

DAY 1: SATURDAY, JULY 12

7:30-1:00	REGISTRATION ESB Lobby	
9:00-10:15	WELCOME ADDRESS & KEYNOTE SPEAKER ESB 1013	
	<p>WELCOME & OPENING REMARKS: Tom Sork University of British Columbia, Canada Senior Associate Dean, International & Administration, Faculty of Education</p> <p>KEYNOTE: David Clarke University of Melbourne, Australia DISCIPLINARY INCLUSIVITY IN EDUCATIONAL RESEARCH DESIGN: PERMEABILITY AND AFFORDANCES IN STEM EDUCATION</p>	
10:15-10:45	NUTRITION BREAK ESB Lobby	
	POSTER PRESENTATIONS ESB Lobby	
	<p>1.0.1 THE CHOICE OF TECHNOLOGY IN TEACHING READING AND WRITING LANGUAGE SKILLS <i>Ting Liu, Sepideh Fotovatian</i></p> <p>1.0.2 IMPACT OF GLOBAL CLIMATE CHANGE MONITORING ACTIVITIES ON SOUTH KOREAN 7 GRADE STUDENTS' PERCEPTIONS <i>Hyoungbum Kim, Patrice Potvin, Eun-Ji Amy Kim</i></p> <p>1.0.3 EFFECTS OF STEAM LESSONS USING SCRATCH PROGRAMMING REGARDING SMALL ORGANISMS IN ELEMENTARY SCIENCE <i>Youngmi Choi, Seung-Ho Hong</i></p> <p>1.0.4 BEGINNING EARTH SCIENCE TEACHERS' PERCEPTIONS IN INFORMAL STEAM EDUCATION IN KOREA <i>Hong Jin Kwon, Eun Ki Ban, Chan-Jong Kim</i></p> <p>1.0.5 INVESTIGATING ACTIONS AND INTERACTIONS AT A SUMMER SCIENCE AND TECHNOLOGY CAMP <i>Carol Ann, B. Rees, Spencer Morran</i></p>	
10:45-12:15	CONCURRENT SESSION #1	
	<p>1.1 SWING 105</p> <p>1.1.1 A NEW DISCIPLINARY MODEL FOR INCREASING THE NUMBER OF UNDERREPRESENTED MINORITIES IN THE MATHEMATICAL SCIENCES <i>Leslie McClure, Casey George-Jackson, Phillip Kutzko, Kathryn Chaloner</i></p> <p>1.1.2 TEACHING FOR RELEVANCE: LINKING SCIENCE INSTRUCTION TO STEM CAREER AWARENESS <i>Isha DeCoito, Tasha Richardson, Daniella DiLucia, Philip Myszkal, Stephanie Florence</i></p> <p>1.1.3 MENTORSHIP AS SOCIALIZATION: AFRICAN AMERICAN WOMEN IN ENGINEERING AT HBCUS <i>Ezella McPherson, Virginia Tuckles</i></p>	<p>1.2 SWING 107</p> <p>1.2.1 CO-ORDINATION AND CONTROL: CONNECTING THE CAPABILITIES OF CHILDREN WITH/IN AN EDUCATIVE STEM CONTEXT <i>Steven Khan, Krista Francis, Brent Davis</i></p> <p>1.2.2 (TWO-WAY LEARNING) KISKIAUMATOWIN IN SUPPORT OF SASKATCHEWAN'S MULTI-VOCAL K-9 SCIENCE CURRICULUM <i>Sandy Marie Bonny</i></p> <p>1.2.3 ARGUMENTATION SCHEMES: A WINDOW ON INTERNATIONAL, INDIGENOUS AND WESTERN SCIENCES <i>Robert Anthony, Mijung Kim</i></p> <p>1.2.4 KOREAN ELEMENTARY STUDENTS' PERCEPTION ON STEAM LEARNING OPPORTUNITIES (STEAM LO) <i>Yumin Ahn, Won-Young Jung, Eun Ji Park, Seung Urn Choe, Chan-Jong Kim</i></p>
	<p>1.3 SWING 109</p> <p>1.3.1 A CAUTIOUS SECONDARY SCHOOL APPROACH TO THE T IN STEM <i>P John Williams, Mathew Thomas</i></p> <p>1.3.2 WHAT ARE YOU LOOKING AT? GRADUATE-ENTRY PRE-SERVICE TEACHERS' PERCEPTIONS OF STEM PEDAGOGY <i>Michelle Mukherjee, Margaret Lloyd</i></p>	<p>1.4 SWING 309</p> <p>1.4.1 PREPARING STUDENTS FOR LABORATORY CLASSES AND REDUCING COGNITIVE OVERLOAD USING INTERACTIVE ONLINE PRE-LAB TUTORIALS <i>Tracey Kuit</i></p> <p>1.4.2 CONNECTING ELEMENTARY AND ADVANCED MATHEMATICS IDEAS FROM A PERSPECTIVE OF TEACHER TRAINING <i>Margo F Kondratieva</i></p> <p>1.4.3 UNDERSTANDING HOW MIDDLE SCHOOL STUDENT ENGINEERING DESIGN THINKING TRANSLATES INTO PRACTICE <i>Wahyu Hasan, Les Dawes</i></p>

DAY 1: SATURDAY, JULY 12

	<p>1.5 SWING 405</p> <p>1.5.1 ANALYZING STEM 2.0 ACTIVITIES THROUGH THE PISA SCIENTIFIC LITERACY FRAMEWORK: FINDINGS OF UNIVERSITY STUDENTS' VOLUNTEERING EXPERIENCES IN A DEVELOPING COUNTRY <i>Vinesh Chandra, Andy Yeh</i></p> <p>1.5.2 A QUALITATIVE INVESTIGATION ON THE SCIENCE EDUCATION REFORM IN TAIWAN: EXAMINING THE TRANSITION INTO A CONSTRUCTIVIST SCIENCE TEACHING APPROACH IN RELATION TO THE MAINTENANCE OF A CONFUCIAN HERITAGE CULTURE <i>Ying Syuan Huang</i></p>	<p>1.6 SWING 407</p> <p>1.6.1 TEACHING A STEM-ORIENTED, ICT-BASED PROGRAM ABOUT SOUND, WAVES AND COMMUNICATION: A PILOT STUDY <i>Nayif Adil Awad, Moshe Barak</i></p> <p>1.6.2 EXPERT-GUIDED CROWD-SOURCED LEARNING CONTENT: A PILOT STUDY IN A LARGE ENROLMENT INTRODUCTORY PHYSICS COURSE <i>Simon Bates</i></p> <p>1.6.3 TEACHERS' RECOGNITION OF STEAM EDUCATION IN KOREA <i>Heejin Noh, Paik Seoung Hye</i></p> <p>1.6.4 LESSONS FOR THE FLIPPED CLASSROOM APPROACH IN A LARGE UNDERGRADUATE CHEMISTRY COURSE: EXAMINING EXAMS SCORES BEFORE AND AFTER "FLIPPING" THE BUFFERS MODULE <i>Anka Lekhi</i></p>
	<p>1.7 SWING 305</p> <p>1.7.1 GIFTED YOUTHS' SUGGESTIONS FOR CLIMATE CHANGE MITIGATION <i>Sakari Tolppanen, Maija Aksela</i></p> <p>1.7.2 A CURRICULUM INTERVENTION TO IMPROVE CHILDREN'S UNDERSTANDING OF MATHEMATICS AND SCIENCE CONCEPTS FUNDAMENTAL TO UNDERSTANDING CLIMATE CHANGE <i>Laura Super, Linda S. Siegel, Alex Sarra-Davis, Na'ama Av-Shalom, Suzy Viragh, Jennifer Luu, Vrinda Ohri, Kristine Hui, Shuting Huo, Joana Pinto</i></p> <p>1.7.3 INTERGENERATIONAL JUSTICE, ENVIRONMENTAL EDUCATION AND OUR HOPES FOR FUTURE GENERATIONS <i>David Patrick Burns, Stephen P. Norris, Charmaine Leung, Betty Yeung</i></p> <p>1.7.4 UNDERGRADUATE STUDENTS' CONCEPTIONS OF LEARNING ENVIRONMENTAL SCIENCE AND THEIR LEARNING SELF-EFFICACY IN BEIJING <i>Jing Wang, Yan Dong, Jyh-chong Liang</i></p>	<p>1.8 SWING 307</p> <p>1.8.1 SUPPORTING INTERDISCIPLINARY APPROACHES TO STEM EDUCATION THROUGH SCIENCE FICTION <i>Janice Marie Bogstad, Changyi Fu, Rong Zhou, Yan Wu</i></p>
12:15-1:30	LUNCH ESB Lobby	
1:30-2:30	KEYNOTE SPEAKER ESB 1013	
	<p>Ding Ming Wang National Hsinchu University of Education, Taiwan INTERDISCIPLINARY ART AND STEM EDUCATION - SHARING THE EXPERIENCE</p>	
2:30-3:00	NUTRITION BREAK ESB Lobby	
	<p style="text-align: center;">POSTER PRESENTATIONS ESB Lobby</p> <p>2.0.1 DEVELOPMENT OF MODEL TO IMPROVE CONTENTS, METHODS AND EVALUATION OF STEAM EDUCATION FOR MATHEMATICS AND OTHER SUBJECTS IN MIDDLE SCHOOL <i>Ho-Kyoung Ko, Su-young Choi, Mihyun Yoo, Woo-Sang Oh, Jeng-Hyun Kim, Kyeong-Ryeong Lee</i></p> <p>2.0.2 COMBINING SCIENCE WITH ART FOR INTER-DISCIPLINARY EDUCATION: THE CASE STUDY OF AN UNDERGRADUATE COURSE IN KOREA <i>Hunkoog Jho, Hye-Gyoung Yoon, Mijung Kim</i></p>	

DAY 1: SATURDAY, JULY 12

2.0.3 THE EFFECT OF CLASSROOM ENGAGEMENT ON STUDENT EXPERIENCE AND FINAL GRADE IN AN UNDERGRADUATE BIOLOGY COURSE AT MEMORIAL UNIVERSITY

Anna Hicks, Trudi Johnson

2.0.4 INVESTIGATING THE ECOLOGICAL STRATEGIC CALCULUS LEARNING APPROACH ON ACADEMIC ACHIEVEMENT OF A COLLEGE STUDENT WITH LEARNING DISABILITY IN CALCULUS

Neerusha Baurhoo

2.0.5 EFFECTIVE PRACTICE OF STEM CURRICULUM RESOURCES INTEGRATION FOR CHILDREN IN INFORMAL ENVIRONMENT

RuiHui Hao

3:00-4:30

CONCURRENT SESSION #2

2.1 SWING 105

2.1.1 INTEGRATION OF STEM INTO THE CURRICULUM FOR TECHNOLOGY EDUCATION: USA CASE STUDY

Szu-Chun Fan, Kuang-Chao Yu

2.1.2 TRANSFORMATION IN EDUCATIONAL PRACTICES THROUGH STEM

Tony Rozan Sahama, Deepthi Chandrika Bandara

2.3 SWING 109

2.3.1 WHAT DIGITAL VIDEO TECHNOLOGY CAN DO FOR TEACHERS IN STEM

Ruth Xiaoping Guo, Stephen Edgar Gareau

2.3.2 INTEGRATING ICTS INTO TEACHERS' PRACTICE IN THE CLASSROOM USING SUPPORTED CONTINUOUS PROFESSIONAL DEVELOPMENT (SCPD)

Marie H Kavanagh

2.3.3 ENGAGING STUDENTS (AND THEIR TEACHERS) IN STEM THROUGH ROBOTICS

Christina Chalmers

2.3.4 UNDERWATER WEB CAMERAS AS A TOOL FOR OCEAN STEWARDSHIP

Mike Irvine, Mijung Kim

2.5 SWING 405

2.5.1 LINKING PEDAGOGICAL KNOWLEDGE PRACTICES AND STUDENT OUTCOMES IN STEM EDUCATION FOR PRIMARY SCHOOLS

Peter Hudson, Lyn D English, Les Dawes, Donna King, Steve Baker

2.5.2 RESTRUCTURING A PRE-SERVICE TEACHER MATHEMATICS EDUCATION COURSE TO DEVELOP MATHEMATICS CONTENT KNOWLEDGE (MCK) AND MATHEMATICS PEDAGOGICAL CONTENT KNOWLEDGE (MPCK)

Kevin Michael Larkin

2.2 SWING 107

2.2.1 STEM FUNDS OF KNOWLEDGE OF CHILDREN IN THE HOME

Samantha Ying Ying Tan, Jessica Nga Chi Tang, Samia Khan

2.2.2 THE STEM ISSUE IN AUSTRALIA: WHAT IS IT AND WHERE IS THE EVIDENCE?

Sarah Hopkins, Helen Forgasz, Debbie Corrigan, Debra Panizzon

2.2.3 THE PRACTICE OF STEM IN CHINESE SPECIAL SCHOOL

Hui Li, Zhao Ning Ye, Jian Zhong Zhou

2.2.4 A HORIZON OF POSSIBILITIES: A DEFINITION OF STEM EDUCATION

Lydia Carol-Ann Burke, Krista Francis, Marie-Claire Shanahan

2.4 SWING 309

2.4.1 CHINESE SCIENCE AND TECHNOLOGY MUSEUM EDUCATORS' ROLES AND NEEDS FOR PROFESSIONAL DEVELOPMENT

Jiao Ji, David Anderson, Xinchun Wu

2.4.2 CHILDREN'S PERCEPTIONS OF SCIENTIFIC OBJECTS THROUGH 2D VS. STEREOSCOPIC PRESENTATIONS IN A MUSEUM

Aaron Price, Hee-Sun Lee

2.4.3 PLAY-BASED LEARNING FOR UNDERSTANDING PHYSICS IN MIDDLE SCHOOL

Elizabeth Anne Holt

2.4.4 PROMOTING STEAM EDUCATION IN THE CONTEXT OF INFORMAL SCIENCE LEARNING: THE CASE OF NATURAL HISTORY MUSEUM

Young-Shin Park, Hyo-Suk Ryu, Jongwon Park, Youngmin Kim, Hae-Ae Seo

2.6 SWING 407

2.6.1 BEYOND THE SUBJECT SILOS IN STEM – THE CASE FOR 'LOOKING SIDEWAYS' IN THE SECONDARY SCHOOL CURRICULUM

David Michael Barlex, Frank Banks

2.6.2 ALTERNATIVE POWERS: DE-FRAMING THE STEM DISCOURSE

David Blades, Matthew Weinstein, Shannon Gleason

2.6.3 NEW CURRICULA AND MISSED OPPORTUNITIES: DEALING WITH THE CROWDED CURRICULUM 'STEMS' FROM 'BIG IDEAS'

Chris Hurst

DAY 1: SATURDAY, JULY 12

	<p>2.5.3 FROM UNKNOWN TO KNOWN: VIRTUAL WORLDS INTERACTIVE PEDAGOGY <i>Hsiao-Cheng (Sandrine) Han</i></p> <p>2.5.4 SUSTAINED SCHOOL-BASED COACHING AS A MODEL OF PD FOR SECONDARY MATHEMATICS TEACHERS <i>Richelle Marynowski</i></p>	
	<p>2.7 SWING 305</p> <p>2.7.2 HELPING PRESERVICE TEACHERS TO DEVELOP AN UNDERSTANDING OF INQUIRY-BASED SCIENCE INSTRUCTION: LINKING THEORY AND PRACTICE THROUGH AN AUTHENTIC EXPERIENCE <i>Louise Maree Sutherland</i></p> <p>2.7.3 SCIENCE SEEN THROUGH A CAMERA LENS: A CASE OF STEAM PROGRAM OF UNIVERSITY-COMMUNITY COLLABORATION, CALLED 'SCIENCE PHOTO ACADEMY' <i>Jinwoong Song, Jiyeon Na, Joon-young Choi</i></p>	<p>2.8 SWING 307 - Workshop</p> <p>2.8.1 STEM IN THE STREAM: COMMUNITIES AND URBAN RIVER RECOVERY IN THE 21ST CENTURY <i>John Robert Michael Ames, Eleanor Hendriks, Laura Super, Susan Chung Susan Chung, Stanley King, Vanessa Lee, Andrew Riseman</i></p>
5:15-8:00	Opening Reception Sage Bistro	

DAY 2: SUNDAY, JULY 13

8:00-1:00	REGISTRATION/INFORMATION TABLE ESB Lobby	
8:30-9:30	KEYNOTE SPEAKER CIRS Auditorium, 1250	
	John Robinson University of British Columbia, Canada NEXT GENERATION SUSTAINABILITY AT UBC	
9:30-10:00	NUTRITION BREAK ESB Lobby	
	POSTER PRESENTATIONS ESB Lobby	
	3.0.1 AN ANALYSIS OF STEAM'S EFFECT ON MATHEMATICS AND SCIENCE GIFTED STUDENTS <i>Eun Ki Ban</i>	
	3.0.2 "ARE THERE ANY WINNERS IN HIGH STAKES TESTING IN MATHEMATICS?"- AN INVESTIGATION INTO THE IMPACT OF HIGH STAKES TESTING ON THE TEACHING AND LEARNING OF MATHEMATICS IN AUSTRALIAN PRIMARY SCHOOLS <i>Linda Cranley</i>	
	3.0.3 USING AVIATION AS A THEME TO INCREASE STUDENTS' INTEREST IN STEM EDUCATION <i>Rachel K. Graf</i>	
	3.0.4 A STUDY ON THE PERCEPTION OF THE CLASSROOM RESPONSE SYSTEM (CRS) AND ITS EFFECT ON ACADEMIC ACHIEVEMENT <i>Jungsook Oh</i>	
	3.0.5 PRIMARY PRE-SERVICE TEACHERS' CONCEPTUAL KNOWLEDGE OF THE MULTIPLICATION OF FRACTIONS USING AREA MODELS <i>Elise Thurtell</i>	
10:00-11:10	CONCURRENT SESSION #3	
	3.1 SWING 105 - Symposium	3.2 SWING 107
	3.1.1 INTEGRATIVE STEM AND THE EDUCATION PIPELINE <i>Mark Sanders, Stephen Petrina, Ken Volk</i>	3.2.1 VARIOUS WAYS OF USING AUGMENTED REALITY TECHNOLOGIES TO CHANGE THE WAY STUDENTS SEE THE WORLD <i>Ming-Chao Lin</i>
		3.2.2 WHAT GOES AROUND, COMES AROUND: HOOPING TECHNOLOGY FOR LEARNER ENGAGEMENT, MOTIVATION, PHYSICAL HEALTH, AND STEM LEARNING <i>Stephen E. Gareau, Ruth X. Guo</i>
		3.2.3 CAMPUS SERVICE APPLICATION BASED ON AUGMENTED REALITY AND LOCATION AWARENESS <i>Pengfei Shi, Su Cai, Qianqian Yuan, Peiwen Wang</i>
	3.3 SWING 109 - Workshop	3.4 SWING 309
	3.3.1 DEVELOPING A MAKER CULTURE TO ENCOURAGE LEARNERS AS RESEARCHERS - A TOUR OF FIVE DIFFERENT MICROCONTROLLERS FOR STEAM EDUCATION <i>Colin Bronislaw Chapman</i>	3.4.1 THE EXTENT OF AWARENESS OF RESEARCH-BASED STEM LITERACY PROGRAMME AMONG NIGERIAN TEACHERS <i>Rebecca Ufonabasi Etiubon</i>
		3.4.2 LANGUAGE AND LITERACY IN MATHEMATICS: STEPPING STONES OR STUMBLING BLOCKS IN ACCELERATING JUNIOR-SECONDARY STUDENTS <i>Edlyn Joy Grant</i>
		3.4.3 BABY STEPS TOWARDS STEM INTEGRATION: POSSIBILITIES IN AUSTRALIAN HIGH SCHOOLS <i>Vinesh Chandra, Steve Lang</i>
	3.5 SWING 405	3.6 SWING 407
	3.5.1 COLOR-BALL: A GESTURE-BASED VOCABULARY GAME TO PROMOTE CHILDREN'S STUDY <i>Gaoxia Zhu, Su Cai, Ying Kan</i>	3.6.1 TEACHING AND LEARNING DIGITAL CONTROL THROUGH REAL-TIME IMPLEMENTATION <i>Yang Cao</i>

DAY 2: SUNDAY, JULY 13

	<p>3.5.2 WHAT DOES A STEM CURRICULUM LOOK LIKE AT THE PRE-K LEVEL? <i>Todd Milford</i></p> <p>3.5.3 STEM EDUCATION FOR SUSTAINABLE DEVELOPMENT: A SOCIOTECHNICAL ANALYSIS <i>Tony Rozan Sahama, Deepthi Chandrika Bandara</i></p> <p>3.7 SWING 305</p> <p>3.7.1 AN EXPLORATORY STUDY ON THE IMPACT OF WOODFUEL USE AND PLANNING STRATEGIES FOR ITS SUSTAINABILITY IN WESTERN KENYA <i>Festus Beru, P Opata, G Simiyu, S Ooko, P Okemwa, S Wafula, Samson Nashon</i></p> <p>3.7.2 THE DEVELOPED INQUIRY-BASED SPIRAL CURRICULUM TO PROMOTE THE RADIATION LITERACY AS STS AND SUSTAINABILITY EDUCATION <i>Hisashi Otsuji</i></p> <p>3.7.3 ZERO WASTE EFFORTS AT THE UNIVERSITY OF BRITISH COLUMBIA: EXAMINING WASTE GOALS, PROCESSES AND OPPORTUNITIES TO EDUCATE CAMPUS COMMUNITY <i>Latika Raisinghani, Ivana Zelenika, Kwesi Yaro</i></p> <p>3.9 SCARFE 1210 - Workshop</p> <p>3.9.1 DEVELOPING 21ST-CENTURY MINDS WITH VERNIER PROBEWARE <i>Vernier International Inc</i></p>	<p>3.6.2 STUDENTS' ATTITUDES TOWARDS USING OF E-SCHOOLBAG FOR LEARNING IN CHINA <i>Yi Shanshan, Feng-Kuang Chiang</i></p> <p>3.6.3 DESIGN AND DEVELOPMENT OF THE E-SCHOOLBAG PERCEPTIONS SCALE (EPS) FOR K1-12 STUDENTS <i>Juan Zheng, FengKuang Chiang</i></p> <p>3.8 SWING 307 - Showcase</p> <p>3.8.1 FOCUSING ON STEM PERSPECTIVES IN TEACHER EDUCATION <i>Sabrina Lorenz, Hye Son, Robert Jordan, Isha DeCoito</i></p> <p>3.8.2 ADDRESSING THE CHALLENGES TO STEM EDUCATION IN RURAL IDAHO <i>Melinda A Hamilton</i></p>
11:10-11:20	TRANSITION	
11:20-12:30	CONCURRENT SESSION #4	
	<p>4.1 SWING 105</p> <p>4.1.1 GOING THE DISTANCE: DESIGNING A PROSPECTIVE LONGITUDINAL EVALUATION FOR THE WOMEN IN SCIENCE AND ENGINEERING MENTORING PROGRAM AT UBC'S OKANAGAN CAMPUS <i>Stephanie McKeown</i></p> <p>4.1.2 THE TOWER BUILDERS: THE NEED TO PLACE ETHICAL CONSIDERATIONS AT THE FOREFRONT OF STEM AND STSE EDUCATION INITIATIVES <i>Astrid Steele</i></p> <p>4.1.3 GENDER AND SOCIO-ECONOMIC GAPS IN SECONDARY STUDENTS' INTEREST IN SCIENCE-RELATED TERTIARY EDUCATION: THE CASE OF ISRAEL <i>Svetlana Chachashvili-Bolotin, Marina Milner-Bolotin</i></p> <p>4.3 SWING 109 - Showcase</p> <p>4.3.1 SISTERS OF THE ACADEMY: FOCUSING ON BLACK WOMEN IN STEM <i>Virginia Cook Tickles, Ezella McPherson, LaKerri Mack, Devona Foster Pierre</i></p> <p>4.5 SWING 405 - Symposium</p> <p>4.5.1 BECOMING A TEACHER: EMBRACING STEM (K – 6) TEACHER EDUCATION <i>Mary Stordy, Susan Ryan, Todd Woodland, Ian Crewe</i></p>	<p>4.2 SWING 107</p> <p>4.2.1 ANCIENT WISDOM FOR A SHARED PLANET: REGENERATING INDIGENOUS TRADITIONAL ECOLOGICAL KNOWLEDGES <i>Pat O'Riley, Peter Cole</i></p> <p>4.2.2 AFRICAN KNOWLEDGE ON ENDOD (PHYTOLACCA DODECANDRA) AND ITS POTENTIAL FOR MEDICINAL USES IN KENYA <i>Selline Awino Ooko, J. B. Okeyo, Osano Odipo, F. Olal, Festus Beru, Peterson Ombogo, Peter Okemwa</i></p> <p>4.2.3 EXPLORING TRADITIONAL TECHNOLOGIES TO CONTEXTUALIZE LEARNING: SCIENTIFIC AND MATHEMATICAL PHENOMENA EMBEDDED IN KOSRAEAN FOOD PREPARATION AND PRESERVATION <i>Latika Raisinghani</i></p> <p>4.4 SWING 309 - Symposium</p> <p>4.4.1 USING COLLABORATION TO INCREASE STEM ENGAGEMENT FOR GIRLS <i>Karen Peterson, Brenda Britsch, Karen Bouldin</i></p> <p>4.6 SWING 407</p> <p>4.6.1 THE NATURE OF ABACUS IS ONE KIND OF WORKING MEMORY TRAINING: A FUNCTIONAL MRI AND BEHAVIOR STUDY <i>John Y.S. Cheng, Chun-Yen Chang</i></p>

DAY 2: SUNDAY, JULY 13

	<p>4.7 SWING 305</p> <p>4.7.1 LEAN STARTUP PRINCIPLES AND STE(A)M IMPLEMENTATIONS: A CASE STUDY APPROACH TO THE APPLICATION OF BUSINESS INNOVATION PRINCIPLES TO EDUCATIONAL INNOVATION <i>Chris John Metcalfe, Michelle Ferguson</i></p> <p>4.7.3 A INTEGRATED CURRICULUM DESIGN STRATEGY TO SCAFFOLD ONLINE TRAINING FROM THE PERSPECTIVE OF KNOWLEDGE BUILDING <i>Duan Jinju</i></p> <p>4.9 SWING 409 - Showcase</p> <p>4.9.1 TEACHER INQUIRY IN K-6 STEM: THE IMPACT OF TEACHER-DRIVEN AND INQUIRY-BASED PROFESSIONAL DEVELOPMENT ON TEACHING AND LEARNING IN K-6 STEM <i>Karen Goodnough, Rene Wicks, Walsh Tom, Keith Power, Nancy Healey, Stephanie Collins, Jennifer Kendell</i></p>	<p>4.6.2 ENHANCING MATH AND PHYSICS EDUCATION FOR HIGH SCHOOL IN ISRAEL <i>Sara Hershkovitz</i></p> <p>4.6.3 PROFESSIONAL LEARNING COMMUNITY: A CASE STUDY – MATHEMATICS IN THE VIRTUAL HIGH SCHOOL <i>Yaniv Biton</i></p> <p>4.8 SWING 307</p> <p>4.8.1 STEM NATURAL PARTNERS PROJECT – LEARNING FOR SUSTAINABILITY <i>Susan Valerie McLaren</i></p> <p>4.8.3 ENGINEERING EDUCATION AND SUSTAINABLE DEVELOPMENT: A MIXED METHODS APPROACH <i>Matt Wright, Susan Nesbit, Thomas Froese</i></p>
12:30-1:30	LUNCH ESB Lobby	
1:30-2:30	KEYNOTE SPEAKER ESB 1013	
	<p>YOSHIKAZU OGAWA University of Tsukuba, Japan COMMUNICATION BETWEEN THE PUBLIC AND MUSEUMS: DEVELOPMENT OF LIFELONG LEARNING SYSTEM TO FOSTER SCIENCE LITERACY</p>	
2:30-3:00	NUTRITION BREAK ESB Lobby	
	POSTER PRESENTATIONS ESB Lobby	
3:00-4:30	CONCURRENT SESSION #5	
	<p>5.1 SWING 105</p> <p>5.1.1 NUMERACY . . . SCIENTIFICITY: IDENTIFYING, LINKING AND USING THE 'BIG IDEAS' OF MATHEMATICS AND SCIENCE FOR MORE EFFECTIVE TEACHING <i>Chris Hurst</i></p>	<p>5.2 SWING 107</p> <p>5.2.1 A CASE FOR INTEGRATING PEER INSTRUCTION AND LEARNING CATALYTICS IN THE INTRODUCTORY PHYSICS LAB <i>N G Holmes, D A Bonn</i></p>

DAY 2: SUNDAY, JULY 13

5.1.2 IMPLEMENTING A CONTEXTUALIZED SCIENCE CURRICULUM AND INSTRUCTION: WHAT DO TEACHERS AND STUDENTS HAVE TO SAY?

Winston Massam

5.1.3 DEVELOPING NUMBER FACT KNOWLEDGE FOR DIFFERING CONTEXTS

Jenny Young-Loveridge, Brenda Bicknell

5.1.4 CONTRIBUTION OF INDUSTRY-BASED STUDENT LEARNING PERFORMANCE FOR THE STEM EDUCATION

Tony Rozan Sahama, Gunnar Andersson, Hong Wu, Mathias Wilichowski, Pierre-Olivier Lombarteix, Valentín Miguel Eguía

5.3 SWING 109

5.3.1 EXPLORING UNDERGRADUATE STUDENTS' METACOGNITIVE TRANSFORMATIONS IN AN ORGANIC CHEMISTRY COURSE

Ashley J Welsh

5.3.2 THE STUDY HABITS OF STUDENTS ON INTRODUCTORY STATISTICS COURSES: INVESTIGATION AND INTERVENTION

Bruce Dunham, Gaitri Yapa

5.3.3 THE ROLES OF INSTRUCTION AND METACOGNITION IN ENHANCING SELF-REGULATED LEARNING IN A HIGH SCHOOL CHEMISTRY COMPUTER-BASED LEARNING ENVIRONMENT

CM Lam

5.5 SWING 405

5.5.1 AFFECTING ATTITUDE TOWARDS SCIENCE, HIGH SCHOOL AFRICAN AMERICAN STUDENTS

Charles Anderton, Keith Koenig, Debra Prince, Cade Smith,

5.5.2 THE IMPORTANCE OF SCIENCE FICTION AND OTHER STEM-RELATED MASS MEDIA IN YOUNG PEOPLE'S DECISIONS TO ENROL IN UNIVERSITY STEM COURSES

Terry Lyons, Frances Quinn

5.5.3 GATEWAYS TO ENGINEERING: A SYSTEMIC STEM INITIATIVE TO ADDRESS CAREER PATHWAYS IN ENGINEERING

James Joseph Watters, Hitendra Pillay, Stephen Hay

5.5.4 WHAT'S IN IT FOR ME? MAKING THE CASE FOR PAID STUDENT PLACEMENTS IN COMPUTER SCIENCE

Sally Smith, Colin Smith

5.7 SWING 305

5.7.1 THE EXPLORATION OF LEARNING BEHAVIOUR ANALYSIS AND EVALUATION MODEL IN UBIQUITOUS LEARNING ENVIRONMENT - TAKING LCS FOR EXAMPLE

Haipeng Wan

5.7.2 COLLABORATION FOR STUDENT SUCCESS IN STEM FIELDS: A NOVEL APPROACH

Afrin Naz

5.2.2 DEVELOPMENT OF AN INSTRUMENT ASSESSING FRESHMAN STUDENTS' UNDERSTANDING OF DATA ANALYSIS IN THE PHYSICS LABORATORY

Haim Eshach, Ida Kukliansky

5.2.3 INVESTIGATING THE EFFECTS OF PEERWISE & PEER INSTRUCTION PEDAGOGY ON THE DEVELOPMENT OF PEDAGOGICAL CONTENT KNOWLEDGE OF PROSPECTIVE PHYSICS TEACHERS

Marina Milner-Bolotin, Alexandra Leigh MacDonald, Heather Anne Fisher

5.2.4 THE ISOTOPE PROJECT: REVEALING INSERVICE TEACHER TENSIONS OF TEACHING THROUGH A STEM-BASED APPROACH

Richard Hechter

5.4 SWING 309 - Showcase

5.4.1 INCREASING INSTRUCTIONAL INTERACTION THROUGH ADAPTAION OF LOCAL PLAY FOR RECOGNITION OF NUMBERS AND SHAPES BY PRIMARY SCHOOL PUPILS

Thelma Uduak Ekukinam

5.6 SWING 407

5.6.1 THE ROLE OF SCAFFOLDING AND THE FACILITATOR IN THE DELIVERY OF PROBLEM-BASED LEARNING ON AN UNDERGRADUATE INTERDISCIPLINARY SCIENCE DEGREE PROGRAMME

Sarah Gretton

5.6.2 THE EFFECT OF STRATEGY USE AND SCAFFOLDING ON LEARNING IN AN EXPLORATORY LEARNING ENVIRONMENT

Nikki Yee, Adriana Briseno, Ido Roll

5.6.3 ENHANCE STUDENTS LEARNING THROUGH AUTONOMY SUPPORT IN A LARGE GENETICS LABORATORY COURSE

Jinlu Wu

5.8 SWING 307

5.8.1 A MODEL OF SHARING STEM RESOURCES WITH LINKED DATA--TAKING LCS AS AN EXAMPLE

GuoZhu Ding

5.8.2 DEVELOPMENT AND APPLICATION OF A GUIDED PROJECT-BASED LEARNING PROGRAM OF STEM RELATED TO LED AND CELL-PHONE SENSOR

Youngmin Kim

DAY 2: SUNDAY, JULY 13

5.7.3 DEVELOPMENT AND ASSESSMENT OF A CONTINUING EDUCATION COURSE IN QUANTITATIVE LITERACY FOR HIGH SCHOOL STEM TEACHERS

Craig Preston McClure

5.7.4 APPLICATION OF INSTRUCTIONAL TECHNOLOGY FOR ASSESSMENT OF INSTRUCTIONAL OBJECTIVES IN TEACHING-LEARNING OF BASIC SCIENCE AND TECHNOLOGY

Idongesit Ndifrekeabasi Udosen

5.9 SWING 405 - Symposium

5.9.1 DESIGN AND ENGINEERING COGNITION AND DESIGN-BASED RESEARCH

Stephen Petrina, Franc Feng, Mirela Gutica, Peter Halim, Yu-Ling Lee, PJ Rusnak, Yifei Wang, Jennifer Zhao

5.8.3 THE STUDY OF THE EFFECT OF SMARTPHONE-BASED VISUAL INTERACTION IN U-LEARNING PERFORMANCE

Wang Qi

5.8.4 THE DESIGN AND APPLICATION OF THE MOBILE EDUCATIONAL RESEARCH ACTIVITY BASED ON QR-CODE

Zhi Zhou, Axi Wang, Ling Chen, Feng-Kuang Chaing

5.10 SWING 407 - Showcase

5.10.1 BRIDGING THE GAP IN STEM: COMBINING BUSINESS, INDUSTRY AND EDUCATION RESOURCES TO CREATE DYNAMIC K-12 TEACHER STEM PROFESSIONAL DEVELOPMENT

Anne Seifert, Louis Nadelson, Sandie Nadelson

DAY 3: MONDAY, JULY 14

8:30-1:00	REGISTRATION/INFORMATION TABLE ESB Lobby	
9:00-10:00	KEYNOTE SPEAKER ESB 1013	
	Wolff-Michael Roth, Lansdowne Professor University of Victoria, Canada STEM CURRICULUM THROUGH THE EYES OF THE LEARNER: THE UNSEEN AND THEREFORE UNFORESEEN	
10:00-10:30	NUTRITION BREAK ESB Lobby	
10:30-11:45	CONCURRENT SESSION #6	
	6.1 ANGU 350 - Showcase 6.1.1 PROJECT SOS (SCIENCE OF SUSTAINABILITY): DEVELOPMENT AND DELIVERY OF A UNIQUE MODEL FOR STEM EDUCATION <i>Katherine Dawes, Kathleen Ryan, Christine Berven, Anne Kern, Victoria Coats, Patricia McNamara, Dana Dawes</i>	6.2 ANGU 347 6.2.1 MEASURING SHORT TERM EFFECTS OF SELF-REGULATORY PROMPTS ON PROBLEM-SOLVING ABILITIES IN INTRODUCTORY GENETICS <i>Heather Anne Fisher, Marina Milner-Bolotin, Ido Roll, Deborah Butler, Alexandra MacDonald</i> 6.2.2 TRANSLATIONS OF INDUSTRY-BASED STUDENT LEARNING AND ACADEMIC PERFORMANCES <i>Tony Rozan Sahama</i>
	6.3 SWING 409 6.3.2 PHYSICS TEACHERS' BELIEFS AND INTENTIONS ABOUT THE USE OF FORMULA IN MOTION CONTEXT <i>Zahra Parvaneh-Nezhad, Samson Nashon</i> 6.3.3 THE DEVELOPMENT OF PHYSICS TEACHER AGENCY IN THE CHINESE CURRICULUM REFORM CONTEXT: A NARRATIVE APPROACH <i>Guopeng Fu</i>	6.4 SWING 309 6.4.1 OPENING REAL SCIENCE: INTRODUCING AUTHENTIC SCIENTIFIC METHODOLOGY INTO MATHEMATICS AND SCIENCE TEACHER PREPARATION <i>Joanne Mulligan</i> 6.4.2 ENHANCING MATHEMATICS AND SCIENCE TEACHER EDUCATION IN REGIONAL AUSTRALIA: ITERATIONS, INTERACTIONS AND MODULES <i>Geoff Woolcott</i> 6.4.3 AN INVESTIGATION OF SECONDARY STUDENTS' ENGAGEMENT IN A SCIENCE INQUIRY THROUGH A STUDENT-SCIENTIST PARTNERSHIP <i>Michelle Lasen, Clifford Jackson, Amy Beavan, Bryn Johnson, Robert Callin</i>
	6.5 SWING 405 - Showcase 6.5.1 FLIPPING CALCULUS: WHY, HOW, AND WHAT <i>Fei Xue, John Williams</i>	6.6 SWING 407 6.6.1 ELECTRICAL AND COMPUTER ENGINEERING UNDERGRADUATE STUDENT PERCEPTIONS OF THEIR ACHIEVEMENT OF ENGINEERING GRADUATE ATTRIBUTES <i>Chris David Campbell, Steven J.E. Wilton, Andre Ivanov</i> 6.6.2 UNIVERSITY STEM SCHOOL ENGAGEMENT – SUPPORTING GRADUATE CAPABILITIES <i>Maria June Barrett Silva</i> 6.6.3 BUILDING PEDAGOGICAL BRIDGES BETWEEN SECONDARY AND TERTIARY BIOLOGY: A MULTI-INSTITUTIONAL, NATIONAL ENDEAVOR <i>Gerry Rayner, Karen Burke da Silva</i>
	6.7 SWING 305 6.7.1 STIMULATING CREATIVE IDEAS OF FRESHMEN STUDENTS THROUGH DESIGN COURSE <i>Haiifa Salman El-Sadi, Richard Roberts, Ali Moazed</i> 6.7.2 AN ANALYSIS OF INSTRUCTIONAL DESIGN FOR STUDENTS OF EDUCATION TECHNOLOGY IN TERTIARY INSTITUTION IN NIGERIA <i>Edem Archibong Ntuk</i>	6.8 ANGU 343 - Workshop 6.8.1 MAKING LEARNING VISIBLE IN UNDERGRADUATE RESEARCH EXPERIENCES <i>Susan Howitt</i>

DAY 3: MONDAY, JULY 14

	<p>6.7.3 INTERPRETING STUDENTS' UNDERSTANDING OF CHOKING IN CHILDREN THROUGH WEB-BASED LEARNING EXPERIENCES J. Douglas Adler, Samson Madera Nashon, Sandra Scott, Jeffrey Ludemann</p> <p>6.9 ANGU 345</p> <p>6.9.1 TO ENGAGE OR NOT ENGAGE – HOW IS THE QUESTION! <i>Pamela Anne Hagen</i></p> <p>6.9.2 USE OF GENETIC DECOMPOSITIONS TO SCAFFOLD THE DEVELOPMENT OF A STRUCTURALLY SEQUENCED CURRICULUM FOR MATHEMATICS ACCELERATION <i>David John Nutchey, Edlyn Grant, Tom Cooper</i></p> <p>6.9.3 TRIGGERING WHAT YOU HAVE: BRICOLAGE AS A MATHEMATICAL WAY OF THINKING FOR MIDDLE SCHOOL STUDENTS <i>Alayne Cheryl Armstrong</i></p>	
11:45-12:45	LUNCH ESB Lobby	
12:45-1:45	KEYNOTE SPEAKER ESB 1013	
	<p>Rina Zazkis Simon Fraser University, Canada IMAGINING TEACHING VIA SCRIPTING TASKS</p>	
1:45-2:15	NUTRITION BREAK ESB Lobby	
2:15-3:30	CONCURRENT SESSION #7	
	<p>7.1 ANGU 350 - Showcase</p> <p>7.1.1 PREPARING STEM-CENTRIC ELEMENTARY TEACHERS <i>Elissa Hozore</i></p> <p>7.3 SWING 409</p> <p>7.3.1 FACILITATING SCIENCE METHODS THROUGH AN INQUIRY FOCUSED APPROACH <i>J. Douglas Adler, Sandra Scott</i></p> <p>7.3.2 THE PRACTICE OF INQUIRY-BASED TRAINING MODE ON PROMOTING PRIMARY SCIENCE TEACHERS' TECHNOLOGY AND ENGINEERING LITERACY IN CHINA <i>Xia Fan, Zhaoning Ye</i></p> <p>7.5 SWING 405</p> <p>7.5.1 PRESERVICE TEACHERS AND THEIR BELIEFS ABOUT TEACHING AND LEARNING SCIENCE: THE IMPACT OF A SCIENCE METHOD COURSE ON SCIENCE TEACHING EFFICACY <i>Jacinta Elise Petersen</i></p> <p>7.5.2 BECOMING A SCIENCE TEACHER - THE DEVELOPMENT OF PRE-SERVICE TEACHERS IDEAS ABOUT TEACHING THROUGH AN INQUIRY BASED APPROACH <i>Louise Sutherland</i></p>	<p>7.2 ANGU 347</p> <p>7.2.1 FEMALE ENGINEERING STUDENTS' EXPERIENCE WITH STEREOTYPE THREAT: A NARRATIVE INQUIRY <i>Stacie LeSure Gregory</i></p> <p>7.2.3 MEASURING UNDERGRADUATE ELECTRICAL AND COMPUTER ENGINEERING PERCEPTIONS OF THEIR ENGINEERING COMPETENCE – AN OVERVIEW OF A SURVEY DEVELOPMENT PROCESS <i>Chris David Campbell, Steven J. E. Wilton, Andre Ivanov</i></p> <p>7.4 SWING 309</p> <p>7.4.1 THE DISJUNCTURE OF LEARNING AND RECOGNITION: CREDENTIAL ASSESSMENT FROM THE STANDPOINT OF CHINESE IMMIGRANT ENGINEERS IN CANADA <i>Hongxia Shan</i></p> <p>7.4.2 CASE STUDY OF CHINA'S ENGINEERING EDUCATION MODEL AND EMPLOYMENT IN STEM OCCUPATIONS <i>Lihui Xu</i></p> <p>7.6 SWING 407</p> <p>7.6.1 HOW TO MAKE THE CLASSROOM MORE ACTIVE: THE TYPES AND FEATURES OF SILENCE IN ELEMENTARY SCIENCE CLASSROOM <i>Jiyeon Na, Joon-young Choi, Jinwoong Song</i></p> <p>7.6.2 CHANGES IN TEACHERS' BEHAVIOUR IN SECONDARY SCIENCE EDUCATION: IMPLEMENTING A STANDARDS-REFERENCED NATIONAL CURRICULUM <i>Carmel Mary Diezmann</i></p>

DAY 3: MONDAY, JULY 14

		7.6.3 THE ENRICHMENT OF STEM EDUCATION: A PRACTICE OF INQUIRY INSTRUCTION AND EDUCATIONAL TECHNOLOGY <i>Xinxin Fan, David Geelan, Wei Liang</i>
	<p>7.7 SWING 305</p> <p>7.7.1 ESD (EDUCATION FOR SUSTAINABLE DEVELOPMENT) AND DISASTER PREVENTION IN JAPAN: AFTER THE 2011 OFF THE PACIFIC COAST OF TOHOKU EARTHQUAKE <i>Tatsuya Fujioka</i></p> <p>7.7.2 THE CHARACTERISTICS OF STEAM PROGRAM OF CLIMATE CHANGE ISSUE THROUGH PBL (PROJECT BASED LEARNING) APPROACH <i>Young-Shin Park, Jongwon Park, Hyo-Suk Ryu, Hae-Ae Seo, Youngmin Kim</i></p>	<p>7.8 ANGU 343 - Symposium</p> <p>7.8.1 INTEGRATED PROJECT-BASED CURRICULUM INNOVATIONS IN BIOLOGICAL SCIENCES AND SCIENCE EDUCATION AT SIMON FRASER UNIVERSITY <i>Allan Murray MacKinnon, Cindy Xin, Lynn Quarmby, Ivona Mladenovic, Shawn Bullock</i></p>
	<p>7.9 ANGU 345</p> <p>7.9.1 ON INSTRUCTOR EXPERIENCES IN THREE FLIPPED LARGE MATH UNDERGRADUATE COURSES <i>Cindy Xin, Jamie Mulholland, Veselin Jungic, Harpreet Kaur</i></p>	
3:30-3:45	NUTRITION BREAK ESB Lobby	
3:45-5:00	CONCURRENT SESSION #8	
	<p>8.1 ANGU 350</p> <p>8.1.1 ANALYZING UNDERGRADUATE STUDENTS' ATTITUDES AND BELIEFS ABOUT PHYSICS: INFLUENCE OF GENDER AND YEAR OF STUDY <i>Alexandra Leigh MacDonald, Marina Milner-Bolotin, James Carolan, Heather Anne Fisher, Samson Nashon, Sandra Scott</i></p> <p>8.1.2 EXPLORING GRADE 6 GIRLS' ATTITUDES AND INTEREST IN STEM <i>Isha DeCoito, Stephanie Florence, Daniella Di Lucia, Philip Myszkal, Tasha Richardson</i></p> <p>8.1.3 A LOOK AT STUDENT ATTITUDES AND MEASURED PERFORMANCE AFTER A NEW STEM INITIATIVE'S FIRST YEAR <i>Thomas Francis Meagher</i></p> <p>8.3 SWING 409 - Showcase</p> <p>8.3.1 STEM 'FOUNDATIONS': DIMENSIONS OF SCIENCE LEARNING IN EARLY CHILDHOOD <i>Jane R Kloecker, Ilana April, Caitlin Coe, Natalie Tahsler</i></p> <p>8.5 SWING 405</p> <p>8.5.1 BUILDING A COMMUNITY OF LEARNERS WITHIN THE STEM HIGHER EDUCATION CLASSROOM <i>Shaun Nykvist</i></p>	<p>8.2 ANGU 347 - Workshop</p> <p>8.2.1 USING SCRATCH TO TEACH ROBOTICS ENGINEERING AND MULTIMEDIA GAME DESIGN <i>Mark John Lockett</i></p> <p>8.4 SWING 309 - Workshop</p> <p>8.4.1 LOST IN TRANSLATION: CONNECTING BIOLOGISTS AND MATHEMATICIANS TO FURTHER UNDERGRADUATE STUDENTS' QUANTITATIVE SKILLS <i>Deborah Martina King, Karen Burke Da Silva, Kelly Matthews</i></p> <p>8.6 SWING 407</p> <p>8.6.1 101 TECHNOLOGY FUN: EMPOWERING GIRLS AS TECHNOLOGY INNOVATORS AND ENTREPRENEURS <i>PJ Rusnak</i></p> <p>8.6.2 CHALLENGES IN EMBEDDING NUMERACY THROUGHOUT THE CURRICULUM IN THREE QUEENSLAND SECONDARY SCHOOLS <i>Merilyn Carter, Klenowski Valentina, Christina Chalmers, Peta-Anne McNaught, Malcolm Carter</i></p>

DAY 3: MONDAY, JULY 14

	<p>8.7 SWING 305 - Workshop</p> <p>8.7.1 INSPIRING MATHEMATICS AND SCIENCE IN AUSTRALIAN TEACHER EDUCATION: MAKING CONNECTIONS ACROSS DISCIPLINARY CONTEXTS <i>Merrilyn Goos, Kim Beswick, Tricia Forrester</i></p>	<p>8.8 ANGU 343</p> <p>8.8.2 DOES USABILITY ENGINEERING MATTERS FOR STEM EDUCATION? <i>Tony Rozan Sahama, Andre Kushniruk, Elizabeth Borycki</i></p> <p>8.8.3 DIALOGICAL PRACTICES IN STEM CLASSES: THE CASE OF A BEGINNING TEACHER <i>James Joseph Watters, Carmel Mary Diezmann</i></p>
	<p>8.9 ANGU 345</p> <p>8.9.1 MATHEMATICS WORKSHEETS: THE LANGUAGE OF THE TEXT <i>Ozlem Deniz</i></p> <p>8.9.2 A MODEL FOR AN OPEN-ENDED TASK-BASED APPROACH IN GRADE 11 MATHEMATICS CLASSES <i>RK Mahlobo</i></p> <p>8.9.3 "ARE THERE ANY WINNERS IN HIGH STAKES TESTING IN MATHEMATICS?"- AN INVESTIGATION INTO THE IMPACT OF HIGH STAKES TESTING ON THE TEACHING AND LEARNING OF MATHEMATICS IN AUSTRALIAN PRIMARY SCHOOLS" <i>Linda Cranley</i></p>	
6:00-9:00	STEM Banquet Life Sciences Centre	

DAY 4: TUESDAY, JULY 15

8:30-1:00	REGISTRATION/INFORMATION TABLE ESB Lobby	
8:30-9:30	CONCURRENT SESSION #9	
	9.1 ANGU 243 - Workshop 9.1 AN AUSTRALIAN SOLUTION TO STEM EDUCATION USING LEGO EDUCATION RESOURCES <i>Mark John Lockett</i>	9.2 ANGU 296 - Workshop 9.2 THE REFRAMING MATHEMATICAL FUTURES RESEARCH PROJECT- ADDRESSING THE EIGHT-YEAR GAP IN MATHEMATICS LEARNING IN JUNIOR SECONDARY SCHOOLS <i>Dianne Elizabeth Siemon</i>
	9.3 ANGU 347 - Workshop 9.3 LIFE-CYCLE ANALYSIS OF A PRODUCT IN TEACHING SCIENCE – STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS <i>Marianne Juntunen</i>	9.4 ANGU 237 - Showcase 9.4 THINKING SCIENCE AUSTRALIA - COGNITIVE ACCELERATION THROUGH SCIENCE EDUCATION (CASE). IMPROVING TEACHER PEDAGOGY AND STUDENT THINKING <i>Sonia Hueppauff</i>
	9.5 ANGU 235 - Workshop 9.5 KID'S S.T.E.M CONVENTION: INSPIRATION, INVESTIGATION, CELEBRATION <i>David Colin Willis</i>	9.6 ANGU 354 - Workshop 9.6 AUTOMATA IN THE PRIMARY CLASSROOM- A PRACTICAL DEVELOPMENTAL APPROACH <i>Alwyn Powell</i>
9:30-9:45	NUTRITION BREAK ANGUS	
9:45-10:45	CONCURRENT SESSION #10	
	10.1 ANGU 243 10.1.1 STEM AND SCIENCE FICTION COURSES <i>Fu Changyi, Zhou Rong</i> 10.1.2 CREATING CONTEXTS FOR GENERATING PRODUCTIVE KNOWLEDGE THROUGH COLLABORATIVE ACTION RESEARCH: CASE STUDIES IN CONSTRUCTIONIST STEM EDUCATION <i>Karen Goodnough, Keith Power</i> 10.1.3 THE IMPACT OF WHOLE-SCHOOL INQUIRY-BASED TEACHER PROFESSIONAL DEVELOPMENT ON STEM ACHIEVEMENT: A CASE STUDY <i>Michael Shane Tutwiler</i>	10.2 ANGU 296 - Workshop 10.2 PATHWAYS TO IMPROVING MATHEMATICS AND SCIENCE LITERACY: STEM COMMUNITY ENGAGEMENT <i>Jo-Anne Marion Naslund, Shar Levine, Leslie Johnstone, Marina Milner-Bolotin</i>
	10.3 ANGU 347 - Workshop 10.3 CONFLICTS IN CHEMISTRY: THE CASE OF PLASTICS <i>Gigi Naglak, Stephanie Corrigan</i>	10.4 ANGU 237 10.4 CREATING A MAKERSPACE: USING LITTLEBITS TECHNOLOGY TO ENHANCE A LANGUAGE ARTS UNIT <i>Dereck Benjamin Dirom</i>
	10.5 SCARFE 1210 - Workshop 10.5 DEVELOPING 21ST-CENTURY MINDS WITH VERNIER PROBEWARE <i>Vernier International Inc</i>	
11:00-12:00	CLOSING KEYNOTE ESB 1013	
	Elizabeth Croft University of British Columbia, Canada THE NEXT GENERATION OF WOMEN IN STEM: MAKING TRANSFORMATIVE CHANGE	
12:00-1:00	CLOSING SESSION ESB 1013	
	Awards Ceremony STEM 2016 – Beijing Presentation	
2:30-4:00	TRIUMF TOUR	
	Optional tour of TRIUMF <i>Pre-registration is required at the TRIUMF booth in ESB, and is limited to 60 participants.</i>	