INTERNATIONAL CONFERENCE ON TEACHING AND LEARNING WITH TECHNOLOGY

DO IT! TRANSFORM LEARNING, SHAPE THE FUTURE.

SUNTEC SINGAPORE
INTERNATIONAL CONVENTION & EXHIBITION CENTRE

27-30 MARCH 2012
www.ictlt.com
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Message from the Conference Co-Chairpersons

Welcome to the 3rd International Conference on Teaching and Learning with Technology, iCTLT 2012 (27 - 30 March 2012)

The International Conference on Teaching and Learning with Technology, iCTLT 2012, is a premier conference where delegates can get up-to-date on the developments of educational technology in terms of research, pedagogy and technological solutions. Delegates can also look forward to many opportunities to connect and collaborate with educators from individual countries and regions on matters of common interest in the use of ICT to create an engaging and effective education for students.

Jointly organised by the Ministry of Education (MOE), Singapore and the International Society for Technology in Education (ISTE®), U.S., and Academy of Principals (Singapore) the conference theme, ‘Do IT! Transform Learning, Shape the Future.’, highlights best practices, research and thought-provoking speakers from both the Asia-Pacific Region and from around the world.

iCTLT 2012 is being held in conjunction with the MOE-ExCEL Fest. We hope you will visit MOE-ExCEL Fest on 30 and 31 March as Singapore schools showcase creative learning and teaching approaches currently in use. Experience how innovative lessons are conducted and view exciting and innovative projects underway in our schools.

You should anticipate a most enjoyable and professionally satisfying event exploring how educators can create ICT-enriched learning environments that support self-directed and collaborative learning among students and illustrating how theory can be translated into practice.

We look forward to your participation in iCTLT 2012.

Adeline Chong
Assistant Director,
Ministry of Education

Dr Don Knezek
Chief Executive Officer,
International Society for Technology in Education

Ezra Ng
Executive Director,
Academy of Principals (Singapore)
ABOUT THE ORGANISERS

Ministry Of Education

The Ministry of Education (MOE) directs the formulation and implementation of education policies in Singapore. MOE aims to help all Singaporean children discover their own talents, realise their full potential, and develop a passion that lasts through life. Its vision statement is “Thinking Schools, Learning Nation”. MOE is also committed to building up teachers as a quality professional force.

Please visit www.moe.gov.sg for more information.

International Society for Technology in Education

The International Society for Technology in Education (ISTE) is the premier membership association for educators and education leaders engaged in improving teaching and learning by advancing the effective use of technology in PreK - 12 and teacher education.

Visit www.iste.org to learn more about ISTE.

Academy of Principals (Singapore)

The Academy of Principals (Singapore) (APS) is a professional body that partners Ministry of Education (MOE) and the National Institute of Education (NIE) to provide support for Singapore school principals as they lead schools into a new and exciting era of educational changes. It also serves as a platform for our school principals to reach out to local and overseas colleagues from affiliated associations, institutions of higher learning, corporate and industry partners to share ideas, debate issues and discuss policy initiatives, all of which will contribute toward building sustainable leadership through strong and mutually-beneficial networks.
### MAIN CONFERENCE - DAY 1: THURSDAY, 29 MARCH 2012

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<td>08.00am</td>
<td>Breakfast &amp; Networking</td>
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<td>09.00am</td>
<td>Arrival of Guest-of-Honour: Mr Hawazi Daipi</td>
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<td>Senior Parliamentary Secretary</td>
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<td>9.05 am</td>
<td>Welcome Address</td>
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<td>Leading, Learning, Achieving: The Realities of the Digital Age</td>
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<td>Successful Pedagogies for Inquiry and Knowledge Building:</td>
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<td>Teachers’ Learning Journeys in Networked Communities</td>
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<td>12.00pm</td>
<td>Lunch / Exhibition</td>
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<td><strong>Larry Johnson</strong></td>
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<td><em>A Sociological Retrospective On Technology and What It Means in Our Lives</em></td>
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<td>3.30pm</td>
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<td>5.30pm</td>
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Hall Davidson began teaching in 1971. He taught middle and high school English, mathematics, Spanish, and bilingual mathematics. Davidson has been on two college faculties teaching technology for teacher credential candidates. He left the classroom to teach math on television in Los Angeles on an Emmy-winning program and spent 20 years at Los Angeles area PBS stations teaching, leading staff development, championing content creation by students and teachers, and ultimately producing television series on education, technology, parenting, and theater. He frequently contributes articles to national education publications and co-authored TechWorks, an internationally distributed classroom technology kit and with a team founded Kitzu.org, a resource of free online kits to encourage project-based learning with media. He was elected to the board of Computer-Using Educators where he served for six years.

For twelve years Davidson coordinated the nation’s oldest student media festival, the California Student Media Festival, where he reviewed over a thousand student projects. He has keynoted major technology conferences and consulted for professional organizations and corporations and has been on advisory boards and committees for organizations as diverse as the Academy of Television Arts and Sciences and the California School Library Association. He has two children who attended Los Angeles public schools, one of whom graduated from UCSC and is preparing for graduate work in education at the University of Southern California. He was twice re-elected as site chairperson at the local elementary school where the categorical budget required his signature.

Hall Davidson joined Discovery Education in 2005 where he blogs, creates webinars, works in educational partnerships and serves as director of Global Learning Initiatives. He has spoken about technology and education to audiences around the world.

In 2011, Davidson received the prestigious “Make IT Happen” award, an internationally recognized program from ISTE for educators and leaders in the field of educational technology integration in K-12 schools.

**Keynote Synopsis**

**Leading, Learning, Achieving: The Realities of the Digital Age**

From North America to Asia, educational institutions are beginning a serious conversion towards digital - a move from trees to bits. Moving classroom practice more deeply into digital resources provides major benefits for differentiation, extended learning, remediation, and accountability. But how does it happen? What’s the immediate effect on test scores? One successful strategy for transformation begins with meaningful integration of technology to support the core curriculum by using engaging digital tools. Students must become more than passive learners to succeed in the
21st Century - they must become content creators and problem-solvers. Technology integration is the perfect way to accomplish this. This is also necessary because the way in which students learn has changed as the world has changed. This session explores current strategies and classroom examples, and looks at what teaching and learning will look like in the near future and why we must respond to it.

For generations, students lived with textbooks with “print DNA”: linear, undifferentiated, and nondynamic. New ‘techbooks’ arrive with cloud-based media DNA: fluid, differentiated, embedded and rich as the world wide web. Now across North America and around the world, trailblazing ministries and schools have begun a serious conversion to digital—a move from trees to bits. Moving classroom practice more deeply into digital resources provides major benefits for differentiation, extended learning, remediation, and accountability. Techbooks (fully digital resources) have moved into model schools with extremely positive results across grade levels. Techbooks may be the bridge between traditional teachers and the benefits of online learning. But how does it happen? What kind of professional development is necessary for success? What’s the immediate effect on test scores? See how 21st century skills integrate into traditional curriculum, enhancing both. Watch how the magic of tablets (like the iPad and its cousins) bring a cloud of learning into the hands of students: a deep and immediate connection to learning. And bring your mobile phones and machines for an interactive Bring Your Own Device exercise.

**Spotlight Synopsis**

**From Trees to Bits: Moving Education into the 21st Century**

For generations, students lived with textbooks with “print DNA”: linear, undifferentiated, and nondynamic. New ‘techbooks’ arrive with cloud-based media DNA: fluid, differentiated, embedded and rich as the world wide web. Now across North America and around the world, trailblazing ministries and schools have begun a serious conversion to digital—a move from trees to bits. Moving classroom practice more deeply into digital resources provides major benefits for differentiation, extended learning, remediation, and accountability. Techbooks (fully digital resources) have moved into model schools with extremely positive results across grade levels. Techbooks may be the bridge between traditional teachers and the benefits of online learning. But how does it happen? What kind of professional development is necessary for success? What’s the immediate effect on test scores? See how 21st century skills integrate into traditional curriculum, enhancing both. Watch how the magic of tablets (like the iPad and its cousins) bring a cloud of learning into the hands of students: a deep and immediate connection to learning. And bring your mobile phones and machines for an interactive Bring Your Own Device exercise.
Nancy Law  
*Professor and Associate Dean, Faculty of Education  
Director, Centre for Information Technology in Education  
University of Hong Kong*

Professor Law is internationally known for her work in the area of applying information technology (IT) to enhance learning and teaching, particularly in the area of international comparative studies of pedagogical innovations using IT, models of ICT integration in schools and change leadership, and IT-supported knowledge building for students, teachers and professional communities. A unique feature of her research is the depth of analyses and insight coupled with a remarkable breadth spanning many levels, from classrooms and schools to whole educational systems-characteristics she considers to be essential to address, both in theory and in practice, the sustainability and scalability of IT-supported educational innovations. Her research findings reveal the complex interactions taking place when IT and educational innovation are introduced. Her current research focus is to apply design research methods to build network models of innovation that integrate teacher professional development and school leadership development with pedagogy, assessment and learning technology co-design. This work aims to derive design principles for building university-led innovation networks that are grounded on the best knowledge from learning sciences research and capable of scaffolding sustainable change. Professor Law is very much sought after as keynote speaker in many high profile international conferences and as expert consultant by UNESCO, OECD, European Commission and Worldbank on various projects related to pedagogy, assessment and implementation of IT in education to prepare learners for the 21st century. She serves on the Executive Board of the International Society of the Learning Sciences.

**Keynote Synopsis**

**Successful Pedagogies for Inquiry and Knowledge Building: Teachers’ Learning Journeys in Networked Communities**

Inquiry-based learning and online discussions have become popular as an approach to developing students’ abilities for the 21st century - self-directed learning, problem-solving, critical thinking. On the other hand, many teachers have been disappointed by students’ lack of enthusiasm beyond social exchanges when they try to incorporate online discussion forum activities to support student collaborative co-construction of knowledge. In this session, Nancy Law will share the insight on what are the key elements that constitute successful pedagogies for inquiry and knowledge building based on in-depth studies of teachers’ learning journeys over years of persistent efforts to implement knowledge building in their classrooms. She has led various ‘Learning Community Projects’ since 2001 to support and investigate the development of life-long learning abilities in collaborative learning contexts using technology ([http://lcp.cite.hku.hk](http://lcp.cite.hku.hk)). Since 2006, the Education Bureau HKSAR has provided funding to scale up these efforts through the Professional Development Network for Knowledge Building in Schools, alias Knowledge Building Teacher Network (KBTN) ([http://kbtn.cite.hku.hk](http://kbtn.cite.hku.hk)).

In achieving success in implementing knowledge building as a pedagogical approach, teachers have to overcome many
hurdles from conceptual understanding, to pedagogical design and execution, to institutional and community support. Another challenge to teachers with limited time is how to quickly find out students’ knowledge building advancement and possible impasses from their online discourse to provide timely and appropriate facilitation. In addition to presenting the basic design features as well as the fine-tuning of pedagogical patterns that have been identified in teachers’ learning journeys, this talk will also introduce some indicators that can inform teachers of students’ knowledge building advancement. These indicators are generated by COLODA, a semi-automated discourse analysis tool jointly developed by research and development teams at Centre for Information Technology in Education, University of Hong Kong, & Research Center of Knowledge Engineering, Beijing Normal University.
Larry Johnson
Chief Executive Officer
New Media Consortium

Larry Johnson is an acknowledged expert on emerging technology and its impact on society and education, and has written five books, seven chapters, and published more than 50 papers and research reports on the topic. He speaks regularly on the topics of creativity, innovation, and technology trends, and has delivered more than 75 keynote addresses to a long list of distinguished groups and organizations all over the world. He is the founder of the Horizon Project, which produces the acclaimed series of Horizon Reports that are used by over a million educators in more than 75 countries.

Johnson currently serves as Chief Executive Officer of the New Media Consortium, an international not-for-profit consortium dedicated to the exploration and use of new media and new technologies, and Director of the Edward and Betty Marcus Institute for Digital Education in the Arts (MIDEA). The NMC’s and MIDEA’s hundreds of member institutions constitute an elite list of the most highly regarded universities, museums, and research centres in the world. In his current post at the NMC, Johnson routinely brings visionaries and thought leaders from across the globe together to define and explore new ways of thinking about and using technology, and to examine emerging trends and issues. The NMC’s annual Horizon Report, now published in six languages, has become one of the leading tools used by senior executives in universities and museums to set priorities for technology planning. NMC summits and large-scale projects have helped set the agenda for topics such as visual literacy, learning objects, educational gaming, immersive learning, the future of scholarship, and social networking.

Having served as president and senior executive at institutions in both the higher education and not-for-profit realms, Johnson has more than 25 years of experience in the global education arena, and has served in campus roles from professor to dean, CIO and provost, and president. His educational background includes an MBA in Finance and a Ph.D. in Education that focused on research and evaluation. Among much other recognition, Johnson has been honoured as a Distinguished Graduate by his alma mater, the University of Texas at Austin.

School Leaders Track Synopsis

Making Sense of Horizon Report in the Singapore Context

Synopsis
The NMC Horizon Project, as the centerpiece of the NMC Emerging Technologies Initiative, charts the landscape of emerging technologies for teaching, learning, research, creative inquiry, and information management. The NMC Horizon Project has helped educators and thought leaders across the world build upon the innovation happening at their institutions by providing them with expert research and analysis. In this session, Dr Larry Johnson will help us in exploring two pertinent questions about ICT in education based on the findings reported in Horizon Report:

1. Which key technologies catalogued in the Horizon Project will be most relevant Singapore Schools within the next 5 years?
2. How do the key technologies in the Horizon Project impact the development of 21st century competencies among students in Singapore?

Keynote Synopsis

**A Sociological Retrospective On Technology and What it Means in Our Lives**

After a decade of tracking the evolution of emerging technology as part of the New Media Consortium’s globally focused Horizon Project, Larry Johnson, the Horizon Project’s founder and visionary leader, has spent years reflecting on how we think about technology and how that influences our ability to use and deploy it creatively. In this session, he will use the lens of family and family ties to show how our perspectives on technology are formed, and how we can use that insight to interpret the trends we see around us. Our perspectives on technology and what is possible are largely determined by when we were born, rather than our training and experience with the current tools and options available to us. Indeed, the very notion of what constitutes technology is something that profoundly changes over time. From his research, it is clear that the events of the world around us - things we collectively experience within a generation - are hugely significant influences in the ways we think about learning, about work, and even in the way we play. These forces are at work everywhere in the world and in every sector of education.

When the not-for-profit Horizon Project was launched by the New Media Consortium in 2002, we had no idea that the project would still be relevant and growing a decade later. Our initial goal was to metaphorically find a hill to stand on that would give us somewhat of a glimpse into where educational technology was going. Today, the project has grown to a global scope, with a clear mission to identify and describe emerging technologies likely to have a large impact over the coming five years on a variety of sectors around the globe. The reports generated from the project are used all over the world as a strategic technology planning tool. Join in this discussion of where the Horizon Project has been and where it is going!

Spotlight Synopsis

**Reflections: The Horizon Project at Ten Years**

When the not-for-profit Horizon Project was launched by the New Media Consortium in 2002, we had no idea that the project would still be relevant and growing a decade later. Our initial goal was to metaphorically find a hill to stand on that would give us somewhat of a glimpse into where educational technology was going. Today, the project has grown to a global scope, with a clear mission to identify and describe emerging technologies likely to have a large impact over the coming five years on a variety of sectors around the globe. The reports generated from the project are used all over the world as a strategic technology planning tool. Join in this discussion of where the Horizon Project has been and where it is going!
Chai Ching Sing
Associate Professor
Learning Sciences and Technologies
National Institute of Education (NIE) Singapore

Chai Ching Sing has studied associated factors that influence teachers’ decision and use of ICT in the classrooms for the past decade. He is currently doing research on teachers’ technological pedagogical content knowledge and has published several papers in this area.

Spotlight Synopsis

Designing TPACK Lessons

The TPACK Framework has been recently proposed to be a promising theoretical framework for the study of ICT integration into subject matter learning. Many intervention studies have been carried out especially in the US and to a lesser extent in Asia. Almost all such studies indicate positive effects on teachers’ ability to use ICT for subject-based teaching. In this presentation, some studies based on work done in Singapore will be presented together with a design guide based on the TPACK framework for school teachers to consider.
Spotlight Speakers

Holly Jobe
President, International Society for Technology in Education (ISTE)

Holly Jobe has been involved in all levels of education from elementary, middle school, high school, central office and higher education. Her interests are in how educational technology can reform education and fully engage students in taking responsibility for learning; and educational leadership.

From 2006-2011, Ms Jobe served as the project manager for the Classrooms for the Future high school reform program at the Pennsylvania Department of Education (PDE). Classrooms for the Future was a large-scale technology implementation project with over 540 schools affecting 500,000 students and providing professional development to teachers primarily through instructional coaching.

Prior to being at the PDE, Ms Jobe was at the Montgomery County Intermediate Unit, a regional educational service agency where she served as a Technology Specialist and Supervisor before becoming the Director of the technology program in 1995. In that capacity, she supervised the delivery of instructional materials, technical repair, internet services and technology staff development for 21 school districts outside of Philadelphia, PA.

Ms Jobe was the project lead for several state-wide professional development and leadership initiatives: the Bill and Melinda Gates Foundation State Challenge for administrator technology professional development, Pennsylvania's Superintendent Technology Leadership Academy from 2000-2004, and Getting to One, leadership development for Curriculum and Technology Leaders in 2005.

Ms Jobe began her educational career in Beirut, Lebanon and has made numerous study trips to countries around the world. Most recently, she participated in a People-to-People Citizen’s Ambassador delegation for Educational Technology in the People’s Republic of China in 2008; in 2010 assisted in training ICT mentors for the Ministry of Education in Singapore; and participated in CoSN study tours to BETT in London as well as UNESCO in Paris in January 2011, and to Uruguay and Argentina in November 2011. She currently serves as President of the International Society for Technology in Education board of directors.

Spotlight Synopsis 1

Igniting Students’ Self-directed Learning

In a rapidly changing world, students will increasingly need to be self-motivated and life-long learners to keep up with developments in their chosen professions. This session will examine the foundation for developing effective habits of mind to ensure students will thrive well into the 21st Century.
Spotlight Synopsis 2

Coaching and Mentoring as a Powerful Change Management Strategy

Teachers are often challenged with integrating new technologies and teaching strategies in their classrooms. Coaching and Mentoring provide on-going, job-embedded professional development to teachers as they integrate ICT and teaching strategies that meet students’ learning needs. This session will highlight the value of coaching and draw on the ICT Mentor training partnership between the Singapore Ministry of Education and the International Society for Technology in Education (ISTE).
Mary Anne Mills is the curriculum manager for CORE Education, New Zealand, a not-for-profit educational research and development based organization, focused on supporting and promoting the use of new technologies for learning across all education sectors. Her expertise is curriculum design and school review.

Mary Anne has held various senior management positions in schools. She has been a lecturer and course coordinator at the Graduate School of Secondary Education, Wellington College of Education (now Victoria University) in the social sciences and professional learning programmes. She was the project manager for the Ministry of Education overseeing the redevelopment of the New Zealand Curriculum.

Mary Anne is currently leading CORE’s curriculum work with school leaders and teachers on a range of facilitated professional services. She is part of the CORE team developing online tools for school self review and eLearning professional development for teachers.

Spotlight Synopsis 1

Effective eLearning Practices that Impact on Student Outcomes

“For teachers to improve their practice they learn best from other teachers provided that these teachers are also working on improvement. These exchanges are thus purposeful, and based on evidence.”

- Learning is the Work, 2011 Michael Fullan

This spotlight will explore and discuss examples of New Zealand teachers changing practice by:

1. shifting their teaching approach to more student centred learning using new technologies
2. using a model of “Teaching as Inquiry” to reflect on their impact of their teaching on students
3. using a blended model of professional learning (online and face to face) to share new learning both across and within schools

Spotlight Synopsis 2

How Can School Leaders Redefine, Redirect and Reshape Their Schools to Focus on Future Orientated Curriculum?

In New Zealand, while still meeting the demands and of existing community and government requirements, many school leaders have taken up the challenge to shift their school cultures to meet the vision of the New Zealand curriculum to enable students to be “confident, connected, actively involved, lifelong learners”. To do this school leaders need strong self review processes to help them manage, monitor and evaluate the impact of constant school change and development within schools.
This “spotlight” will focus on an online framework for whole school development. This framework evaluates how well a school is meeting the aspirations and goals it has set itself.

It will explore how some schools in New Zealand have used the framework to engage their school community (teachers, students, parents and others) in establishing what the educational landscape looks like and where their school is located. Using this evidence and other documentation schools identify their shared values and beliefs and plan their future focus and priorities to bring about the desired changes.
Richard DeLorenzo
Founder of Re-Inventing Schools Coalition (RISC)
Reinventingschools.org

Richard DeLorenzo, an internationally known leader in education reform and organization restructuring, is best known for his uniquely comprehensive “grass roots” approach to reinvent our educational systems. Mr. DeLorenzo led the first K-12 district in America to go from a time-based system to a performance-based system where students must meet performance targets to graduate instead of earning credits. This has been successfully demonstrated within his Alaskan Chugach School District and 100 schools throughout Alaska. This historically challenged system made phenomenal strides and was one of the first ever education recipient of the prestigious National Malcolm Baldrige Quality Award in 2001 and the National Native American Exemplar Award.

Mr DeLorenzo is also founder of the Re-inventing Schools Coalition (RISC). This organization is currently working with stakeholders in over 250 educational systems to guide them in the areas of leadership, shared vision, standards-based systems and continuous improvement that will help transform their organization. Their mission involves producing innovative schools that offer every child the opportunity to fulfill his or her life dreams. Besides guiding districts in America, Mr DeLorenzo has been invited to speak in India, Hong Kong, Singapore, New Zealand, Australia, Japan, South Africa, Argentina, Ukraine and England.

Spotlight Synopsis 1
Reinventing Our Schools
Fifteen years ago, 90 percent of the Chugach School District students could not read at grade level, and the District had only one university graduate in 20 years. Following Mr. DeLorenzo’s desire to bring excellence to education and working in collaboration with those of similar mind, a long, but steady, transformation began using the Reinventing School’s philosophy that resulted in the Chugach District becoming one of the first winners of the prestigious Malcolm Baldrige Award for performance excellence. Using Shared Vision, Systemic Leadership, Personalized-Mastery, ICT and Continuous Improvement this educational revolution will not only prepare children for the 21st century but also create a system where students can accelerate their learning and unleash their full potential.

Spotlight Synopsis 2
How To Move From Vision to Practice
Following the “Reinventing our Schools” presentation, Mr. DeLorenzo will show what the next generation of learning and technology can be in schools. What does an educational system that has the vision but needs to understand the critical steps to deploy this vision? How does ICT help every child realize their potential and fulfill their life dreams? Mr. DeLorenzo will share how he has helped transform hundreds of schools that were under-performing or average-performing but had the desire to be world class.
Sangeet Bhullar is an Internet Consultant and Executive Director and founder of WISE KIDS, a non-profit organisation, established in October 2002. WISE KIDS provides training and consultancy in New Media, Internet and Mobile Technologies, Digital Literacy, Proficiency and Safety. WISE KIDS works with young people and educators from schools, colleges and youth organisations as well as other communities of professionals like school governors, public and academic librarians, children’s mental health and social services, foster carers. WISE KIDS also delivers programmes to the business, community and post-16 education sectors.

An older Digital Native, trained as an Electrical Engineer, Sangeet believes strongly in the potential of Internet and Mobile technologies to transform education, learning, youth, community and business development, and her work centres on these themes.

Sangeet, who holds a BSc and PhD in Electrical Engineering from the University of Leicester, became an advocate of Internet/Digital Literacy and Safety Education for young people and adults while working in Singapore, where she was first an academic, and then an Internet training consultant in the private sector. She was also an active member and trainer for the Singapore government-established Parents Advisory Group for the Internet (PAGi), and represented the organisation in a number of events, including the ‘Safe Surfing 2001 - the 1st International Convention on Online Safety (both as a speaker and panellist). She was also head of ‘Cybermumsndads’, a joint collaborative program between Cyberangels (now called Wired Patrol), and PAGi.

In Wales, Sangeet is an advisor to the Welsh Government’s ‘Digital Wales Advisory Board’ and ‘Digital Inclusion Management Board’ where she promotes Digital Innovation, Digital Inclusion and Digital Literacy. She is also the Chair of the Wales Internet Safety Partnership (WISP), a coalition of industry and educational partners interested in promoting Digital Literacy and Cyberwellness for children and young people. She is also a member of the UK Council for Child Internet Safety and the Child Exploitation and Online Protection (CEOP) Centre’s Education Advisory Board. She is also a member of The Institution of Engineering and Technology.

Sangeet has delivered training programmes, keynote addresses and other presentations at conferences and events in the UK and internationally. These encompass the themes of Online Safety and Cyberwellness, Digital Literacy and Education in the Web 2.0 age. She has been an external examiner, created e-learning and other digital literacy/safety materials. She has been interviewed regularly by the media in the areas of 21st Century Digital Skills encompassing the themes mentioned above.
Digital Literacy and Cyberwellness in a Global Classroom

Rapid advances in Internet, digital and mobile technologies mean that young people and educators today have unprecedented opportunities and tools to create web content, access games, learning and entertainment, network with their peers, and advance their quality of life.

This spotlight session, delivered in a Masterclass style session, will explore the 21st Century Digital Literacies needed by educators and learners to maximize the opportunities provided by Web 2.0 technologies, social media and applications like blogs, Messenger services, Facebook and Twitter. In particular, it will explore the opportunities these technologies present in terms of encouraging content creation, collaboration, sharing and developing networks of interest. These increasingly transparent Internet mediated spaces and the devices which connect to these spaces can also be open to abuse, and this session will also explore the digital literacies needed to address challenges like content evaluation, management of online privacy, identity, data and reputation; laws and cybersecurity, to ensure that young people and educators are able to maximize benefit and use these technologies effectively.
As the web 2.0 tools such as Blog, Twitter and Facebook enter into our students’ lives, they become accustomed to sharing their informal space with their peers, friends or even to the public. However, it has been found that Singapore students tend to only make use of friendship networks in these informal web 2.0 platforms, and few use them for learning purposes, i.e. knowledge network. The challenge for teachers is to build on this open and connected online culture that is attractive to students to create meaningful learning environment that pervades in and out of class. In this presentation, we will share key findings in the Prototyping Pedagogy for Learning with Technology (Propel-T) project which focuses on understanding Computer-Supported-Collaborative-Learning (CSCL) practices, i.e. classroom practices that supports collaborative learning in a networked environment. It investigates how existing technologies can impact teachers’ professional development, improve instructional practices and the design of content materials to support active knowledge work in class. The sharing will centre on knowledge building pedagogies and Knowledge Forum - an electronic discussion forum that teachers can use to explicitly support knowledge building among their students.

Spotlight Synopsis

**Prototyping Pedagogy for Computer-Supported-Collaborative-Learning (CSCL) Environment**

As the web 2.0 tools such as Blog, Twitter and Facebook enter into our students’ lives, they become accustomed to sharing their informal space with their peers, friends or even to the public. However, it has been found that Singapore students tend to only make use of friendship networks in these informal web 2.0 platforms, and few use them for learning purposes, i.e. knowledge network. The challenge for teachers is to build on this open and connected online culture that is attractive to students to create meaningful learning environment that pervades in and out of class. In this presentation, we will share key findings in the Prototyping Pedagogy for Learning with Technology (Propel-T) project which focuses on understanding Computer-Supported-Collaborative-Learning (CSCL) practices, i.e. classroom practices that supports collaborative learning in a networked environment. It investigates how existing technologies can impact teachers’ professional development, improve instructional practices and the design of content materials to support active knowledge work in class. The sharing will centre on knowledge building pedagogies and Knowledge Forum - an electronic discussion forum that teachers can use to explicitly support knowledge building among their students.
Cheah Horn Mun currently serves as Director of Educational Technology Division in the Singapore’s Ministry of Education (MOE) and oversees the planning and implementation of the third IT Masterplan for Education. Prior to joining MOE, he was Associate Professor and the Dean of Foundation Programs at the National Institute of Education (NIE). During his time at NIE, he was responsible for all pre-service teacher training programmes and provided leadership in the curriculum development and delivery of programmes. Horn Mun received a B.A. in Physics from Pembroke College, Cambridge University, as well as a Ph.D. for research work on high temperature superconductivity. His other previous work included leading consulting teams for ICT policy and computer science syllabus development in Bhutan and independent school policy formulation in Qatar. He is a member of the Horizon K-12 advisory board and is an international advisory panel member of the NEXT-TELL project. As a member of the ATC21S Executive Board, Horn Mun represents Singapore and contributes to the policies and direction of the project.

Manu Kapur is an Associate Professor and Assistant Head of Research in the department of Curriculum, Teaching and Learning, and a researcher at the Learning Sciences Lab (LSL) at the National Institute of Education (NIE) of Singapore. An engineer by bachelors training, Manu was a JC mathematics teacher for four years before receiving his doctorate in instructional technology and media from Teachers College, Columbia University in New York, where he also completed a Master of Science in Applied Statistics. He also has a Master of Education from the NIE. Manu conceptualised the notion of productive failure and has used it to explore the hidden efficacies in the seemingly failed efforts of small groups solving complex problems collaboratively in an online environment. Over the past six years, he has done extensive work in real-field ecologies of mathematics classrooms to extend his work on productive failure across a range of schools in Singapore. Manu’s research has attracted interest and funding both locally and internationally. He has been invited to present keynote addresses around the world, and his work has been published in the top journals in the field.
Like other education systems, preparing Singapore students for the global future will be one of the key priorities going forward. Singapore students will need to be able to collaborate with others, develop the skills to learn continuously, and manage and design solutions to complex problems.

(i) The Assessment and Teaching of 21st Century Skills (ATC21S) is a 3-year international project that started in 2009 to inform and influence the teaching and assessment of 21st century competencies (21CC), by pioneering new approaches and assessments that map how children learn and develop these competencies. Supported by Cisco, Intel and Microsoft, ATC21S draws on renowned international experts in the public sector, private sector and academia and is managed by the University of Melbourne. The founder countries collaborating actively in this project include Singapore, Australia, Finland, and the US. One of the outcomes of the ATC21S project is the conceptualisation and

**Spotlight Synopsis**

**Teaching and Assessing 21st Century Competencies**

Like other education systems, preparing Singapore students for the global future will be one of the key priorities going forward. Singapore students will need to be able to collaborate with others, develop the skills to learn continuously, and manage and design solutions to complex problems.
development of the framework and tasks that measure ICT literacy skills (learning in digital networks) and collaborative problem solving. As part of the task refinement and validation processes, cognitive laboratories, pilot studies and field trials were conducted in Singapore to collect and analyse data on how students respond to the tasks.

(ii) The international project presents a unique opportunity for Singapore to embark on a more formative, upstream research agenda on building teachers’ capacity in designing learning that affords students the opportunities to engage in processes germane for the development of 21CCs, particularly those of problem solving and collaboration, mediated by appropriate tools. Productive Failure is on such learning design that provides opportunities for students to design solutions to novel problems even though they may fail in the process. This failure can be the locus of deep learning as it affords students the opportunity to collaboratively generate, elaborate, critique, and refine their representations and solution strategies - a process that is germane for the development of 21CCs of collaborative problem solving in the context of designing solutions to novel problems. This parallel research project complements the international ATC21S efforts as it helps teachers develop the expertise to facilitate students’ development of 21CC.

As Singapore’s education system is already shifting toward developing 21CC, the learning points from the two projects would be especially useful in strengthening the teaching, learning and assessment of these new skills and values. Through this session, we hope to share our experiences in the two mutually reinforcing research agenda and to discuss the implications on the teaching and assessment of 21CC in Singapore.
School Leaders Track Synopsis

Exploring Emerging Technologies to Impact Learning and Teaching

Synopsis

What are important considerations when exploring emerging technologies to be used to impact learning and teaching? What are the needful considerations school leaders need to make with regard to harnessing technology to improve students’ learning? Join us in the iterative process of building strong collaborative leadership, developing clear vision, building communities of practice, deepening the knowledge of ICT in pedagogy and assessment.

One emerging technology that will be shared is mobile technology. As an instructional leader you will appreciate the educational potential of mobile technology and how to integrate mobile technology into the classroom. As a school leader who is also concerned about strategic resource management, you will gain insights into designing effective programmes to impact learning and teaching and learn of how schools have effectively and successfully harnessed mobile learning in their schools.

Using mobile technology as a case study, you will take away a concrete plan as to how to implement such technologies in the curriculum. Schools that are in the stage of exploration, implementation or scaling will be connected and benefit from the networking and the discussions to reimagine learning, assess impact and overcome challenges for more effective ICT implementation.

Keith Krueger
Chief Executive Officer
Consortium for School Networking (CoSN)

Keith R. Krueger is CEO of the Consortium for School Networking (CoSN), a U.S. nonprofit organization that serves as the voice of K-12 technology leaders, especially school district CTO’s, who use technology strategically to improve teaching and learning. In 2008 he was selected by eSchool News as one of ten people who have had a profound impact on educational technology over the last decade.

He serves on many Advisory Boards including eSchool News, the Education Committee of the National Park System, the American Productivity Quality Council, the Virtual High School Global Consortium, the Friday Institute at NC State University and the Wireless Reach Advisory Board. He is a past Board Member/Treasurer of the National Coalition on Technology in Education & Training (NCTET).

Keith has a global reputation as a key thought leader and has organized senior level U.S. delegations to visit Australia, Asia, Europe and South America to examine best practice in ICT in education.

As a Certified Association Executive, he has extensive background in nonprofit management and has a Masters from the Humphrey School of Public Affairs at the University of Minnesota.
Spotlight Synopsis

Rethinking Professional Development with Online Communities of Practice (CoP)

Typically educators are isolated during most of their work day with little time with their peers for sharing knowledge and improving the practice of teaching. In many schools around the world the traditional way we do professional development is top-down and is not meeting the needs of teachers and administrators. Is there a better way? The U.S. National Education Technology Plan makes the case that educators should explore participation in online communities of practice (CoP). Hear how online CoPs can improve teacher and leader effectiveness, enhance student learning and increase productivity. Learn how innovative educators are applying these concepts to rethink traditional face-to-face professional development and build 24x7 professional communities. Explore the role of principals and administrators in moderating online CoPs for success.

Spotlight Synopsis

Reimagining Learning

Mobile devices and Web 2.0 participatory applications have become pervasive, yet our educational system is still based on an outdated industrial age model. Let’s reimagine what education can be in a world where learning is no longer confined to four walls and seven bells. How can we create an educational system that is more participatory, more engaging and - most important - better at enabling each learner to move at their own pace? How do we move entire institutions to leverage mobile devices and transition to digital resources? And, how do we do this in a time of deep economic crisis where the new normal requires us to “do more with less?” Increase productivity. Learn how innovative educators are applying these concepts to rethink traditional face-to-face professional development and build 24x7 professional communities. Explore the role of principals and administrators in moderating online CoPs for success.
Don Knezek
*Chief Executive Officer*
*International Society for Technology in Education (ISTE)*

Don Knezek serves as the Chief Executive Officer for the International Society for Technology in Education (ISTE). Knezek is recognized for his educational leadership experience at multiple levels from the preK-12 classroom and school leadership to directing multi-state and multi-national initiatives of school reform through the effective use of technology. He has led innovation in the classroom, from the district and state department of education perspectives, and through large multi-state and multi-national projects. Knezek brings a global perspective and exceptional strengths in defining expectations and standards for students, teachers, and school leaders including work in the U.S., Costa Rica, Malaysia, Canada, Mexico, Europe, and Australia.

Knezek is an important participant with UNESCO, serving as a member of the governing board of their Institute for Information Technology in Education (IITE) in Moscow, as a partner in the development and dissemination of their ICT Competency Framework for Teachers, and as an expert contributor for UNESCO’s Mobile Learning Week held recently in Paris.

Knezek is committed to universal education and is a tireless advocate for professional development in context and to 24/7 student access to quality digital learning environments. He is providing consulting services to ministries of education around the world sharing his valued expertise in preparing education leaders and teachers to thrive in an increasingly digital world.

**Spotlight Synopsis**

**Leadership, Risk, and Innovation in Learning - Courage for the Next Level**

A fundamental enabler of innovation in learning models and in teaching techniques is the commitment to risk-taking by instructional leaders. Research results are important. Measurement of student growth is informative. But the creation of a culture that equally values creative visioning and risk-taking is the key. Participants will have the opportunity to consider whether or not they have the courage required to be part of the educational transformation that takes advantage of the new world of digital resources and tools.
Sara Sintonen
Teacher educator / researcher
University of Helsinki, Finland

Sara Sintonen is a teacher educator and researcher from University of Helsinki, Finland. Her speciality is in media education and digital culture. Sara’s background is in art education, and she holds both a Master of Music and Doctor of Music degrees from Sibelius-Academy. She is member of the Media Education Research group at the Teacher Education Department in University of Helsinki. Currently she is researching and writing about Finnish YouTube users, children’s digital creativity, digital participation and learning.

Spotlight Synopsis

Beyond Pisa Success – ICT and Freedom of Choice
Thanks to PISA (The Programme for International Student Assessment), Finnish schools and school practices have recently been brought into the focus of international attention. Is there a secret formula behind the remarkable success? This presentation reveals how role of ICT in teaching and learning as well as teachers’ pedagogical freedom can contribute to outstanding PISA results.

Creative Digital Learning and the Finnish School Tomorrow
The Finnish basic education curriculum can be characterized as comprehensive. The comprehensive approach forms solid foundation for future learning. However, the education system needs to be developed to match the requirements of 21st century. Which direction best caters for this need? Creative digital learning is seen as a future trend, not only as a function of creativeness but also as a basis for comprehensive learning experience. In this presentation I will show Finnish examples of creative digital learning as participatory, expressive and communicative knowledge building process.
SPOTLIGHT SPEAKERS

Thomas Daccord
Co-Director
EdTechTeacher

Tom Daccord is an educational technology specialist and the author of Best Ideas for Teaching with Technology: A Practical Guide for Teachers by Teachers and The Best of History Web Sites. A veteran “laptop teacher” who instructed in a wireless laptop environment for seven years, Tom has been featured in the Boston Globe (“Making Tech Connect,” December 29, 2003) for his contributions to teaching with technology. Tom has worked with schools, districts, and colleges in the United States, Canada, Europe, and Asia and presents on educational technology at various national and regional conferences. A former social studies teacher, Tom currently serves as President of the National Council of Social Studies Technology Committee and is a featured speaker at the 2010 NCSS Conference. He is creator and co-webmaster of Best History Web Sites, an award-winning portal, and The Center for Teaching History with Technology, dedicated to helping K-12 history and social studies teachers effectively incorporate technology into their courses. Tom also created Teaching English with Technology, designed to guide K-12 English and Language Arts teachers in their use of technology in the classroom. Tom serves as a STEM (Science, Technology, Engineering, and Math) project consultant, is an advisor to Massachusetts Computer Users in Education (MassCUE), and is a board member of the Massachusetts Association for Supervision and Curriculum Development (MASCD). A graduate of Princeton University and the University of Montreal, Tom has taught in Quebec, France, Switzerland, and the United States.

Spotlight Synopsis

Assessment 2.0: Assessing for Learning through ICT-enriched Activities

What does assessment look like in a Digital Age classroom of Web 2.0 integration and multimodal projects? How do we distinguish between higher-order thinking and “bells-and-whistles?” In this session we will explore the role of a “logic model” and backward-design principles in developing effective assessment of multimedia ICT-infused activities. We will look at rubrics and storyboarding techniques that help establish a clear relationship between project goals and skill benchmarks. We will also focus on the critical role of formative assessments and timely intervention. Furthermore, we will also examine how a “2.0” assessment differ from a traditional assessment. A fundamental goal is to identify characteristics of effective assessments that link to and measure student mastery of worthwhile learning goals.

Not Another Paper! Alternative Projects & Social Media

In the Digital Age the dominance of conventional, linear text of the last few centuries is eroding and giving way to multimodal communication, with a screen-based, non-linear, and visual emphasis. While strong conventional prose remains a critical component of effective communication, a literate 21st century global citizen must also be able to communicate effectively in multiple modalities and combine varied media. Join in reviewing alternative activities and projects using interactive technologies and see how online social media is empowering student-centered leaning. The session will focus on models for alternative online communication and collaboration using wikis, online social networks, Google Docs, storytelling animation, e-book creation and other technologies.
The iPad Classroom: ShareAlike

The iPad is quickly emerging as a favourite device of educators for a variety of reasons: flexibility, portability, engagement, intriguing apps, and more. In addition, great possibilities exist for integration with Web 2.0: slideshows, podcasts, whiteboards, photo galleries, videos, ebooks, and more. Moreover, as the iPad evolves -- and apps become more powerful -- the device becomes more versatile and its creative potential increases. So, how do you use an iPad effectively in the classroom and what are the best apps and Web tools to boost learning, nurture creativity, and ensure productivity? Bring your iPad (or laptop) and share your favourite apps and best practices. After an opening presentation that showcases powerful apps and new tablet-centered textbooks, participants will be invited to share their favourite educational apps, Web tools, and classroom strategies that up the device’s potential. The session will also outline some of the effective ways that U.S. educators are already integrating the iPad in their classrooms.
Li-Kai Chen is a Partner with McKinsey and Company based in Malaysia. Li-Kai was previously with McKinsey’s Singapore office and has served clients across Southeast Asia, Greater China, Korea and the Middle East. His recent work focuses on education system transformation and public-private partnerships in education in the Asia region and globally.

Li-Kai is also the head of the education practice of McKinsey and Company in Asia. McKinsey’s education practice conducts research into school systems worldwide, and has published global education reports such as the recent “How The World’s Most Improved School Systems Keep Getting Better” (December 2011), as well as “How The World’s Best-Performing School Systems Come Out On Top” (September 2007). He primarily serves clients in the public sector and education sector on strategy and implementation programs and initiatives across topics spanning school system reform, public sector delivery, private education sector strategy and education investments.

Li-Kai received his Masters in Business Administration from Harvard Business School, his Masters in Science degree in Risk in Management from the University of Reading and his Bachelor Science degree from the University of Central England.

Spotlight Synopsis

How the World’s Most Improved School Systems Keep Getting Better

These were the questions policymakers and education leaders asked us in the wake of our 2007 report How the World’s Best Performing School Systems Come Out on Top, in which we examined the common attributes of high-performing school systems. In our 2010 report, How the World’s Most Improved School Systems Keep Getting Better, we attempt to answer these questions. We analyzed twenty systems from around the world, all with improving but differing levels of performance, examining how each has achieved significant, sustained, and widespread gains in student outcomes, as measured by international and national assessments. Based on over 200 interviews with system stakeholders and analysis of some 600 interventions carried out by these systems -- together comprising what we believe is the most comprehensive database of global school system reform ever assembled -- this report identifies the reform elements that are replicable for school systems elsewhere as they move from poor to fair to good to great to excellent performance.
## DAY 1: CONCURRENT SESSION 1  
11.00AM-12.00PM

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- **Recommended for School Leaders**
- **Recommended for ICT Mentors**
- **BYOL** Bring Your Own Laptop
Applying SAMR Model into the Classroom (BYOL)
Syahidah Binte Ibrahim, Lim Cheng Puay, Thomas Jeremy Lee
Raffles Girls' School (Secondary)
ICT Pedagogy/Pedagogical Practices

Synopsis
The SAMR model (Puentedura, 2006) helps educators envision how technology can become a useful tool to augment the learning environment. However, teachers often find it a challenge to first unpacking SAMR then adopting it in their lessons. This presentation attempts to showcase a group of our teachers' experience in this process.

First of all, we target to help educators unpack SAMR in using technology and achieve success in scaling up lessons based on our own understanding and interpretation; and share with teachers ideas on how to transform lessons rather than adding enhancements.

Participants will be accessing a lesson using selected resources to see how the transformation may happen. And we will share the impact on learning and teaching while offering insights into transforming lessons using technology.

We will also share on the challenges and future plans, like fitting SAMR approach into current pedagogical, curriculum and assessment considerations, and implementing SAMR school-wide with the RGS 1 to 1 (each student having their own personal computing device).

Voyaging Together through Google Maps to Explore Mathematics with National Education (BYOL)
Chan Yew Sum Sunny
Guang Yang Secondary School
ICT Pedagogy/Pedagogical Practices

Synopsis
The Normal Technical (NT) Course was conceived in 1994 by the Ministry of Education to equip students who are more technically inclined with “the requisite skills and attitudes to enable them to contribute to the national economy”; The curriculum is designed to focus more on practice-oriented learning to better match the NT students’ learning profiles (MOE, 2004).

A Mathematics classroom teacher has to be equipped with various pedagogies to engage and sustain students’ learning. This is especially so in a NT classroom where students typically need a lot of hands-on and meaningful lessons that they can relate to everyday life. Traditionally, the teaching of the Mathematical concepts is slanted towards the Asian pedagogy which is often characterized as “chalk and talk”, didactic, worksheets-based and exams-driven. According to Gopinathan et al.(2001), this is a form of transmissionistic style of teaching and learning. The use of such conventional approaches, in reality, often fails to engage our Normal Technical students.

This paper aims to share the experience of incorporating ICT, in particular the use of Google Map, in the teaching of...
Maps and Scales while at the same time integrating National Education (NE) and social-emotional learning (SEL). The learning activities are designed based on the constructivist learning approach where “learners are active in constructing their own knowledge and social interactions are important in this knowledge construction process” (Woolfolk, 2009).

Students are engaged in self-directed and collaborative learning, and are provided opportunities to develop 21st century competencies. This has helped to bring about instructional improvement while deepening our students’ learning and increasing the level of engagement. In addition, we will be providing some insights on how ICT can be leveraged to increase the intrinsic motivation level of students and teachers, to realize our school’s vision of “An Engaged Learner Today, A Life-long Learner Tomorrow”.

MR 301

Empowering Teachers / Facilitators and Learners through Flexible Web 2.0 Enabled Sites with Engaging Lessons, Interactive and Communication Tools and Resources for Sharing and Learning of Mathematics (Model Lesson)

Lew Wei Sern Vincent, Cui Hailan, Rohasan B. Mansor
Dunman Secondary School
ICT Pedagogies/ Pedagogical Practices

Synopsis
Engaging learners and empowering educators with Web 2.0 tools and other open source or free ICT tools is not difficult or costly nowadays. This presentation showcases how Google Apps, wikis, Geogebra, Wink, CoveritLive, Google Sketchup and other applications can be easily used to create resources, construct knowledge and manage individual learning while empowering both the educator and learner with lifelong skills and positive attitudes in Mathematics. By building sites/wikis with interactive pages and communication tools and using sites to organize, construct, communicate and archive mathematical knowledge for both the teacher and the student, this gives rise to tremendous opportunities for pedagogical innovations.

Teachers are able to accumulate their content knowledge and teaching resources, continuously fine tune their ICT pedagogies, reuse constantly improving lesson units and resources to engage learners. They can also build their e-portfolios, share and collaborate with fellow educators across thousands of miles. Learners can access their teachers/ facilitators’ high quality lessons any time anywhere, use powerful visualization tools to learn Mathematics and engage in interactive or exploratory activities and lessons with constructivist approaches. Learners can also create and manage their study and revision notes, submit assignments and showcase their works virtually. Best of all, they can accumulate all their learning experiences and materials into e-portfolios which afford ease of retrieval for review and revision.

Last but not least, through guiding, coaching and sharing of their resources and knowledge repositories virtually with their learners, teachers/facilitators move to a more learner-centred environment, and inadvertently act as role models of the 21st century self-directed learner, confident worker, active contributor and concerned citizen. conventional approaches, in reality, often fails to engage our Normal Technical students.
MR 302

Use of ICT In Normal (Technical) English Language For Teaching, Learning and Assessment (BYOL)
Kalthom Ahmad, Chan Su-Leen Majella, Adeline Chan Swee Yin

English Language & Literature Branch
ICT Pedagogy/Pedagogical Practices

Synopsis

Learners in the Normal (Technical) Course in Singapore’s Secondary Schools have shown greater engagement in their English language (EL) lessons when Computer-based Learning (CBL) is employed. To capitalise on this, the N(T) EL team from CPDD drafted a Pedagogic Framework based on the English Language Syllabus 2010 (ELS 2010), that encourages teachers to use small group instruction in ICT-enabled environments. The team also worked with an IT vendor to build an online teaching, learning and assessment portal called ‘we-Learn’ to facilitate the translation of ELS 2010’s Areas of Language Learning via the various applications on the portal.

This we-Learn Portal enables N(T) EL teachers to create e-assignments for teaching and learning, as well as school-based summative e-assessments. The Portal comprises five applications which correspond with the Areas of Language Learning in the ELS 2010. These applications are: we-Listen, we-Read, we-Speak, we-Register and we-Quiz. The development of the portal took into consideration the specific pedagogical advantages of ICT-use for low progress learners as well as alignment with the Learning Outcomes specified in the ELS 2010. Currently, the we-Learn Portal is used in the Lower Secondary Normal (Technical) classes of 43 Secondary Schools.

MR 303

ACE 2.0 – Authentic and Customised Learning Environment (Panel)
Yeo Peng Seng, Chia Tien Hao, Koay Say Shin

St Andrew’s Junior School
ICT Pedagogy/ Pedagogical Practices

Synopsis

Living in a world where smart phones, tablets and computers invade nearly every household (Prensky, 2006), there is no denying that students of today, as digital natives, are most at ease and learn best when technology is introduced to their learning (Learning in the 21st Century: Taking it Mobile!, 2010).

This paper seeks to describe how the ACE approach is used to create an Authentic and Customised learning environment to impart values and encourage students to collaborate, synthesize and generate new knowledge (Kozma, 2008). A pedagogically-sound approach, the ACE approach works in tandem with technology to bridge the digital divide and develop students for the 21st century.

During the panel discussion, practitioners will be sharing experiences, challenges and expectations with educators. Results of the implementation, change management and scaling plans will also be shared. Through this panel discussion, we hope educators can take away tried-and-tested methods and approaches to integrate web 2.0 applications in their schools.
MR 304

Encouraging Technologically Enhanced School-Based Curriculum Innovations: Insights from the FutureSchools@Singapore Programme

Tay Siu Hua, Jean Phua Yin Chiun
Educational Technology Division
School Improvement

Synopsis
This paper describes the key conditions that contribute to a vibrant and pervasive culture of technologically enhanced school-based curriculum innovations in the FutureSchools@Singapore (FS). FS experiment and push the frontiers of ICT/IDM use for learning and teaching on a school wide level. All FS design and implement school-based curriculum that leverage ICT for the development of 21st Century Competencies; partner industry to develop ICT tools and learning environments for integration into curriculum programmes; and conduct school-based research to inform the design and implementation of technologically enhanced school-based curriculum innovations.

The trajectory of each FS was studied for common factors pertinent to school-wide implementation of technologically enhanced school-based curriculum innovations. Data collected include records of researchers-teachers’ meetings; lesson observations and interviews with key personnel, teachers and students.

Cross-case comparison suggests that structures such as multi-level ICT leadership, integrated professional development activities, and phased approach to implementing change are important in encouraging pervasive and innovative use of ICT in learning and teaching.

Insights from the FS programme will help schools make informed decisions on the conditions required for implementing school-wide ICT-based innovative programmes.

ICT Integration in Hwa Chong Institution, a Singapore FutureSchool

Chung Wen Chee, Koh-Ang Choon Cheng
Hwa Chong Institution
School Improvement

Synopsis
Since 1997, Singapore has implemented a series of Info-communication Technology (ICT) Masterplans (mp). Now into its 3rd mp, FutureSchools (FS) have been selected to spearhead school-wide innovations. This study is located in Hwa Chong Institution (HCI), an independent school that provides Secondary and Pre-University education. One of the FS goals is for teachers to use ICTs in their lessons to nurture students to be self-directed and deep learners.

This paper outlines the key strategies that HCI has deployed to lead the school community towards achieving these goals and how the HCI teachers have dealt with these goals. The key findings indicate that some of the strategies have borne some fruition and the study also reveals that teachers of different subject disciplines have differing perspectives on how their curriculum should be delivered. Such differences can impact the way ICT integration is carried out. Nevertheless, framing does not curtail innovations. Good integration practices are reflective of good research practices. Such practices enhance the teachers’ personalization of ICT integration as demonstrated by their responses in making improvements in their FS initiatives.
MR 305

To What Extent Does the Use of Media Enhance Students’ Learning of Chinese Language? (Panel)

Oh Sze Wee, Wong Peizi
Jurong Secondary School
ICT Pedagogy/Pedagogical Practices

Synopsis
The launch of the new materials for Secondary School Chinese curriculum in 2011 focuses primarily on language skills in students, and emphasizes the use of information technology. This reform is not only to enhance students’ interest in learning Chinese, but also to allow them to further experience the authentic learning of Chinese. In Jurong Secondary School, we adapted Kolb’s Experiential Learning Model and Deci & Ryan’s Self Determination Theory to integrate the use of multimedia (audio and video) with a variety of teaching strategies to improve students’ interest in learning the language and communication skills (written, oral and aural). Students will be exposed to materials of our daily life and apply their knowledge in an authentic setting (conversation, interviews, news broadcast, drama etc) in line with the Experiential Learning Model cycle. In addition, students are required to work in groups that will help sharpen their

Teaching and Learning Chinese Using Mathematics, Science and ICT Content

Xie Chuanling, Wu Jiong
NUS High School of Mathematics and Science
ICT Pedagogies/Pedagogical Practices

Synopsis
National University of Singapore High School of Mathematics and Science is a wellspring of inspiration for Math & Science education and research. While we focus on nurturing our students to become well-rounded and world-ready mathematical and scientific minds, it has also been crucial for us to equip them with proficiency in their mother tongue languages. In the course of conducting Chinese lessons, we have discovered that students become highly enthusiastic when it comes to learning of Math, Science and ICT related content. Hence, as part of our school-based curriculum, we carried out a breakthrough method of integrating Math and Science content into our Chinese language teaching. This helps to increase the students’ enthusiasm in learning the language and in the process, enhance their proficiency of using this language. This article details the experimentation process of the theoretical basis of teaching Chinese with Math and Science content, and explains the process to the designing of this integrated school-based curriculum through four major aspects of (i) Teaching Objectives; (ii) Selection of Popular Science articles; (iii) Assessments Methods and (iv) Usage of Information Technology. The report finally accounts on the process and summarizes on the results of our teaching experiments.
MR 306

The NASA Educators’ Online Network: A Research-based Approach to Professional Development
Kyle Peck
Pennsylvania State University
Professional Development

Synopsis
This session describes the NASA Educators Online Network (NEON), an online professional learning community based on Malcom Knowles’ principles of adult learning, and Stephen Heppell’s vision of what professional development can be in the 21st century, as well as on recommendations found in Building Online Learning Communities: Effective Strategies for the Virtual Classroom (Paloff, R. M. & Pratt, K., 2007) and Creating and Sustaining Online Professional Learning Communities (2009, Joni K. Falk & Brian Drayton, Editors).

Adult learners want their professional development to be relevant, based on the real needs they feel in the classroom, under their control, and available when they have time to use it. Research has revealed that one-shot professional development programs are worth less than an ongoing stream of meaningful professional development activity, dispersed in time.

NEON uses these principles to offer a place where STEM teachers can find colleagues with whom to collaborate (scientists and engineers, as well as other teachers), discuss innovations for their classrooms, express professional development needs, and receive timely responses to the needs they express. Our PD professionals field requests, match requests with experts, promote a series of webinars based on requests, and are ready to respond to educators’ needs. As a result, we are learning a lot and over 3,000 teachers are engaging voluntarily in meaningful professional development.

Science, Technology, and Engineering Education Exchange Laboratory (STEEL) Programme - Promoting Interests in Science, Technology, and Engineering Amongst Youths in ASEAN (UNESCO)

Masami Nakata, UNESCO Science Bureau
Lim Cheng Pier, National Instruments
Professional Development

Synopsis
The Science, Technology, and Engineering Education Exchange Laboratory (STEEL) is a joint programme of Science Center Singapore, National Instruments and UNESCO Regional Science Bureau for Asia and the Pacific planned for the next few years. The programme aims to build capacity of Ministry of Education officials, technical and vocational teachers, and students in several South East Asian countries through curriculum development training, annual workplan to promote science, technology and engineering (STE) education, and support to STE competitions from district to regional level. The programme is expected to raise interest and awareness in science, technology and engineering through hands-on learning by exchange of information, ideas, and experience between countries in the region. The
first workshop commenced in Singapore in Sept 2011 with participating Science teachers from Indonesia, Timor Leste, Thailand and Singapore attending a 3-day programme. During these 3 days, participating teachers visited the Senoko Energy Plant and Woodgrove Secondary school on Day 1, attended a full day hands-on data acquisition workshop (water monitoring) on Day 2 and on Day 3, learnt about SAM animation as well as sharing from the School of Science & Technology on writing science.

In this presentation, we will share the learning outcomes from the workshop in topics such as water monitoring programme and the possible expansion programme in the region.

**MR 308**

**Learning Through CoSpace Educational Robotics**

Jiayao Shen, Zhou Changjiu  
*Singapore Polytechnic*

**Emerging Learner-Enabled Platforms**

**Synopsis**

This presentation introduces the CoSpace educational robotics (CoSpace), a new educational digital media enabling users to try out programs and strategies with both virtual and real objects. CoSpace has been created to integrate digital game-based learning with educational robotics, popular among the younger generation, to attract different population of students into the STEM field. The CoSpace is an emerging technology which involves the development of both 3D virtual simulation and real robots. One major advantage of this system is its ability to allow users to develop solutions for real problems with virtual equivalent scenarios. The solutions can be tested out virtually before trying it out in the real world setting. These virtual robotics environments will give students freedom to try out their ideas before physically experimenting them. This virtual environment can make students feel safer and comfortable trying out their ideas, which encourages risk taking. After their ideas are tested in a virtual environment, they can be further tested using physical robots confidently in the real world.

The CoSpace Robot (CsBot) provides the CoSpace environment. The CsBot was developed by the ARICC at Singapore Polytechnic, which serves as a platform for users to understand the physical structure, sensors, motors, and programming of a robot. A variety of virtual scenarios, robots, and sensors, with real time sensor feedback, for both real and virtual robots, are available for the students to experiment their strategies for a solution. The CoSpace educational robotics aims to cultivate students' interests in STEM field, and promote students' creativity and social interaction. With RoboCupJunior 2011 competition held in Istanbul, CoSpace was used as a demonstration on CoSpace Dance and Rescue, with 14 teams participating. Questionnaires examining the learning experience of the students were distributed during the competition. The findings will be shared during the presentation.
Impact of Augmented Reality (Tracker) Software on Students’ Learning of Kinematics Graph
Ng Wai Kong Ernest, Tai Fook Lim Jerry
Woodgrove Secondary School
Emerging Learner-Enabled Platforms

Synopsis
The presenters will share their experiences in implementing the pilot project involving the use of augmented reality software to analyse 2D kinematics video, the pedagogy behind it, challenges, limitations and data analysis and a demonstration of the augmented reality software. This project is the result of the collaboration between Republic Polytechnic School of Sports, Health and Leisure and Woodgrove Secondary School Science Department.

At the end of the workshop, participants will be able to:
(1) engage students in teaching and learning in the area of ICT; and
(2) understand the work processes involved in a collaborative project with a tertiary institution, joys and challenges.

As Physics teachers and research activists, we realise that students often have difficulty grasping kinematics concepts. As acceleration and velocity are new concepts, students find it difficult to visualise whenever they are given kinematics based question or problem. This lead to greater difficulty in interpreting kinematics graphs.

Republic Polytechnic School of Sports, Health and Leisure and Woodgrove Secondary School Science Department collaborated to embark on a pilot project to study the impact of learning kinematics graph with augmented reality software to improve students’ learning.

The pilot project evolved into a small-scaled Action Research project, where there were pre and post-intervention tests as well as student interviews. Qualitative data and quantitative data were collated and analysed. From surveys and video interviews, students were positive about using the augmented reality software to learn in-depth analysis of kinematics graph. The main advantage of using the software was its ability to allow students to current comparison of the video with the corresponding displacement-time and velocity-time graphs generated. The use of real videos added to the authenticity of the lessons.

The project is infused in the school’s Secondary 3 Physics Curriculum from 2011 onwards.
Managing and Scaling Technology in Education by Google Educator
Jaime Casap
Google
Technology Planning and Integration

Synopsis
We have been discussing the integration of technology in education for as long as most of us can remember. What is different this time is that technology isn’t new to our students. Our students are growing up with technology all around them, except in school where they spend the majority of their time. We will cover why bringing technology into education is critical, what skills we should develop with technology, and look at the future of where technology in education will be in just a few years.

With a growing number of schools looking at online and blended learning models as key elements for how they will deliver education, how can schools make sure the technology they bring into their systems is simple yet complex, the right tools to use, manageable, and scalable.

TfE in Audioblogging and Project Work
Zahida Binte Mohamed Abu Baker, Tay Kai Chun
Bukit Timah Primary School
Learning Management System

Synopsis
TfE stands for “tools for formative e-assessment”. Our school uses AsknLearn to conduct formative e-assessment in audioblog and project work. This year, our school collaborated with AsknLearn to innovate and customise on their Podcast and Oral Companion Module for formative assessment in “audio-blogging” to take place. We added an “assessment feature” using rubrics for teachers’ assessment and comments. Teachers included criteria such as fluency, tone, expressions and general comments to assess students’ oracy performance. We also included a peer assessment feature which is simply done by clicking on the radio button that rate’s their friends’ audioblog. Friends could also add personal comments of how they think their peer’s have done. They could give rating (e.g. 1-10). Our primary 5 pupils enjoyed the activity. Learning is fun and there is no fear of being assessed as they learn from their peer’s work as well as the feedback/comments is a useful tool for self reflection.

To promote collaborative learning and self-directed learning using ICT, the Primary Four teachers and students used the Folio Assessment Module in AsknLearn for their Project Work “A Modified Malay Traditional Game” after their learning journey to Kampong Glam. Using the SCAMPER (Substitute, Combine, Adapt, Modify/Magnify/Minify, Put to other uses, Eliminate, rearrange/Reverse) tools, students decided on what, why and how they wanted to modify.
Teachers briefed students on the rules for collaborative and self-directed learning using ICT and they researched about the game through Internet. For collaborative learning, students uploaded their digital resources and game design into the Folio Assessment Module to enable other members in the group to improve on the project. Teachers also included online rubrics, teacher and peer assessment, as formative E-assessment. This assessment was later shared with the rest of class for learning and reflection.

**Integrating Curriculum and Technology (I.C.T)**

Mark Nadhan, Nithyia d/o Subramaniam  
West Grove Primary School  
Technology Planning & Integration

**Synopsis**

Integrating Curriculum and Technology (I.C.T) WEST GROVE PRI (I.C.T)

Relevance to the field of technology - delivering various English Language Text Types while harnessing Technology (Primary Level). Primarily, this package engages teaching & learning in the Digital Age that focuses on implementing & evaluating ICT-enriched learning experiences.

Educational significance and contribution to the respective theme and strands:

- School Improvement - participants will have an envisioned holistic view on how a comprehensive English-ICT package could be designed to cater to differentiated learning needs for a whole school.

- Technology planning and Integration - to achieve the MP3 ICT Baseline skills whilst harnessing English Language Pedagogy. This involves the analysis of identifying specific target text types for primary 1 to 6 levels, as well as crafting and scaffolding incremental level of challenging EL-ICT lesson plans and digital resources and tools.

- Professional development - how teachers better enhance teaching and measure enhanced learning of the various genres of English Text Types. The package examines the teaching of teachers’ strategies, pedagogy mastery and professional competency of teachers’ skills to meet learners need.

- Ease of replication - the package can be replicated in any level order depending of different school needs. Moreover, most schools can readily harness this mode of teaching and learning.
Taking Learning and Teaching to a New Dimension

Noraini Yosorh, Toh Hwee Choo
Punggol Primary School
ICT Pedagogies/Pedagogical Practices

Synopsis
This paper will highlight two case studies on how teachers have progressively shaped the learning environment conducive in nurturing 21CC skills both within and beyond the classroom. The learning environment involves a shift in instructional practices and assessment, the appropriate use of ICT to enhance the engagement of students.

The paper aims to investigate the following:

• How does teacher adapt the experience in the social media environment influence his/her pedagogical practices in the classroom?
• How do the shift instruction practice and the deliberate use of social media enhance student engagement in learning and student achievement?

The study will involve the use of Blog and Edmodo as e-learning platform beyond the classroom environment. The study will focus on grounded analysis of students’ discussion on the e-platform, teachers & student reflection as well as the survey analysis on student engagement. The engagement framework advocated by Fredricks, Blumenfeld & Paris (2004) is adopted and a set of Student Engagement Inventory will be developed to measure the three domains of engagement i.e. Affective, Behavioural & Cognitive.

The study showed that e-platforms such as Blog and Edmodo can serve as seamless learning infrastructure to positively shape the readiness of students for social construction of knowledge and thus meaningful engagement as well as a strategy in reframing teachers’ pedagogical practices in nurturing the 21CC skills.
Learn Vocabulary in Composition Process Writing Using Digital Mind Mapping

Chua Sze Ping
Rulang Primary School
ICT Pedagogies/Pedagogical Practices

Synopsis
The mp3 movement has motivated our teachers to take on a different approach towards the teaching of writing skills. The use of Popplet, a mind-mapping tool, is able to engage pupils to learn writing skills collaboratively and independently.

The learning process of writing skills is to engage pupils to expand their vocabulary word bank such as the overused words and phrases and use them in their writing. This lesson has empowered students to create concept maps which can be accessed anywhere and anytime. Most importantly, students learn from their peers more effectively with affordances such as Popplet. This platform has provided pupils the opportunities to master the written language collaboratively and address global digital age skills. Teachers are able to provide immediate feedback and pupils can learn from one another through peer editing.

The improvement in students’ writing skills is seen as significant and impactful in relation to the application of mind-mapping tools. At least 88% of pupils are able to write effectively through the use of new vocabulary and phrases. The positive results have further motivated our teachers to exploit the use of mind-mapping tools coupled with pedagogical strategies to enhance the teaching and learning in other subject areas.
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**Recommended for School Leaders**

**Recommended for ICT Mentors**

**BYOL** Bring Your Own Laptop
MR 313/314

**A Practitioner’s Journey in Engaging Students in Collaborative Virtual Learning Environment, Allowing Them to be Self-Directed Learners (BYOL)**

Loh Peng Yeong, Paul Lim Chow Chiat, Christine Lee Pern Pern

*Yuan Ching Secondary School*

*Collaborative Learning*

**Synopsis**

With the vast amount of resources online, engaging students in creating knowledge through generative discussion in real time is possible with very simple online tools. In providing an engaging collaborative platform, every student will be given the chance to think independently, be self-directed and at the same time to take responsibility for their own learning. This workshop aims to share with participants the use of simple user-friendly collaborative tools such as typewith.me, Google Doc, PREZI, mind42.com and MindMeister, in the teaching and learning of English and Humanities.

Through the use of Inquiry Based Learning and Thematic based approach, students actively contribute to their learning process by collaborating and building upon each other’s knowledge, thus taking ownership of their own learning. Using online discussions, students share their knowledge and receive inputs from their peers. This has enabled the higher-ability students to affirm their understanding, learn more content knowledge and create new understanding on the subject topic. Lower-ability students are able to learn from their peers on the subject topic.

Participants will have hands-on experience in using the online collaborative tools in the context of English and Humanities learning, and be involved in generative discussion.

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MR 301

**Web 2.0 Technologies in a Secondary School Mathematics Classroom (Model Lesson)**

Loh Kwai Yin

*School of Science and Technology*

*Social Networking Avenues*

**Synopsis**

Leveraging on the 1-to-1 ICT-enabled learning environment, the Mathematics department in SST leverages on a range of web 2.0 platforms and tools to develop a range of skills outlined in the Singapore Mathematics curriculum. In this workshop, participants will get to see the range of ICT-enabled learning activities that are carried out inside and outside the SST Maths classrooms. They will participate in a range of hands on learning activities facilitated through web 2.0 platforms like the blog and GoogleSite. We will also illustrate how collaborative applications like Google Spreadsheet and Wallwisher can be incorporated into blogs or GoogleSite that enable them to view problems or situations from different perspectives, hence generating a variety of approaches to manage problems. Participants will also be invited...
to join a Facebook group that students currently participate in active discussions about Mathematics in real world. Participants will also get to see hear an eLearning activity that was facilitated through the Web 2.0 platforms, and it added a new dimension to how eLearning activities could be designed and implemented. As the activities in the showcase ride on platforms that are free and easily available in most schools, the ideas shared can therefore be easily replicated across other Maths classrooms in Singapore. Note: Participants need to bring along their own computer devices in order to participate actively in the activities.

MR 302

Using Real World Data and Video Tracker to Teach Physics in a Junior College (Model Lesson)
Lim Jit Ning, Tan Lay Koon Irene, Lau Soo Yen
Hwa Chong Institution
ICT Pedagogy/Pedagogical Practices

Synopsis
Many students find it a challenge to relate abstract concepts and relationships in Physics such as a momentum versus displacement graph to the actual motion of objects under study. The situation is worse when the motion is non-linear. By capturing the motion of objects with a video camera, our students made use of the tracker software to study kinematics, dynamics, circular and periodic motions. The software enables students to view the video real-time, slow motion or frame-by-frame and it simultaneously indicate the corresponding physical quantity such as velocity and time on various graphs. This makes a highly abstract mathematical concept immediately visible to the students. We present a model lesson on the topic of Simple Harmonic Motion in a computer laboratory setting. The tracker software used is a freeware easily downloaded from the internet. The lessons can also be adapted for teaching in a typical classroom where students have no access to computers. The presenters are experienced Physics teachers, having each taught in Junior Colleges for between seven to thirteen years.

MR 303

Addressing the Goals of Masterplan 3 in Using 1:1, Seamless, Mobile Learning to Support a Student-Centric Pedagogy (Panel)
Elliot Soloway, University of Michigan
Cathleen Norris, University of Michigan
Tan Chun Ming, Nan Chiau Primary School
Looi Chee Kit, National Institute of Education
Emerging Learner-Enabled Platforms

Synopsis
Over the past 4 years, in line with the goals of Masterplan 3 to focus on key 21st century skills of collaborative learning (CoL) and self-directed learning (SDL), Nan Chiau Primary has been employing 1:1, seamless (24/7), mobile (smart phones, netbooks, tablets) technologies as the catalyst to transform the current, didactic, teacher-centric pedagogy – “I
Teach” - into an inquiry-oriented, student-centric pedagogy – “We Learn”. No longer must the teacher be the mediator between students and what they need to know. Rather, with a mobile device in the palm of each student’s hand, 24/7 - inside the classroom, at home, in the mall, in the car, etc. - each student can now access - and manipulate & all the world’s multimedia resources available over the Internet. And the teacher can now be a mentor, guide, and tutor; and students, along with the teacher, will be able to learn together. Most importantly, test-scores in the “We Learn”; classrooms remain high indicating that students are mastering the traditional content, while they are also developing the skills of CoL and SDL. In this session, our panelists will reflect on the lessons we are learning from a range of perspectives covering teaching, curriculum, assessment, classroom management, administration and technology, to name a few.

MR 304

Professional Development for Effective Teaching of Chinese Through 10C
Gladys Soh Kang Hwee, Liu Jin, Tan Sze Huey, Teo Sioh Sioh
North Vista Primary School
Professional Development

Synopsis

21st Century Learners call for 21st Century Pedagogy. To engage 21st Century pupils effectively, schools need to actively innovate and adopt methods that promote Self-Directed Learning (SDL) and Collaborative Learning (CoL). Teachers’ competencies must be raised simultaneously to be effective facilitators of the new pedagogy. Technology thus provides the tools required to promote learning, record data, and monitor & assess the progression of learning. In 2009, North Vista Primary School partnered Educational Technology Division (ETD) to pilot the 10C programme (Chinese Language) across 3 levels of pupils. With the objective of heightening mother tongue language engagement and promoting language acquisition through ICT, the use of an online portal encouraged self-paced and collaborative learning as pupils produced and refined their deliverables in real time.

While the primary aims were to improve student outcomes, the professional development (PD) of teachers received a boost through various PD tools and establishment of a structured mentorship programme that helped teachers acquire competencies in 10C and ICT. A professional learning team (PLT) was formed to examine teachers’ practices in the light of their impact on learning. Action Research (AR) and Lesson Study (LS) were progressively introduced at different stages to the PLT to meet their evolving PD needs, with AR providing the rigour required for quantitative analysis of the impact of 10'C on students’ learning.

In 2010, the PLT conducted and shared their AR findings which assessed the effectiveness of the ICT-infused 10'C methodology. As the 10'C program extended to 2011, the PLT then embarked on Lesson Study with ETD to engage in collective inquiry for professional development. The team organised a well-received Cluster Public Lesson Study in July.
The ICT Mentor Programme and Its Impact on Teachers’ TPACK

Jeffrey Looi
Educational Technology Division
Professional Development

Synopsis
The ICT Mentor Programme is a key programme conducted by ETD to build a critical mass of teachers to mentor their peers in using ICT to enhance their classroom practices. Since 2010, about 1200 ICT mentors had undergone this programme where they were provided with professional development to enable them to effectively leverage the affordances of ICT tools to design and carry out lessons to support self-directed and collaborative learning, as well as to coach and influence their peers in using ICT. To evaluate whether the programme was able to increase ICT mentors’ knowledge in integrating ICT into their classroom practices, pre- and post-quantitative surveys were conducted for the third batch of participants. A total of 219 out of 351 (62%) ICT mentors in this batch responded to the surveys. Paired sample tests were administered, with findings indicative of positive impact of the programme on the ICT mentors. In this presentation, delegates can look forward to a sharing on the details of the methodology, findings and implications on the content and delivery of future professional development programmes for teachers on ICT and schools’ support for ICT mentors.

Zonal Support for School-Based ICT Implementation in the Teaching of EL (Panel)

Khoo Ming Fern, Tanjong Katong Girls’ School
Kew Mee Ying, St Hilda’s Primary School

Synopsis
The EZ COE EL was set up in 2007 with the vision to be the heart of a dynamic community of professionals in the East Zone dedicated to nurturing students to be confident and effective communicators of English. It brings together the 89 schools (45 Primary, 41 Secondary and 3 JCs) within the zone and ensures a critical mass of customized support that meets the needs and interests of these schools. Enjoying economies of scale, the zonal approach also provides networking and professional development opportunities. Student programmes include competitions such as the Storytelling Competition for primary schools, Public Speaking Competitions for secondary schools alternating with Debate Festivals for students to have an experience with debating skills. All student programmes are accompanied by training which aim to introduce and develop EL-related skills. Collaborative student programmes include EZ Junior Broadcasters’ Programme.

Teacher programmes include EL seminars, external workshops and learning journeys. Having established that ICT would be an important leverage for enhancing school’s capacity to engage and develop students in EL, we organized an EL Seminar in July 2011 with the focus on how ICT extends learning for EL. A total of 13 schools presented their good practices and shared their experiences.
DAY 1: CONCURRENT SESSION 2
2.30PM - 3.30PM

Following from the EZ COE EL ICT Seminar, separate networking sessions were arranged for EL-ICT Mentors to facilitate collaboration and sharing between EZ schools. A wiki was also set-up for schools to pursue shared interests and share their successes and setbacks. We are exploring how these would evolve naturally into school-to-school collaborative projects which can be shared at the EL Seminar the following year.

MR 306

Humanizing the Future: A Case Study on the Factors Contributing to Teachers’ Motivation in Adopting an ICT Powered Curriculum

Timonthy Boay, Tang Shien Yin, Melissa Chia
Jurong Secondary School
Change Management

Synopsis
As one of the Future Schools (FS), Jurong Secondary School has embarked on the design and implementation of breakthrough pedagogies to enhance student-learning outcomes by riding on the wave of modern technology. The journey, now into its fourth year, has cultivated a diversity of web 2.0 tools including e-cataloging and e-learning systems as well as a prototype of an electronic behavioural profiling assessment for students. As part of the FS’ Action Research (AR), one of the goals was therefore to ensure the extensive and sustainable use of the tools within the curriculum. This paper presents a case study on one of Jurong Secondary School’s ICT powered curriculum, which involved the use of mobile web 2.0 learning trails in the teaching and learning of Humanities.

This case study will specifically explore how teachers, as one of the “three interlocking framework of change” (Mumtazz, 2000:319); respond to the design and implementation of the Humanities ICT powered curriculum. Through a school wide interview with the teachers, as well as Sørebø et. al’s (2009) methodology of measuring the teacher’s motivation in the use of technology, this paper will address the initial challenges in the design and implementation of the Humanities ICT curriculum, and how it subsequently gained momentum in terms of its scalability and adoption rate by the teachers. Consequently, this paper also aims to provide insights into the conditions and requirements needed to encourage the widespread use of an ICT powered curriculum in the Singapore Schools.
ICT in Secondary Schools: Leading and Inspiring Change in an Organisation through the Creation of a Shared Vision, Professional Development and Support Structures

Sheree Kuek Yen Yen, Song Kin Hoe
Regent Secondary School
Change Management

Synopsis
This paper will describe the journey taken by the leaders within the organisation to bring the use of ICT up to a higher level as a structured, school-wide approach. The three levels of implementation are (1) Envisioning and Systems Planning; (2) Structured Staff Development; and (3) Structured Student Involvement Through the use of our Learning Management System (LMS) and whole-school pedagogical approaches.

(1) Envisioning and Systems Planning
An ICT Executive Group was formed, led by the Principal, to lead the direction for ICT in line with the school vision. This was cascaded to the School Management Committee and together a long-term plan for the infusion of ICT into the curriculum was developed. This plan documented the extent of ICT infusion into the curriculum, as well as the platforms created for student participation on a school-wide level.

(2) A Structured School-Wide approach to staff training was developed to prepare the staff. The 4 approaches taken were: (1) Segmented training for teachers in different ICT tools; (2) Whole School Learning Symposiums for teachers to share their ICT Lessons and success stories; (3) PLC slots for departments to develop lesson packages; and (4) White Space for ICT Mentors. The approach towards staff professional development was designed using Kirkpatrick’s Model of Evaluation, to ensure effective cascading of knowledge attained.

(3) Platforms were put aside to ensure pupil participation in ICT as a school-wide approach - through the regular use of our LMS as E-Learning Platforms and Problem Based Learning in Outdoor Education as a school-wide programme for all Secondary 1 to 3 pupils. Impact on teaching and learning has been positive, as shown in our QSE survey results and academic results.

Attaining total buy-in through a total change of mindset from fear to confidence remains a challenge.
MR 308

The Use of Online Discussions and Reflections in the Teaching and Learning of Mathematics

Teo Chin Wen, Nanyang Girls’ High School
Ng Song Beng, Northbrooks Secondary School

Social Networking Avenues

Synopsis
This paper explores the effectiveness of using online discussions and online reflections to strengthen students’ communication and reasoning, as well as their meta-cognition, which are two of the five aspects of the Pentagonal Model of Singapore Mathematics Curriculum Framework. Tapping into the students’ e-world, the teaching and learning of Mathematics goes beyond the physical boundary of a classroom. The intended learning outcomes for students include increased confidence and fluidity in reasoning, communication skills in solution presentation, enhanced collaborative skills, critical thinking skills and peer learning among students through greater awareness of mistakes along their learning journey. Online discussions have emerged as a promising method for encouraging critical thinking (Meyer, 2003), and typically have the purpose of creating a space and time for informal, open-ended thinking to occur (Arend, 2009). The online discussions and submission of reflections were carried out on platforms such as Edmodo and wikispaces. Students were given a timeline to participate in the discussion and to submit their reflections. Samples of online discussions and reflections will be shown. From these samples, one can see evidence of students’ reasoning, communication skills, collaborative learning and higher awareness of their cognitive process through reflections.

Now Screening: Pose2Learn 2.0
Using Screen Casting Technology to Enhance Peer and Teacher Assessment in Mathematical Problem Solving

Theodora Teong Ying Xi, Chin Seng Choy
Geylang Methodist School (Primary)

ICT Pedagogy/Pedagogical Practices

Synopsis
Mathematical word problems evoke fear in many pupils. To help pupils gain more confidence in problem-solving, we introduced problem posing. Problem posing helps to break away from the ‘right answer’ syndrome associated with problem-solving and traditional mathematics instruction (Brown & Walter, 2005). Together with the use of PowerPoint and free screen-casting technology, pupils pose and solve their own word problems. As pupils solve their self- or peer-created word problems on PowerPoint and record their explanation and inking, their mathematical problem solving processes are captured on video. When pupils write and use words to articulate their thinking, they inadvertently think more deeply about the structure of word problems and make connections between mathematical concepts. This develops pupils’ reasoning and communication skills as they construct logical arguments and use mathematical language (MOE, 2007). They then upload their video clips on an LMS forum discussion for their peers and teachers to view and comment. Peer assessment takes place as pupils watch their classmates’ video clips and then give
feedback on their solutions based on group feedback questions such as “Did I check the correctness of the solution/explanation?” and “How can I respond regarding the correctness of the solution/explanation?” (Karmarski & Dudai, 2009). This platform also provides an avenue for pupils to learn social skills and how to give encouraging feedback to their peers. Teachers need to be aware of what each and every pupil is thinking and knowing to be able to provide individualized, meaningful and appropriate feedback (Hattie, 2008). Via this platform, teachers are able to ‘observe’ their pupils’ problem-solving processes and gain insight of each pupil’s level of understanding. In our sharing, we will give examples based on mathematical word problems involving fractions, decimals and percentage.

MR 309

EN(t)ICE - ENgagement Through InfoComm Experience

Jonathon Loh
Rivervale Primary School
ICT Pedagogy/Pedagogical Practices

Synopsis
Engaging the learners of today is one of the key concerns schools face and this paper looks into the implementation of RIV BE or Rivervale Brand of Education where there is effective use of technology and an innovative pedagogical approach to address the issue. RIV BE adapted the Experiential Learning approach (Kolb) and complemented with appropriate ICT tools brings about a higher level of learner involvement and engagement. Learners are guided through the online learning process where they experience, explore and learn either independently or with their peers. At an appropriate juncture, learners collaborate with one another to discuss or to work together to solve authentic problems integrated essential elements such as beliefs and value systems. In RIV BE, ICT is embedded, hence the appropriate use of online web2.0 tools effectively caters to learners of various levels of learning readiness and styles. Learners take ownership of learning as they interact with their peers and resources online. Teachers on the other hand collaborate together to create online lessons which they facilitate during lessons and intervene as and when necessary. Such lessons transform both the teachers and the learners in terms of teaching and learning respectively and elevate the level of thinking as these are lessons that go beyond the normal curriculum. Instead of mainly focusing on specific instructional objectives, teachers are challenged to plan and execute lessons that encourage learners to be self-directed and to provide various platforms for collaborative interactions. Through the lessons, learners go beyond the curriculum and develop an open mind to appreciate abstract concept through generalization and making connection of knowledge acquired to the real world, which in turn initiates the creation of new knowledge.
DAY 1: CONCURRENT SESSION 2
2.30PM - 3.30PM

Making Connections: Incorporating ICT in the Teaching and Learning of English Literature and General Paper
Rehana Binte Ahamad Manzur, Ivan Choong Weng Kit
Meridian Junior College
ICT Pedagogy/ Pedagogical Practices

Synopsis
The paper presentation will be a professional sharing on how the English Dept at Meridian Junior College has incorporated the use of ICT in the Teaching and Learning of English Literature and General Paper. In the presentation, we will be going through the current context of learning and how it is worthwhile to explore the new ICT tools and platforms that are available to us. This is important especially since we are teaching a generation of students who are extremely IT-savvy.

In this presentation, we will share how the MJC English Department has used various ICT platforms like Blogs, Twitter, Wikispaces and Google Sites in the English classroom. We will be highlighting our Lesson Objectives, sharing our lesson plans, lesson materials and showing real-life examples and samples of our students’ work.

Use of Google Site for Collaborative Discussions in Primary School Science
Tan Bee Geok, Tan Jenny, Ho Kok Soon
Fuhua Primary School
ICT Pedagogy/ Pedagogical Practices

Synopsis
Making use of a Google Site, pupils discuss about their observations on an experiment on CoveritLive. Through this collaborative strategy, pupils are able to express their understanding and teacher and pupils get to question each other's thinking. As a feedback to the teacher regarding pupils’ learning, pupils will be able to show their understanding through a simple quiz. The teacher will be able to get instant collation of results and be able to correct any misunderstanding.

The lesson is carried out in the computer laboratory with each pupil assigned to an individual computer, and directed by the teacher to the Google Site, which was previously set up. The teacher serves as a facilitator and instructs pupils to explore the site step-by-step. Collaboration between pupils is seen through the use of CoveritLive website that allows pupils to discuss their observations and reasoning. The lesson is planned using the BSCE 5E Instructional Model.

Pupils learn the concept at their own pace and are able to work collaborative with their peers in learning. The teacher is not the main source of information but as a facilitator to help pupils in inquiring knowledge. Feedback about pupils’ understanding is also instantaneous so that the teacher can quickly correct misunderstandings.

The use of CoveritLive made it possible for the whole class to discuss their observations and reasoning. 100% participation is possible as every pupil would be actively involved. The Google Site made it more structured for pupils to explore the concept step-by-step. The teacher would find it easier to get feedback from pupils as they would be doing an online quiz with results being collected and collated immediately.
DAY 1: CONCURRENT SESSION 2
2.30PM - 3.30PM

The use of ICT changes the traditional didactic teaching in a classroom to a collaborative whole class self-directed learning. There will be no need to rely on the teacher for information

Lesson Study on a Physics ICT-based lesson
Leong Chuen Kit
Anglo-Chinese School (Barker Road)
ICT Pedagogy/ Pedagogical Practices

Synopsis
The model lesson is to ‘Investigating the different factors that affect the acceleration due to gravity’.

Different Technologies (Google Site, form, spreadsheet and video camera) are used for inquiry based learning, collaborative learning, data analysis and critical thinking with Lesson Study being incorporated (observed by other teachers). The students need to perform and collect outdoor data in groups on the different times for the time of fall for different objects. The Google Form and Spreadsheet allows students to record their observations and link it with their theoretical knowledge. They are also asked to pose critical thinking questions with the class and the entire class learns when the spreadsheet is shared in class at the same time identifying potential misconceptions. The students also need to do a post lesson quiz to test on their understanding and retention. A group of teachers will observe the lesson, taking down notes and capturing students’ behaviour and attitudes during the lesson using a video camera. The video is reviewed after the lesson and teachers discuss on how to make improvements to future lessons by refining the pedagogical approach. The lesson is authentic and students are better at remembering the concepts involved.

MR 312
Raising Students’ Awareness for Media Literacy
Nancy Tan
West Grove Primary School
ICT Pedagogy/Pedagogical Practices

Synopsis
The Media Café is an area in the school designated for e-self learning. It is designed to be compelling for students to voluntarily engage in activities, such as quizzes, games shows and challenges, beyond normal curriculum time. These programmes have been well received by the students, resulting in overwhelming demand. The programmes are easy to replicate, with material being sourced from educational websites or generated in-house by ICT team. This generation of tech-native students is saturated by media on all fronts, hence it is imperative to impart important life skills of media literacy for cyber wellness to prepare and protect our students. We have activities such as “Pod-Stars123 Media Literacy Programme” which is designed to raise students’ awareness of media intent, guiding them to interpret media messages and even critique on the effectiveness of the media. These programmes are setup and planned by the ICT team while the teachers facilitate in the running of the program. In these programmes, the students would be engaging multiple intelligence, cooperative learning and self-directed skills to complete the tasks. End of the day, the students would have the competency to apply these methods whenever they encountered a dubious media.
### DAY 1: CONCURRENT SESSION 3
**4.00PM - 5.00PM**

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![Recommended for ICT Mentors](https://via.placeholder.com/150)

![Recommended for School Leaders](https://via.placeholder.com/150)

**BYOL** Bring Your Own Laptop
The Education Immersion Experience provides a facilitated hands-on environment where education administrators and educators experience a unique, risk-free opportunity to explore the application of different technologies by role playing in a “true-to-life” environment. Unlike traditional product presentations and demos, the experience puts the audience in the driver’s seat for a rich, interactive experience. The focus is not on technology but on the functionality that can improve communication, collaboration, and efficiencies within the organization and engagement with other stakeholders, and therefore optimize resources and eventually improve student outcomes.

**MR 313/314**

**Physics by Inquiry with Simulations (BYOL)**

Wee Loo Kang, Educational Technology Division
Goh Giam Hwee, Yishun Junior College
Lee Tat Leong, River Valley High School

ICT Pedagogy/ Pedagogical Practices

**Synopsis**

The Open Source Physics community using Easy Java Simulation authoring toolkit has created hundreds of simulations that could be customized to the Singapore syllabus for more targeted productive activities. Simulations (also known as computer models), we argue, are appropriate laboratory environments that can provide the experience and context, essential for deepening student’s conceptual understanding of Physics through student centered guided inquiry approach. To date, we have customised about sixty-five computer models of which we will share five; one collision cart simulation with River Valley High School, and four gravitational simulations with Yishun Junior College appropriate for Advanced Level Physics. We will also highlight Ordinary Level Physics computer models that we hope secondary school teachers will find useful. We have secured the eduLab 2012-2013 project funding from National Research Fund (NRF) and Ministry of Education (MOE), and hope teachers from other schools would continue to network-learn together with us.

All computer models shared are free for use, download and remix under the creative commons attribution license, provided at the links below.

http://weelookang.blogspot.com/p/physics-applets.html
MR 301
The Effects of Using Technology to Improve Students’ Content in Writing (Model Lesson)
Koh Mui Lee Evelyn, Sim Teck Chuan, Lim Swee Ching
Rosyth School
Emerging Learner-Enabled Platforms

Synopsis
Primary school children today use mobile portable devices as a matter of course in their lives outside school. As such, Rosyth School has trialed the use of the iPad to examine its use in the school settings, with emphasis on the impact on student learning, on teacher pedagogy, curriculum and assessment, and on external technical issues involved in implementing emerging technologies. In this project, we would be focusing on the effects of the use of the handheld devices; the iPad, for creative writing. The team will showcase the lesson structure, learning materials and resources used to support handheld learning. We will also reflect on how handheld learning is able to provide students with a prior knowledge to their written tasks and provide them with an added advantage to understand the background and context in which they are to write creatively on the given situation. We will be examining how handheld learning enhances students’ written vocabulary and expression. With its unique features of portability, ease of use, and file storage capacity combined with its ability to deliver audio as well as text, images, and video, the iPad holds the promise of revolutionizing the way languages are acquired in school.

MR 302
The Use of Interactive Audience Response System (IARS) to Enhance Assessment for Learning (AfL) (Model Lesson)
Foo Yu Ren, Siti Aminah Mohd Hassan, Yok Joon Meng
Yu Neng Primary School
Professional Development

Synopsis
YNPS teachers have been using the Interactive Audience Response System (IARS) to enhance interactivity between the teacher and the pupils. The primary objectives are to engage even the weaker pupils and to improve the teachers’ teaching effectiveness.

The teacher uses IARS as a pre-lesson assessment tool before he/she teaches a topic. This serves as a guide as to how well the pupils know the topic. As a post-lesson assessment tool after the teacher has taught the topic, the IARS helps by providing timely feedback for the teacher to judge how well he/she has taught the lesson and how much the pupils have cognitively gained in their learning. This gives the teacher the opportunity to clarify misconceptions or review the lesson.
DAY 1: CONCURRENT SESSION 3  
4.00PM - 5.00PM

The benefits include the ability to improve pupils’ attentiveness, increase knowledge retention, track individual responses, create an interactive and fun learning environment, confirm pupils understanding of key learning points immediately and gather data for reporting and analysis for the teachers.

In this presentation, participants will learn about how a lesson based on the IARS is conducted, as well as the impact of using the IARS as an informal assessment tool for improving pupils’ achievement in the classroom.

**Challenge Based Learning @ Edgefield Secondary School (Model Lesson)**

Janet Tan, Keith Tan Chin Heng  
*Edgefield Secondary School*  
*ICT Pedagogy/ Pedagogical Practices*

**Synopsis**

The implementation of Challenge Based Learning (CBL) in Edgefield Secondary School is part of the school’s strategies to prepare our students today to thrive in a future driven by globalisation and technological advancements. CBL is an engaging multidisciplinary approach to teaching and learning that encourages students to leverage the technology they use in their daily lives to solve real-world problems.

The key considerations for our CBL implementation are:

- Focus on the development of 21st century skills
- Leverage 24/7 access to up-to-date technology tools and resources - Active and mindful processing of information for knowledge construction
- Documentation of the experience from challenge to solution

The 3 main tenets of CBL are LEARN, CREATE & SHARE. CBL is a collaborative learning experience in which teachers and students work together to learn about compelling issues, propose solutions to real problems, and take action. The approach requires students to reflect on their learning and the impact of their actions, and publish their solutions to a worldwide audience. This sharing will focus on how the school leverages 24/7 access to up-to-date technology tools and resources to facilitate project collaboration and self-directed learning among students.

**MR 303**

**Exploring the Old with the New: 21st Century Learning in Museums (Panel)**

Jan Molloy, Priscilla Gaff  
*Museum Victoria*  
*ICT Pedagogy/Pedagogical Practices*

**Synopsis**

New technologies enable museums to create learning experiences for teenagers where they can authentically research, create, communicate and collaborate. Museum Victoria is using 21st Century communication technologies to support students to investigate the past, both online and onsite. Join this panel discussion to learn how two programs developed by Museum Victoria, Making History and 600 million years in 60 seconds, are transforming museum learning for 21st
Century learners. The new programs enable teenagers to collaborate with their peers, communicate their ideas, create new digital media and make sense of the world around them. 600 million years in 60 seconds is an onsite education program at Melbourne Museum where exhibition objects are the learning focus. Making History is an online resource where experts share historical knowledge and experience as well as a digital gallery that can host student generated digital histories. This session will demonstrate ways in which teachers can use Museum Victoria’s online resources or their local museum collections and exhibitions coupled with digital technologies, to create engaging, collaborative, challenge-based learning experiences that promote student choice, encourage curiosity and tap into higher order thinking skills.

MR 304

Implementation of 1:1 Computing for Learning and Teaching of Primary Maths and Science (Panel)

Foo Seau Yoon, Thong Chee Hing, Kok Siew Wai

*Educational Technology Division*

*ICT Pedagogy/ Pedagogical Practices*

**Synopsis**

An ETD team, together with teachers from participating schools and NIE consultants, co-designed Maths and Science lessons for implementation in different 1:1 computing contexts. These 1:1 computing contexts (So, Kim & Looi, 2008) include (1) planned learning in class (2) planned learning out of class (3) emergent learning in class and (4) emergent learning out of class. In this presentation, we will be focusing on our year-long netbook collaboration with Nan Chiau Primary School in 2011 which involved 1 experimental class and 1 control class. The design of the ICT-integrated lessons was based on the Teaching for Understanding Framework (TFU) which the school had adopted. During the lesson co-designing process (Zhang et al, 2010), we worked together to (1) identify the overarching goals, learning objectives and student learning difficulties; (2) brainstorm and compose activities to make student thinking visible and foster collaboration; (3) repack the learning tasks and ICT resources to form a coherent flow of lessons; (4) implement and reflect on the lessons. We also seek to understand whether the use of ICT tools such as Group Scribbles, Google Docs and the GoKnow learning environment could generate rich discourse in the classroom for students to collectively improve their ideas and deepen their understanding. Research data collected includes lesson plans, videos of lesson enactment, teacher reflections, researchers’ notes and learning artifacts. Based on the analysis of these data sources, learning points and preliminary findings will be shared on lesson design for different 1:1 computing contexts, teacher’s enactment, changes to their beliefs and practices, challenges and learning efficacies.
MR 305

“If You Could Build Your Own School from Scratch, What Would Shape the Learning, What Would the Learning Look Like and What Would Be the Influence of Technology on the Learning?”

Maurice Jackways
Ormiston Senior College
School Improvement

Synopsis

Setting the scene:
This paper describes how a new senior secondary school in Auckland, New Zealand had the unique opportunity to set up from scratch.

The process:
The New Zealand education system allows schools the autonomy to create learning environments which most suit their community.
An explanation is given of how a governance body, representing the community, the Ministry of Education, architectural and construction companies and newly appointed senior staff helped to shape the vision, values and philosophy of the new college.

The research:
The paper looks at the key issues to emerge from both national and international research and the implications for school management.

The technology:
How do you cater for the learning needs of “digital natives” and the associated issues of future-proofing and sustainability?

The practicalities:
The paper looks at new ways of addressing many of the old issues affecting all schools yet being at the “bleeding edge” of innovation at the same time.

The innovations:
With change there are both positive and negative outcomes but invariably innovation. The paper explores some of those innovations.

The outcome after one year:
Reviewing the “big picture” after one year and attempting to measure the outcomes conclude the paper.
Establishing Cluster Collaborations for Teacher Professional Development

Britta Seet, Commonwealth Secondary School
Jennifer Pang, Jurong Primary School
Solastri Suyoy, Tanglin Secondary School

Professional Development

Synopsis

One critical success factor for any ICT teaching and learning initiative is the quantity and skill development of teachers involved. In order to carry out an ICT teaching and learning initiative well, teachers will need to be equipped with the necessary skills so that they become confident users and experimenters of ICT. They would also need a community of practitioners to dialogue and sharpen their ICT-lesson ideas. This panel presents a professional development collaboration across two West Zone clusters in Singapore to grow the pool of ICT mentors to support cluster schools as well as to provide a networking platform for the current ICT mentors in cluster schools. Through the collaboration, more teachers are equipped with an understanding about how ICT could enrich and drive learning. Teachers also feel less isolated in their endeavour to use ICT for teaching and learning. The impact on teacher development and outcomes would be illustrated through specific case studies. The panel would also share on the future developments of the collaboration.

MR 306

Classroom 2.0: Rethinking Learning Spaces for Tomorrow

Lee Lyncoln, Lim Kenji Marc, Toh-Heng Hwee Leng
Catholic Junior College
ICT Pedagogy/ Pedagogical Practices

Synopsis

The physical classroom has always been the de facto place for learning and transfer of knowledge to occur. But the recent convergence of more robust internet technology, advances in pedagogical research and new paradigms in education have forced us to question the relevance and effectiveness of learning activities in the traditional classroom as we fill them with a new generation of learners.

The evidence suggests that students increasingly seek out, and have access to learning opportunities outside of the classroom, with richer experiences (Horizon Report, 2010 & 2011), thus the fundamental questioning of the function of a classroom as the only place for learning.

Marrying research from knowledge building (Scardamalia & Bereiter, 1994), community building (Oldenburg, 1989, 1991) and knowledge management (Nonaka, Toyama, & Byosiere, 2001), a continuous learning ‘space’ was created for students with designed learning activities to engage and participate in conversations with peers and construct shared knowledge. This paper shares the journey since 2009, in search for Classroom 2.0.

Students need to acquire the knowledge and skills for tomorrow, today. Educators need to create learning environments today, for tomorrow.
Using Interactive Visualization in Lower Secondary to Facilitate Sense Making in Geographic Inquiry

Ho Soh Tin, Geography Teachers’ Association of Singapore
Lee Hwa Phaik, Academy of Singapore Teachers
Farahdilla Mohd Ariff, Anglican High School

ICT Pedagogy/ Pedagogical Practices

Synopsis
Secondary 1 students find it a challenge to understand the concept of climatic types. This involves understanding patterns in different climographs and their relationships to locations in the world. The Geography Teachers’ Association of Singapore together with School of Information System, Singapore Management University and Anglican High School worked collaboratively to develop an ICT courseware to overcome the challenges. Using highly interactive maps & climographs of the courseware, students processed data and information to make sense of and arrive at geographical concepts.

The Geographic Inquiry approach (M. Roberts, 2003) was used to design the lesson. Together with visualization (S. K. Card, J. D. Mackinlay & B. Schneiderman, 1999), and sense making (C. A. Ntuen, 2009), and the data from a detailed study of 2 students, it was found that with interactive visualization, teachers better understood how students processed information into knowledge. Such knowledge would inform teachers how to better facilitate students’ learning, particularly significant for the implementation of geographical inquiry. This presentation would also include some of the challenges teachers faced in the implementation of this pilot project.

MR 308
Factors Affecting the Adoption of Social Media in Singapore Schools

Toh Chin Hwee
Northbrooks Secondary School
Social Networking Avenues

Synopsis
Social media, such as Facebook and blogs, is commonly used by teenagers in their personal lives. Schools have also started using social media, but there has been limited work on the acceptance of technology by students. This study involved 300 students from a Singapore neighbourhood secondary school and the factors of acceptance of social media were examined using a modification of the Unified Theory of Acceptance and Use of Technology (UTAUT). The results validated the original UTAUT with performance expectancy, effort expectancy and social influence determining behavioural intention to use social media. Age and gender were found not to moderate the three constructs. Attitude towards using technology, image, comfort level and trust were additional constructs found to determine students’ intention to use social media. This study also found that in addition to behavioural intention, gender and accessibility to the Internet at home played important roles in predicting actual use of social media. This study contributes to UTAUT’s theoretical validity and empirical applicability, and the management of ICT initiatives in education. The modified UTAUT can be adopted to investigate the adoption of social media in other educational institutions. The findings also provide insights to teachers and schools considering integrating social media.
Lead Teach Tweet - Teachers as Leaders Online… In 140 Characters or Less

Mohd Noor Hishamuddin, Noorzura Amir Noordin, Muhammad Imran Ismail
Ping Yi Secondary School
Social Networking Avenues

Synopsis
With the advent of social media, communication between educators and learners have been revolutionized in terms of speed and accessibility of information. The aim is to harness the potential of social media (specifically Twitter) in transforming how we learn, teach and understand its uses in inculcating a leadership role for teachers. The prevalent use of Twitter amongst youth is reflected by the “top trending topics” worldwide. Meanwhile, educators use twitter as a way to share ideas with other practitioners as well as “crowd sourcing” for materials. Technologists frequently connect with their peers in integrating ICT into teaching and predicting new trends in education. “Tweets” are motivated to share with others using simple search tools like hashtags and conduct self-directed learning when they come across tweets that interest them to dive deeper into the topic at hand. The impact of a teacher having a “follower”-ship is substantial, as networking is unrestricted by national boundaries, making his influence more far reaching than previously thought. Leading teachers can use twitter as a powerful tool in getting like-minded colleagues together virtually. Credibility of one’s approach in promoting learning can be replicated by others who are inspired to do the same. Privacy is an issue that’s inherent in social media, hence a thorough cyberwellness education should be a priority. A responsible approach to expressing one’s views should be promoted in order for this communication tool to be effectively utilized. The passion of the teacher is re-ignited upon using twitter when showcasing his talents to others. It is vital then for educators to take the lead in moulding the future of our youth with a heightened awareness of global issues and triumphs. In 140 characters, or less. Presentation is online at http://prezi.com/6cou3tjnyerv/lead-teach-tweet

MR 309

PBL Tuneup: Learn More About 21st Century Project Based Learning and Explore BIE’s Free Online Project Design, Management and Assessment Tools
John R Mergendoller
Buck Institute of Education
Professional Development

Synopsis
Project Based Learning (PBL) is a 21st Century Pedagogy that engages students and develops deep understanding of significant content. Most teacher preparation programs, however, don’t introduce teachers to PBL or give them practice in creating powerful, standards-focused projects. Consequently, most teachers are left to their own devices to learn how to use Project Based Learning.

This session will create a vision of what PBL looks like in actual classrooms, and then introduce participants to the tools they need to become expert PBL teachers. We begin by viewing and discussing short videos of effective projects and brainstorming different project ideas. We then introduce participants to the suite of professional development and project planning tools found on the bie.org website. These tools include: 1) video examples of teachers and students
Effective Use of ICT in the Teaching and Learning of Malay Language with Focus on Interaction Skills

Rahmat Subadah, Abdul Malek Ahmad

Malay Language Centre of Singapore

ICT Pedagogy/Pedagogical Practices

Synopsis

The 2010 Mother Tongue Languages Review focuses on the use of ICT-enabled pedagogies to enhance teaching and learning of mother tongue languages with emphasis on interaction skills. Hence, greater use of ICT platforms is encouraged to create realistic, interactive and authentic learning experiences that test students’ ability to use the language effectively and meaningfully. Advancement in ICT opens up new possibilities such as the use of interactive content, assignment of individual tasks and the provision of different resources and activities to suit the needs of different students. This paper describes efforts put in by Malay Language Centre of Singapore (MLCS) to empower Malay language (ML) teachers with relevant knowledge and skills to develop interactive resources to enhance their teaching and improve students’ learning. Sharing of videos, comics and mind maps created by both teachers and students which had been tried and tested and found to be effective in the teaching and learning of Malay language will highlight the effectiveness of using ICT in ML teaching and learning. This paper also describes the application of formative assessment in improving the quality of learning experiences of students. In addition, this paper also describes teachers’ efforts in empowering students with ICT skills so as to enable students to use ICT to enhance their learning and level of engagement in ML lessons. In particular, this paper describes the use of ICT in strengthening interaction skills of ML students in schools.
Teaching of Oral Skills in Picture Conversations Using “Photosynth”
Lee Edwina, Toh Yee Kheng
Peiying Primary School
ICT Pedagogy/Pedagogical Practices

Synopsis
The recent mother tongue language (MTL) review in Singapore looks into nurturing active learners and proficient users. It states that teaching methods and assessments will be changed and aligned to support the emphasis of students using MTL as a living language. Alongside with the ministry’s direction, this project taps on technology to engage students in authentic and experiential learning in Picture Conversation lessons. This project leverages the use of Photosynth (a photo stitching software to create 3D panorama) and Interactive White Board as learning platforms. Through these technologies, Drama-in-Education and Collaborative Learning is incorporated in the lesson. Dramatization in the classroom engages students in purposeful learning and promotes critical thinking so that students can formulate and express their opinions. Collaborative learning creates opportunities for students to engage in discussions, providing them the platform to use the language, honing their oratorical skills. In the lesson, students are engaged in experiential learning through role play and take on production roles to produce 3D panoramas. These 3D panoramas produced by students will then serve as authentic instructional materials during class discussions. The learning objective is for students to be able to use appropriate vocabulary to describe the 3D scenes in detail and to verbalize their thoughts and views of the scenes portrayed in the 3D panorama. “Photosynth” transforms digital photos into a 3D panorama. This is truly an eye opener for our students. They showed interest, displayed creativity and initiative in the process of creating their own 3D panorama, while participating actively in discussions. The 3D environment enables students to see the spatial relation between photos, improving their ability to navigate around the picture. Students were not only able to articulate their opinions and thoughts more confidently; they can also describe the scenes in greater detail, use a wider vocabulary and better verbalisation.
The Use of a Virtual Classroom Management System to Facilitate Synchronised Teaching and Learning
Tan Siew Huang, Tan Yew Hock
Crescent Girls’ School
Learning Management System

Synopsis
An important teaching and learning platform for teachers and students of Crescent Girls’ School, Virtual Global Learning Faculty (VGLF) is a classroom management system that enables teachers to better facilitate a class in a 1 to 1 environment. The various functions found in the system make learning in an online classroom more engaging and fulfilling. Not only can students collaborate and critique each other’s work easily, teachers can also collect real time feedback, which can help them better assess students’ learning and provide the necessary guidance almost instantly. With that, students are able to check their own understanding. Aside from that, learning is no longer confined to timetabled time. Whenever students have any doubts, they can easily contact their teachers using VGLF, clarifying their doubts instantaneously. In essence, VGLF is a teaching and learning platform that makes learning anytime, anywhere no longer a dream. Therefore, this paper discusses the processes in which students and teachers can have online lessons using VGLF that allow seamless integration of video conferencing, chatting, online testing and document sharing, making eLearning personal and enriching. Besides that, feedback from both teachers and students about the system is presented as well.

Impact on learning and teaching: Students would be able to:
1) accumulate knowledge and skills;
2) take ownership of their own learning (SDL);
3) showcase their work as well as to learn from others (CoL).

Teachers would be able to connect with as well as to assess students anytime, anywhere.
Teaching & Learning Chinese Language using e-Portfolio

Florence Lim Jie Ru
Maris Stella High School
Learning Management System

Synopsis
Learning knows no boundaries! Teachers make use of Google Sites as a platform to teach and learn Chinese Language anytime, anywhere. The Google Site allows the teacher to upload lesson packages, disseminate information, give instructions, post assignments, assess students, as well as connect with them. Each student is also required to create his or her own site as a personal electronic portfolio. The students will subsequently upload their assignments on their sites for assessment. Their Google sites will also serve as a platform for them to express their thoughts and showcase their work.

The Instructional Objectives are as follows:
1. Provide an educational platform for students express and share their thoughts;
2. Provide a platform for students to showcase their work and to learn from each other;
3. Allow students to accumulate their knowledge, skills and artifacts;
4. Allow students to develop a sense of ownership over their own learning;
5. Allow students and teachers to connect in cyberspace, and extend learning beyond classrooms.

Pedagogical approach and technology intervention: Teachers can post assignments focusing on students’ ability to listen, speak, read and write - the 4 aspects of learning Chinese Language. Assignments include PodCast, VodCast, Mind-Mapping etc.

Impact on learning and teaching: Students would be able to:
1. Accumulate knowledge and skills;
2. Take ownership of their own learning (SDL);
3. Showcase their work as well as to learn from others (CoL).

Teachers would be able to connect with as well as to assess students anytime, anywhere.
# DAY 2: CONCURRENT SESSION 4
8.30AM - 9.30AM

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*Recommended for School Leaders*<br>Recommended for ICT Mentors* BYOL Bring Your Own Laptop
MR 313/314
ICT-enriched Formative Assessment in Science Inquiry Learning (BYOL)
Tan Hsien Ming Samuel
Educational Technology Division
Student Assessment

Synopsis
Formative assessment is an integral part of a student-centred inquiry-based learning environment. It provides information to teachers for making adjustments to their instruction and helps students manage and monitor their learning and adjust their learning strategies accordingly. The ability to monitor the learning process is an essential part of effective inquiry learning and allows for a more timely and relevant intervention by teachers as leaders and facilitators of student inquiry. This is where the affordances of Social Media, Simulations and Modeling tools can be leveraged to enrich interactions and support collaboration between students and teachers.

Using the 5e model as a framework for organising a unit of inquiry learning, participants will experience a range of ICT-enriched formative assessment strategies that can be adopted for the various stages of inquiry. Through the learning experiences, participants will understand the design principles for ICT-enriched formative assessment and how to integrate these with relevant strategies/activities to scaffold students learning. Participants will also understand the assessment strategies to adopt with supporting ICT tools such as Simulations/Modeling (iPad apps, EJS) and Social Networking tools (e.g. Edmodo or Google Plus) to scaffold students in revealing their thinking to others, to understand their own ideas better, learn from others, build connection to other ideas and evaluate their repertoire of ideas.

MR 301
“It’s All About Working with Student Ideas” - a Knowledge Building Approach to CSCL (Model Lesson)
Lim Wei Ling, Ping Yi Secondary School
Anny See Wei Ling, Endeavour Primary School
Teo Chew Lee, Educational Technology Division, Ministry of Education
Social Networking Avenues

Synopsis
This ‘model lesson’ is a collaboration between teachers from two local government schools who have embarked on the CSCL (Computer-supported-collaborative-learning) project since 2010. This session will include accounts from teachers on how they understand the abstract concept of knowledge building pedagogy which aims to create an ‘idea-centered classroom’ (Scardamalia & Bereiter, 2006). The teachers will share what ‘loaded’ academic teams mean to them and how they translate these abstract pedagogical ideas into practice. Often beginning with students’ curiosity and observations, continually facilitating the inquiry according to the trajectory of this curiosity and allowing lessons to unfold as directed by students’ ideas, theories and questions. This process is made visible on Knowledge Forum™. There are general two components in these lessons: one component focuses on how the teachers prepare students to work with each others’ ideas, e.g. discussing how the real world scientists worked with ideas to advance their ‘problem
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of understand’. The other focuses on lesson ideas and activities designed to get students to share ideas and create opportunities for them to connect and develop worthy ideas as a class. We hope to engage the audience in a deep conversation on the kind of knowledge building environment necessary for self-directed and collaborative learning.

MR 302

Integrating Linoit into Lessons (Model Lesson)

Angie Dai Huiling, Aaron Wong Chin Wei
Seng Kang Primary School
Collaborative Learning

Synopsis

MOE implemented a new framework to enhance the development of 21st century competencies in our students. Under the new framework, one of the desired outcomes for every student is to be an active contributor who is able to work effectively in teams, is innovative, exercises initiative, takes calculated risks and strives for excellence. Students also need to be equipped with the skills to recognise and manage their emotions, develop care and concern for others, make responsible decisions, establish positive relationships, as well as to handle challenging situations effectively.

Thus, we decided to use a Web2.0 tool - LINOIT - as a platform for students to collaborate and work effectively together as a team. The platform provides students the opportunities to analyse, synthesise, and evaluate ideas cooperatively.

Pedagogical approach and technology intervention: According to Vygotsky (1978), students are capable of performing at higher intellectual levels when asked to work in collaborative situations than when asked to work individually. Group diversity in terms of knowledge and experience contributes positively to the learning process.

Impact on learning and teaching: The informal setting facilitated discussion and interaction. It also offers an effective platform for students to learn from each other’s knowledge, skills and experiences.

Learning Mathematics by Means of Mobile Applications with the iPad (Model Lesson)

Chan Wan Yin, Loh Ming Woon, Neo Shufen
Tampines Secondary School
ICT Pedagogy/Pedagogical Practices

Synopsis

MOE implemented a new framework to enhance the development of 21st century competencies in our students. Under the new framework, one of the desired outcomes for every student is to be an active contributor who is able to work effectively in teams, is innovative, exercises initiative, takes calculated risks and strives for excellence. Students also need to be equipped with the skills to recognise and manage their emotions, develop care and concern for others, make responsible decisions, establish positive relationships, as well as to handle challenging situations effectively.

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Impact on learning and teaching: The informal setting facilitated discussion and interaction. It also offers an effective platform for students to learn from each other’s knowledge, skills and experiences.

MR 303

Rising to the Challenges of Mother Tongue Language Learning (Panel)

Arfah Buang, Educational Technology Division
Maslina Mohtar, Anchor Green Primary School
Nurwani Yacob, Lakeside Primary School
Nor Zakiah Arif, Pei Tong Primary School
Norah Nordin, Haig Girls’ School

ICT Pedagogy/Pedagogical Practices

Synopsis

Language teachers of today are cognizant to the fact that their educational practices may need to be modified to enhance students’ experiences of learning while supporting traditional literacy. ICT use is indeed a means of making what goes on in schools more relevant and appropriate to the lives of 21st century learners who are surrounded by what some might call the ‘digital bombardment’ of many digital communication tools and ubiquitous networked applications. Notwithstanding, the teaching of Mother Tongue Languages (MTL) also comes with its own set of challenges. It must therefore evolve in response to these trends and challenges by taking into consideration various underpinnings of education. This panel presentation discusses the development and implementation of an ICT-based MTL programme at the primary level that embeds ICT-enriched learning experiences in pedagogy and assessment to deliver the espoused vision of 21st century language learning. A series of presentations by collaborating practitioners will provide an overview of the forward-looking ICT integrative programme, highlight essential strategies that effectively harness ICT for engaging, meaningful and differentiated student-centric learning; and demonstrate how an array of ICT tools can be used to manage assessment for learning activities and support holistic assessment practices in schools. The panelists will provide insights into the impact on teaching and learning as attested by their school-based inquiry, building of teachers’ capacity for ICT-enhanced pedagogy and future trend in ICT-based assessment for MTL. Challenges to curriculum, materials and task design will also be addressed.
MR 304

The 1:1 Learning Experience at Anglo-Chinese School (Barker Road)

John Wu, Natalie Chew, Alice Wang
Anglo-Chinese School (Barker Road)
Technology Planning & Integration

Synopsis

Anglo-Chinese School (Barker Road) will share lessons learnt from its pilot 1:1 learning programme across all subject areas for secondary 1. The rationale for the 1:1 learning programme are: (1) to examine the need to shift educators from the transmission mode of teaching towards a curriculum supported by learning theories; (2) to pilot a systemic transformation of the teaching and learning practices in the school; (3) to develop teachers level-wide through professional learning communities.

The learning objectives of the programme are to develop core 21st Century competencies such as (1) Critical Thinking Skills; (2) Collaborative Skills; (3) Creative Thinking Skills; (4) Communication Skills; through the pervasive use of ICT.

The lecture will share the school’s implementation of: (1) professional development processes to ensure teachers are equipped to use technology effectively for learning in their disciplines; (2) stakeholders outreach processes to educate parents of the benefits of use of technology for learning; (3) partnership engagement processes to engage industry partners on the use of technology in the context of the Singapore school; (4) student development processes to ensure students are educated on the proper use of technology; and (5) classroom routines.

The distinctiveness of the programme include: (1) a consultative bottom-driven approach to inspire teachers to implement 1:1 learning in the contexts of their disciplines; (2) a collaborative-driven learning approach instead of a content-driven learning model. ICT is used not only for media content but its affordance to create and collaborate; (3) the use of web 2.0 tools for capturing thinking.

The lecture will demonstrate the outcomes observed from the programme through teachers’ use of ICT in developing 1:1 lessons and students’ products across all disciplines. The lecture aims to inform schools of the challenges of implementing a 1:1 programme in the Singapore context.
MR 305
Learning Physics of Sport through Video Analysis and Modeling
Lee Tat Leong, River Valley High School
Wee Loo Kang, Educational Technology Division
ICT Pedagogy/Pedagogical Practices

Synopsis
The Tracker Video Analysis and Modeling Tool is a video and image analysis tool with dynamic modeling. Learners can analyze and compare real world mechanics phenomena with textbook theories through the motion of objects in a video. The tool also allows learners to develop simple to complex dynamical models and the behavior of the model can be compared directly with that of the real-world motion. The functionalities provided by the tool allow students to engage in self-directed learning beyond the constraints of the classroom. The flexibility of the tool allows students to investigate physical phenomena that would not have been possible to teach in a traditional classroom environment. Students are also willing to explore the use of fundamental principles in authentic situations. The short amount of time invested to train the students had turned into a potential for them to engage in both self-directed and collaborative learning.

New Generation Interactive Textbook (NGIT) for Upper Secondary N(T) Science Students
Chan Li Ying Catherine, Benson Ang
Curriculum Planning and Development Division
ICT Pedagogy/Pedagogical Practices

Synopsis
Teachers have reflected that Normal (Technical) students find it hard to understand traditional textbooks and many have thus no interest in learning N(T) Science. It is in view of this that the New Generation Interactive (NGIT) was developed for Upper Secondary N(T) Science. The NGIT was developed with key features such as interactive digital content which were delivered using contextual learning with functionalities which assisted teachers’ pedagogy in delivery of lessons. NGIT was piloted in 6 secondary schools from 2011 to 2012 and teachers’ reflections and students’ take on the pilot were recorded and evaluated by NIE.
Teaching and Learning in the 21st Century: Research Projects by the Learning Sciences Lab

Manu Kapur
National Institute of Education

ICT Pedagogy/Pedagogical Practices

Synopsis
The purpose of proposed session by the Learning Sciences Lab (LSL) of NIE is to showcase LSL research projects that interrogate what it means to teach and learn in the 21st century. Educating for the 21st century requires changing not merely the practices of education but the very conceptions that underlie those practices. LSL conducts research concerning a range of theoretical, methodological and practical issues focused on learning and teaching in the 21st century. As learning scientists, our researchers attempt to understand the nature and conditions of learning, cognition, development, and related areas of human performance in material, social, and cultural contexts. LSL projects involve design research conducted in close collaboration with teachers and other educational stakeholders in Singapore schools (at the primary, secondary, and junior college levels) and out-of-school settings. Thus positioned, LSL research occurs at the intersection of student learning, teacher learning/pedagogy and designed activities/environments within institutional and systemic contexts. Consequently, we are able to foster the kinds of changes that need to occur on multiple levels, and our research is able to inform multiple areas of educational interest thereby contributing to advances in:

- Student learning, particularly what does it mean to learn in the 21st century?
- Teacher learning, particularly what does it mean to be a teacher in the 21st century?
- Pedagogy, Curriculum, Assessment, and Media: How can we create powerful learning environments for the 21st century?
- Understanding the interplay of In-School and Out-of-school learning
- Understanding of systemic factors learning.

Student Teachers’ Practices in Integrating Information and Communication Technology (ICT) During Their Practicum Attachments

Doris Choy, National Institute of Education

Professional Development

Synopsis
The purpose of this study was to investigate the development of student teachers’ practices in integrating Information and Communication Technology (ICT) into their teaching during their two practicum attachments. The participants were enrolled in the two-year Diploma in Education programme which prepared them to teach English, Mathematics and one additional subject, such as Science or Social Studies, in primary schools. A 22-item survey with a four-point Likert scale
Supporting Them To Do It: Insights Into The Beliefs And Experiences of Beginning Teachers

Mark Brown
Massey University
Professional Development

Synopsis
A dearth of research exists on beginning teachers’ beliefs about and conceptions of educational technology use in schools. This paper highlights some of the challenges they face in ‘doing it’ in the classroom when they have emerging and/or ill-formed conceptions of the pedagogical benefits of the potential of educational technology. It draws on case studies of eight beginning teachers in New Zealand to raise questions about initial teacher preparation and the type of knowledge and skill required to adequately support the induction of beginning teachers. More specifically, the paper explores two pertinent questions: “How do beginning teachers understand educational technology policy for schools?” and “What are their views about educational technology in schools?” These questions are of particular importance because conceptions of pedagogy and the role of technology in education have been shown to strongly influence how educational technology is used by teachers. The basic assumption is that well-educated and equipped beginning teachers can be a powerful force in disrupting traditional forms of pedagogy but equally they can reinforce it. The presentation argues that more attention needs to be given to supporting beginning teachers and developing their wider strategic knowledge about the role of educational technology in the curriculum—for better and worse. It is crucial that the next generation of teachers better understand the competing drivers promoting the use of new educational technologies so they can help shape the future rather than have it determined for them.
Translating Assessment for Learning (AfL) Principles for the Learning and Teaching of Grammar in Context Through the Use of ICT

Ng Boon Sin, Jean Phua Yin Chiun
Educational Technology Division

Synopsis
This project harnesses Assessment for Learning (AfL) principles to guide the use of an Automated Marking Tool (AMT) in grammar instruction. It explores the ways in which such an approach can enhance the efficacy and efficiency of grammar instruction, and seeks to optimize the affordances of the tool with AfL principles. AfL is associated with major gains in student attainment (Black and William, 2002). For AfL to be carried out with significant success, students need to know what good performance is, feedback on their current performance, and how to close the gap (Sadler 1989). The AMT functions as a supplement to the quality and level of detail in teachers’ feedback. It is a web-based instructional tool that provides immediate scoring and diagnostic analysis of students’ work. It also facilitates students’ self-evaluation and encourages self-directed learning. Classroom implementation was carried out over the period of 3-4 terms in 3 secondary schools. Teachers made use of the generated reports to provide explicit grammar instruction and students practised process writing based on error analysis of their performance provided by the AMT. Data collected before and after intervention suggests promising results in students’ level of grammar proficiency, and the intervention garnered positive feedback from students on their learning preferences.

The Effects of ETS Criterion for English Language on Secondary Three Students’ Writing Abilities

Glenn Tan Cheng Hai, Leong Hui Ran
Bendemeer Secondary School

Synopsis
This action research project explores the use of ETS Criterion for English Language as an integral part of assessment for learning in improving students’ writing abilities. A pre-test in grammar and attitudinal survey were conducted to understand students’ language abilities and affective domain. As part of curriculum intervention, teachers have designed a variety of writing tasks ranging from narrative writing to script writing. Students were tasked to work individually by submitting their writing tasks through ETS Criterion system and were paired up during laboratory lessons to perform peer critique. Hence, such co-operative learning & reflection structures have enabled students to identify and correct grammatical errors in essays. Through the series of writing tasks via ETS Criterion system, students improved in terms of their writing abilities, especially in grammar structures such as fragmented sentences, run-on sentences, and subject verb agreement, through co-operative learning/peer critique structures. At the end of the action research project, a post-test in grammar and attitudinal survey were administered to determine the changes to students’ cognitive and affective domain.
Infusing of ICT in the Learning of Trigonometric Ratios Through Problem-Based Learning

Oon Tze Ying, Divakaran Kuppusamy
Seng Kang Secondary School
Collaborative Learning

Synopsis
This is a Problem-Based Learning (PBL) Project where Collaborative Learning (CoL) and Self-Directed Learning (SDL) were infused, empowering our students to integrate concepts and practice, applying knowledge on Trigonometric Ratios to develop a viable solutions to a given real-life problem. The Secondary Three students worked in groups to negotiate and set their own learning goals. They researched for information online and used an online forum (Facebook) for project discussion. Students then planned and carried out experiments, using Data-loggers & iPhones, to collect the relevant data to analyse and develop different possible ways to approach the real-life context. Teachers acted as facilitators to monitor and guide groups’ progress through weekly meetings. In addition to group planning, management and monitoring of their project, students’ personal reflection was sent via email to the teacher facilitator for feedback, while peer and self evaluation was done using Google Docs survey at the end of the project. Students produced a portfolio to report on their findings and hypothesis, solutions and supporting evidences for their conclusion. They also presented their solutions to the real audience for critique and feedback. Through these ICT-facilitated learning experiences, students have learnt to communicate their ideas to each other and build on each other’s knowledge. Students were able to identify the assumptions they made to solve the problem and became more critical in their thinking. Instead of solving a worksheet of questions, applications of the Mathematical concepts become relevant and engaging. Students were assessed on the process and product of learning with the C2015 competencies as the basis for the design of the assessment rubrics. Problem-based learning lessons infused with ICT will be carried out across all classes in 2012.
Harnessing the Use of ICT to Enhance CoL in Science

Wu Puwen, Wong Wai Lit, Murni Masuath
St Stephen’s School
Collaborative Learning

Synopsis
The use of ICT to support collaborative group learning (CoL) has yet to be a common phenomenon in today’s classrooms (Becta, 2007). CoL is simply defined as social interactions that are targeted towards deeper learning (Chai & Tan 2010). Through CoL, pupils work together to achieve a better understanding about some concepts or solve a given problem. In St Stephen’s School, we want to harness the use of ICT to enhance CoL in the science curriculum. Working in groups, our pupils use iPhone apps to explore the environmentally friendly features in a Learning Trail to City Square Mall. Students worked together to search for information on products with eco-friendly features and take pictures of the various parts of the building that promotes energy saving via their iPhones. From the information gathered, they then collaborate online using Mindmeister to design a mindmap on features of an eco-friendly building. Through the use of ICT, our pupils learn to collaborate with one another to solve a given problem on saving the environment. Using the survey labeled as Student Perception of Classroom Knowledge Building (SPOCK) developed by Shell et al. (2005), we studied and measured the impact of ICT on the enhancement to CoL in Science. We found that there was an enhancement in CoL in science as students are actively engaged in the exploration and learning process. We therefore affirmed that ICT is very useful in enabling us to develop lessons that promote collaborative learning amongst students in science.

The Impact of Personalised Learning Using NASLeaD in a 1-to-1 Computing Environment

Alvin Tan Choon Hou
Ngee Ann Secondary School
ICT Pedagogy/Pedagogical Practices

Synopsis
Instead of giving standardized instructions to all, technology is used to personalise students’ learning. Using Teaching for Understanding (TfU) as the framework and capitalising on Microsoft’s SharePoint technology, Ngee Ann Secondary has created a personalised learning dashboard called NASLeaD for her pupils. NASLeaD provides a suite of classroom management, collaborative and assessment tools to enhance teaching and learning in a 1-1 Computing environment. The system allows teachers to create lesson packages that suit the three learning styles, VAK (Visual, Audio, Kinesthetic) and delivers the package to students automatically based on their preferred learning style. Students enjoy individualised learning packages designed specifically to suit their learning style. The system gives students access to results of various assessments they have undertaken to help them better define their needs and goals for learning, while providing them with distinct learning paths through differentiated instructions. Students demonstrate their understanding through reflection and interaction with fellow classmates.
Authentic Assessment Using Science E-Portfolio

Tan Kok Kim
Hwa Chong Institution
Self-directed Learning

Synopsis
Since 2010, the Science E-Portfolio has been included as part of the authentic assessment of Lower Secondary Science in Hwa Chong Institution. The Science E-Portfolio not only documents a student’s learning journey, but also provides a platform for assessing and monitoring of individual performance and participation in Science. This is consistent with Tai and Yuen’s (2007) comment that authentic assessment strategies have benefited students because they made students more conscious of their own shortcomings, especially in the areas of communication and knowledge sharing. In addition, this component of the assessment taps on the readily available Web 2.0 technology, e.g. wikispaces and Google Sites, which the students used to present their knowledge and understanding in a manner that mirrored their personal growth and development as a Science student. The students were also free to present their own exemplary work, enrichment and research done on contemporary science issues throughout the course. Hence, the purpose of this research paper is to explore the perspectives of students in their own terms and to obtain an overview of the issues students encountered during the development of the Science E-portfolio.
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9.30AM - 10.30AM

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Promoting a Collaborative Knowledge Building Classroom (BYOL)

Loke Hong Yew, Koo Kay Kee, Marsiling Secondary School

Dennis Toh Hiew Kang, Educational Technology Division

Emerging Learner-Enabled Platforms

Synopsis
Empirical studies and theory suggest that Knowledge Building promotes collaboration and is imperative to improve learners’ higher order thinking (e.g. critical thinking, problem-solving) and foster personal development skills in the development of reasoning, argumentation. This session presents the educational design of Knowledge Building classroom that guides participants to understand authentic problems, improve ideas or argumentation, meaning making and empowered to engage in knowledge innovation. Fundamental elements of Collaborative Learning will be highlighted to support knowledge-building pedagogy and enable participants to comprehend the goals of an activity through interaction and negotiation in enhancing the achievement of the group and individual. As members in a knowledge building community, participants will actively engage in making shared meaning, clarifying group’s terminology, identifying problems, researching for solutions and evidence to discuss and debate with peers. This session will pervade a focus on co-creating new perspectives and advancing knowledge beyond individual perspectives. It also promotes the active engagement and responsibility of learners through the acquisition of skills in building of relationships and communication. Emphasis to engage participants in effective assessment practices that improve student achievement will also be shared. To create a knowledge building experience for participants, the session will use an asynchronous online discussion forum known as knowledge forum to engage participants in discussion to deepen understanding about collaboration. Facilitators will assist participants throughout the hands-on session, exploring the user interface of knowledge forum.

MR 301

Place-based Learning with Computer Games: History through World of Temasek and Civilization 4 (Model Lesson)

Tan Kok Wah, Gerald Cheang Cheng Hock, Pee Kai Hing

Greendale Secondary School

Emerging Learner-Enabled Platforms

Synopsis
The purpose of this project is to explore how computer games such as World of Temasek and Civilization IV could be used in secondary schools to support history learning among students. In the World of Temasek and Civilization IV, history, Social Studies and geography become tools for game play and understanding of concepts across world history and geo-politics. Results of the project suggest potential for using computer games in understanding the interplay of geography and politics in the shaping of world history. The simulation game also provides possibilities to design lessons which incorporate multi-intelligences and peer-to-peer learning. Teachers will be trained to use the game for lesson purposes. Limitations and concerns of using simulation games in a school setting will also be discussed.
Augmented Reality Games with Handheld Mobile Devices: A Place-based GPS (Global Positioning Systems) Experience in the Learning and Teaching of Humanities Subjects (Model Lesson)
Tan Kok Wah, Gerald Cheang Cheng Hock, Pee Kai Hing
Greendale Secondary School
Emerging Learner-Enabled Platforms

Synopsis
The purpose of this project is to explore how Augmented Reality (AR) games and Global Positioning Systems (GPS) could connect students to the learning of social studies, geography and history. In this study, handheld mobile devices such as iPhones, Slate tablet PCs and iPad 2 were used in the GPS-assisted AR experiences. The Technological Pedagogical Content Knowledge (TPACK) framework is adopted in this project. This research also investigates the design of an AR game-based curriculum that could facilitate an inquiry study of humanities subjects among students. The results of the project: 1) provide a vision of what can be achieved in the classroom with augmented reality curriculum, and 2) suggest that learning outcomes of a good AR design curriculum are closely intertwined with values and identity. Limitations and concerns of using augmented reality games in school setting will be discussed.

MR 302
Mathematics Play Space – Model Method Tool for Representing and Solving Word Problems
Thong Chee Hing, Educational Technology Division
Faisal, Yuhua Primary School
Lim Ai Hua, Yuhua Primary School
ICT Pedagogy/ Pedagogical Practices

Synopsis
In the Mathematics Curriculum, solving word problems is a key component in the teaching and learning of Mathematics at the primary level. The Model Method which involves drawing a diagram to represent key information in a problem situation is a common heuristics that students used in solving word problems. Technology is often been cited for its potential to facilitate and enhance students’ learning (National Research Council, 1999). To support word problem-solving at the primary level and leverage on students’ knowledge of the Model Method, the Educational Technology Division, Ministry of Education, developed an ICT tool, Mathematics PlaySpace (MaPS) to enhance the learning of mathematics.

Using the Kintsch & Greeno (1995) processing model as a guide, the team worked with four classes of low performing Primary 5 students, from 4 neighbourhood schools over a period of 10 weeks on solving word problems, supported by the use of MaPS. This paper describes the team’s experience in translating the processing model into classroom practice and integrating the use of MaPS to support Mathematics word problem-solving. Besides the challenges and findings, one of the collaborating teachers will also share on her classroom experience in integrating the use of MaPS to enhance teaching and learning of Mathematics.
Using Online Collaborative Learning Tools to Improve Problem Solving Skills: Impact of Collaborative E-Maths Journaling in Primary Mathematics

Charlotte Lee, Josephine Chan Yu Ling, Serene Ng Tse Ern
Bukit View Primary School
Collaborative Learning

Synopsis
Both Reiser (2001) and Strijbos et al. (2004) highlight that the instructional principles based on constructivism require from learners to (a) solve problems, (b) work together, (c) examine problems from multiple perspectives, (d) become responsible for their own learning process, and (e) become aware of their role in the instructional process. Working together through collaborative learning is encouraged as students have to externalise, articulate and negotiate alternative perspectives, including reflection on the meaning of arguments put forward by peers as well as experts. When students add, explain, evaluate, summarise and transform information, they can construct new knowledge (Veerman, 2000). Online discussion incorporates collaborative learning with technology. Online discussion is the forum in which many persons advocate for their own individual positions and mediates shared meaning (Kramarski and Mizrachi, 2006). It permits one-to-one and one-to-many interactions. By critically examining others’ reasoning and participating in the resolution of disagreements, pupils learn to monitor their thinking when they reason about important mathematical concepts (e.g. McClain and Cobb, 2001). Thus the purpose of this research is to find out if collaborative e-maths journaling improves P5 pupils’ ability in solving challenging Fractions word problems. Also included in the study is the identification of the challenges in using existing technology like Google Docs and discussion forums for such implementation. Suggestions on how existing technology can be improved to encourage more pervasive use of online collaborative tools for Mathematics in the primary school context, looking into the possibility of interclass, cross-level, interschool and international collaboration, would be provided.

MR 303
Using Group Scribbles To Enhance Chinese Essay Writing Skills
Ngo Seng Leang, Hsueh Ya Wen
Whitley Secondary School
ICT Pedagogies/Pedagogical Practices

Synopsis
The project studies the effectiveness of using Group Scribbles (GS) in enhancing students’ writing skills as well as the engagement level of students. GS is a platform which allows learners to create, brainstorm, modify and organise ideas in an engaging and collaborative learning environment. Through an internal school survey and teachers’ observation, many students face difficulties in writing as they lack reference material and they are very dependent on teachers when writing is concerned. In order to build up students’ writing abilities through collaborative learning, the teacher researchers incorporated process writing and GS in the Chinese Language essay writing lessons, which aims to help students write better in terms of content breadth and depth. The research shows positive results in terms of writing ability and engagement level for high ability students and positive result in terms of engagement for lower ability students. It is also observed that GS caters to different learning styles and needs of the students. Through the research
study, teacher’s role in class has also moved from an instructor to a facilitator. The School will be introducing GS to other Mother Tongue languages as well as to other levels. When GS moves beyond computer lab, the School hopes to explore possible usage in other subjects.

The sharing will allow participants hands-on experience on how GS allow for collaborative learning in an effective and engaging manner as compared to conventional group discussion.

**Empowering Thoughts & Minds - The 10'C Pedagogical Design Approach to Strengthen Comprehension & Writing**

Lu Xue Hui, Wu Hong Qin

*CHIJ Katong Convent*

*ICT Pedagogy/Pedagogical Practices*

**Synopsis**

The 10'C programme is a Chinese Language ICT-Based Teaching and Learning Initiative introduced by the Educational Technology Division (ETD), Ministry of Education. The programme aims to level up the competency level of students and ignite students’ interest in the learning of Chinese Language, focusing on reading and writing skills in an online environment. Since 2010, CHIJ Katong Convent Mother Tongue Department Chinese Language Unit has collaborated with ETD in this programme, embarking students on the 10'C e-learning platform journey and engaging students in many student-directed and collaborative activities to strengthen students’ comprehension skills and writing abilities.

This paper highlights the various student-directed and collaborative activities designed by CHIJ Katong Convent Chinese Language teachers using the 10'C Pedagogical Design Approach. Teachers adopted the differentiated learning approach where they set assignments to suit the learning needs of their students. There were assignments that challenged the able students to stretch their abilities as well as lessons with more scaffolds to support the weaker students and decrease their stress in learning. The progressive journey of students’ improvement in comprehension and writing skills were also documented. Significant improvements are shown especially when students are able to understand better, write more, provide critical peer review and most importantly, enjoy the learning of Chinese Language through this interactivity.

**MR 304**

**A Systems Perspective in Technology Planning and ICT Integration in Educational Contexts**

Wengao Gong

*Knowledge University*

*Technology Planning & Integration*

**Synopsis**

Due to the ubiquitous penetration of information and communication technology (ICT) into our daily life, the educational scenarios are undergoing drastic changes. One defining feature of the changed scenario common among many...
countries, particularly Singapore, is that the majority of our student population is composed of “digital natives” (that is, IT-savvy students who grew up in an ICT-surrounded environment). Against this backdrop, the question of whether to integrate ICTs into daily educational practices is no longer an issue. Instead, the issue becomes how to achieve effective utilization of ICT to transform learning. Featured with mobility, connectivity, and capacity in processing multimedia, ICT in its current form has acquired a transformative power. To fully exploit this transformative power, we need to adopt a systems perspective in technology planning and ICT integration. According to the systems perspective, a number of components interact with each other to form a complete system and when the state of one component changes it will have a domino effect on the others. Similarly, the integration of ICTs into school education will trigger other changes within the school system. In fact, the integration of ICTs often requires the redesign of the system. As such, school leaders need to consider a whole range of factors in their technology planning and ICT integration so that they can maximize the benefits and minimize the adverse effects. These factors include but are not limited to the following: school philosophy and culture, content presentation, delivery mode, pedagogy, assessment, current school policies regarding staff and students using ICTs, financial resources, teachers’ knowledge and skills in digital pedagogies, students’ learning ability, and information safety and security. This paper attempts to illustrate why a system perspective is necessary and how it can help school leaders in decision-making in terms of technology planning and ICT integration.

**Factors Affecting the Frequency of ICT Use in a Primary School – Both Sides of the Equation**

Tay Lee Yong, Lim Siew Khiaw

*Beacon Primary School*

*Technology Planning & Integration*

**Synopsis**

This paper attempts to describe and discuss the conditions that support the seamless integration of information communication technology (ICT) in the classroom vis-à-vis the school-initiated one-to-one computer ownership program for all its Primary 4 (i.e., aged 10) students. The school in this case study implemented a one-to-one student computer ratio for all students from the early onset of Primary 1. At Primary 4, students procured and used their own computers for learning. The school in this research study is one of eight future schools under the FutureSchools@Singapore programme. The FutureSchools@Singapore program is a collaborative project between the local educational ministry and information communication development authority with the aim of having small groups of schools leading the way in providing possible models for seamless and pervasive integration of information and communication technologies (ICT) for engaged learning within the curriculum. Research methods include: informal interviews and simple questionnaire survey with teachers, informal group interviews and questionnaire survey with students and document (i.e., schemes of work and lesson plans) reviews. The literature review and findings suggest the importance of (1) technological hardware and infrastructure, (2) teachers’ beliefs and attitude, (3) curriculum and pedagogy, (4) school leadership and (5) professional development in supporting the process of integrating ICT into the teaching and learning process. In addition, another interesting observation from this study is that students’ readiness in terms of their academic performance and ICT skill levels are also possible factors affecting the frequency of ICT use in the classroom.
MR 305

STEM Scouts: A Technology-enabled Program to Improve Learning in Science, Technology, Engineering and Mathematics
Kyle Peck
Pennsylvania State University
Self-directed Learning

Synopsis
Most nations are struggling to identify ways to increase student interest in science, technology, engineering, and mathematics (STEM) careers and/or to enhance student learning in these areas. This presentation will describe how modern technologies can be used to produce a scalable system designed to dramatically increase the number of students who are interested in STEM careers and to prepare students well for these careers. In some ways similar to Singapore’s “Young Scientists Club,” STEM Scouts starts by identifying interested and capable students, giving them interesting and challenging science-related things to do, and recognizing them for their accomplishments. But in STEM Scouts, technologies are engaged to: 1) increase student engagement via online learning communities; 2) allow efficient real-time video-based mentoring by actual scientists and engineers; 3) provide online portfolios where the badges students earn are displayed; and 4) allow collaborative participation, even by individual students living in locations where other scouts and mentors are not available. This session will present the project design, discuss the roles played by different technological tools and the progress made to date, and will invite the audience to participate in a collaborative discussion of other ways technologies might be employed to add motivational or academic value. For a brief video on the concept, see: http://www.creativegroup.psu.edu/client/stemscouts/

MR 306

Tandem: an Internet Game That Hones Collaborative Skills
Sharifah Feiruz Alsagoff, Wong Pei Li Pamela, Noor Ashikin Sulaiman
Tampines North Primary School
Collaborative Learning

Synopsis
Task-based learning can be easily facilitated using technology, to simulate an environment where learners can assume an alter-ego to accomplish a task with learning objectives. Tandem, a language-learning internet game was created on such a learning method. It requires two players to play together as a team, both role-playing as rookie spies who are undergoing training. These two players are required to be seated away from each other, simulating a situation which they are at different locations. They will be given a common mission to accomplish but they each have different pieces of information so they need to communicate with each other using the headsets they are wearing, exchanging information that can help complete their mission successfully. Through this game, our pupils learnt that to complete their mission fast, they need to collaborate and communicate effectively. The instant replay in the game allows the pupils to reflect on their communication fluency, the clarity of their instructions and the way they collaborate, and knowing areas where they are lacking. The reports that the pupils need to file with their “spy superior” also help reinforce their language skills, extend their vocabulary as well as provide another way to reflect on their learning.
Inspiring Poets On-the-go: Exploring the Affordances of Mobile Technologies for Casual Learning in Language Arts

Ong Choon Cheng

Educational Technology Division

Emerging Learner-Enabled Platforms

Synopsis

This paper outlines an approach that addresses the challenge of engaging learners in language learning, honing their language skills and deepening their interest in language, beyond the confines of the classroom. Working in the casual learning space through mobile technologies, the authors recognize the media-richness that learners are attuned to and respect the complexities these individuals are dealing with as they negotiate various identities in multiple, real and virtual, worlds. Applying the principle of simplicity “less is more” and guided by the design-thinking framework, the authors designed an iPad application where learners can engage with creative writing. This application is a case in point to illustrate how ‘games’ realize learning theories and concepts e.g. zone of proximal development, discovering learning, behaviorism etc. for engaged learning. It signals a mindset change of transforming the learning experience from ground-up and engaging learners in a space and with a theme that is familiar and interesting to them. Results from our learner assessment studies reveal improved self-efficacy in creative writing and a willingness to deepen their engagement with the subject.

MR 308

The ISTE NETS•CS: A Model for Effective Teaching and Learning of Computer Science for the 21st Century

Stephen Bryant Rainwater

The University of Texas at Tyler

ICT Pedagogy/Pedagogical Practices

Synopsis

During the period 2010-2011, the Special Interest Group for Computing Teachers (SIGCT) of the International Society for Technology in Education (ISTE) collaborated with the Computer Science Teachers Association (CSTA) to revise the secondary computer science teaching certification standards. This endeavor was originally initiated as a task of ISTE’s Accreditation and Standards committee whose responsibility is to review and revise NCATE certification standards for secondary teachers of computer science every six years. The National Council for Accreditation of Teacher Education (NCATE) is a national accrediting body for schools, colleges, and departments of education authorized by the U.S. Department of Education. Since the 1990s, ISTE has been the Specialized Professional Association (or SPA) responsible for review of certification programs in computer science, technology facilitation, and technology leadership. The review process coordinated by the collaboration committee involved numerous professionals from education and industry by way of on-line surveys, conference presentations, and small group discussions. When the revision process concluded, ISTE adopted the refreshed computer science standards into the organization’s suite of National Educational Technology Standards (NETS) for students, teachers, and administrators. The new NETS•CS standards address both computer science content knowledge as well as educational practitioner skills needed by pre-service teachers. NCATE specifies
the structure of all standards documents. Each must address four educational principles and have at most seven
standards within these principles. The ISTE NETS•CS includes the following principles (and standards within each):
knowledge of content (abstraction and data representation; algorithm design, development and testing; digital devices,
systems, and networks; role and impact of computing in the modern world); effective teaching and learning strategies
(planning and teaching computer science lessons and units); effective learning environments (classroom and on-line
environments); and professional knowledge and skills (ongoing professional development and life-long learning).

MR 309
The Use of iMTL Portal to Enhance Teaching and Learning of Mother Tongue Languages (MTLs) - An Evaluation Study
Sim Seok Hwa, Cai Junjun
Curriculum Planning and Development Division
Student Assessment
Synopsis
This paper introduces key features of the iMTL portal developed by MOE to support ICT-based Mother Tongue
Languages (MTLs) teaching and learning across Primary 4 to JC 2. It also discusses the pedagogical approach
behind its design concept. With technological advances in modern society, it is paramount to make use of students’
growing interest and competency in ICT to facilitate the learning of MTLs. The web-based portal aims to strengthen
students’ interactive communication in MTL through meaningful formative assessment that facilitates self-directed and
collaborative learning. Leveraging on its key functions, teachers could create authentic learning tasks. Students’ work
could be text typed or in audio/video presentations. More importantly, teachers and peers could provide timely and
constructive feedback through the portal, promoting assessment for learning. An experimental study, involving 12
schools, was conducted between July and December 2011 to investigate the effects of the use of the portal in enhancing
students’ Chinese oral and writing proficiency. Data collected from multiple sources are validated for consistency using
triangulation. Qualitative analyses via surveys, multiple case studies, participation observation and interviews were
executed. Findings have revealed that the iMTL portal does impact MTL learning positively. It is envisaged that learners’
MTL proficiency will be increased through the effective use of the Portal in daily teaching and learning.

MR 310
SCRAM Framework for Engaged eLearning
Lee Boon Keng, Richard Koh Pee Chou
Crescent Girls’ School
Social Networking Avenues
Synopsis
Comprising self-directed learning, collaborative learning, mass teaching, reflection and assessment, the SCRAM
eLearning framework has been crafted to provide students at Crescent Girls’ School with an engaging eLearning
experience. This is not just applicable to lessons conducted in school but also lessons conducted when students or
Interactive Cove - a Learning Space for Collaborative and Self-directed Learning
Tan Siew Huang, Lin Xingshan Eileen, Goh Hok Koe Sebastian
Crescent Girls’ School
ICT Pedagogy/Pedagogical Practices

Synopsis
The Interactive Cove is a place where technology-enabled collaborative learning takes place. It is equipped with 11 Heumi, a state-of-the-art multi-touch surface co-developed by Heulab and Crescent Girls’ School. The Collaborative Suite and Productivity Suite found in Heumi facilitate collaborative and self-directed learning. The various thinking templates in the Collaborative Suite provide structures for students’ discussion and collaboration, thereby promoting co-construction of knowledge and knowledge sharing. Incorporating self-directed learning, each Heumi allows 4 users to do research by using individual browsers. At the same time, the users can also contribute ideas and comments. This paper discusses the development processes of the Collaborative and Productivity Suites. Besides that, interesting and engaging lessons conducted in the Interactive Cove will also be presented.

Shaping Students’ Attitudes and Learning of Environmental Issues Through an Environmental Education Virtual World (EEVW)
Low Kah Heng Thomas, Khoo Koon Lye Spencer, Clifford Chua
Kuo Chuan Presbyterian Primary School
Emerging Learner-Enabled Platforms

Synopsis
Pulau Kuo Chuan – a virtual island based in Second Life was designed to provide our pupils with a multi-sensory experience to explore environmental issues in a safe and controlled environment. Unlike traditional models of environmental education, this project takes on a multidisciplinary approach with the integration of English, Science, National Education and Character Development cultivating the elements of civic, language and scientific literacy in the design of its content and tasks, and focusing on environmental issues which plague individuals and nations. With the design and implementation of the Environmental Education Virtual World (EEVW), the school hopes to better
nurture our pupils to be global citizens, engaging them to think deeper on issues that affects the environment. The primary advantage of using Second Life in a complex subject like Environmental Education lies in the provision of an immersive, virtual 3-D environment that allows for synchronous interaction against the backdrop of a pseudo-gaming interface that many digital natives – our students – are well accustomed to. In the design of the tasks in our EEVW, the school adopts an innovative blueprint to prepare pupils to become Self-Directed and Collaborative learners, while at the same time cultivating a love for the environment. Development of the EEVW is being segmented into two phases. Phase 1 addresses biodiversity, conservation, air, land and sea pollution and sustainable energy. Phase 2 will feature waste management (landfills, incineration, recycling plants) and a green city. Currently, schools have expressed interest to make use of our EEVW to extend their students’ learning. In a survey conducted, students have found the EEVW advantageous toward their learning experience in environmental issues. Also, through collaboration and self-directed learning, they were able to understanding topics like ‘Water Pollution’ in their Science syllabus with better breath and clarity.

3M Approach @ Sungei Buloh Wetland Reserve

Ang Liang Tien Terrance, Eileen Ong
Yishun Primary School
Self-directed Learning

Synopsis
Mobile educational devices enable lessons to be carried out seamlessly outdoor. The Primary 4 cohort had a Mobile Trail at Sungei Buloh Wetland Reserve - an authentic learning environment that provided students an “all-senses” experience. The students used the trail to investigate the life cycle of organisms in a mangrove habitat, and compared similarities and differences of mangrove tree characteristics with a garden fruit tree. Teachers facilitated and monitored the learning process of the students. Students assumed the roles of collaborators and self-directed learners by taking greater ownership in their learning, especially in the creation of their mind-maps. Equipped with their mobile devices, the students did audio recordings about their experience during the Mangrove Boardwalk. They also worked collaboratively – sharing information from the internet, and organizing science facts into mind-maps with the use of mind-mapping software, which promotes the retention of knowledge. In addition, they undertook script-writing, storyboarding and video-editing in the creation of podcasts which highlighted their learning. The podcasts were peer-assessed and constructive feedback was given for improvement. Podcasts created by the Primary 4 students were subsequently uploaded to a sharing platform as an educational resource for other levels. The podcasts were thus created by pupils for pupils. To broaden the use of podcasts, their application in other aspects (especially conservation) could include serving as a learning tool on the diversity of living things in Singapore as well as in promoting conservational efforts in the mangrove ecosystem.
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<td>Professional Development Ballroom 1</td>
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<td><strong>Spotlight - Holly Jobe</strong></td>
<td>Igniting Students’ Self-directed Learning</td>
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<td><strong>Spotlight - Teo Chew Lee</strong></td>
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**Recommended for School Leaders**

**Recommended for ICT Mentors**

**BYOL** Bring Your Own Laptop
Feedback On-the-go: Formative Assessment of Self-directed and Collaborative Learning through Mobile Devices (BYOL)

Foo Chek Keng James, Ng Bee Sun, Tan Yah Hui
Cedar Girls’ Secondary School
Student Assessment

Synopsis
In line with the technological advances in the 21st Century, educators seek to nurture their pupils to become Self-directed and Collaborative learners capable of acquiring and co-constructing their own knowledge. By harnessing the affordances of ICT such as mobility, data tracking and analysis, the presenters aim to present their attempt to aid pupils in developing certain habits in acquiring Self-directed and Collaborative learning. Pupils will be more aware of their learning intent through self-evaluative tools. Teachers and observers will also act as assessors of learning by entering classrooms unannounced to obtain snapshots of learning through mobile devices (e.g. iPads). In this hands-on presentation, presenters will share their classroom experiences and demonstrate how they developed online evaluation tools using free web 2.0 tools to help them track, assess and analyse pupils’ levels of learning. The audience will also be invited for a hands-on session where they will act as observers to evaluate a lesson using mobile devices.

Making ASK Visible in a Thoughtful Classroom (Model Lesson)
Choo Shueh Yi, Kolot Suriakumar Menon, David Teo Tai Wei
River Valley High School
Learning Management System

Synopsis
Making ASK Visible in a Thoughtful Classroom: River Valley High aims to foster critical thinking in students engaging in higher order thinking activities. In curricular context, the traditional classroom conveys important information, but does little to develop thinking skills. Our approach is to integrate authentic problem solving in the regular Secondary 2 Science curriculum. The technology solution supports a systematic method of allowing students to engage in metacognition about their critical thinking during authentic problem solving. They will review their performance by annotating on specific segments of the video that was captured during the conduct of the problem solving. Better thinking is fostered through constructive feedback from peers and teachers using the same platform. We adopted the use of Dr. Richard Paul’s model of critical thinking. Students are expected be able to articulate their point of views based on (a) Elements of Reasoning, and (b) Universal Intellectual Standards.
The Use of Online Simulation Game to Promote 21st Century Competencies in Geography (Model Lesson)

Mohamad Khirsyaban Iskandar
New Town Secondary School
ICT Pedagogy/Pedagogical Practices

Synopsis
Students usually view Humanities subjects as rather dry and content-based requiring mostly memory work with not much relevance to their lives. These lessons endeavour to harness students’ interest in gaming to enable them to be more engaged in the Humanities. In this series of lessons, an online simulation game and other ICT tools were used to engage students to be self-directed learners and imbue in them collaborative skills as well as other 21st century competencies. These lessons are modeled after Kolb’s Experiential Learning Cycle. Most students who went through the lessons enjoyed them and learnt the different measures better as they are able to visualise the effects of these measures. This game has to be incorporated with post-game reflections sessions to consolidate their learning. More games could be explored for use in other topics of the Humanities syllabus. This approach is useful for studying disaster-related topics which rarely happen in Singapore such as droughts.

Our Wiki Journey
Tan Ching Ling Rachel, Sng Chee Hiong, Fazila Banu d/o Dhadha Hussain
Poi Ching School
Collaborative Learning

Synopsis
The use of social networking platform, an inclusive platform, provides a breadcrumb trail of processes and product of P4 pupils’ integrated project work. The platform is chosen as it provides multiple pathways to present the processes and product thereby providing pupils with different pathways to showcase their learning and successes. The wiki platform is social in nature, capitalises on the capabilities of ICT to make the presentation of processes and product inclusive. Pupils can present their final products as words, pictures, photographs, video clips or drawings depending on their strengths. It supports SEL, PETALs, Enabling Masterplan 2007-2011 and caters to diverse learners - verbal, non-verbal, literary, visual. It is collaborative in nature – Computer Supported Collaborative Learning - CSCL, is compatible to project work, and encourages agency and self-determination. The wiki platform is able to track processes and product (individual and group accountability) and act as an online repository for products. Based on feedback, pupils have enjoyed their project work and found more than one avenue to showcase their learning. It is virtual and not time bound. Some of the challenges faced include teachers’ buy-in, students’ preference and technical issues.
MR 303

Academic and Non-Academic Student Learning Outcomes for 1:1 Student Laptop Programs: What Can Students Learn With Ubiquitous Access to Laptop?
Matthew Harris
German European School Singapore
ICT Pedagogy/Pedagogical Practices

Synopsis
Based on academic research at five laptop schools, this session investigates how student laptops can be leveraged for the greatest learning impact. Participants will be exposed to the latest scholarship on teaching and learning in one-to-one student laptop programs. Within the classroom, this research shows that laptop programs can significantly change teachers’ roles and functions within the learning process, alter the learning environment, and directly impact the what and how of student learning when each one has a laptop. The session will discuss how laptops can affect a variety of content areas, showing improvement in both depth and breadth of content learning. Additionally, participants will learn about the non-academic student learning experience and how to use that learning for program improvement. The presentation will identify what can be accomplished in a one-to-one student laptop program when conditions are optimal and what factors are most important to when creating those optimal conditions.

MR 304

Growing E-learning Teacher Capability in New Zealand Schools: Achieving the Vision of Young People Becoming Confident, Connected, Actively Involved, Lifelong Learners
Anne Sturgess, Kathe Tawhiwhirangi-Perry, Warren Hall
CORE Education Ltd
Professional Development

Synopsis
Effective use of technology-based tools and strategies is essential if young people are to play their part as global citizens. E-Learning also has an important role to play in increasing student achievement rates, especially for students traditionally underserved within traditional school systems. The NZ Ministry of Education has contracted professional development providers to work with schools to support the transition of teachers and students from ‘learning about ICT’ to ‘learning with ICT.’ While improvement in ICT infrastructure supports e-Learning, it cannot improve student achievement. It is the teacher who interprets and gives effect to policy and who is primarily responsible for ensuring positive learning outcomes for students. A pilot project, carried out in 201, trialed ‘e-Learning Needs Analysis’ tools and a ‘Teaching as Inquiry’ approach to assist school leaders and teachers to inquire into the impact of their application ofICT and e-Learning strategies on student outcomes. As action-researchers in the Pilot Programme in 2011, we will share the challenges, successes, tools, approaches, and processes that were trialed, to develop a model of professional development and learning in blended e-Learning. We will share the recommendations from teachers and school leaders that influenced the proposed post-pilot model.
MR 305

Flipping the Elementary Classroom Through Videos
Jeoff Horwitz
Mary Institute and St. Louis Country Day School
Collaborative Learning

Synopsis
Flipping the classroom builds on the idea that learning can be solidified by teaching it to others and expanding learning outside the classroom walls. I will share how we use flipcams in and out of the classroom as students create tutorial videos for a wide range of subjects and a wide range of viewers. I will also share how we use screen capture technology to flip the classroom and allow learners to access lessons outside of school. Dale’s Cone of Experience points out that we remember more of what we say and do. By giving students the opportunity to teach others what they have learned we can increase their retention. Attendees will: Learn how to create student tutorials in their classroom. Learn tips and tricks to make their tutorial design team successful. Learn how to leverage students as teachers in the classroom to increase metacognition, communication skills, sequencing and creativity. Learn how to use screen capture technology to expand learning outside classroom walls. Through this project, teaching and learning has been impacted because students are responsible for teaching concepts. By teaching a skill or concept to others they must solidify their thinking and be able to explain their thought process thereby activating higher level thinking. I will discuss the challenges faced with this type of project and lessons learned.

MR 306

Teaching and Learning of Science Through the Use of Simulated Environment in the 4 DI Laboratory: Experience, Explore and Elaborate
Brindha Sankar, Oh Mei Ling, Kuah Hui Yeng
Canberra Primary School
Collaborative Learning

Synopsis
In order to stimulate the interest in Science, Canberra Primary School leveraged on experiential learning that enables students to be immersed in a virtual world that depicts the rainforest environment. Learning is an active and constructive process. It depends on rich context, which is being embedded in the 4DI rainforest. This paper studies the extent to which the school’s ICT approach influences students’ self-directed and collaborative learning. The use of the 4 DI Rainforest Theme promotes the use of Self-directed and Collaborative learning in authentic situations. These approaches to learning in the 4 DI Rainforest enable pupils to manage and monitor their understanding of Science (Interactions). The learning through the simulated rainforest allows pupils to take on the role of a Discover, and Global Learner, which is in line with the Canberra Primary School’s Teaching and Learning Framework. We will be piloting this project with four Primary Five Science classes. The pupils will engage in lessons conducted in the 4 DI Laboratory. We will conduct surveys and teachers’ observations along with focus group discussions to record changes in the enthusiasm for learning science. Through this research, we hope to further enhance the positive benefits of using the 4 DI Rainforest
Developing 21st Century Skills and Realising Authentic Science Learning Through the Use of Wiki

Teng Siew Lee, Tang Hui Boon
Compassvale Secondary School
Collaborative Learning

Synopsis
An action research was conducted to explore the use of Wikis as a knowledge construction and communication tool to engage students in science learning. This is in alignment with the learning outcomes of Master Plan 3 (MP3) in Information and Communication Technology (ICT) and Curriculum 2015 (C2015), and in particular the attributes of self-directed learners and active contributors. Currently, teaching and learning practices in ICT may require significant investment in hardware. The team explored the use of readily available ICT tool, PBworks, which is comprehensive and can be easily scaled across all classes. The use of Wiki brings about the affordances of technologies that are lacking in the teaching and learning of science. A series of learning activities were carried out in this Wiki platform. Strategies include students’ critique of science videos embedded within the Wiki and students collaboratively produced summary notes for revision. Findings showed that this innovation has helped to develop 21st century skills. The use of Wiki has extended teaching and learning beyond the classroom and has provided students a platform for the social construction of scientific knowledge by posing questions, giving inputs, interacting and learning from their peers and teachers. In addition, it helped to promote a greater awareness of cyber-wellness among the students.

Don’t Just Substitute, Repurpose!
Andrew Lim Swee Leong, Pauline Tiong, Khoo Ghee Han
Educational Technology Division
ICT Pedagogy/Pedagogical practices

Synopsis
A constant question in the minds of Mathematics teachers when designing an ICT-enriched lesson is how we can improve current practices to create a deep learning experience for our students. Research has shown that there is no direct impact on students’ learning by merely increasing the use of technology. Rather, it is the teaching approaches used in conjunction with the appropriate integration of technology that matters.

In this session, we will be using the TPACK framework to show the connections between technology, pedagogy and content knowledge in Mathematics lesson design. We will also combine the framework with the SAMR model and illustrate with examples of how appropriate instructional approaches with re-purposed technology can transform learning.
It’s Time to Know, a 1-1 Computing Initiative in West View Pri, Using a Guided Constructivist Approach That Promotes Inquiry, Reflection and Collaboration for the Teaching and Learning of Mathematics

Lewis Thong, Esther Chan
West View Primary School
Learning Management System

Synopsis
Since the implementation of ICT masterplan 2, schools have been embarking on numerous projects and programme to integrate ICT into teaching and learning, from the digitising of curriculum to posting e-learning packages online for pupils. Assessing pupils however, remains the domain of teachers. In 2010, MCOnline approached us with an innovative and elegant solution to this. A platform that can track pupils’ performance in real-time. Thus began a journey of discovery for our teachers, an entire cohort of Primary 3 pupils, our partners in education, MConline and Time to Know. Time To Know is a research- and standards-based interactive comprehensive curriculum and digital teaching platform designed to create a stimulating and engaging learning environment. The design, development, and implementation of Time To Know incorporate a guided constructivist approach that promotes inquiry, reflection, and collaborative teamwork for the teaching and learning of math. Delivering a personalized curriculum to every pupil, Time To Know promotes differentiated learning and incorporates intensive scaffolding and mentoring at each stage of instruction. The most compelling reason for using the platform is that it monitors pupils’ progress in real time allowing teachers to plan and execute their intervention plans much faster than in a traditional class. Teachers no longer have to get pupils to sit for standardized tests in class, mark them, analyse the results before planning the intervention programme. The AI embedded in the platform also tracks pupils’ performance as they progress. This allows teachers to assess the effectiveness of their intervention programme and also to provide more challenging activities for pupils who are above-level. The engagement level of our pupils have increased many fold and it is our intent to conduct further lesson studies to improve our pedagogical skills in utilising the platform to bring about greater learning outcomes.

MR 309
SCALE – SCAffold Learning through Edmodo
Farlinah Supaah, Doris Chiang Chiew Huay
Educational Technology Division
ICT Pedagogy/Pedagogical Practices

Synopsis
Teachers are increasingly exploring the affordances of social media environments, such as wikis and blogs, through which learners can interact and collaborate for knowledge creation. Guided by the six principles of language teaching and learning (Contextualisation, Learner-centredness, Learning-focused interaction, Integration, Process orientation and Spiral progression) in the Singapore English Language Syllabus 2010, this paper discusses how Edmodo, a social media environment, enables teachers to model and scaffold language learning for their students. It will also demonstrate how educators can systematically introduce scaffolds to guide their students to identify their learning
Use of Edmodo (Social Networking Site) for Teacher-student Collaboration, Connection and Tracking of Students’ Progress

Jesmine Lim, Lori Kam
Singapore Chinese Girls’ Primary School

Synopsis
Technology and social media had become an integral part of students’ lives. In using Edmodo, an educational social networking platform for teaching and learning, students are nurtured to be self-directed learners, good collaborators and active contributors. Students are guided to take responsibility for their own learning. This pedagogical approach is based on the Constructivism theory as defined by Jean Piaget. With pervasive implementation of Edmodo, teachers have direct interaction with individual student and are able to monitor students’ learning progress in a more structured manner. With Edmodo, students have the opportunity to share knowledge and information with their peers, teach and guide one another in the use of ICT as well as in their school work. Teachers will become facilitators by regulating communication among students, nurturing students to be critical and creative thinkers. Students exercise initiative and are confident in airing their thoughts and opinions. There is mass collaboration among students and between teachers, in the sharing of lesson ideas and teaching resources. The challenges faced are to achieve 100% students’ participation and the time that teachers need to spend time online to communicate and collaborate with students. The future plan will be working towards one-to-one computing for the students.

MR 310
The Rise of Li’ Ttledot: a Study on How Game-based Learning Can Promote National Education, Thinking Skills and Collaborative Learning

Matthew Ong, Educational Technology Division
Kenneth Y T Lim, National Institute of Education

Synopsis
This presentation aims to share research findings on how game-based learning might be used to complement regular curriculum efforts to promote values of National Education (NE), develop Thinking skills and foster Collaborative Learning. Building National identity and pride is crucial for all citizens. It is particularly important for young primary school students as it forms the bedrock of their understanding of the country. NE is, however, a subject that cannot be
Interactive Learning with SMARTphones: Educational Field Studies

Wong Sok Foon, Phyllis Pham, Yehidaah Beevi
Clementi Town Secondary School
Emerging Learner-Enabled Platforms

Synopsis
The ownership of SMARTphones among our students, the digital natives, is increasing. These devices allow users to access the Internet, record sound/video and even have GPS functions to help in navigation. There is immense potential of this technology to support learning. This research investigates the effects of the use of SMARTphones to transform the traditional Geography and History field studies towards broadening and deepening students’ understanding of content knowledge, and develop their competencies for self-directed and collaborative learning.

With the SMARTphones, students can get real-time feedback of their progress, this enables the students to monitor their own learning and hence take greater ownership of their own learning. Teachers can also track students’ progress on the field trip and intervene when necessary. The project which started in 2009 had shown that students enjoyed the learning experience though there were hiccups with the technology. In 2011, we partnered IDA to further refine the project to enhance the learning experience for our students using a new version of the authoring software for android phones.

Project Champions: Mrs Wong Sok Foon, HOD ICT Ms Phyllis Pham, HOD Humanities Mdm Yehidaah, SH/History Teachers: – Emmeline Teng, Lee Zong Geng, See Chee Wah, Haslinda, Sandy Ee AED: Mr Tan Muhd Hafidz Project partners: - ETD - iDA – LDR

MR 312
Using Blended Learning In The Teaching of Narrative Writing Process

Ghazali Bin Mohamed Ibrahim
Springfield Secondary School
ICT Pedagogy/Pedagogical Practices

Synopsis
The Narrative Writing Process is developed with two main objectives, firstly to find out whether the four sources of self-efficacy introduced through blended learning will enhance students’ writing self-efficacy and academic performance and secondly, to investigate the impact of creating an e-collaborative environment for self-directed learning using web
Is Blended Learning the Way to Go for EL Teacher Development? - Action Research into Its Use in English Language Institute of Singapore Flagship Courses

Joy Lee, Audrey Lee
English Language Institute of Singapore
Professional Development

Synopsis

The English Language Institute of Singapore was set up in 2010 with the primary goal of supporting the national effort to enhance the standard of EL pedagogy and proficiency of teachers. The key strategy to achieve this was our flagship courses that were between 12 to 15 hours long. This duration was important for deep learning that covered not just pedagogical knowledge and skills, but also content knowledge. Recognising that teachers may not be able to afford so much time in their busy schedules, the blended learning approach to our flagship courses was planned to tap ICT tools and teacher ICT competencies for more flexible professional development in a time-scarce system. In the March 2011 course run, blended learning was first explored. Teacher participation in the online activities, however, was dismal. For this action research project, a preliminary investigation was conducted to collect data as part of a review of the approach. The intervention designed was based on the hypothesis that more protected time and support structures had to be provided to both course facilitators and participants. The intervention measures were planned and implemented in the July course run. These included the just-in-time training for course facilitators and the structuring of a whole three-hour online module in between other face-to-face modules. Teacher participation, in terms of numbers and task completion improved significantly. However, the quality of participation, for example in the online discussion interactions, was not so apparent. Plans to address this and other challenges in the design of the next intervention will be shared.
# IDA Edvantage Experience Hands-on Workshops
29 March 2012 - Hall 402

## Classroom 1

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<th>Time</th>
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<tr>
<td>10.30 am - 11.30 am</td>
<td><strong>amBook®</strong> Enjoy hands-on exploration of an interactive Science textbook and analyse its congruency with the 5Es Instructional Model. Learn how to extend this analysis to derive lesson ideas using the content presented to promote inquiry-based learning.</td>
</tr>
<tr>
<td>11.30 am - 12.30 pm</td>
<td><strong>3D Hive</strong> Learn how to use 3DHive to make and play 3D games-for-learning in the classroom. Designed to be used by teachers it is easy to use and requires no technical skills.</td>
</tr>
<tr>
<td>12.30 pm - 1.30 pm</td>
<td><strong>Learning On The Move Tools</strong> Learn how to efficiently create highly interactive and customised mobile trails, fused with location-based technology such as GPS, Blue-tooth and Image Recognition (IR), using a rapid authoring tool.</td>
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<td>2.30 pm - 3.30 pm</td>
<td><strong>G Element Learning Trails System</strong> Learn how to how to create, edit and share rich-media learning trails. Understand how different learning trails can be merged to enable students to analyze and draw insights to geographically-based problems.</td>
</tr>
<tr>
<td>3.30 pm - 4.30 pm</td>
<td><strong>i-CoLab</strong> Learn how to harness the benefits of web 2.0 for teaching and learning and effortlessly capture written information and data onto iCoLAB, for teaching, learning, and collaboration.</td>
</tr>
<tr>
<td>4.30 pm - 5.30 pm</td>
<td><strong>VARK</strong> Learn how the VARK solution is able to customise Secondary Science teaching media to suit the different student learning preferences namely Visual, Aural, Read/Write, and Kinesthetic.</td>
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## Classroom 2

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<td>10.30 am - 11.30 am</td>
<td><strong>Managed Assessment Portfolio System (MAPS)</strong> Learn how MAPS can give an insight to how students have been communicating within their groups with the Social Networking Analysis Toolset. Learn how the Semantic Indexing Tool allows predictive marking based on previous marking criteria.</td>
</tr>
<tr>
<td>11.30 am - 12.30 pm</td>
<td><strong>Imprints</strong> Learn how an advanced electronic portfolio management system can enable teachers to assess student learning via performance-based assessments and organize, direct, reflect, share and present student and teacher experiences.</td>
</tr>
<tr>
<td>12.30 pm - 1.30 pm</td>
<td><strong>NAS Learning Dashboard (NASLeaD)</strong> Learn how to create and customise personalised lesson packages for different learner types with the interactive virtual learning management platform.</td>
</tr>
<tr>
<td>2.30 pm - 3.30 pm</td>
<td><strong>WriteToLearn™</strong> Learn how this unique automated essay and summary writing scoring engine can lessen the workload of marking for teachers by evaluating the meaning of text based on the Singapore marking rubrics with new content that includes Singapore examination styled essay topics.</td>
</tr>
<tr>
<td>3.30 pm - 4.30 pm</td>
<td><strong>MyV – Interactive Learning on the Cloud</strong> Explore a rich and immersive virtual world and create 3D scenarios for collaborative role-play with MyV, an interactive 3D virtual learning environment on the cloud with diverse tools that supports teaching and enhance learning experiences for primary school students anytime, anywhere.</td>
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</tr>
<tr>
<td>1.30 pm - 2.30 pm</td>
<td><strong>i-CoLab</strong> Learn how to harness the benefits of web 2.0 for teaching and learning and effortlessly capture written information and data onto iCoLAB, for teaching, learning, and collaboration.</td>
</tr>
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### Classroom 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Workshop Title</th>
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<tbody>
<tr>
<td>9.30 am - 10.30 am</td>
<td><strong>Managed Assessment Portfolio System (MAPS)</strong> Learn how MAPS can give an insight to how students have been communicating within their groups with the Social Networking Analysis Toolset. Learn how the Semantic Indexing Tool allows predictive marking based on previous marking criteria.</td>
</tr>
<tr>
<td>10.30 am - 11.30 am</td>
<td><strong>Imprints</strong> Learn how an advanced electronic portfolio management system can enable teachers to assess student learning via performance-based assessments and organize, direct, reflect, share and present student and teacher experiences.</td>
</tr>
<tr>
<td>11.30 am - 12.30 pm</td>
<td><strong>HeuX</strong> Learn how personalised learning can be more effective and efficient with a uniquely designed interactive Lesson Delivery Management System with collaborative tools.</td>
</tr>
<tr>
<td>12.30 pm - 1.30 pm</td>
<td><strong>WriteToLearn™</strong> Learn how this unique automated essay and summary writing scoring engine can lessen the workload of marking for teachers by evaluating the meaning of text based on the Singapore marking rubrics with new content that includes Singapore examination styled essay topics.</td>
</tr>
<tr>
<td>1.30 pm - 2.30 pm</td>
<td><strong>MyV – Interactive Learning on the Cloud</strong> Explore a rich and immersive virtual world and create 3D scenarios for collaborative role-play with MyV, an interactive 3D virtual learning environment on the cloud with diverse tools that supports teaching and enhance learning experiences for primary school students anytime, anywhere.</td>
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<tr>
<td>Time</td>
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<tr>
<td>11.00 am - 11.30 am</td>
<td>Microsoft Singapore</td>
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<td>11.30 am - 12.00 pm</td>
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<td>2.30 pm - 3.00 pm</td>
<td>National Instruments</td>
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<td>3.00 pm - 3.30 pm</td>
<td>Fuji Xerox</td>
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<td>Sony Electronics</td>
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<td>4.00 pm - 4.30 pm</td>
<td>Civica</td>
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<td>4.30 pm - 5.00 pm</td>
<td>Civica</td>
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Sponsors’ Presentations
29 March 2012

11.00am – 11.30am

An Exploratory Study of the Implementation of 1-to-1 Computing in a Secondary School in Singapore

Adrian Lim, Ngee Ann Secondary School
(Sponsored by Microsoft Singapore)

Synopsis
This study presents the experiences of students and teachers in a 1-to-1 computing environment in Ngee Ann Secondary School. A 1-to-1 computing environment in this study is defined as each student having access to one computer device (in this case, a Windows slate computer) throughout the daily class time in the school. The device is available to them throughout the day and they are allowed to bring their slate computer home. The study also focuses on a fundamental aspect that is critical to the success of any 1 to 1 computing initiative - teacher competence and readiness in designing and conducting the learning activities with the use of ICT.

11.30am – 12.00pm

Service Learning as a Science Enrichment: A Different Take on Service Learning

Chen Siyun, Chestnut Drive Secondary School
(Sponsored by Microsoft Singapore)

Synopsis
Bearing in mind MOE’s C2015 desired students outcomes, we aim to develop instructional programs that are pupil-centred and enriching. This project led the secondary 1 students through a journey of international collaboration, learning about the problem of clean water source in another country and understanding about Singapore’s own water source, which is part of their National Education. Together, as scientists, the students from both countries would collaborate to solve an authentic pressing issue on the lack of clean water source in a village in Indonesia. The final product, a cumulating of the collaboration would be carried out by the Indonesian students in the village. It is a twist to conventional service learning, where the students could help others without leaving the country, yet gaining curriculum knowledge and 21st century skills while helping others. Overall, the students benefit tremendously, developing 21st CC, deepening their understanding of the curriculum and developing their character by taking ownership of their own service learning project. The project addresses all components needed for a holistic education for the students. Steps and processes taken to design this lesson package will be shared.
2.30 pm – 3.00pm

Engaging Students in Self-directed Learning Using LabVIEW

Preston Tay Tzu Lin, Hai Sing Catholic School
(Sponsored by National Instruments)

Synopsis

Aligned to ICT Masterplan3, Hai Sing Catholic School has collaborated with National Instruments (NI) to design a teaching package incorporating the use of an ICT Tool (LabVIEW) to be used as a teaching aid to deepen students’ understanding of abstract Mathematical concepts like Differentiation, Integration and Geometrical Proofs and Design & Technology topics, like electronics. Concurrently, the Labview software can also be used to develop students’ competency for Self-Directed Learning.

This pilot project aims to:

1. Enhance teaching and learning of Additional Mathematics topics such as Geometrical Proof, Differentiation and Integration and Design and Technology’s electronic elective through effective use of Labview as an ICT tool.
2. Explore the use of Labview to engage students in Self-Directed Learning to apply their understanding to answer higher order questions and real-life application of Mathematics and Design and Technology.

Teachers will assist the NI engineers to develop the teaching package by providing the lesson requirements and core concepts for the different topics. Students will be exposed to real-life simulations and applications of Mathematics through the use of the LabVIEW software. Students’ learning will be further reinforced through Self-Directed Learning to solve additional problems which require the skills of higher order thinking.

Through this collaboration with NI, we hope that teachers can facilitate ICT, enriched learning experiences to help students to visualise abstract topics in Mathematics and D &T. Students can now be engaged in Self-Directed Learning (SDL) where they can be given instant feedback during their self-assessment sessions using the Labview programme.
Sponsors’ Presentations
29 March 2012

3.00pm - 3.30pm

Document Management and Output Management Solutions for a Greener Campus
Chang She Liung
(Sponsored by Fuji Xerox Asia Pacific)

Synopsis
The challenges confronting today’s educational institutions are enormous. Schools and universities alike must constantly seek to reduce their costs while improving the speed, quality and availability of information and print output.

Document management and printing typically account for 15% of an organisation’s revenue, and that figure can be even higher in document-intensive environments like educational institutions. Fuji Xerox can save organizations between 20% - 40% of your document management costs, while improving print quality and availability, and freeing up staff to focus on core activities.

Through this presentation, we identify the issues and pains experienced in the daily management of your documents and share with you how we help you. Understand the benefits that you will experience through our technology and look at how we have helped educational institutions from around the world including Singapore.

Audio Video–Information Technologies (AV-IT) in Campus
Dennis Kom Wei Kheong
(Sponsored by Sony Electronics)
ICT Pedagogy/ Pedagogical Practices

Synopsis
Traditional static one- way delivery of lesson plan is fast becoming obsolete. This presentation is intended to provide the latest trends in audio visual technologies that could be implemented in the classroom to enhance the learning experience.

A quick overview on mainstream technologies for projector, videoconferencing, IP (internet Protocol) monitoring, digital signage and video production will be presented.
It also serves as a guide to better understand the technologies and how it could be implemented to reap the benefits.
4.00pm - 4.30pm

Libraries beyond physical spaces – some highlights and challenges of the digital world

Philip Barr
(Sponsored by Civica)

Synopsis
As the world moves at a steady pace, away from the physical towards the digital, so to do our libraries. The demand, and expectation, for access to library materials is now 24/7. Libraries worldwide are responding to this need by providing a suite of resources and services for the online library community.

However, as we have seen in recent times there are still many challenges faced for the library service to provide an online library service that is equal to the physical in terms of resources offered to users.

For example, Digital Rights Management (DRM) has seen publishers withdraw their e-books from libraries due to perceived security concerns.

Despite these challenges, enabling online reading and learning communities through libraries is a continued highlight for those involved. Through the innovative use of technology, libraries can not only shift into, but evolve into the digital.

4.30 pm – 5.00 pm

Do computers and classrooms mix?

Nigel Wing
(Sponsored by Civica)

Synopsis
Over the past 10 years the use of computers in the classroom has become prevalent in developed economies. The adoption and use of technologies such as computers in the school is frequently considered an important part of education.

As the progression towards a knowledge based workforce continues we should continue to assess the utility of tools, whether they are traditional or computer oriented, to a lifetime of change. While it is certainly the case that pupils are exposed to the rapid change of the consumer experience outside school, inside schools there is an increasing trend towards the use of the current corporate style of tightly controlled platforms designed for low cost easy maintenance.
<table>
<thead>
<tr>
<th>Time</th>
<th>Sponsor</th>
<th>Title of Presentation</th>
<th>Venue</th>
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<tbody>
<tr>
<td>8.30 am - 9.00 am</td>
<td>Discovery Education</td>
<td>The Use of Digital Assets and Professional Development to Enhance Non-cognitive Factors in Raising Students’ Achievement</td>
<td>MR 311</td>
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<tr>
<td></td>
<td>EON Reality</td>
<td>Use-cases of Interactive “3D Simulation based Learning” in Singapore, US and Africa</td>
<td>MR 307</td>
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<tr>
<td>9.00 am - 9.30 am</td>
<td>Sony Electronics</td>
<td>Unleashing Creativity with Sony Video Innovation</td>
<td>MR 311</td>
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<td></td>
<td>BenQ Singapore</td>
<td>Smart Classroom in the Future</td>
<td>MR 307</td>
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<tr>
<td>9.30 am - 10.00 am</td>
<td>Microsoft Singapore</td>
<td>Crescent Girls’ School Integrated Curriculum</td>
<td>MR 311</td>
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<tr>
<td></td>
<td>Civica</td>
<td>Redesign Your Future – Students Reinvent Libraries, Control Their Reading Journeys</td>
<td>MR 307</td>
</tr>
<tr>
<td>10.00 am - 10.30 am</td>
<td>Microsoft Singapore</td>
<td>Online Market Place</td>
<td>MR 311</td>
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<tr>
<td></td>
<td>Civica</td>
<td>Coping with Data and Content: An Educator’s Nightmare?</td>
<td>MR 307</td>
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<td>Samsung</td>
<td>Samsung Solutions For The Smart, Connected School</td>
<td>MR 307</td>
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<tr>
<td>11.00 am - 11.30 am</td>
<td>Pearson</td>
<td>Next Generation Assessment for Learning</td>
<td>MR 311</td>
</tr>
<tr>
<td>11.30 am - 12.00 pm</td>
<td>Pearson</td>
<td>Learning Efficacy Delivered Through Analytics</td>
<td>MR 311</td>
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</tbody>
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The Use of Digital Assets and Professional Development to Enhance Non-Cognitive Factors in Raising Students’ Achievement

Hall Davidson
(Sponsored by Discovery Education)

Synopsis
Non-cognitive factors are defined as those not directly involved in immediate teaching and learning activities. Rather, these factors relate directly to student self-perception in targeted academic areas. The use of digital assets and content creation by students have been shown to powerfully influence student achievement in traditional curriculum assessments (USA state and national assessments, ET AL). Media and technology can be powerful tools as Non-cognitive project components. Student examples will be highlighted. Students and teacher-guided projects in mathematics, science, and self-esteem will shown and a structured process for implementing projects to impact non-cognitive factors in student achievement, credit recovery, will be explained. Research across curriculums will be cited. Technology is a powerful agent for implementing strategies to boost achievement through non-cognitive factors in a broad spectrum of students including special needs students, at-risk students, and the gifted student.

Use-cases of Interactive “3D Simulation based Learning” in Singapore, US & Africa

Mats W Johansson
(Sponsored by EON Reality)

Synopsis
Global studies have shown that interactive 3D lessons can increase attention levels in the classroom with up to 100% and test scores with more than 35%. With the growing access to information of various forms of multi-media (like interactive 3D Content, images, videos, encyclopedias, websites etc.), there is a growing necessity for teachers to aggregate these content together to knit a well-balanced teaching plan. It is also essential to enable the efficient use of technology and information in a quick and well-structured way for enhancing classroom teaching. Software for achieving these objectives and for easily creating 3D-Interactive simulation-based learning environments for educational concepts was implemented to help learners understand complex and abstract concepts through interactive simulations. Improving motivation of the learner by actively engaging them with these blended learning environments resulted in higher retention of abstract and complex concepts. Learning performance could also be enhanced by integrating visualized learning with simulation based learning activities which also lead to increased cognitive and self-directed learning situations.
9.00am – 9.30am

Unleashing Creativity with Sony Video Innovation

Dennis Kom Wei Kheong  
(Sponsored by SONY ELECTRONICS)

Synopsis
Sony is a key innovator of the broadcast and production technology in the market. With its numerous breakthroughs in technologies, it offers the education sector a new way to unleash the creativity of the students and bring the teaching experience to a new interactive level.

Smart Classroom in the future

Jay Lim  
(Sponsored by BENQ Singapore)

Synopsis

9.30am – 10.00am

Crescent Girls’ School Integrated Curriculum

Claudia Ting, Crescent Girls’ School  
(Sponsored by Microsoft Singapore)

Synopsis
Meta-analysis on technology has documented positive effects on teaching and learning with technology enabling students to be motivated and perform better in the relevant field of study. This project examines the impact of Interactive Digital Media (IDM) in a 1-1 computing, campus-wide wireless environment on the achievements and motivated strategies for learning among Sec 2 (Grade Eight) students at Crescent Girls’ School after undergoing Integrated Curriculum, involving English Language, English Literature and History. IDM-enabled technologies such as Discussion Forums, Blogs, Google Docs and other Web 2.0 tools were employed in teaching and learning for the experimental group to engage students in collaborative work and co-construction of knowledge during the course of the programme. To evaluate the effectiveness of IDM-enabled tools in enhancing their learning, the achievements in the performance task done by the students in both experimental group (two classes) and control group (two classes) was analysed. An analysis on their motivation level and learning strategies before and after the intervention period was also conducted to review the differences between the two groups.
Redesign Your Future – Students Reinvent Libraries, Control Their Reading Journeys

Emerald Leung
(Sponsored by Civica)

Synopsis
Whilst the materials and programmes in a school library are important, the physical structure too can go a long way to enhance the learning experience by creating an inspiring and welcoming environment.

In mid-2011, Civica launched a nationwide competition for all secondary schools students to submit ideas on how they would redesign their school libraries to encourage readership and library participation. After submissions were received, five schools were chosen as finalists to present their library vision to the panel of judges, with the aim of being awarded $30,000 to turn this vision into reality.

This presentation will give an overview of the library redesign competition and highlight many of the creative and innovative ideas that have straight from minds of students. It has reinforced our belief that students are vital in creating the space they engage in; as they will be able to influence the experience of that environment, express themselves, and connect with others in the way that is comfortable to them.

10.00am – 10.30am
Online Market Place

Goh Yen Ting
St Hilda’s Primary School
(Sponsored by Microsoft Singapore)

Synopsis
Nowadays, online shopping is very common with Amazon and E-bay, etc. With the use of the AsknLearn discussion forum, we are able to simulate real-life forum marketplace which people buy and sell products online. This activity makes learning authentic and allows students to apply what they have learnt in Percentage in real life situations.

With this activity, students learn and experience how it is like to be shopping for items online and what they have to look out for during online shopping. For example, they learnt that they have to source for the best deals and to bargain for a better deal by calculating discounts. They also learnt difference between original price and selling price and how to calculate 7% GST. In the real-life online shopping, we usually have to pay additional shipping fees and misc. charges but these are replaced by a simple 7% GST in this activity. Students also learnt how to calculate the discounted price based on the original using percentage. In the activity, the students also learnt to create sales advertisement to attract buyers.

Most importantly, the students get to experience the role of a buyer and seller and understand the concerns from both parties during purchasing and selling. The lesson allows students to explore, discuss and relate to the real-world.
Coping with Data and Content: An Educator’s Nightmare?

Jason Doery
(Sponsored by Civica)

Synopsis
Over the past 5 - 10 years, principals, teachers and many other educators have been grappling with the challenges faced with learning in an ICT-rich environment. With the increased focus on delivering 21st century learning skills, schools have embarked on many new initiatives including implementing learning management systems, content management systems, online assessments systems and school management systems. The advent of the social media platforms and the latest technologies such as geo-tracking and gesture-based learning have also added new dimensions to learning as can be seen with the increasing use of virtual learning trails, mobile platforms, etc in learning. Our schools’ IT systems are becoming more complex by the minute. We are seeing more specialised online activities and learning management systems that support specific learning outcomes, pedagogies and disciplines.

All these implementations, with the good intent to encourage and support the different modes of teaching and learning as well as providing an enabling environment to help our students achieve their maximum potential, are resulting in a staggering amount of data and content being created in disparate systems.

With all these data and content that are being generated, and the rate at which they are growing, how are educators coping now and in the future? Planning now, may save us a nightmare in the future.

10.30am – 11.00am

Samsung Solutions For The Smart, Connected School

Winston Goh
Samsung Asia Pte Ltd
(Sponsored by Samsung)

Synopsis
Samsung is planning to introduce new tools that can make education a much more enjoyable and learner-centric experience. This presentation will give a quick overview of some of those tools.
11.00am – 11.30am

Next Generation Assessment for Learning
Frank Koo
(Sponsored by Pearson)

Synopsis
Technology has enabled the advancement of assessment methods and usage to better support educators in evaluating learning outcome. This session shares the evolution of online assessment and how this can be used to improve teaching and learning. The session also discusses considerations to be given for implementing an online assessment programme at school and national level.

11.30am – 12.00am

Learning Efficacy Delivered Through Analytics
Karl Engkvist
(Sponsored by Pearson)

Synopsis
“All politics is local” once said the American Congressman Tip O’Neill, but he could have been talking about education. As much as we all want to think globally, there is always the tidal undercurrent of being impacted by what is and is not working in our local communities. Across our global student base, each year more than 100 million students learn using our content and other resources. From this vantage point, we have witnessed a dramatic shift towards the use of Analytics to help inform teachers and academic leadership. This session will provide a survey of some of the most intriguing uses of data in order to create virtuous cycles of improvement in the teaching and learning experience.
Website: http://www.microsoft.com/education/ww/Pages/index.aspx

Microsoft in Education
At Microsoft, we are deeply committed to working with governments, communities, schools, and educators to use the power of information technology to deliver technology, services, and programs that provide anytime, anywhere learning for all. Our education vision is to help expand the power of education for all through personalized learning.

Underlying this vision are four core beliefs:
• An excellent education is a basic right and a socioeconomic imperative
• Technology can economically accelerate insight and impact
• Effective, immersive learning experiences inspire improved outcomes
• Communities of committed, collaborative participants are essential to advancing education

Through the Microsoft Partners in Learning program, a 10-year, $500M global initiative, we work with schools and educators to improve teaching and learning practices; optimize the use of technology within pedagogy to improve learning outcomes; and help every student receive an excellent education and gain the skills they need in work and life.

We aim to enable teachers get the training and skills they need to use information technology to improve teaching and learning; to help students gain access to dynamic, engaging, and personalized digital curricula; and to ensure that everyone involved - from teachers and administrators to students, parents, employers, and government officials - can connect and collaborate through communities that make learning a lifetime endeavor for everyone, both inside and outside the classroom.
Civica achieves transformational change in today’s library and learning solutions. As a global supplier of library consultation and staffing, software and collection management services, and educational ICT infrastructure, Civica Library & Learning partners with educators, government authorities, and professional organisations to build a culture of reading, discovery, and learning. Together with its offices in the UK, Australia, New Zealand, Taiwan, and Hong Kong, we merge this vision with today’s commercial practices to deliver solutions based on learning outcomes, pedagogies, and public access to knowledge.
Website: [http://www.pearson.sg](http://www.pearson.sg)

Pearson is the world’s leading learning company. Our portfolio includes Penguin, the Financial Times and our educational business, Pearson International. Imprints including Longman and Prentice Hall combine 150 years of experience with online support for every learner. We made major investments in education policy, research and development every year. We believe that it is vital to link curriculum, content, assessment and professional development of teachers in a much more systematic way to make the whole process of teaching and learning more effective. We and our colleagues, in more than 70 countries and over 100 languages, look to share this belief with our partners and learners.

We have been rooted in Singapore since 1965. Over the years, we have been publishing textbooks and educational materials for our Singapore children, from pre-school to adult learning in almost all subjects. On the tertiary education front, Pearson Singapore office houses the regional publishing centre for the region for Asian Original titles which showcase the world our great eastern perspective.

As referred to in the recently-published McKinsey report as well as the re-organisation at MOE, Pearson is ready to support the teaching community beyond familiarisation of our materials and to provide research-based but hands-on professional development services in forms of continuous workshops and courses to our educators in Singapore to hone their skills in assessment, teaching of higher order and 21st Century skills and more alongside NIE and other local teacher training service providers.

At Pearson, we take learning personally. Our courses and resources are available as books, online and via multi-lingual packages, helping people learn whatever, wherever and however they choose. Every day our work helps learning flourish, and wherever learning flourishes, so do people. We will continue to support and contribute to make Singapore Education recognised worldwide.
National Instruments is transforming the way engineers and scientists design, prototype and deploy systems for measurement, automation and embedded applications. NI empowers customers with off-the-shelf software such as NI LabVIEW and modular cost-effective hardware, and sells to a broad base of more than 30,000 different companies worldwide, with its largest customer representing approximately 4 percent of revenue in 2010 and no one industry representing more than 15 percent of revenue. Headquartered in Austin, Texas, NI has approximately 6,100 employees and direct operations in more than 40 countries. For the past 12 years, FORTUNE magazine has named NI one of the 100 best companies to work for in America.

Sony manufactures audio, video, communications and information technology products for the global consumer and professional markets. Professional Solutions Singapore (PSS) is established as a division company under Sony Electronics (S) Pte. Ltd. It markets Sony’s leading broadcast systems, professional video and audio products, as well as videoconferencing, medical and surveillance systems in South East Asia. It also provides customised business solutions, comprehensive technical support and after-sales service to help Sony’s customers stay at the forefront of their business.
Website: http://www.samsung.com/sq/

Samsung Electronics Co., Ltd. is a global leader in semiconductor, telecommunication, digital media and digital convergence technologies with 2011 consolidated sales of US$143.1 billion. Some of the company’s independent business units are Digital Media & Communications, comprising of Visual Display, Mobile Communications, Telecommunication Systems, Digital Appliances, IT Solutions, and Digital Imaging.
Discovery Communications (NASDAQ: DISCA, DISCB, DISCK) revolutionized television with Discovery Channel and is now transforming classrooms through Discovery Education. Powered by the number one nonfiction media company in the world, Discovery Education combines scientifically proven, standards-based digital media and a dynamic user community in order to empower teachers to improve student achievement. Already, more than half of all U.S. schools access Discovery Education digital services. Explore the future of education at www.discoveryeducation.com
Bronze Sponsors

Product Website: [http://www.eonexperience.com](http://www.eonexperience.com)

EON Reality is a privately held US corporation based in Irvine, California and with offices in Singapore and Sweden. The Company is the world’s leading interactive three-dimensional (3D) content management software provider. Its software tools and applications give educational institutions and enterprises the ability to create realistic and authentic experiences based on interactive-3D visualization technology, which fosters a direct and intuitive interaction with real-world perspectives for training, marketing & entertainment applications.

www.eonexperience.com platform provides educators and students access to online library of interactive-3D content and lesson plans that provide pedagogical affordances. The cloud-based platform focuses on providing a complete ecosystem of learning with software tools like EON Creator and EON Coliseum that integrates with the Library and allows teachers and students to create 3D blended-learning experiences with rich interactive features and publish it on their 3D display systems.
Qualcomm Incorporated (NASDAQ: QCOM) is the world leader in 3G and next-generation mobile technologies. For more than 25 years, Qualcomm ideas and inventions have driven the evolution of wireless communications, connecting people more closely to information, entertainment and each other. Today, Qualcomm technologies are powering the convergence of mobile communications and consumer electronics, making wireless devices and services more personal, affordable and accessible to people everywhere.

Qualcomm believes access to 3G and next-generation mobile technologies can improve people’s lives. Qualcomm’s Wireless Reach initiative is a strategic program that brings wireless technology to underserved communities globally. By working with partners, Wireless Reach invests in projects that foster entrepreneurship, aid in public safety, enhance the delivery of health care, enrich teaching and learning and improve environmental sustainability. For more information, please visit www.qualcomm.com/wirelessreach.
BenQ is one of the world’s top-performing IT companies and a global brand name recognized for its digital lifestyle devices. This year marks its first decade celebrating its number-one status in DLP projectors, worldwide and in the classroom, as well as its short-throw and interactive DL projector leader around the globe.

Classrooms have changed, with the advent of new technologies and tools to make teaching and learning better for students and educators. As a world-renowned pioneer in today’s digital convergence era, BenQ has taken its vision for a higher level of freedom, productivity, simplicity and enjoyment into the classroom in a big way.
The iCTLT 2012 Organising Committee would like to thank the following and all who have contributed in one way or another to the success of the conference:

**Schools**

Beacon Primary School  
Canberra Primary School  
CHIJ Our Lady of the Nativity  
CHIJ Secondary (Toa Payoh)  
Crescent Girls’ School  
Evergreen Secondary School  
Greenridge Primary School  
Hong Wen School  
Hougang Secondary School  
Hwa Chong Institution  
Jurong Secondary School  
Rulang Primary School  
School of Science and Technology, Singapore  
Stamford Primary School  
Teck Ghee Primary School  
Yuhua Secondary School

**Supporting Partners**

Infocomm Development Authority of Singapore  
National Institute of Education  
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**Workshop Trainers**

Hozefa Aziz Singapore Wala, LEGO Education  
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John McGeachie, Evernote (USA)  
Elizabeth Lam, National Library Board (NLB)  
Tan Kah Chye, Addest Technovation Pte Ltd  
Spario Soon, Learning Interactive Pte Ltd  
Sangeet Bhullar, WISE KIDS  
Andrew Watchorn, National Instruments

**Conference Launch Animation**

Lian Yuanlong