Bull <i>Primary Science Incorporating Indigenous Perspectives: Promoting Environmental and Cultural Sustainability</i>	John Hunt <i>Argumentation in Thinking and Working Scientifically in the Middle Years</i>	Rose-Marie Thrupp <i>Learning across the Key Learning Areas: What is Possible with Robotics in the Classroom?</i>	Kathy Stewart <i>Classroom in your Pocket</i>					
10:45 to 11:15	Morning Tea (C Block) Posters and Trade Displays													
11:15 to 12:15	Keynote Address: Mathematics Education (F509) Professor Richard Lesh													
Session Chair	Donna King	Cal Irons	Damon Cartledge	T. Nuntrakune	Aileen Cater-Steel	Steve Lang	Katherine Doyle			Craig Savage				
12:15 to 12:45	Deborah Corrigan <i>Expert Science Teachers Notions of Scientific Literacy</i>	Sarah Chapman <i>Innovation of the Everyday, to Inspire Science for a Lifetime</i>	Cheryl Desha <i>Considering STEM Priorities in the Context of Education for Sustainable Development</i>	Munirah Ghazali <i>Teachers' Views on their Instructional Practices that Facilitate Students' Number Sense</i>	Linda Galligan <i>Scaffolding Distance Learning in Mathematics for Engineering</i>	Bing Ngu <i>Teaching Percentages: Why is the Unitary Method Preferred to Equation Approach?</i>	Benjamin Yu <i>Scenario Based Think Aloud Protocol for Probing Student Problem Solving Skills</i>	Clare Christensen SYMPOSIUM: <i>Approaches to Uncertainty in Science and Engineering Education: How Educators could/should Deal with Uncertainty and Risk</i>	Jane Backhaus <i>Kids' S.T.E.M. Convention : Inspiration/ Investigation/ Celebration</i>	Joseph Ireland <i>Teachers' Conceptions of how to Engage Students Through Inquiry Learning: Foundations for STEM</i>	Liz Holt <i>Data Capture and Analysis in a 21st C Classroom</i>	Jamos McAlester <i>Maths Puzzles Lead to Engaged Students</i>	Damien Kee <i>Scratch Programming - Create and Share your own Interactive Stories, Games, Music and Art</i>	Venugopal Sogathur <i>Multimedia Magic: A Novice to an Animator</i>

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12:45 to 13:15	Donna King <i>Engaging Middle School Students in Context- Based Science: One Teacher's Approach</i>	Bothaina Bukhatowa <i>Emulating the Best Technologies in Teaching and Learning Mathematics: Challenges facing Libyan Higher Education</i>	Damon Cartledge <i>STEM: a Technical Renaissance?</i>	Tippawan Nuntrakune <i>Relationship between Cooperative Learning Group Skill Development and the Learning of Mathematics</i>	Aileen Cater-Steel <i>Supporting Women in Engineering, Science and Technology: The Go West Project</i>	Steve Lang <i>New light through Old Windows - A Contemporary Approach in a Traditional High School</i>	Katherine Doyle <i>'Cause the Pedals have Enough Power to Move Them': Developing Science Language and Discourse in Young Children</i>	Clare Christensen SYMPOSIUM: <i>Approaches to Uncertainty in Science and Engineering Education: How Engineering and Science Educators could/should Deal with Uncertainty and Risk</i>	Jane Backhaus <i>Kids' S.T.E.M. Convention : Inspiration/ Investigation/ Celebration</i>	Craig Savage <i>Teaching Physics Using Virtual Reality</i>	Liz Holt <i>Data Capture and Analysis in a 21st C Classroom</i>	Jamos McAlester <i>Maths Puzzles Lead to Engaged Students</i>	Damien Kee <i>Scratch Programming - Create and Share your own Interactive Stories, Games, Music and Art</i>	Venugopal Sogathur <i>Multimedia Magic: A Novice to an Animator</i>
13:15 to 14:15	Lunch (C Block)													
Session Chair	Clifford Jackson	Steven Goh	Jim Watters	A. Fitzgerald	Robert Peard	Chris Paterson	M. Marshman		A. Castledine					
14:15 to 14:45	Ghali Hassan <i>Students' Views of Science: A Comparison between Tertiary and Secondary School Students</i>	Tony Sahama <i>Learning Without Boundaries</i>	Phil Cooper <i>The Growth of Mathematics and Science at Aviation High</i>	Trevor Redmond <i>Enhancing Students' Interest in Mathematics Through Involvement in a Mathematical Modelling Challenge</i>	Steve Lang <i>Future Proofing the High School Classroom</i>	Lee Chin Teck <i>Teaching for Understanding in Mathematics and Science</i>	Elham Fariborzi <i>Key Factors For the Effectiveness of a Web-Based Learning Mode in Iranian Universities: A Delphi Study</i>	Lyn Carter <i>Writing For Mathematics and Science: The Use of Graphics Organisers</i>	Florence N. Ballard <i>An Investigation into the Effectiveness of Using Analogies to Teach and Learn Scientific Concepts</i>	Cheryl Capra <i>Nanotechnology in the Primary School? Here's How!</i>	Penny Stephens <i>Preparing Primary Pre-Service Teachers to use an Inquiry Based Approach in Teaching Science and Technology</i>	Betina Przybylak <i>The Role of Lesson Structure in Effective Numeracy Instruction</i>	Damien Kee <i>Datalogging with the LEGO Mindstorms System</i>	Michelle M. Mukherjee <i>Choosing Technology for Science Teaching and Learning</i>
14:45 to 15:15	Clifford Jackson <i>Enhancing Year 9 Performance and Engagement in Science</i>	Steven Goh <i>Leadership Capacity of Students and its Impact on Motivation and Learning Outcomes within the STEM Disciplines: A Proposition</i>	Jim Watters <i>The World of Adolescence and the World of STEM: are they Irrevocably Separated?</i>	Angela Fitzgerald <i>Examining the Practices of an Effective Primary Science Teacher: A Case Study</i>	Robert Peard <i>Developments in Senior Secondary Mathematics; Modelling And Problem Solving Using Technology</i>	Chris Paterson <i>Electric Unmanned Aerial Vehicle (UAV) Aero Skills Project</i>	Margaret Marshman <i>Will Pre-service Teachers who Experience Collaborative Learning at University use it in their Classrooms?</i>		Alanah-Rei Castledine <i>LEGO Robotics: an Authentic Problem Solving Tool?</i>					
15:15 to 15:30	Afternoon Tea (C Block)													
15:30 to 16:30	Plenary Panel: Culmination and Future Directions for STEM (F509)													
16:30 to 17:00		Bert Olivier <i>The Humanities, Technology, and Universities</i>			Nor Arzami Othman <i>Interactive Video and Feedback Mechanisms for Loosely Synchronized Learners using Mobile Devices</i>	Tippawan Nuntrakune <i>Relationship between Cooperative Learning Group Skill Development and the Learning of Mathematics</i>								
17:00 to 17:30	Delegates Depart													