ASERA 2014 Program

WEDNESDAY	Stradbroke	Huntingfield	Delacombe	LaTrobe	Hotham	Hopetoun
Welcome to ASERA 2014 8.30 – 8.55						
Session 1 9.00 – 9.40	**Gail Chittleborough & Coral Campbell** *Assessing Science Literacy in the International Baccalaureate (IB) Primary Years Programme (PYP) in Australian schools* **Chair: Garry Hoban**		**Peter Fensham & Jasper Montana** *Challenges to Science Education and Science Communication: the case of the Murray-Darling River Basin* **Chair: Léonie Rennie**	**Nelson Cyril** *Mental Models in Acid-base Chemistry* **Chair: David Treagust**		**Julie Boston** *Understanding teachers' pedagogical reasoning and practices in an 'on-line' science classroom* **Chair: Jing-Ru Wang**
Session 2 9.45 – 10.25	**Anne Galvin** *The use of Information and Communication Technology-based Science resources by New South Wales Stage 3 Primary School teachers* **Chair: Mark Hackling**		**John Loughran, Stephen Keast, Ian Mitchell & Debra Panizzon** *Exploring the pedagogical reasoning of skilled teachers* **Chair: Anne Hume**	**Jennifer Donovan & Carole Haeusler** *Could your Year 3 and 4 students be atomic scientists? You bet they can!* **Chair: Christine McDonald**	**Tang Wee Teo & Yap Pui San** *Problematizing the construct "low ability" in science education* **Chair: Thanawit Tongmai**	**Zahra Parvaneh-nezhad** *Physics teachers' understanding of the use of formula in the context of motion* **Chair: John Kenny**
Morning Tea 10.30 – 10.50						
POSTER SESSION 1 (Running parallel to paper session 4 & 5 in Upper Foyer) 10.55 – 12.15						
	Meng-Fei Cheng, Jang-Long Lin, & Tsung-Yu Wu *Developing Explanatory Models of Magnetic Phenomena Through Model-Based Inquiry* **Poster**	**Peter Lee, Aik-Ling Tan & Yin-Hong Cheah** *Forms of Interaction and their Impact on Science Pre-service Teachers' Argumentative Discourse* **Poster**	**Sheau-Wen Lin, Yu Liu & Jing-Ru Wang** *Development and effects of a diagnostic teaching system on elementary students' science listening comprehension* **Poster**	**Mitsuru Nakajo, Hiroaki Kusunose, Aya Kunisawa & Ken Kawasaki** *Performance Assessment Applied in a Primary Science Lesson: The Principles of Parallel and Series Connections of two Batteries* **Poster**	**Hayashi Nakayama & Yuji Saruta** *A study of questions on the investigative method in Japanese primary school science textbooks* **Poster**	**Hideto Okuyama, Junko Tajima, Chiharu Tanaka & Gen Bando** Integration of Scientific Inquiry With The Picture-Story Show Toward Informal Learning at a Zoo **Poster**
Session 3 10.55 – 11.35	**Fiona Trapani, Christine Redman, Paul Chandler & Seamus Delaney** *Pre-Service Science teachers' perceptions of technology tools in the science classroom: towards developing capacity* **Chair: Julie Boston**	**Kathy Smith** *Positioning teachers as self-directed learners – the challenge for professional learning* **Chair: Anne Galvin**	**Rekha Koul & Vaille Dawson** *An inquiry based approach with Indian Science Teachers* **Chair: Bruce White**	**Sau-Kheng Au & Kok-Siang Tan** *Performance of Secondary School Students in Chemistry Practical Work: Does scaffolding a learning laboratory make a difference?* **Chair: Nelson Cyril**	**Warangkana Thongnoppakun & Siriwan Chatmaneerungcharoen** *Developing pre-service science teachers' understanding of the nature of science through problem-based science research course* **Chair: Sangeeta Varma**	**Andrew Gilbert** *Assessing the impact of a Critical Science framework on student conceptual understanding of sexually transmitted diseases* **Chair: Kian Keong Aloysius Ong**

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Session 4 11.40 – 12.20	**Wong Wai Lit & Wu Puwen** *Does Inquiry Or Direct Instruction Method Improve Student's Conceptual Understanding In Science?* **Chair: Yap Pui San**	**Seah Lay Hoon, Teresa Ong & Gracelyn Tan Yen Leng** *How do teachers talk about the language of school science in science classrooms: An exploratory study of 3 primary school teachers* **Chair: Cathy Bunnting**	**Bruce Waldrip, Sutopo & Franco Rodie** *Teachers' use of representations: The implications of culture* **Chair: Leah Moore**	**Judy Moreland, Bronwen Cowie & Michelle White** *Teachers adapting The Science Learning Hub online resources to enhance students' science learning* **Chair: Joseph Ferguson**	**Judith Gomes** *Everyday and Scientific concepts: Changing the nature of play* **Chair: Jennifer Donovan**	**Wen-Yen Tseng, Ming-Lynn Lee & Meichun Lydia Wen** *An eye-tracking study of metacognition in rich-information diagram reading* **Chair: Karen Marangio**
Session 5 12.25 – 1.05	**Rena Heap** *Time poor, Web 2.0 rich in a preservice teacher education science course* **Chair: Ian Mitchell**	**Yi-Fen Yeh & Ying-Shao Hsu** *A three-objective teacher education program based on Cultural-History Activity Theory (CHAT)* **Chair: David Clarke**	**Anne Hume & Cathy Buntting** *Using Content Representation (CoRe) design and the Science Learning Hub (SLH) to develop primary student teachers' pedagogical content knowledge (PCK) in science* **Chair: Coral Campbell**	**Rachel Sheffield, Geoff Quinton & Leonie McIlvenny** *Sharks, Whales and Potoroos; Using Inquiry problems to improve primary pre-service teachers' confidence in science and the inquiry process in an online environment* **Chair: Judith Gomes**	**Joanne Bourke** *Exceptional, Experienced, Excellent or Expert: What does it mean for Science Teaching?* **Chair: Mohamed Faizal Bin Badron**	**Tang Wee Teo & Yong Leng Kelvin Tan** *A visual ethnographic study of students' science research experience* **Chair: Richard Gunstone**
Lunch 1.10 – 2.00						
Session 6 2.05 – 2.45	**Christine McDonald** *How do our science textbooks measure up? A review of junior secondary science textbook usage in Australian schools* **Chair: Tang Wee Teo**	**Sabina Cleary & Lindsey Conner** *How can professional learning and development for science teachers accelerate outcomes for priority learners?* **Chair: Kathy Smith**	**David Palmer, Jeanette Dixon & Jennifer Archer** *Identifying the Fundamental Sources of Situational Interest* **Chair: Rachel Sheffield**	**Amanda Berry, Jan van Driel & Rebecca Cooper** *Are we headed in the right direction? Emerging issues in PCK research* **Chair: Rena Heap**	**Shwu-Jinng Wang, Wen-Pin Hsieh, Chia-Yu Wang, Ruey-Mei Lo, Yung-Ta Chang & Che-Di Lee** *Enhancing Vocational High School Students' Science Literary Through an Inquiry-based Bioethanol Curriculum* **Chair: Wen-Yen Tseng**	**Jing-Ru Wang** *Development and Validation of an On-line Dynamic Assessment for Raising Students' Comprehension of Science Text* **Chair: Wong Wai Lit**
Session 7 2.50– 3.30	**Stephen Keast & Karen Marangio** *Using moral dilemmas to explore science's place in personal, local and global issues: Are there benefits for pre-service teachers?* **Chair: Seah Lay Hoon**	**Marianne Logan, Amy Cutter-Mackenzie & Maia Osborn** *Teaching science and technology education through university-school-community partnerships* **Chair: Zahra Parvaneh-nezhad**	**Anne Forbes & Keith Skamp** *Knowing and learning about science in 'communities of science practice': The views of participating secondary students and teachers as mentors in the MyScience initiative* **Chair: Bronwen Cowie**	**Linda Hobbs** *Teaching out-of-field: Preparing Adaptable Teachers* **Chair: Joanne Bourke**	**Wei-Chen Lo, Chun-Te Lin, Chiao-Hua Lu, Yueh-Hsia Chang, Yi-Ting Huang & Hsiu-Ching Lin** *Cognitive Apprenticeship: A Professional Development Model to Enhance Teachers' Curriculum Development Skills* **Chair: Shwu-Jinng Wang**	**Frances Quinn, Terry Lyons, Nadya Rizk, Neil Anderson, Peter Hubber, John Kenny, Len Sparrow, Jan West & Sue Wilson** *Nobody is stopping girls besides themselves: they can change that whenever they please': Perspectives of first year university STEM students on male-dominated STEM courses* **Chair: Yi-Fen Yeh**

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Afternoon Tea 3.35 – 3.55						
Session 8 4.00 – 4.40	**Thanawit Tongmai** *Enhancing Pedagogical Content Knowledge in General Science Student Teachers through Microteaching Lesson Study* **Chair: Marianne Logan**	**George Aranda & Peter Hubber** *Examining how feedback from peers can be used in journal writing to promote reasoning by students in elementary science classrooms* **Chair: Frances Quinn**	**David Treagust & Mihye Won** *Are paradigms really important in conducting science educational research?* **Chair: David Palmer**	**Jacolyn Weller** *Tutorial Tasks that Multi-Task for PST Primary Science teacher Engagement* **Chair: Fiona Trapani**	**Kaushal Kumar Bhagata & Chun-Yen Chan** *Incorporating GeoGebra into geometry learning-A lesson from India* **Chair: Sau-Kheng Au**	**Julie Luft** *Newly Hired Teachers: A Five-Year Study* **Chair: Sabina Cleary**
Session 9 4.45 – 5.25	**Christoph Kulgemeyer, Elisabeth Tomczyszyn, & Horst Schecker** *A Constructivist Model on Science Teachers' Explaining Skills* **Chair: Rekha Koal**	**Mohamed Faizal Bin Badron & Kok Siang Tan** *Effects of Differentiated Multiple Intelligence-based lessons on student learning motivation in secondary school science* **Chair: Anne Forbes**	**Bruce White, Graham Hardy & Yvonne Zeegers** *Identifying pre-service science teachers' ability to identify misconceptions* **Chair: Andrew Gilbert**	**Dorothy Smith, Pamela Mulhall, Richard Gunstone & Christina Hart** *What account of science shall we give? A case study of Australian scientists teaching first-year university subjects* **Chair: Peter Fensham**	**Sangeeta Varma** *"Why I believe students are dispassionate about science" – Teachers' view in Science Education Research* **Chair: Yvonne Zeegers**	**Azra Moeed** *Investigating Science Investigation: A robust case study design* **Chair: Wei-Chen Lo**

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Session 1 8.30 – 9.10	**Shuichi Yamashita** *How fourth grade students explain and express their thoughts about how water is heated?* **Chair: Sheng-Chang Chen**	**Wen-Tsung Yang, Hsiao-Ching She, Yu-Ren Lin, & Kai-Yi Huang** *A Study of Social vs. Individual Online Argumentation-based Inquiry Learning* **Chair: Kaushal Kumar Bhagata**	**Fiona Mayne & Christine Howitt** *Getting the best out of science education research with young children: Setting up an effective participatory research project* **Chair: Brendan Briggs**	**Tracey-Ann Palmer, Peter Aubusson & Paul Burke** *Finding fresh minds for science: To choose or not to choose… science* **Chair: Amanda Berry**	**Isaac Buabeng, Lindsey Conner & David Winter** *Physics teachers' perceptions of their initial teacher education* **Chair: Efrat Eilam**	**SuChi Fang & Ying-Shao Hsu** *Examining the effect of technology-infused inquiry learning environments through multi-level assessments: Lessons learned from a pilot study* **Chair: Sung-Tao Lee**
Session 2 9.15 – 9.55	**Anna Wilkinson & Christine Preston** *Talking about toys* **Chair: Julie Luft**	**Jennifer Yeo & John Gilbert** *Some representational challenges students face in constructing a causal explanation* **Chair: Christoph Kulgemeyer**	**Carrie Swanson** *Deepening understanding of what a scientist is and does using the dramatic technique of 'Role on the Wall'* **Chair: Cheryl Jakab**	**Deborah Corrigan, Cathy Buntting, Alister Jones & Richard Gunstone** *The future in learning science: what's in it for students?* **Chair: Beverley Lowe**	**Zane Qiao Zheng Lao & Kok-Sing Tang** *The impact of a disciplinary literacy approach to meaningful talk: Sharpening the language of science in secondary school physics lessons* **Chair: Shu-Fen Lin**	**Yueh-Hsia Chang** *Inquiry-based Teaching Practice in a Science Curriculum Reform Program* **Chair: Lisa Chiavaroli**
Session 3 10.00 – 10.40	**Shukla Sikder & Marilyn Fleer** *Small science: Infants and toddlers experiencing science in everyday family life* **Chair: Jacolyn Weller**	**Hongming Ma** *Classroom factors that influence students' situation-related affective experience in learning science* **Chair: Wen-Lung Wu**	**Kian Keong Aloysius Ong, David Clarke & Christina Hart** *Using CHAT (Cultural Historical Activity Theory) to examine how school and classroom contexts influence science teachers' instructional practices* **Chair: Dorothy Smith**	**David Paterson** *Who gives a toss? Using research data to improve student engagement in science* **Chair: Deborah Panizzon**	**Mahbub Sarkar** *Teachers' perceived challenges in teaching for promoting scientific literacy: A Bangladesh perspective* **Chair: Azra Moeed**	**Louisa Tomas & Donna Rigano** *Managing emotions in a science classroom* **Chair: Lihua Xu**
Morning Tea 10.45 – 11.05						
POSTER SESSION 2 Running parallel to paper session 4 & AGM in Upper Foyer 11.10 – 12.50						
Houn-Lin Chiu, Chia-Ju Liu, I-Lin Hou *The multi-cultural science curriculum for New Taiwanese Children* **Poster**	**Kuen-Yao Yuan & Sung-Tao Lee** *Using qar strategy to help students' science reading comprehension Performances* **Poster**	**Tzu-Ling Wang & Yi-Kuan Tseng** *The effects of combining static and dynamic visualization instruction on elementary school students' conceptual understanding and motivation to learn science* **Poster**	**Jia-Chi Liang** *The effect of inclusion of multidimensional scientific literacy in science courses on non- science major undergraduates' attitudes toward science* **Poster**	**Shiho Miyake & Hayashi Nakayama** *How did the world trend of sustainable development affect Japanese science Education research?* **Poster**	**Peta White** *Science inquiry in a remote indigenous community* **Poster**	**Chika Yamahashi, Etsuji Yamaguchi & Shigenori Inagaki** *Evaluation of an inquiry-based picture-story show for supporting zoo visitors' Scientific observations* **Poster**

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Session 4 11.10 – 11.50	**Ian Mitchell** *Constructing and using big ideas to improve teaching and learning* **Chair: Hongming Ma**		**Russell Tytler & George Aranda** *Teachers' discursive moves in science classroom interactions* **Chair: David Paterson**	**Jung-Yi Hung, Hsin-Yi Chang & Jeng-Fung Hung** *Visualization, Metavisualization and Metacognition: an Analytic Framework Based on a Science Teacher Visualizing the Concept of Carbon Cycling* **Chair: Hsiao-Ching She**	**Elisabeth Tomczyszyn, Christoph Kulgemeyer, & Horst Schecker** *Assessing Science Teacher Trainees' Explaining Skills* **Chair: Yueh-Hsia Chang**	**Efrat Eilam & Zemira Mevarech** *An Index for Measuring the Level of Complexity of Scientific Inquiries: The LCCI Index and Its Relationship with Metacognitive Activity* **Chair: Miao-Hsuan Yen**
AGM 11.55 – 12.55	POSTER SESSION 2 CONTINUES	**ASERA ANNUAL GENERAL MEETING**		POSTER SESSION 2 CONTINUES		
Lunch 1.10 – 2.00						
Session 5 2.05 – 2.45	**Christine Preston** *Primary students' explanations about electricity* **Chair: Fiona Mayne**	**Dayle Anderson & Azra Moeed** *Working at the elbow of a scientist: Sustained impact of primary professional development in science* **Chair: Shukla Sikder**	**Gillian Kidman** *Science Inquiry Skills: A Comparison with Inquiry in the Australian Curriculum for History and Geography* **Chair: Linda Hobbs**	**Cheryl Jakab & Christine Redman** *Outlining a novel interview design: Positively positioning children to explore meaning-making with science ideas* **Chair: Jennifer Yeo**	**Brendan Briggs & Leah Moore** *Dark-side science: Jungian shadow aspect and primary students' 'sense of wonder'* **Chair: Carrie Swanson**	**Sung-Tao Lee** *The investigation of college students' critical reading performance in science news* **Chair: Shuichi Yamashita**
Session 6 2.50 – 3.30	**Donna King, Stephen Ritchie, Senka Henderson, Maryam Sandhu & Benjamin Boland** *It's so annoying! The resolution of negative emotions in Year 9 chemistry* **Chair: Louisa Tomas**	**Jenny Arnold & Lyn Carter** *Pro-environmental engagement in preservice teacher education* **Chair: Tracey-Ann Palmer**	**Keith Skamp, Eddie Boyes, Martin Stanisstreet et al.** *Power generation and sustainability options: An international study of students' beliefs about, and willingness to act, in relation to two energy production scenarios.* **Chair: Lindsey Conner**	**Christine Howitt & Léonie Rennie** *Science outreach programs for young children: Effective pedagogical roles for informal educators* **Chair: Anna Wilkinson**	**Sheng-Chang Chen, Mi-Shan Hsiao & Hsiao-Ching She** *Exploring high school students' atomic concepts and mental models with eye movement behaviors involving in different 3D animations* **Chair: SuChi Fang**	**Kennedy Kam-Ho Chan & Benny Hin-Wai Yung** *Experienced Teachers' Development of Pedagogical Content Knowledge for Teaching a New Topic* **Chair: Mahbub Sarkar**
Afternoon Tea 3.35 – 3.55						
Session 7 4.00 – 4.40	**Kathryn Paige, Brendan Bentley, & Stephen Dobson** *Slowmation: An innovative learning experience to enhance primary/middle pre-service teachers' science conceptual understanding* **Chair: Kennedy Kam-Ho Chan**	**Sung-Pei Chien, Hsin-Kai Wu, Pai-Hsing Wu, Ying-Shao Hsu** *Structural equation models of science teachers' beliefs about technology-based assessments* **Chair: Siriwan Chatmaneerungcharoen**	**Debra Panizzon, Stephen Keast, Rowan Brookes & Cristina Varsavsky** *Exploring the implementation of 'Threshold Learning Outcomes' in the sciences* **Chair: Elisabeth Tomczyszyn**	**Beverly Lowe & Ken Appleton** *Here We are Again: Implementing a New Science Curriculum* **Chair: George Aranda**		**Lisa Chiavaroli** *Understanding Students' Science Identities: Insights from a Year 10 Classroom-Based Biotechnology Experience* **Chair: Barbara Backshall**

THURSDAY (cont)	**Stradbroke**	**Huntingfield**	**Delacombe**	**LaTrobe**	**Hotham**	**Hopetoun**
Session 8 4.45 – 5.25	**Wendy Nielsen & Garry Hoban** *Negotiating Understanding through Creating a Slowmation (Slow Animation): A Case Study of Preservice Primary Teachers Representing Phases of the Moon* **Chair: Gillian Kidman**	**Shu-Chiu Liu & Huann-shyang Lin** *The effectiveness of an issue-based environmental studies course on undergraduate students' environmental attitudes* **Chair: Dayle Anderson**	**NARST PAPER** **Valarie Akerson, Khemmawadee Pongsanon, Ingrid Weiland & Vanashri Nargund-Joshi** *Developing a Professional Identity as an Elementary Teacher of Nature of Science: A self-study of becoming an elementary teacher* **Chair: Christine Howitt**	**Marissa Rollnick & Elizabeth Mavhunga** *The relationship of PCK Knowledge to Practice: a case study of two Pre service teachers' use of knowledge for teaching factors affecting chemical equilibrium* **Chair: Zane Qiao Zheng Lao**		**Foez Ahmed Mojumder** *Exploring secondary students' attitudes towards school science in Bangladesh* **Chair: Jung-Yi Hung**
Dinner 7.00 – 12.00						

FRIDAY	Stradbroke	Huntingfield	Delacombe	LaTrobe	Hotham	Hopetoun
Session 1 9.15 – 9.55	**Mellita Jones, Linda Hobbs & Andrew Gilbert** *Growing university-school partnerships in science teacher education: An interpretive framework* **Chair: Donna King**	**Craig Rofe, Sharyn Cassidy & Lani Goldsmith** *'Ako' A collaborative approach to Science Teaching* **Chair: Jenny Arnold**	**Mark Hackling** *The Status of STEM education in Australia: Challenges and opportunities* **Chair: Keith Skamp**	**Marilyn Fleer** *Imaginary situations & scientific abstractions in preschool play: The role of imagination and creativity in learning science concepts* **Chair: Christine Preston**	**David Bottomley** *Technology as Curriculum: the story of F. W. Sanderson at Oundle School, England (1892-1922)* **Chair: Shu-mey Yu**	**Derek Cheung & Hiroki Fujii** *Predicting Students' Self-Efficacy for Learning Electrolysis* **Chair: Foez Ahmed Mojumder**
Session 2 10.00 – 10.40	**Vaughan Prain & Bruce Waldrip** *Reasoning through representing: Theory and practice* **Chair: Kathryn Paige**	**Claudia James** *Dot drawing: investigating the dot's potential as a meaning-making tool in the primary science classroom* **Chair: Shu-Chiu Liu**	**Leah Moore** *Doing More with Less: Maintaining Science and Technology Preservice Teacher Quality on a Budget* **Chair: Valerie Akerson**	**Barbara Backshall** *A culture for science education in early childhood education: Implications for the early childhood environment.* **Chair: Wendy Nielsen**	**William Palmer** *Elements of chemistry: the books and their authors (1850-1880)* **Chair: Sung-Pei Chien**	**Adam Bertram & Alberto Maringer** *Exploring the Pedagogical Reasoning of a Physics Teacher Educator* **Chair: Marissa Rollnick**
Morning Tea 10.45 – 11.05						
Session 3 11.10 – 11.50	**Coral Campbell & Gail Chittleborough** *Building primary teachers' capacity to teach science by investing in science specialists* **Chair: Melita Jones**	**Richard White** Questions bearing on the relation of research to practice	**Joseph Ferguson & Chris Szwed** *Using an Interactive Whiteboard & Screencasting Tool to Explore Natural Selection - Coordinating Multiple Representations through the Use of Digital Technology* **Chair: David Bottomley**	**Wen-Lung Wu & Mei-Hung Chiu** *Investigating the influence of particle-oriented two-stage teaching design on primary school students' learning of phase transitions* **Chair: Adam Bertram**	**Miao-Hsuan Yen & Ying-Tien Wu** *Reading online information about socio-scientific issues: the role of informal reasoning ability* **Chair: Craig Rofe**	**Shu-mey Yu & Mei-chin Chen** *Second graders' generated butterfly multiple representation integrative models* **Chair: Claudia James**
Session 4 11.55 – 12.35	**Lihua Xu** *The shifting identities of the "new" science specialists* **Chair: Marilyn Fleer**		**Garry Hoban, Shannon Marecic, Amanda Nascimento, Wendy Rowan & Heidi Seidel** *Engagement of Secondary Science Teachers with a RepresentationalPedagogy: The Influences of Context on Professional Learning* **Chair: Bruce Waldrip**	**Siriwan Chatmaneerungcharoen** *Developing Pre-service Science Teachers' Perceptions of Technological Pedagogical Content Knowledge (TPACK) through ICT professional development* **Chair: William Palmer**		**Shu-Fen Lin, Huann-shyang Lin & Ling Lee** *The Effect of Science Comics on High School Students' Informal Learning of Nanotechnology* **Chair: Derek Cheung**
Lunch 12.40 – 1.30						
Delegates depart						